

Parks and Open Space Areas Management In Saudi Arabia Cities

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Abstract-- Zusammenfassung

Städtische Parks und Grünflächen stammen noch aus der europäischen Historie. Jedoch haben die moderne Technologie, das Wachstum von Großstädten und die Bevölkerungsexplosion bestimmte Wirkungen auf die Methoden, wonach Parks heutzutage entworfen und verwaltet werden. Das Königreich Saudi-Arabien als dürres Land bedeutet eine besondere Herausforderung für Parkverwalter und -pfleger, da die Regierung die wichtige Rolle, die Grünflächen in der menschlichen Entwicklung spielen, erkennt. Trotzdem ist es schwierig, Pläne für effiziente und attraktive Grünflächen umzusetzen, da Saudi-Arabien unter schwerem Wassermangel leidet. Außerdem bestehen viele Städte aus einer Mischung von alten und neuen Baustilen für Häuser und Straßen. Die deutsche Stadt Hannover wird als Kontrast für Saudi-Arabien angewendet, um einen Vergleich zwischen den deutschen und arabischen Organisationssystemen zu ermöglichen und Möglichkeiten darzustellen, wie die Verwaltung und Pflege der Grünflächen in Saudi-Arabien optimiert werden können.

Diese Dissertation konzentriert sich auf eine Analyse des Verwaltungssystems für Parks und offene Flächen, das in den Städten Saudi-Arabiens aktuell verwendet wird. Das Ziel ist es, die Situation der Parks und offenen Flächen in vier ausgewählten Städten zu untersuchen, sowie die Politik und Richtlinien, die die Grünflächenverwaltung in Saudi-Arabien steuern.

Ich fange an mit der Geschichte des Parks im Laufe der Zeit und die Entwicklung von Stadtparks in der ganzen Welt. Ich beschreibe Parkfunktionen und bekannte Klassifizierungssysteme für Parks und offene Flächen. Zusätzlich werden die Eigenschaften der Parkverwaltung, Operations- und Pflegeanforderungen und ihre Verpflichtungen und Methoden identifiziert. Außerdem gebe ich einen Überblick über die aktuell angewandten Methoden in elf internationalen Städten, die sich aktiv für Grünflächenverwaltung engagieren. Meine Dissertation vermittelt Informationen über Saudi-Arabien wie z. B. das Klima, die Topographie, das politische System, Demographie und die Gesellschaft im Allgemeinen. Ich stelle dar, wer für Parks zuständig ist, welche Richtlinien im System zum Tragen kommen, um die Arbeit zu organisieren und Ressourcen wie Wasser zu verwalten und welche Faktoren die arabische Landschaft betreffen.

Die Forschung widmet sich vier Städten in Saudi-Arabien, die als Beispiele für Parks und Grünflächenverwaltung beschrieben werden. Die ausgewählten Städte sind: Riyadh, Medina, Jeddah und Tabuk. Riyadh als Hauptstadt und die anderen Städte sind Hauptthema eines Fragebogens hinsichtlich Parks und offene Flächen. Ich stelle die Geschichte von diesen Städten dar, um Licht auf ihren Hintergrund, ihre Entwicklung sowie auf die architektonischen Eigenschaften jeder Stadt zu werfen. Andere Schwerpunkte sind die Organisationsstruktur jeder Stadt und die Funktion der kommunalen Abteilungen für Park- und Grünflächenverwaltung. Meine Dissertation vermittelt die Zusammensetzung der zuständigen Behörde und die tatsächliche Situation der Parks, der Politik, Parkarten, Komponenten und die angewandten Operations- und Pflegesysteme. Es wird untersucht, wie die Parks in den verschiedenen Stadtvierteln verteilt sind und wieweit jede kommunale Regierung die leitenden Kriterien für diese Verteilung verfolgt, die von dem Ministerium für Kommunales und Ländliches erteilt werden. Die Studie untersucht auch die Zukunftsvision für jede Stadt und bietet Vorschläge zur Verbesserung der grünen Umwelt und ihre Auswirkungen auf die Entwicklung der Grünflächen.

Um meine Dissertation mit der aktuellen Situation der Grünflächen in Saudi-Arabien zu verknüpfen, habe ich die Meinung mehrerer Stadtbeamten ermittelt, die in der Parkverwaltung der vier arabischen Städte arbeiten. Der Fragebogen vermittelt die Bewertungen der Teilnehmer über die Parksituation und die Frage, ob die arabischen Parks erfolgreich sind hinsichtlich Design, Größe, Dienstleistungen und Einrichtungen. Zusätzlich vermitteln die Teilnehmer ihre Vorschläge zur Entwicklung der Leistungen von Grünflächen im Angesicht der Schwierigkeiten, die bestimmte Probleme wie alte Baustile verursachen können.

Um eine aktuelle Bewertung der Parks und Grünflächen in Saudi-Arabien zu ermöglichen, ist es wichtig, dass ein Vergleich besteht mit einem anderen Parkexperiment in einer anderen Stadt, die viel mehr Erfahrung in diesem Bereich hat. Die deutsche Stadt Hannover hat einen großen Anteil an Grünflächen und wird daher als "Gartenstadt" bezeichnet. Meine Studie untersucht Hannovers Grünflächen im Bezug auf Verwaltungsorganisation, Grünflächenarten und Operations- sowie Pflegemethoden. Ein Schwerpunkt der Dissertation ist der Vergleich der Ähnlichkeiten, Unterschiede und Kontraststellen zwischen den Systemen in Hannover und Saudi-Arabien.

Am Schluss mache ich Vorschläge zur Verbesserung der bereits bestehenden Parkverwaltungssysteme in Saudi-Arabien. Diese Vorschläge konzentrieren sich auf drei

Bereiche: Verwaltung, Stadtplanung und darauf, wie die Anzahl von Grünflächen erhöht werden kann. Ich hoffe, dass meine Arbeit für Stadtplaner und Landschaftsarchitekten anwendbar ist in ihrer Berufung, das Leben der Bevölkerung in Saudi-Arabien und in der ganzen Welt schöner und angenehmer zu machen.

Schlagworte: Parkmanagement, Parks in Saudi- Arabien und Freiraum plannung

Abstract

The concept of parks and urban green space areas can be traced back to ancient times. However, modern technology, urban growth and the population explosion have all had effects on the way parks are now designed and managed. As an arid country, the Kingdom of Saudi Arabia presents a special challenge to park administrators and maintenance experts, for the Saudi government recognizes the importance of green space to human development. Nonetheless, the lack of irrigation water and the combination, in some cities, of old and new urban planning schemes has made it difficult to implement efficient and pleasant green areas for citizens' enjoyment. The German city of Hannover has been taken as a contrast to the Saudi examples in order to compare German and Saudi organization systems and present possibilities for the improvement of Saudi green space management and maintenance.

This thesis concentrates on an analysis of the management system used in Saudi cities regarding parks and open space areas. Its objective is to investigate the situation of parks and open space areas in four selected Saudi cities and the policies and regulations which organize the management of green space areas in Saudi Arabia.

At the beginning, my thesis focuses on the history of parks over time and the development of municipal parks throughout the world. It also lights on parks functions and well-known classification systems for parks and open space areas in addition to identifying park management characteristics, operation and maintenance requirements and their obligations and methods. On the other hand, I review the current practices of 11 international cities which are actively involved in green space areas management.

My thesis will provide information about Saudi Arabia, focusing on the dominant climate, the topography, the political system, demographics and society. In addition, I outline who is responsible for parks in the country and the regulations which organize the work and resources such as water in the country, as well as factors which affect the Saudi landscape.

The research is devoted to four Saudi cities which serve as examples of parks and open space areas polices and management. The cities selected here are Riyadh, Medina, Jeddah and Tabuk. My study focuses on the capital, Riyadh, and the other cities as subjects of a questionnaire concerning parks and open space areas throughout the country. I begin with the history of these cities in order to shed light on their background and development over time and the urban planning development of each city, along with the architectural characteristics of each city's buildings. It also focuses on each city's municipal organizational structure and the function of its main departments, concentrating on the responsible administration for

parks and open space areas. In this aspect, my study reviews the composition of these administrations and the actual situation of parks and their policies, types, components and the operation and maintenance systems in place. I examine the distribution of parks throughout the cities' quarters and each city's level of conformity with the guiding criteria for the distribution of parks as issued by the Ministry of Municipal and Rural Affairs. Furthermore, the study investigates the future vision of each city and provides suggestions for the improvement of the green environment and its impact on the development of green space areas of the cities in question.

To connect the thesis with the actual situation of green space areas in Saudi Arabia, I conducted a questionnaire to explore the opinion of fifteen employees working in park administration throughout the country. This survey notes participants' evaluation of the parks situation and whether or not Saudi parks are successful in providing appropriate design, size, services and facilities. In addition, respondents give their suggestions for developing the green space areas' performance against the difficulties in field development.

To give a current evaluation of the park and open space areas in Saudi Arabia, it is important that there should be a point of comparison with another park experiment in another city with many years of experience in this field. Accordingly, Hannover in Germany has a large proportion of green space, so it is called a "Garden City". My study reviews the green space area in the city in terms of management organization, green space types and operation and maintenance methods. The comparison examines similarities, dissimilarities and points of contrast within each system.

To conclude my study, I make suggestions for the improvement of existing Saudi parks administration systems concentrating on three areas: administration, urban planning and increasing green space areas. I trust that my work will be applicable to urban planners and landscape designers alike as they seek to make life more enjoyable for citizens in Saudi Arabia and around the world.

Keywords: Park management, Saudi Arabia parks and parks and green open space policies.

DEDICATION

I dedicate this work to my parents in appreciation of their Dua'a and support in all my endeavors. I am deeply grateful to my brothers and sisters for their love and encouragement. I thank all my colleagues and friends who have helped me throughout my studies.

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Chapter one

1.1- Introduction

Parks have existed since the time before Christ. Both Rome and Greece had a great impact on the current development of parks and changes in the notion of leisure and entertainment as ends in themselves.

Europe is now home to the world's oldest parks, which were established more than 400 years ago. Hannover's oldest park is the Grosser Garten (Great Garden), which was established in 1666. In Riyadh, the first park was Albaladiah Park, which was established in 1940.

It is now generally known that parks and open space areas have great benefits which affect people and their surrounding environment, especially in arid regions. The parks are considered the most beautiful places for recreation and spending spare time. In parks, citizens have the chance to change their exhausting routines and restore themselves with activity and vitality.

In addition, parks are like healthy lungs for cities in that they affect fresh air filtration and help in the reduction of environmental pollution.

The importance of parks at present is such that they are considered an indication of the extent of progress and civilization in any city in the modern world. (Ozail, 1974)¹, Also, parks have become a necessity for urban planning in these times. (Alqae, 1988)²

The Kingdom of Saudi Arabia is a huge country with a variation in its topography which results from the variation in the climate and natural environment. Saudi Arabia unified in 1932 and began its future development from a low level without any initial infrastructure.

Furthermore, the country has seen dramatic development because of a rapid increase in both the built environment and population. This increasingly obligates the government to face these changes to the citizens' lifestyle. Therefore, municipalities have been established throughout the country to face the requirements of this growth.

Parks are now considered one of the most important elements of any city or town, providing significant evidence of the progress and development of a nation.³ Due to their great

¹ - Ozail, R, 1974. City Urban Planning Art, (translated into Arabic by Baheej Shaban, Beirut. (pp. 109).

² - Alqae, T. 1988. Design and Landscape of Parks, third edition, Monshaat Almaref, Alexandria., Egypt. (pp. 193).

³- Previous reference no. 1

importance in the cities, a number of parks have been implemented throughout the country to parallel the requirements of civilization and urban growth.

However, utilities construction has largely taken place in the absence of specialized local information and references for the design of parks that are suitable to the Saudi environment and society. In addition, the lack of correct management methods and qualified staff means that there is no specialist administration responsible for green space areas. As a consequence, many mistakes occur, which have a negative effect on the public use of these utilities.

Unfortunately, many parks have been dismantled (trees removed, etc.) after implementation. This is the result of the shortage of study concerning the requirements for using the environment or of the lack of truly consistent administration which aims to preserve and improve the achievements by using suitable operating and maintenance methods.

Recently, it has become common knowledge in Saudi Arabia and other Arabian countries that parks and open spaces have great benefits. A number of dissertations and publications have been written about the landscape in Saudi Arabia generally, with little information about parks and open space areas. For example, Hamad Abdulrahman Alhemeddi ascertains the most significant design considerations which should be taken into account while designing neighborhood parks.⁴ Ibrahim M Aldjain investigates and identifies the most suitable plants for the Riyadh area of Saudi Arabia.⁵ Ashraf Alturki's study compares attitudes towards designed landscape in two desert cities: Medina, Saudi Arabia and Tucson, Arizona (USA).⁶ Mohammed Abdullah Eben Saleh identifies the foundations for the conservation of culture, social change and growth of landscape in Asir region, southern Saudi Arabia, under institutionalized planning and design principles.⁷ Several other publications give evidence of this growing interest in the near and Middle East in questions of communal open space planning and related issues. For instance, Mohamed Younis Ali Abdalla investigated the situation of parks and other open spaces in Cairo and other Egyptian cities.⁸ Gülhan Bingöl

4 - Alhemeddi, H., A., (1991), Design consideration of Riyadh Quarter parks, according to environmental, social and urban background. Master degree introduced to department of Architecture and building science. College of architecture and planning, king Saud University. SA

5- Aldjain, Ibrahim. M. (2003), The use of indigenous plants in landscape of Saudi Arabia. PhD theses submitted to the Faculty of Architectural Studies, Department of Landscape Architecture. Sheffield, United Kingdom.

6- Alturki, Ashraf. (2001), Attitudes towards Designed Landscape in Desert Cities: Medina – Saudi Arabia and Tucson – Arizona. PhD. Thesis. University of Sheffield. United Kingdom.

7- Saleh, Mohammed Abdullah Eben. (1998), Planning for conversation: The management of vernacular landscape in Asir region, southwestern Saudi Arabia. Human organization. Findarticles.com

8 - Mohamed Younis Ali Abdalla, *Grünflächensituation in den ägyptischen Städten und Möglichkeiten zur Verbesserung der Grünversorgung – dargestellt am Beispiel Großraum Kairo*, Beiträge zur räumlichen planung. Schriftenreihe des Fachbereichs Landespflege der Universität Hannover, Band 24, Hannover, 1990

wrote a doctoral dissertation about open space planning as part of republican development processes in Turkey – concentrating on the example of the city of Izmir.⁹ Sadek Almahdy wrote a doctoral dissertation on sustainable development planning in developing countries using the example of Yemen.¹⁰ From a German perspective, Dominik Geilker discusses recent developments of landscape architecture in Saudi Arabia.¹¹

It is remarkable that the results of an international research initiative, published under the title *Is the grass greener.....? Learning from international innovations in urban green space management*¹², includes such cities as Malmo/Sweden, Tokyo/Japan, Minneapolis/USA and Melbourne/Australia but no Middle Eastern city.

Regarding the study of garden history in Germany, there has also been intensive discussion of the recent history of communal open space planning. The history of various park departments has been investigated as part of the celebrations of events such as the hundredth anniversary of these departments. The resulting publications offer a wealth of information about the management of public parks which has to be evaluated for the situation in cities also of the near and Middle East. The examples give focus on the park departments of the cities of Berlin,¹³ Hannover,¹⁴ Leipzig,¹⁵ Karlsruhe¹⁶ and Stuttgart.

This thesis will investigate the current situation of parks and open space areas in the Kingdom of Saudi Arabia, with special concentration on Riyadh city. The study will investigate the strategies and policies which organize this aspect in the country. Furthermore, the study will analyze the situation of parks and open space areas in Riyadh city in addition to Medina, Jeddah and Tabuk cities as examples of Saudi municipal management regarding parks

9- Gülhan Bingöl, „Freiraumplanung als Teil des republikanischen Entwicklungsprozesses in der Türkei – am Beispiel Izmir“, Dissertation an der Universität der Künste (in print)

10 - Sadek Almahdy, Möglichkeit einer nachhaltigen räumlichen Entwicklung(splanung) in den Entwicklungsländern, dargestellt am Beispiel Jemen, Region: Taiz, dissertation, Fachbereich Landschaftsarchitektur und Umweltentwicklung, Universität Hannover, Hannover, 2004

11 - Dominik Geilker, Landschaftsarchitektur in Saudi-Arabien seit den 1970er Jahren, in: *Die Gartenkunst*, 17 (2005), 2, pp. 369-386

12- Cabe Space, *Is the grass greener ...? Learning from international innovations in urban green space management*, Bartlett School of Planning, University College London, London, 2003

13 Dieter Hennebo and Norbert Schindler, Hundert Jahre Gartenbauverwaltung Berlin. Ein Beitrag zur Geschichte des Stadtgrüns im Industriezeitalter, in: *Das Gartenamt*, 19 (1970), 6, pp. 257-287

14 Gert Gröning and Joachim Wolschke-Bulmahn, *Von der Stadtgärtnerei zum Grünflächenamt. 100 Jahre kommunale Freiflächenverwaltung und Gartenkultur in Hannover*, Berlin / Hannover, 1990

15 Hans-Jürgen Schwarz, Parks and gardens departments in the former GDR: the example of Leipzig, in: *Journal of Garden History*, (1992), 3, pp. 228-234

16 Stadt Karlsruhe (Hg.), *100 Jahre Gartenbauamt Karlsruhe 1905-2005*, Karlsruhe, 2005

responsibility, operation and maintenance methods. In addition, the municipal governments' future vision to develop urban green space areas will be examined. The research carries out an evaluation of the level of parks services in addition to management aspects.

The target of the research is an investigation of the current situation and recommendations to improve parks management.

The aims of this research are as follows:

First, an investigation of Saudi policies regarding parks and open space areas in Saudi Arabia's cities.

Second, an analysis of the management system used in Saudi cities and the impact of existing regulations on the parks and open space areas operation. A thorough study of the situation of parks and open space areas will be included.

Third, an investigation and analysis of the parks and open space areas in Riyadh and the other selected cities, focusing on the current situation of parks and open space areas and the various types of parks. In addition, the study will examine operation and maintenance systems as well as the future vision for the cities' parks.

Park and open space areas in the Kingdom are operated by the municipalities, which are distributed countrywide. There are more than 155 municipalities at different levels. The level of a municipal office depends on the area and location of the city in question. There are seven classes of municipality ranging from the regional level (Amanah) to smaller cities and villages (Municipality F).

The study will investigate the following aspects regarding parks with respect to:

Policy: The quality of parks and open space areas comes directly from the policies, strategies and regulations which organize the situation of parks in the Kingdom in general and in the selected Saudi cities. These policies explain and organize the types of parks and their particular needs.

Organisation: The responsibility of parks and open space areas is shared between various departments. There is also some integration with other agencies.

Power: The effect of parks and open space areas on the surrounding environment and other public utilities.

Community: Participation of the public sector in construction, implementation and management of parks and open space areas and its responsibility for the improvement of its situation.

Management: Popular methods of parks and open spaces management regarding maintenance and operation. The types of human resources that manage the green space area and their efficiency in green space area performance.

Skills: The development of the parks and open space areas requires qualified staff with enough experience to manage, supervise and fulfil the requirements which improve and maintain the good situation of the green space areas.

This study will help planners and decision-makers recognize the problems and difficulties which affect parks and open space areas management in the Kingdom of Saudi Arabia.

The research questions that will be posed with respect to open space areas in the Kingdom of Saudi Arabia in general and Riyadh city in particular fall, for the most part, into five main categories. The first will deal with parks and open space areas management responsibility and its organized regulation in addition to the methods of parks administration coordinating of funding resource responsibility. The second category is the discovery of the aspirations for Saudi parks. The third category is focused on the existing operation and maintenance methods. While the fourth category deals with the urban plan design of selected Saudi cities, it also discusses the urban plan development of each city in addition to existing urban plan analyses. The fifth category is concerned with cooperation between the government parks responsibility and other agencies.

In the following, the questions that are the basis for the research will be reviewed. The questions have been organized into seven questions for convenience and clarity:

1- Who is responsible for parks and open space areas management?

The improvement of open space areas depends on delegation of the responsibility for different aspects of urban green space management.

- Who is responsible for planning green space?
- Who is responsible for designing green space?
- Who is responsible for implementing green space?
- Who is responsible for operating and maintaining green space?

2-What is the process of applying regulations?

The various issues which are relevant to the process of applying the regulation management of green space areas. The delivery of these regulations depends on discussion at the political, organisational and policy levels. In addition, it is necessary to understand the historical and cultural context.

- What is the type of existing regulations regarding open space areas?
- Does the regulation satisfy cultural requirements?
- Does historical background have an impact on open space regulation?
- Do customs and traditional culture impact the regulation of open space areas operation?

3- How is parks administration coordinated and who is responsible for resources?

This question concerns the coordination between the different levels and aspects which participate in the parks development and planning the activities that improve the green space environment. On the other hand, good planning for parks and open spaces funding management affect positively on operation resources.

- How are responsibilities coordinated across different levels of government?
- What is the relationship between urban green space policies and funding?
- How are the different activities or services involved in green space management coordinated at policy levels?
- What is the source of parks operation budgets?

4- What are the aspirations for the parks and open space areas in the Kingdom of Saudi Arabia?

Each urban municipality has its own vision to improve the level, number and quality of parks and open space areas in general. The aspirations for green space area involve considerable factors which reflect on the level of green space development. These are quality, quantity and accessibility.

- Is there a policy or strategy to organize the aspirations for open space areas?
 - What is the reflection of municipal aspirations on the actual situation of green space?
-

- What are the effects of these aspirations on the community?
- Who is responsible for these aspirations?

5- How are parks and open space areas operation and maintenance delivered?

The maintenance and operation of parks and open spaces depends on the methods of operation which are suitable to the surrounding environment.

- What are the most common operation and maintenance method used in the Kingdom of Saudi Arabia?
- Who is responsible for delivering operation and maintenance in the kingdom?
- Is the operation method affected by the surrounding environment?
- Is the maintenance method used efficient for parks and open spaces improvement?

6- Does Saudi urban design satisfy the aspirations and regulations of the municipalities in addition to its environmental protection balance?

The urban plan of each city plays an important factor in the quality of open space areas. Furthermore, the organized distribution of green space reflects the design method which has been used.

On the other hand, implementing regulations or urban standards helps to create a balance with the surrounding environment.

- Does Saudi urban planning reflect their open green space aspirations?
- Is the distribution of parks in the city quarters satisfactory?
- Is the variation of parks types satisfactory?
- Have the planning criteria for parks distribution been satisfied?
- Does the allocated area for parks and open space areas correspond to the quarter's population?

7- Does parks administration cooperate with other agencies and volunteers in terms of parks and open space areas development?

The development of green space area requires cooperative support from the government and public sector to create an environment based on mutual respect and concern for welfare. Concentrating on the municipalities' effort alone is not enough to improve the quality of the green environment. In addition, both government and the public and private sectors must strive to find enough variation in the construction and operation of parks that reflect positively on the situation of green space in the city.

- What are the important agencies which participate in open space area development?
- Do volunteer groups participate in green space areas distribution?
- What is the type of cooperation between the government and public sector?
- Which benefits have resulted from the cooperation between the government and the public sector?

The aims of the research were achieved by carrying out an analytical reading of Saudi Arabia's regulations devoted to organizing and classifying the parks and open space areas terms as issued by the Ministry of the Municipal and Rural Affairs.

In order to carry out the research and analyze the actual situation in the Kingdom, the researcher selected three Saudi cities – Jeddah, Medina and Tabuk - to explain the methods of green area policies in addition to the operation and maintenance management in these cities. History and urban development are also important facets of the investigation.

The section on Riyadh will focus in detail on the situation of parks and open space areas now and in the future, and will look at the historical background of the city and the various stages of development over time in all sectors of urban life.

The field survey solicited the opinion of specialists and engineers¹⁷ who work closely with the situation of park administration. These experts, who represent fifteen different cities, were also asked for their opinions regarding general development processes and specific aspects of park planning.

17 - Cf. chapter six, which will give more information about the questionnaire participants.

1.2- Thesis overview

This thesis is organized into seven chapters, with the theoretical background of the techniques used given in the initial chapters. The result of the study will be presented and discussed in the following chapters, and the conclusions derived from the study will be introduced in the final chapter. A brief summary of the contents of each chapter is provided below:

Chapter one: Introduces the subject matter and outlines the research problems. It contains the aims of the research, statement of problem and research questions.

Chapter two: Reviews the relevant literature. Literature is drawn from a wide range of sources. It covers the management of parks and open space areas in addition to operation and maintenance requirements.

Chapter three: Introduces the analysis study for the Kingdom of Saudi Arabia. It covers the geology, topography and climate of the kingdom, in addition to a population structure analysis and social characteristics of Saudi society. On the other hand, it discusses the park responsibility in the kingdom and the regulations and criteria which organize the construction and distribution of parks throughout the kingdom's cities. Furthermore, it focuses on the important factors which affect the Saudi landscape and the main resource of irrigation water in the Kingdom of Saudi Arabia.

Chapter four: Introduces the situation of parks and open space areas in the cities Medina, Jeddah and Tabuk, which I have selected as examples of Saudi cities. It reviews the historical background and urban development of each city. Also, it analyzes the current urban plan of each city and explains the main components of these cities with particular concentration on the green areas.

In this chapter, the study focuses on the administration that manages and supervises the parks and open space areas responsibilities. It explains the methods of operation and maintenance used by the parks administrations and the future vision for green area development. This chapter is based on a questionnaire which solicited the opinion of parks administration employees about the situation of parks in their cities. Finally, there will be a comparison between the situation, components and parks managements in the three cities.

Chapter Five: A study and analysis of the situation of parks and open space areas in Riyadh city. It reviews the historical background and urban development of the city. Also, it reviews the actual urban plan and explains the main components of this city by discussing the development of the green areas though time. The research explains the types of open space

areas elements that are found in Riyadh city, in addition to the responsibility for parks management and the participating agencies in green area development. On the other hand, the study explains the vision of Riyadh's parks administration to improve the area and quality of green area in the city. It also features a survey of Riyadh's municipal employees concerning their opinion about the level of parks and the services on offer.

Chapter six: This chapter discusses the results of a questionnaire designed to investigate the opinions of workers in parks administrations in 15 cities in 6 of the 13 different regions of the kingdom. The questionnaire covers many aspects regarding parks management in addition to their evaluation of the level of parks situation.

Chapter seven: This chapter is a study and analysis of the situation of parks and open space areas in Hannover city. It reviews and explains the main components of this city, the types of open space areas elements that are found in Hannover city, in addition to the responsibility for parks management and polices of green space area.

Chapter eight: This will provide a summary of the six previous chapters, a conclusion of the study and will offer recommendations to improve parks management in the kingdom.

The information for this research is the result of extensive and complex work, as well as a great deal of time. Much depended on interviews with municipal employees and other civil servants responsible for the parks in these cities. My research involved travel from one city to another, never an easy task considering the great distances between cities in Saudi Arabia. I faced great problems in gathering information because some respondents submitted their data late, at times up to several months. In addition, many municipal employees did not wish to participate or did not return the questionnaire to me. Furthermore, the fact that I have lived and carried out research in Germany for a long time has, at times, made access to information on this subject difficult.

Chapter two

Literature Review

This chapter will review the history of parks and recreation facilities from the early centuries and follow the change through the time in many countries. Then, the study will focus on the development of municipal parks and recreation in the United States of America. The chapter concentrates on the function of parks and the common hierarchies of parks. On the other hand, the chapter focuses on the requirements of parks and recreation management and the specifications and skills of the director or team leader. It also discusses the personal administration of employees and illustrates criteria of selection, development, motivation and promotion.

It discusses the operation and maintenance of parks methods and standards in addition to their requirements and applications. Finally, the chapter reviews the management practices of a number of cities around the world in urban green space and what we can learn from these experiments.

2.1- History of Parks

1- Overview:

Early Greek parks have influenced current leisure thinking and this is primarily the result of the writings of Plato and Aristotle. At the pinnacle of Greek civilization, growing professionalization of sports, public entertainment and competitions resulted in the birth of the leisure ethic: The intelligent use of spare time was the purpose of life. The ideal was perfection in civil and political life. Plato expressed a low regard for manual labor and a high regard for well-employed citizens - capable citizens performing music, drama, sports and education during their leisure time. Not all members of society had the luxury of leisure. The leisured man was required to contribute to improving public life. He would also strive for perfection in arts, music and sport; the Greek gymnasium was the center for leisure schooling. The Greek conception of leisure was central to much wider views of the life and the nature of free man.

Ancient Rome shows that mass leisure is no new phenomenon. It illustrates leisure in a social context of urban civilization and the political use of leisure to keep down the masses. It also shows the massive investment in public recreation facilities and services and the growth of leisure consumption rather than participation. Although the Greeks and Romans built and planned for leisure, the stress for them was upon law, custom and

consumption, a political instrument, as distinct from learning, discovering and enlightenment.¹ (*Broadhurst, 2001*)

Public parks are an old idea. Today's innovative new concept is likely to have had its precursor yesterday. The public squares of ancient Greece and Rome were gathering grounds which functioned as places of assembly, meeting, political and philosophical debate, and festival. The market places of medieval and later periods satisfied much the same need. In Nottingham, from early medieval times up to the early part of this century, the famous goose fair was held in the marketplace in the heart of the city, where there was room for a large amount of fairground equipment, numerous stalls and the crowded population. Marketplaces have their counterparts in urban parks and squares. The pedestrian streets of many cities, such as Cologne, Vienna, York, Perth, Brisbane and many others fulfill the same function. Preserving open space has also been a preoccupation since the first developer came into view. Many Victorian parks were donated by benefactors and sponsors, and even those parks followed an ancient tradition. It was an early recognition of the utility of urban open space. Ramses III, who reigned in Egypt up to 1166 BC, founded public pleasure grounds. He established more than five hundred gardens and various temples. Such gardens were and still are a feature throughout the world. Even the ancient buildings which form the Church of the Holy Sepulcher in Bethlehem are grouped around a garden and many great cathedrals have green spaces at their heart. In one Scottish burgh it was deemed necessary to ban golf because it interfered with archery practice.

In 1600, Grays Inn was built in London. It started a new European trend for squares, which became fashionable not only around England, but also in Paris. Charles I opened London's Hyde Park to the public in early 1635. Dublin's Phoenix Park, which covers 800 hectares, was opened in 1747. It is one of the world's biggest urban parks.

In the early 18th century, the pleasure garden developed. Ranelagh Gardens is a famous example; the vestige of it still remains beside the Royal Hospital of Chelsea. The gardens opened in 1742 and survived for sixty years. They were used for music and dancing. In fact, the young Mozart played at Ranelagh on his visit with his father in 1764. Vauxhall Gardens were opened in 1661 and continued until the middle of the 19th century. This park comprised 12 acres of entertainment and music pavilions and a supper room.

1 - Broadhurst, Richard. (2001) *Managing Environment for Leisure and Recreation*. Taylor & Francis Group. London and New York, (p 33-34)

Many pleasure gardens became the victims of changing tastes and priorities- of increasing land values, and of competition with municipal parks, which were free of charge and which opened every day of the year. In contrast, the pleasure gardens were open only during summer and charged for admission. This experience is being repeated in developing countries today. A flood of people are being drawn to the cities and the better life the cities seem to offer. High birth rates result in overcrowding, bad sanitation, and inadequate public facilities.

In Victorian Britain this was associated with low life expectancy, high infant mortality and epidemics of cholera, typhoid, and typhus.

At this time, people often believed that the countryside was the natural and most beneficial milieu for society. The urban park was seen as simulating the countryside. Recreation and exercise in the open air would improve physical fitness. During public walks in 1833, a parliamentary committee was convinced that some parks dedicated to the amusement of the poorer classes would help to wean these people from low and debasing pleasures.

The enclosure of common land had proceeded rapidly in eighteenth-century Britain. It had been good for farming, bad for people. However, it was not long before citizens realized they were being deprived of their public space, and movements to restore recreational parkland began. The election of 1837 changed the composition of parliament. Some parks were laid out in places as far apart as Bristol, Leicester and Preston but the investment in land, the cost of design and layout, and the expense of maintaining these parks in perpetuity were daunting even then. In 1935, proposed legislation allowing more parks failed to pass despite strong support from the committee for public walks. Today's countryside commission and their access agreements have essentially the same goal as the committees of the Victorian era: to restore one of the advantages of common land -the larger urban park and the community forests which are now proposed. In 1990, for example, the sports council of northeast England commissioned a study intended to stimulate the greater use of parks for sports and active recreation.

Active recreation was a great twentieth-century trend. Australia provides a good example of this movement. The government sought to encourage physical fitness not to promote physical attractiveness and health, but to prepare citizens for the impending war. A national fitness campaign was instituted in 1937 and in the same year, the Physical Training and Recreation Act was passed to encourage people to build playing fields for outdoor games. The emphasis on active recreation produced thousands of additional

playing fields, pitches for soccer, hockey, rugby, croquet, occasionally for lacrosse and shanty, and even more tennis courts and bowling greens, which had actually appeared much earlier. It is usual to collect and exhibit the local flora in a new country and to import and exhibit familiar plants from home. Botanic gardens are relatively common in countries like Australia- at their best; they have many of the attributes of a public park. The Melbourne botanic gardens are a case in point. They were first proposed in 1842, a mere ten years after the colony was established. The royal botanic gardens at Kew in England are a leading example.² (Welch 1991)

In Saudi Arabia, as is well-known, the desert is the dominant environment. The country suffers from a shortage of water bodies and other environmental difficulties which negatively affected the spread of green areas throughout the country. Two exceptions are the oases and grazing fields found in the heart of the desert, such as in Riyadh and Medina.

Since the union of Saudi Arabia in 1932, municipal services have concentrated on providing the fundamental requirements that are needed by the country. In the early days, however, infrastructure was poor. The green areas in the country started with planting along streets to bring a bit of green to the cities' appearance. The first parks in Saudi Arabia were established by the municipal administrations. For instance, Riyadh municipality, which was established in 1936, inaugurated Riyadh's first park, Almalaz Park, in 1956³, and Jeddah's Alshuaraa Park was established in 1950⁴.

2- Development of municipal parks and recreation

In the United States, the movement to develop parks and leisure services has come from the big cities. Parks have developed almost exclusively as a function of government at various levels. The park has been accepted as a rightful responsibility of government.

1- Municipal Park Concept in the United States

The American park movement was influenced by cities in Spain, England and France, as well as by the natural climate. In the northern states, for instance, the rugged climate and cold winter fostered the belief that the land must be subdued. California

2 - Welch, David. (1991) Management of Urban Parks., Longman group UK limited, (p 2 – 11).

3 - Riyadh Municipality, (2002). Planting and Beautification Achievement. Issued by the Administration of Parks and Beautification.

4 - Jeddah Municipality, multimedia center. 2010

on the other hand, with its Spanish colonial heritage, adopted a Spanish style which can be seen today in the squares and plazas of Santa Fe and San Diego.

In the USA, municipal parks have a longer history than state or national parks. Traditionally, parks were pleasure grounds for the privileged. But in the new immigrant society, people had to work together to survive.

“A tract of land belonging to everyone, to the community-- was a natural answer to mutual needs...for a setting where social needs could be expressed”. (Virginia Frye⁵, 1980. P 21)⁶

The idea of the **town common** was adopted from England. A common was originally used as public space for feeding cattle or military training, but later took on a recreational function. Boston Common is an American example of this.

Until the 19th century, there was no public place for people to enjoy leisure and recreation. In New York City, a movement to create a park was started by William Cullen Bryant, editor of the Evening Post, and Andrew Jackson Downing, a landscape gardener. Both men were influenced by visits to London and Paris.

In the 1850s, a park for New York City was an issue in the mayoral election-- both sides supported it. In 1856, land was bought in the middle of Manhattan Island and set aside. The city sponsored a design competition for the future park. The winners were Frederick Law Olmstead and Calvert Vaux. Olmstead was one of the founders of modern landscape architecture. Their design for Central Park had a great influence on municipal park development in the USA and Canada.

“[Olmstead and Vaux] saw a park for the outdoor enjoyment of city dwellers as something requiring more elaborate development...Moreover, landscape architecture as interpreted by Olmstead and exemplified in Central Park was a more comprehensive design of design, development, and purposeful arrangement of

5 - Virginia Frye is coordinator leisure studies, Iowa state university. She also has been on the faculty of the University of Illinois in the department of recreation and park administration and was a hospital recreation supervisor with the American National Red Cross. She holds a bachelor's degree from Bradley University and master's and doctor's degrees in recreation and park administration from the University of Illinois.

6 - Sidney G. Lutzin, 1980. Managing Municipal Leisure Services, from the Municipal Management Series, international city management association, copyright 1980 by the international city Management Association, 1140 Connecticut Avenue, N.W. Washington, D.C. U.S.A. (chapter 3, p 20)

natural scenery than had been encompassed in the older concept of landscape gardening... for the park's success.” (Virginia Frye, 1980. P 24)

Possible activities for the park were judged on how well they harmonized with the park's design. Olmstead and Vaux's idea of “quietness and verdure” limited activity to calm pastimes which went with the design of the park: horseback riding, ice-skating, walking and sitting.

The basic concept of Central Park was a democratic one: a park for everyone, known for its curative and restorative functions. It was popular to take sick people or invalids to the park for fresh air and sunshine. A side-effect of Central Park was an increase in property values and, as a result, tax revenue (the effect continues to this day). Municipal parks came to be seen as economic assets and the economic benefits of Central Park became an argument for parks in other cities.

“As cities reached out into the suburbs, and metropolitan areas spread over the countryside, urbanites became increasingly conscious of the value of open space and of the need to secure and preserve it.” (Virginia Frye, 1980. P 27)

People in the crowded cities became interested in playgrounds, parks, beaches, and nature reservations. Government realized that parks and leisure were interrelated with health, sanitation, and city planning in general. For example, in 1891 the Boston Trustees of Public Reservations was established as a nonprofit corporation with park commissioners whose task was to study the various types of parks and their benefit, and to secure land for public use and enjoyment. The Essex County Park System established in New Jersey in 1895. This system identified four types of park space: neighborhood parks in densely populated areas, large landscape parks like Central Park, outlying reservations and a unifying system of parkways.

At the 1893 World's Columbian Exposition in Chicago, architect Daniel Burnham designed a “new” Chicago concentrating on lakefront development and a system of encircling parks. These encircling parks became known as the Cook County Forest Preserve District (established in 1913). Planners created an outer belt park system. The emphasis was on natural forests rather than city parks. The Cook County system also incorporated two other types of parks:

Parkways, which are different types of open spaces related to form a unified whole.

Pleasure driveways, which are elongated parks with roads running along or through them. Pleasure driveways show the effects of the automobile age on park design. A

problem with pleasure driveways is that traffic increased and there was not always enough money to maintain the park.

In general, different types of parks serve different community needs. Small neighborhood parks emerged in the early 20th century as people realized the importance of play in childhood development. The anti-slum movement recognized that overcrowded living conditions were not good for children and worked to acquire land that could be used as play areas. Generally, a small neighborhood park covered 3 – 10 acres. Here the focus was not on peace and quiet (as in landscape parks) but on play and vigorous physical activity. Boston's Charlesbank Outdoor Gymnasium became the prototype for the small playground park.

In Chicago, a special Park Commission found that the big parks were not accessible to the poor or suitable for children's play. From 1900 until 1904, city funds were used to create small playgrounds. These small parks were an instant success. A new concept emerged: the neighborhood park as a social centre for all age groups, not only for children.

J. Frank Foster, an engineer, developed the concept of taking the park to the people. By this he meant “...a multiple, small-park plan of playing fields, pools and field houses, in congested industrial neighborhoods.” (Virginia Frye, 1980.P 32)

In 1903, the restrictions were lifted on the location and size of new parks. Daniel Burnham continued to work on his “field house” idea. A field house was like a modern community centre, a building for physical and mental culture and wholesome recreation. Indoor and outdoor gymnasiums, and swimming pools, were established. Intellectual and social life was fostered in large assembly halls. Clubs and other groups had free access to the halls, which featured meeting rooms for smaller groups. Year-round services, and sometimes a branch of the public library, were incorporated. Within the first six months of their existence, more than 1,200,000 people had used these field houses in Chicago.

2- Recreation as a Municipal Function

“The idea of recreation as a government responsibility and municipal function in the United States is a 20th-century development.” (Virginia Frye, 1980. P35)

In the early days of pioneer settlement in the US, leisure was scarce and sometimes even considered sinful in the Puritan tradition. However, people did have recreational forms of expression and various ways of filling their free time.

As economic security increased, the economic and social restraints on leisure decreased. European customs and sports, which had been brought over by the immigrants, were modified for the new environment. The geographical social divisions (wealthy industrialists and poor workers in the North, plantation owners and slaves in the South, settlers in the West) created different forms of leisure in different areas of the country.

From 1821 – 1830, outdoor gymnasiums were set up in connection with schools and colleges in New England. At this time, there was also an increase in commercial recreation: theatre, circus, amusement parks, cycling clubs, yachting, athletic clubs, etc. In Boston, the official beginning of the recreation movement came in 1885, when the Massachusetts Emergency and Hygiene Association had heaps of sand dumped in the yards of Parameter Street Chapel and the West End Nursery. These sand heaps were meant for children's play. The idea came from a report on children's sandpiles in Berlin.

In the late nineteenth century, concern was growing about living conditions in crowded neighborhoods and the negative effects of slum life on early childhood development. Leadership and support for the recreation movement came mainly from philanthropic sources. Later, recreation came to be seen as a public responsibility and was largely taken over by municipal administrations.

In the USA, local public recreation has developed along two main patterns:

- Authorities that administer recreation as a single function.
- Authorities that administer recreation in conjunction with parks (as with Chicago's Small neighborhood parks)

1904 saw the first instance of a separate department for recreation, in Los Angeles. Other authorities usually put recreation under the responsibility of the boards of education, welfare, or public works.

“Of prime importance to the organization of municipal recreation under any administrative pattern is the state enabling legislation... In the USA, the concept of recreation as a government responsibility is based on democratic principles and on

the constitutional interpretation of government as an institution responsible for the general welfare". (Virginia Frye, 1980. P 38)

By the end of the 1920s, recreation services had expanded to include all age groups. Year-round leisure programs were accepted, though the emphasis was on summer activities. Services extended beyond crowded urban neighborhoods to suburbs and smaller communities.

A conflict emerged between parks and recreation. Olmstead and others wanted parks limited to activities that did not disturb or clash with the landscape in parks like Central Park. Many park designers were more concerned with landscaping than providing recreation areas. Children's playgrounds were often set up on vacant lots or schoolyards, but not in existing landscape parks. Some conservative landscape designers thought it might be acceptable to limit playgrounds to the most unattractive areas of a park. The new thinkers believed parks and playgrounds belonged together, and that playgrounds had an aesthetic value of their own that could be integrated into the landscape of a traditional park.

In the 1920s, the classification for parks changed. In 1928, Lebert H. Weir (director of a national study of municipal and county parks) published the report *Parks: A Manual of Municipal and County Parks*. This report distinguished various types of park areas as:

Children's playgrounds, neighborhood playfield areas, golf courses, athletic fields, stadiums and municipal campsites.

Weir also identified areas in which landscaping was a predominant characteristic:

Boulevards and parkways, botanical gardens, zoos, etc. and swimming centers

In 1958, Congress established the **Outdoor Recreation Resources Review Commission**, a nationwide study of outdoor recreation involving all levels of government and private contributions. The report from the Commission was published in 1962: *Outdoor Recreation for America*. It included a proposal for classifying outdoor recreation resources on a national scope.

3-Relationships with other municipal functions

- School and education

At the end of the nineteenth century, schools started being used as community recreation centers. At the same time, park designers saw the value of parks as outdoor laboratories for learning. However, it was only later that parks and schools were

brought together in a physical relationship. Parks and schools were independently planned and located, and schools usually had no land available for playfields. In 1910, planners decided to enlarge school sites to accommodate playgrounds. This idea was refined to the location of playgrounds near primary and intermediate schools and neighborhood playfields near junior and senior high schools. The park-school idea spread during the 1940s and 1950s. Sometimes health agencies, libraries, city planners and housing authorities were included in a coordinated action. **George D. Butler**⁷, who worked for the National Recreation Association, had a great influence on the parks and recreation movement. He wrote “**School, recreation and park authorities in metropolitan cities and small communities, recognizing the need for joint planning and its resulting values, are pooling their resources in the interest of economy and effective recreation service.**” (Virginia Frye, 1980. p 43)

Combining schools and community centers was another innovative twentieth-century idea. In 1909, Edward J. Ward was hired by the University of Wisconsin to organize school community centers. These ideas were approved by the National Education Association in 1911 and schools were used for recreational, civic and cultural purposes. Use increased during the First World War, and then dropped in the 1920s. However, it increased again in the 1930s and the Second World War. At this time, some schools were designed and built specifically to function as community centers as well. There are three main effects of this movement:

- Outdoor education programs have brought schools, recreation and park authorities together in three main areas of facility planning and use. Facilities may include:
School grounds, parks, forest preserves, arboretums, museums, planetariums, aquariums, zoos, gardens and camps.
- Management of municipal public recreation by boards of education has created a relationship between schools and municipal recreation. Some recreation

5 - George D. Butler (1894-1985) was a pioneer in leisure services in that he was one of the first people to see the important role that parks and recreation play in human society. In the 1930s, he established the standards for parks and leisure services that are still used today. He believed that governments have the responsibility to provide parks and recreation services to the public. He was Director of Research for the National Recreation Association from 1919 until 1962 and one of the first in his field to use surveys and research to shape policy. His book *Introduction to Community Recreation*, which appeared in 1967, is a seminal work in the area of leisure services planning.

programs have been administered in conjunction with schools, for example Los Angeles, New York City, Milwaukee and others.

- The whole matter of education for leisure was recognized by Aristotle, who said the “worthy use of leisure” was one of the first objectives of education. This principle was adopted by the National Education Association.

In 1943, the National Recreation Association published Standards for Neighborhood Recreation Areas and Facilities. This report stressed the importance of cooperation between schools, parks, recreation authorities, public housing and city authorities in meeting community needs for indoor and outdoor recreation.

- **Urban Planning**

In the first ten years of the twentieth century, city planning expanded from the old idea, which concentrated mainly on streets, to include all physical aspects of a city: streets, parks, transportation, water and beautification.

Park development influenced improvements in urban recreation provisions. In 1919, city planner John Nolan saw the interrelationship of parks with other public works. He believed that parks and parkways would protect streams and other waterways from encroachment and provide drainage for rainwater.

The period after the Second World War saw increases in urbanization, high-speed transportation and communication, increased income and an overall decrease in working hours. People had more free time and easier access to parks and other facilities. The Outdoor Recreation Resource Review Commission recommended:

- Outdoor recreation should be an integral element in local land-use planning.
- Local governments should use all available techniques in making available for public use the land and water resources needed for outdoor recreation purposes.
- The Commission suggested **cluster development**: a form of zoning which involves subdivisions of tighter groupings of houses on smaller lots. This can win land for parks.

Municipal park and recreation development involves planning relationships that extend beyond city boundaries. Metropolitan Park planning on the district and county basis dates back as far as the 1890s, to the **greenbelt principle** developed by Ebenezer Howard, an Englishman. His idea for fighting congestion in big cities was to create **garden cities**, new towns separated by belts of forest and agricultural land. The belts

would form concentric rings, which would provide for parks and open spaces within the towns as well. The greenbelt principle was adopted by both the Cleveland Metropolitan Park District in Ohio and the Forest Preserve District of Cook County, Illinois. Urban planner Lewis Mumford is a great proponent of the greenbelt principle. In 1963, a New York study called *The Race for Open Space* showed that there was an increased demand for a fixed amount of land. Two policies came out of this:

- more intensive single purpose use of land
- Multiple-purpose use of land, especially on a regional basis

The study also recognized that all levels of government should be involved in parks and recreation, and private enterprise as well:

“...open space is so closely linked with such functions as schools, urban renewal, transportation and subdivision control that it would be wasteful and inefficient if these and the other aspects of community development were not considered together.” (Virginia Frye, 1980. P 47)

Some types of land which could potentially be used for parks were water supply lands, military land, submerged land and cemeteries.

- **State and federal relationships**

It was not until 1928 that the concepts of comprehensive planning (on the local, state and national levels) became evident.

In 1933, the Civilian Conservation Corps was created to provide work and activity to the unemployed during the Depression. This was the beginning of the National Parks Service's concern for other parks outside the federal jurisdiction and led to the idea of permanent nationwide cooperation.

In 1936, the **Park, Parkway and Recreation-Area Study Act** was passed by Congress. This act authorized the National Park Service to conduct a study on parks and recreation areas in the USA to help them develop coordinated park and recreation facilities.

In 1937, the National Park Service published an article entitled Municipal Parks. This article discussed what the state and national park systems could learn from municipal governments. Unfortunately, the Second World War interrupted virtually all activity in parks and recreation development.

In 1958, Congress established the Outdoor Recreation Resources Review Commission. The result of this study was the formation of the Bureau of Outdoor

Recreation in the Department of the Interior in 1962. The direct influence of the federal government on the development of municipal recreation and parks came from local assistance programs introduced during the Depression and World War II. During the Depression, federal relief programs made work for the unemployed at constructing facilities. The federal government also developed recreation programs and services and trained leaders at this time.

During the Second World War, communities near military posts benefited from the Division of Recreation of the Office of Community War Services. This organization provided field representatives to help communities organize and develop programs and facilities. Between 250 and 300 permanent publicly funded systems resulted from this endeavor.

In the late 1960s, federal assistance programs turned their attention to urban problems such as inner-city ghettos. The Department of Housing and Urban Development developed many programs at this time: Model Cities, Neighborhood Facilities, Open Space, Urban Beautification, Urban Planning Assistance and Urban Renewal.

2.2- The Function of parks

Parks are still important though they are no longer the high fashion they were by the end of 19th century. Parks serve as a public resort today. People want to enjoy themselves when visiting a park. To design a park is a big investment.

A general household survey in 1986 in Britain showed that only 46.3 % of the country's citizens over 16 years old practiced sports activities. Every citizen, however, does visit a park every now and then. A park is meant for everybody— old and young— and can be used in a variety of ways. It allows people to escape from the dirt and noise of big cities. It allows people to relax.

Today people have much more leisure time than before. A whole leisure-time industry has developed. Parks nowadays must compete for customers. There is more leisure time, but there are also more distractions. TV is one of the most favored distractions. It opens the people's minds for sport activities, for wildlife and for environment. Park managers should consider this. Window shopping is also a favorite pastime. Why should a park not integrate shops to satisfy this need? What people want from parks everywhere nowadays is warm or cool places

to sit in, attractive things to see, pleasant surroundings, a restaurant for refreshments, flowers, trees, birds and above all the opportunity to meet other people. (Welch, 1991)⁸

2.3-Hierarchies of open space areas

There has been a good deal of theorizing about the relationship that different types and sizes of spaces have to one another- sometimes billed as a hierarchy of open spaces.

Most British essays about the subject have been written by **Ebenezer Howard** and are materialized in parks like Letchworth, Welwyn Garden City, and British New Towns etc. In 1944 Sir Patrick Abercombe designed the Greater London Plan. It included spaces up to the countryside and the surroundings of London. It arranged for children's playgrounds, town squares, amenity spaces, school playing fields, landscaped town parks, playing fields for children and adults, recreation and sports areas, parkways, wedges of open land, small green belts, areas of high scenic beauty and farmland. Today shopping malls, pedestrian streets linear parts, front gardens, green spaces and natural landscapes that survived have to be added.

In 1968 the Greater London Council carried out a survey of parks in London. It envisioned the following hierarchy:

- 1) Local parks comprising 2-10 hectares with a catchment area of ¼ mile.
- 2) Larger local parks comprising 20 hectares with a catchment area of ¾ mile
- 3) Large parks comprising 60 hectares with a catchment area of 1-5 miles
- 4) Large parks comprising over 120 hectares with a catchment area of more than 5 miles

People from a wide area may come to visit a park if it is attractive and if the location is well chosen. For example, St. James' Park in London is small but never empty.

This hierarchy was amended in 1988 by the London Planning Advisory Committee. The current hierarchy is as follows:

- 1) Linear open spaces spread in the urban area. Recreation areas, features or attractive areas, some not fully accessible but contributing to the enjoyment of the place.
- 2) Small local parks and open spaces comprising 2 hectares and approximately 0.4 km from home, gardens, sitting areas and playgrounds.

⁸ - Welch, David. 1991, Management of Urban Parks, Essex, Longman group UK limited.
First published 1991(p 12- 17)

- 3) Local parks, comprising 2 hectares and approximately 0.4 km from home with provisions for court games, children's playground, sitting areas, nature conservation, landscaped environment and playing field. To be reached on foot.
- 4) District parks comprising 20 hectares and approximately 1.2 km from home, with natural landscape settings, a variety of activities, sports activities and playing fields.
- 5) Metropolitan parks comprising 60 hectares and approximately 3.2 km from home for occasional visits. To be reached by car or public transport with natural heathland, commons, woodlands or formal parks for passive or active recreation with a car park
- 6) Regional parks comprising 400 hectares with a catchment area of 3.2 to 8 km with natural heathland, commons, woodland, areas not directly accessible for informal recreation and non-intensive recreational uses, with car parks.

The problem about all the studies carried out on the subject is that they put insufficient weight to all factors but size. A hierarchy of use would be a good thing. The numbers of visitors is not the only indicator for the success of a park. It has to be considered how people enjoy themselves, to what extent they feel at home and at ease, and to what extent they are able to relax. (Welch, 1991)⁹

Thomas L. Goodale¹⁰ wrote in his article which addressed creating a humane environment¹¹ Every community leisure services system requires specific plans for the smaller units which comprise the whole design in its entirety. Demand for outdoor recreation facilities is increasing and will continue to do so. Technically, the USA has enough publicly-owned land to meet people's needs, but this land is not evenly distributed— most suitable land is found in sparsely populated areas such as the Southwest and Alaska. Densely populated areas, like the Northeast for instance, have access to a relatively small portion of the available open space.

9 - Welch, David. 1991, Management of Urban Parks, Essex, Longman group UK limited.
First published 1991(p 18 - 22)

10 - Thomas L. Goodale studied recreation and leisure services and earned his master's and doctor's degrees from the University of Illinois. Goodale is author of *The Evolution of Leisure: Historical and Philosophical Perspectives*. Before his retirement, he served as regional supervisor for the Nassau County Division of Parks and Recreation in New York State. He has taught at universities throughout North America and is now Professor Emeritus of Health, Fitness and Recreation Resources at George Mason University in Virginia.

11 - Sidney G. Lutzin, 1980. Managing Municipal Leisure Services, from the Municipal Management Series, international city management association, copyright 1980 by the international city Management Association, 1140 Connecticut Avenue, N.W. Washington, D.C. U.S.A. (p 165)

George D. Butler¹² was the first planner to promote this comprehensive system and to formulate the classification and components. His ideas were taken on and revised by the National Recreation and Park Association.

Butler's classification system uses a hierarchy as a base for suitable facilities and services.

1. Playlots are small areas for children up to seven years of age. They are generally found in densely populated areas with little or no backyard space for families. Playlots are expensive and difficult to maintain but to make a significant positive impact on family life in inner-city areas. Most of these play areas are quite small: size can range from 230 to 4,000 square meters. Typical Playlots feature playground equipment, paved areas for wheeled toys, sandboxes, wading pools, seating and landscaping. They are usually located near large housing developments and ideally, it is not necessary for children to cross busy streets to reach them.

2. Vest pockets or miniparks are usually converted vacant lots. They are quite small, but can enhance the appearance of an urban neighborhood. Depending on the neighborhood's demographics, vest pockets can be devoted to one age group, or two or more. These miniparks usually have children's play areas, game areas, seating, and game courts if space allows.

3. Neighborhood parks should be directly connected to elementary schools. A good size is about 2.5 km². The size of these parks makes it possible for playing fields to be integrated, e.g. a baseball diamond. Playing fields should be located inside the park so that trees and landscaping can be used as a sound buffer around the perimeter. Good lighting is important, as it will extend the use of the park into the late evening and help prevent vandalism. Adult facilities can be provided depending on local residents' needs and wishes: seating, shuffleboard and game areas can be located in shaded areas. Tables for chess, backgammon, etc. and picnic tables are a good idea.

4. District (community) parks work as a supplement to neighborhood parks, but they are larger and are connected to junior or senior high schools instead of elementary schools. Their larger area allows more facilities such as tennis courts, swimming pools, community centers and car parking. Generally, district parks are situated adjacent to or near busy streets, within 4.8 km of the associated residential area. These parks are popular with teenagers, who are more mobile and independent than small children.

12- previous reference no. 9 (p 167)

5. Large urban parks let city residents escape from noise and crowds without having to travel far. A central location is desirable, but these parks are often located at or outside the city limits. These parks range in size from a minimum of about 40 hectares to the ideal size of 100 to 400 hectares. They offer forested areas, water and water sports, picnic areas, nature centers, hiking trails, sports facilities and day camps. They are designed to serve people who live within a thirty-minute drive (50,000 - 100-000 people).

6. Regional parks are situated within one hour's travel time for visitors. They require a minimum area of about 100 hectares. Their location and size mean that these parks are generally managed by the county or regional authorities instead of the municipal government of a city. Regional parks vary widely depending on the size, location and extent of development. Some are left in a near-natural state while others have developed areas. Regional parks are not meant to replace neighborhood or district parks and care must be taken that they are not misused in this way as urban sprawl meets park boundaries. The facilities in a regional park include campgrounds, picnic areas, nature centers, trails for walking, cycling or riding, water for boating or swimming, golf courses, botanical gardens, and sports fields. Other facilities depend on the climate and landscape of the area: beaches, amphitheatres, wildlife preserves, winter sports areas and zoos.

On the other hand, the Ministry of Municipal and Rural Affairs has issued a classification system as a guide to the parks in Saudi Arabia:

- **Children's playground:** it is a small area for children aged between 4 and 12 years. It can be a part of any type of park or a separate park in itself. Its size ranges from 0.6 to 0.09 hectares (900-2,000 m²). It serves a population between 200 and 900 inhabitants in a scope ranging between 150 and 275 meters. It is preferably close to family housing, is accessible without crossing busy streets and can be reached on foot within 5 minutes.
 - **Neighborhood Park:** it is an area in the center of a neighborhood. Its size ranges between 0.5 and 0.4 hectares (4,000 and 5,000 m²). It serves a population between 3,000 and 5,000 inhabitants in a scope ranging between 250 and 500 meters. It is designed to serve people within 5 minutes' walk.
 - **Quarter Park:** it lies in the middle of the quarter and can be reached on foot as the maximum distance from residential areas is 800 meters, or 5 – 7 minutes. Its estimated area ranges between 5,000 and 10,000 m². It serves between 10,000 and 15,000 inhabitants.
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- **Sector Park:** this park serves the people of many sectors. Its estimated area ranges between 2 and 6 hectares, and it serves between 30,000 and 45,000 inhabitants. The scope of its service ranges between 2.5 and 5 km, or 15 – 20 minutes by car.
- **City Park:** These parks serve the city's residents and surrounded cities as well. Its area is estimated at 70,000 m². It serves more than 100,000 inhabitants.

In addition to recreation centers, camping areas, there are also specialist parks such as zoos, botanical parks and big public parks (Muntazah). These utilities serve people at the city level, around 400,000 inhabitants. The area of these parks is variable. They are generally accessible only by car. ¹³

2.4- Management¹⁴

The management of leisure requires the effectiveness and efficiency which is needed in all good managements. The core elements of management will be the core elements of leisure management.

Management is an active human occupation and a process by which people and organizations achieve results. Management is a distinct type of work. While technical know-how is important, management is vital. It concerns the work, effectiveness, and accountability and end results. In other words, management is the sum of art and science.

When we refer to leisure management, we convey that we are in business to manage people, resources, organizations, services, facilities and programs for clients and customers in their leisure time.

Management is usually considered in terms of economic efficiency. It can only justify its existence by the economic results it produces. But sometimes the profits are not financial, as for example the contribution to community welfare.

Management has failed if it fails to produce economic results (Drucker 1955).

13 - Ministry of Municipal and Rural Affairs, Deputy Ministry of City Planning, Planning Criteria Guide for Recreational Areas, first edition, 2006.

14 - It is important to understand the goals and obligations of any organization. The interviews and the responses to the questionnaire which I conducted as an aspect of this research include the opinions of some Saudi municipal employees. Some employees are dissatisfied with the administrative situation and are experiencing conflict regarding their motivation as they feel unappreciated at work. Therefore, I suggest that this aspect of my research be used as a guide to explain the meaning of management, specifications and quality of leadership in addition to criteria of recreation and leisure employees and volunteer workers and their rights.

But profits do not need to be in terms of money. This is especially true for leisure management.

Profit can encompass a range of criteria, for example:

- The range of users attracted
- improving performance
- Improving health
- other benefits to individuals and the community

Good management is needed to achieve objectives, both financial and social. Leisure management can benefit from the experience and the knowledge of eminent thinkers.

1- Qualities of Leadership

Good leadership in leisure management requires an understanding of the goals of the organization, its services, facilities, programs and resources. It also requires understanding of the people involved: we, colleagues, clients and customers. The handling of people and communication is probably the most important ingredient for harmony in management. Leadership is a mixture of art, craft and humanity. A good leader is concerned both with people and results. In leisure management there is a need for excellent leaders in all levels.

The most distinctive features for a leader are:

- Direction
- Inspiration
- Building team
- Example

Effective leaders see the big picture and long-term goals; yet they handle the smaller issues as needed. Good leaders create a vision and define a strategy to get there. One of the arts of leadership is to instill in staff the desire to want to do what the leader wants to do.

Other important qualities of leadership are:

- Integrity
- Enthusiasm
- Warmth
- Calmness
- Toughness with fairness

2- A strategy for leisure services management¹⁵

People value leisure not only for its recreational function, but also for its role in ameliorating social problems. All levels of government have responded to the need for leisure, but **the primary responsibility rests at the local level.** Leisure services must respond to individual needs, and public leisure services must consider how to serve these needs. **The goal of leisure**

15 - Sidney G. Lutzin, 1980. Managing Municipal Leisure Services, from the Municipal Management Series, international city management association, edited by, copyright 1980, David S. Arnold, and Editor. U.S.A. (p 13-19)

services in the United States is to ensure that the members of every segment of the population have the opportunity to enjoy satisfying leisure experiences.

Local government can react quickly and directly to community needs. State and federal government should supplement local services, not supplant or duplicate them. Possible forms of state or federal support are grants, facilities and resources, making land available, and technical assistance (training, etc.). It is sometimes possible for state or federal agencies to operate facilities or programs normally run by the local government. For example, in New York, the state has introduced programs to match resources and needs in conjunction with local governments.

A- Changing geographical and social patterns

The principles that governed municipal leisure services in the past have changed dramatically. Before, public agencies were viewed as having the exclusive responsibility to provide leisure services. Public agencies functioned independently of private, voluntary or commercial agencies.

Private, voluntary and commercial agencies usually provided services to a limited number of people and their main goals were to make money or win philanthropic support (donations). However, rapid social change changed the old system. The migration to the suburbs which came after the Second World War destabilized traditional neighborhoods. Desegregation programs sometimes sent children to schools outside their home neighborhoods, so the unity of the old neighborhoods was lost.

Many voluntary organizations followed the middle class out to the suburbs. This means there was a lack of leisure services in the old neighborhoods. These neighborhoods were taken over by recent immigrants, unskilled workers and the indigent. The lack of leisure services contributed to an increase in crime, violence, gangs, etc. in these neighborhoods.

“Yet the day-by-day constancy of drabness, dullness and dolor in the slums of the inner city, and increasingly in slums of rural areas as well, exists unabated by either the impoverished skeletons of voluntary agencies left behind or the public institutions that have the responsibility to serve”. (Sidney G. Lutzin, 1980. P 15)

1980s: leisure has seen the greatest impact of these social changes, more than other areas of municipal government. Municipal governments began to respond and try to establish effective services. They had to adopt a more pragmatic philosophy to deliver services effectively. Public leisure services are responsible for providing every population group in the community

(old, young, rich, poor, etc.) with a variety of opportunities designed to meet their individual needs. These needs are not static but change constantly.

Social and economic conditions have increased the clientele for municipal leisure services; this has created new pressures to improve services. The responsibility of municipal leisure services is no longer limited to the young, poor and physically fit but to old people, handicapped, wealthy people.... **all people are in their domain.** The system must reach out to others with services that will bring more people into the structure and may help transform antisocial activity (crime, vandalism, etc.) into acceptable activity. The system must provide guidance to those who are unaware of leisure opportunities or do not know how to use them.

Municipal leisure service agencies can longer see themselves as the only providers of leisure services. Although the demand for services has increased, tax-based funding has decreased. This means that municipal leisure services must now be seen as only one part in an interrelated network of public, private, voluntary, industrial, commercial, military and other agencies. The combined resources can work together to satisfy leisure needs.

Voluntary organizations: religious institutions, YMCA and YWCA, scouting organizations, organizations for the handicapped, organizations for the poor

Commercial organizations: theatres, theme parks, camps, nursing homes, bowling alleys

Private organizations: country clubs, golf courses

Industrial organizations: company-sponsored facilities and programs

Military organizations: service clubs, veterans' associations, sports facilities, arts and crafts clubs

B- The manager as strategist¹⁶

The concept of the municipal leisure service manager has changed. The new philosophy of municipal leisure services is that an organization is a strategy and not a structure.

In this view, the municipal leisure service agency is responsible for the total leisure services system. The remaining agencies (commercial, private, etc.) are effective participants in the service delivery process. As the key strategist, the manager must:

- directly manage the agency program
- stimulate and motivate community interest
- guide, counsel and train staff and encourage expansion and innovation within the existing programs

16 - Previous reference number 8.(p17 – 18)

- provide general support through information services and communications
- determine community interests and needs and identify new resources
- provide an organizational pattern that will enhance the strategy
- all agencies, organizations, citizens' groups and special interest groups must collaborate in planning and implementing the strategy
- all partners in this effort must be assured that they will benefit from the strategy

3- Personnel Administration¹⁷

There is a close similarity between management and personnel administration. Both managers and personnel administrators must use materials, methods and equipment effectively. Both must motivate people to want to do their best.

“...the manager of leisure services must have a basic understanding of the principles relating to effective personnel administration and must be able to apply them to the leisure services agency.” (Edward H. Thacker, 1980. p. 230)¹⁸

Leisure services agencies provide two basic services:

Leisure services agencies provide basic services and facilities for leisure activities such as playgrounds, playfields, pools, cultural arts centers, golf courses, passive parks and historic areas. Also, they provide leadership and management personnel for these facilities and programs.

The title “**superintendent of parks**” or “**superintendent of recreation**” is a title for the chief executive of the agency. Combined agencies often call their chief executive “**superintendent of parks and recreation**” and have assistants who look after the two functions: park and playground facilities and park and recreation activities.

17- Previous reference number 8. (p 230 – 241)

18 - Edward H. Thacker retired as Deputy of recreation, District of Columbia Government (Washington D. C.) He formerly had been director of research for the district department of recreation. He is Distinguished fellow of the American park and Recreation society and the American Recreation society and holds the outstanding performance Award and certificate of Merit from D. C. Government. His education background includes bachelor's and master's degrees from George Washington University.

Today, the chief executive is usually called the Manager of Leisure Services. The park employees have various areas of specialization: the planners and landscape architects who design the facilities, horticulturalists and foresters care for the environment. In addition, interpreters, naturalists and historians describe the functions of the park to the users.

Furthermore, there other recreational specialists such as: coaches for sports, teachers for arts and crafts, instructors in performing arts (dance classes, etc.), people specialized in preschool children or programs for the retired and specialists in institutional recreation (hospitals, industry, etc.).

Leisure service personnel can have many titles: leaders, specialists, supervisors, managers. There are both highly-skilled and low-skilled jobs in leisure services agencies. This variety of work creates certain problems in administrating leisure services.

A professional employee is one who applies mental ability to the solution of work assignments and who has attained that ability through a course of study leading to a diploma or degree. Earlier, practical experience and training counted for more than they do today. Employees are considered to be professionals when they perform in the leisure services agency or in connection with recreation and park programs.

Some duties performed by professionals could be performed by others with less training (storing equipment, counting participants, etc.). But professionals have to do a lot of this type of work. Recreation technicians are employees with less than full professional training. They are responsible for working within the framework of the activities and programs plan. In general, they are qualified for specific recreation activities and employed to teach or lead one activity or program at a recreation centre.

A professional (recreator) can identify leisure needs, plan programs and facilities to meet these needs and evaluate the effectiveness of the programs. A pre-professional (recreation technician), on the other hand, can relieve the professional of routine duties and take on a leadership function directly with program participants.

4- The volunteer worker

Many well-known recreation agencies and programs were originally started by volunteers. Now, the government has more responsibility for recreation, but volunteers still serve on committees, act as leaders or instructors, etc. Many leisure theorists believe that volunteer work is also a form of recreation: it is done in the volunteer's free time and it is personally rewarding. Volunteers are important because there are more and more demands on tax money in the community. Often, demand for services exceeds the available money.

Some administrators are critical of volunteers, claiming that they are undependable, inexperienced and have no leadership skills. But good volunteers can lighten the professional load and leave more time for planning, organizing and directing. It takes no longer to recruit, train and supervise a good volunteer than someone who is paid for the same work.

Volunteers should be carefully chosen and treated the same as paid employees. Their skills should be matched to the agency's needs, and some training should take place before they start work. Their work should be supervised, evaluated and rewarded. Rewards are not usually financial but focus on public recognition. Public recognition is also a good opportunity for it can raise awareness of the leisure services agency.

5- Criteria for Employment in a Leisure Services Agency

Leisure opportunities are a service to the community. Staff must recognize this service function, especially when they work directly with the public.

“Government service has frequently been stereotyped as a bureaucracy mired in red tape with no consideration for the plight of those seeking the services ostensibly offered. A leisure services agency that assumes this attitude, or is identified with it, cannot effectively serve the community. People matter to a leisure services agency. Without them there would be no need for the service.” (Edward H. Thacker, 1980. P 235)

Workers need technical knowledge in their areas of specialization. The selection process screens candidates on this basis. But technical knowledge is not enough—staff must also show ability in human relations. Technical knowledge is a combination of education and experience. Personnel experts must establish minimum qualifications, which will allow an objective evaluation of the candidates for the job. The experts must also evaluate the candidates' leadership ability and personality. This is much more subjective and takes longer than an objective evaluation.

6- Position descriptions

A position description is a statement of the duties of a job and how this job relates to other positions in the agency. It gives employees a model to follow. Duties should be described in terms of the complexity of assignments.

The position description must describe the functions of the assignment, whether the worker is responsible only for one specific activity or is also expected to plan and manage aspects of a program. The position description measures how much technical knowledge and skill are needed for the job. It should also indicate whether creativity is important to do the job.

The position description should describe the level of responsibility required in the job, and provide guidelines and policy sources. The nature and purpose of the candidate's work contacts should be stated so that the worker can understand the relationships between other positions and functions in the agency.

A good position description will relate to a standard classification system and describe all the duties in all the positions in the agency. Every employee should have a position description of his or her job.

7- Selection of personnel

There should be at least one interview. The applications and documents must be evaluated. Sometimes there is a test for the candidates. Selection is generally based on merit, and there should be a competitive system with strict rules which all candidates must follow.

It is important to select candidates based on merit and not on political connections.

These jobs must be safe from political change.

8- Promotion of personnel

The best-qualified person must be promoted. Again, this system is based on merit and not on connections or seniority. The agency must advertise the position so everyone knows about it and has an equal chance in the selection process. An agency can hire someone from outside the organization if that person is the best one for the job. Job announcements should be distributed to other agencies. A good agency will have a career development program to prepare staff for more responsible positions.

“Enlightened agencies today are looking for ways to sustain motivation and high production or else to eliminate unproductive employees from their rolls.” (Edward H.

Thacker, 1980. P 237)

9- Fringe benefits

Fringe benefits are indirect forms of compensation as a supplement to wages. The higher the value of the benefit or incentive, the longer employees will stay at their jobs. Fringe benefits are normally not controlled by the leisure services manager, but administered and distributed on behalf of the municipality. Some examples of fringe benefits are vacations, sick leave, insurance, retirement plans, credit unions and recreation services.

10- Motivation

Administrators used to believe that fringe benefits improved performance. However, their importance is outweighed by other factors, like feeling secure in the job or the assurance of economic advancement. These factors are also important, but the most important factors are a feeling of pride in the job, recognition for the work done, the opportunity to share ideas with management and the opportunity for personal growth.

11- Employee development

“Training helps people become interested in their work and help them acquire the knowledge and skills necessary to do that work well.” (Edward H. Thacker, 1980. P 240)

Training is a never-ending process and employees must stay up to date. Every agency should have an employee development specialist who prepares a master plan for all the employees in the agency. This specialist will also identify training needs, get support from the manager, extend training to staff, and counsel employees about their needs and refer them to other institutions for training (if necessary).

There should always be opportunities for in-house training. This means group discussions, lectures, and mentoring programs where new employees work with more experienced ones for the first few weeks on the job. In-house training lets management see employees not only in their own positions but also working in other jobs. This can be helpful when a new position must be filled. There must be regular evaluations in employee development. This will help identify workers' strengths and weaknesses. Any employee development program must be supported by the union and should extend to all levels of employment, including upper management.

“An effective employee development program becomes in fact a career development program and can be integrated wholly within the merit promotion system.” (Edward H. Thacker, 1980. P 241)

2.5- Operation and Maintenance ¹⁹

Sternloff and Roger define maintenance as a service function and must be geared to help meet agency goals. This is defined as keeping parks and recreation areas and facilities in their original state or as nearly so as possible. This was done in the early parks and gardens. The tools and equipment used in park maintenance were primitive then. Laborers played a great role in maintaining the parks and gardens. Now park and garden maintenance have access to other, more modern, tools and equipment. Garden and park management have become more complex and more difficult as management is responsible for both indoor and outdoor recreational sites. Indoor sites include facilities such as gymnasiums, bowling alleys, community centers and museums. Examples of outdoor facilities are tennis courts, athletic fields, picnic areas and family campgrounds, where effective maintenance plans are the result of continuous evaluation and regular modification based upon these evaluation findings. The plans require specialized equipment and mechanical systems including heating, ventilation and air conditioning and also utilities such as water systems, drainage, electricity, radio, fire alarms and lighting.

There are requirements and needs which do not perform their function within the agency, creating maintenance havoc, as maintenance and program function work in opposite directions. Population and urban area increasing, affluence is another factor affecting the recreation movement. Inflation and energy crisis, social change, changing nature of work, changes in education play an important role. The late 1960s and early 1970s saw a revolution in environmental reform and awareness. People gradually began using natural resources in a more intelligent and responsible way.

Recreation is defined as an experience that takes place during leisure and is self-gratifying to the individual who participates. Good maintenance is a vital ingredient if the agency is to reach this goal. Without all other efforts, this will surely fail.

Park and recreation agencies need to provide opportunities for directed and self-directed recreation. Self-directed recreation has become more and more important in terms of mass recreation. So many efforts are being made for self-directed recreation. For example, swimming lessons are offered so the individual can swim in a pool or the sea. Maintenance and operating policies must be geared to provide optimum use, and the recreation professional should be concerned with both quantity and quality of the recreation experience. He has the

19- Sternloff, Robert E. and Warren Roger, (1977) Park and Recreation Maintenance Management (Boston: Hobrook Press Inc.). (p 8- 25).

responsibility to provide an opportunity for possible recreation experience for people and he has to protect the resources, natural or manmade. In establishing an effective maintenance operation it must be realized that each agency has problems and needs unique to that agency, because there are differences in geography, facilities and recreation programs. Despite these differences, there are certain principles or fundamental truths that are basic to any effective maintenance operation.

Maintenance objectives and standards: Objectives are statements about the purposes and goals of a park and recreation maintenance department. However, the objectives vary little. Objectives are:

1. Park and recreation areas and facilities should have a clean orderly appearance at all times.
 2. Areas and facilities that are aesthetically pleasing should be developed and maintained.
 3. Areas and facilities should be maintained to create a healthy environment.
 4. Areas and facilities should be maintained to create a safe environment.
 5. Maintenance should provide areas and facilities where people have the opportunity to enjoy their leisure time.
- Maintenance standards have to be defined after the objectives have been determined. Maintenance standards vary from place to place and from region to region. They are, for example, intensity of use, weather, topography, quantity of supervision, types of programs and vandalism. Maintenance standards should be established for all areas and facilities including grounds, signs, fences, buildings and other structures, roads, parking lots, trails, utilities and specific facilities such as picnic areas, ball fields etc.

A maintenance standard is established for guidance in developing and carrying out a maintenance plan for a park and recreation department.

1- Economy of time, personnel equipment and material

It is important that maintenance work does not interfere with program functions. For example, grass mowing or building maintenance at a day camp program must be done at times when there are no customers.

Economy of personnel implies using workers trained to do a particular job, for example mowing, golf green, or winterizing a swimming pool. The optimum number of workers should be assigned to perform various maintenance jobs.

In economy of equipment, the use of mechanized equipment plays a vital role. In the past, many tasks were performed by hand tools and backbreaking labor. This was very costly. Today, power equipment is a must if the agency wants to be effective.

For economy of materials, proper materials must be provided, for example appropriate cleaning materials and chemicals to accomplish their tasks. It is particularly applicable to all types of repair work. Communication is essential between the person requesting work and the maintenance department supervisor assigning the work crew. The costs for the equipment are rising every year. Thus management should do the job more economically and efficiently.

2- Maintenance plan

The maintenance plan should never be the work of one individual. It should be a cooperative coordinated effort encompassing the entire maintenance staff. Therefore, this plan should have the value of providing a systematic approach to accomplishing the work of the department, providing a sound method of justifying budget requests and serving as a communication device for people higher or lower in the organization. The plan should be dynamic, and should allow no substitute for quality.

3- Operating expenditures

Maintenance costs are a major expenditure. However, there is great variation among park and recreation agencies. In a national recreation and park association survey based on 1970 expenditures, it was disclosed that the municipal park and recreation agencies surveyed had spent \$954 million in operating expenses. Fifty-five percent (\$366million) was spent on facilities and maintenance, thirty-three percent was spent on programs and 12 percent was spent on administration. One of the prime responsibilities of the head of any maintenance program must be to sell budget needs to superiors. One of the most neglected aspects of the maintenance budget is equipment to be replaced. A separate adequate fund, which can be drawn upon as needed, should be established for this purpose. The merit of this is that equipment can be replaced at the optimum time rather being replaced because money has been budgeted for the fiscal year.

4- Design and construction

Maintenance should be a primary consideration in the design and construction of parks and recreation facilities. Compromising the principal of good design and construction from the beginning is, in the end, more costly than doing it right from the beginning, so the use of appropriate building materials for park and recreation facility construction should be 1) durable 2) easy to maintain 3) easy to repair 4) easy to replace. Designing facilities that are

functional as well as aesthetically pleasing should be the goal of every park and recreation management team. Alternatives that are acceptable to the designer, program staff, and maintenance staff should always be developed.

5- Personnel

Personnel used in maintenance work should be skilled technicians rather than laborers. The positive approach to maintenance labor is predicated upon

- (1) Hiring quality personal
- (2) A good orientation program to sell the individual on the importance of his or her job and the overall importance of what the agency is seeking to accomplish.
- 3) Adequate initial and in-service training.
- 4) Good supervision.
- 5) Good communication in all the upper administrative levels to articulate the importance of the job of the maintenance.

6- Preventive maintenance

Preventive maintenance is defined as continuous attention and care to prevent damaging wear and costly repairs. The purpose is to get optimum life from facilities and equipment used by the park and recreation agency. Preventive maintenance is an important consideration in all aspects of maintenance work. As for the building, the concern should be for mechanical systems, care of floor coverings and painting schedule. Preventive maintenance applies to maintaining all recreation surfaces in top-notch conditions, for example tennis court resurfacing or maintaining adequate ground cover in a picnic area to prevent costly and unsightly erosion. It is important to prevent damage before it occurs.

7- Public safety

The responsibility for public safety must be shared by the entire park and recreation agency. The recreation facilities and activities should be safe for adults and for children. Avoiding accidents should be a priority. A record of the accidents which do occur should be kept. The maintenance staff should provide a valuable service to the agency by keeping the facilities and areas as safe as possible. Public safety should carefully be considered during the planning and construction stages.

8- Employee safety:

The maintenance program should consider the safety of the employees. In 1973 the number of disabling injuries in park and recreation area was three times higher than that of industry in the United States. The administrator and personnel supervisors in the agency should recognize the problem and desire to rectify it. This is essential for establishing a worthwhile safety program including insurance company safety engineers. Advantage should be taken of Safety Engineers, Local Safety Councils, National Safety Councils, or Occupational Safety and Health Administration.

9- Environmental protection:

The maintenance program should be designed to protect the natural environment. The park and recreation professional should accept the responsibility as a steward of natural environment for the public. If we expect the general public to take the environmental crisis confronting our nation and the world seriously, recreation professions must accept a leadership position through good environmental management of the lands under their jurisdiction.

There are specific ways to protect the environment. Developing areas for people to observe natural beauty is one of the highest forms of recreation. Facilities must be ready for use in a good manner and way so the people can enjoy the greenery and open space.

10- Organization

The organization of maintenance plays a great role in developing parks and recreation areas. So, basically, good organization involves making the most efficient and effective use of personnel equipment materials and time.

11- Public relations

Public relations are a subject the maintenance employees should be interested in, because they are responsible for the department. If the maintenance department does a good job in its routine work, this will best reflect a positive image of the park. Employees should answer questions, even foolish ones, commonly asked by the public. Conscious efforts by program staff can and should be made to involve some of the maintenance staff with the public when appropriate. For example, a gardener with knowledge of plant propagation and care would make a welcome addition to a garden club tour.

2.5.1- Planning and organizing of maintenance

If we were to locate and describe the place of maintenance in the Total Park and recreation administrative hierarchy, a rather negative picture would probably result. Many new parks with inadequate maintenance resources are opened. Many frustrated park and recreation managers discourage the construction and the development of those parks. Amongst the agencies, there is intense competition for the tax dollar, but also great competition based on public demand. The public may want parks or new activities but the public does not care too much about maintenance. Deterioration of parks and recreational areas due to a lack of maintenance often happens gradually. The visitors will not notice it until it becomes intolerable or dangerous. At that point, maintenance and repair becomes very expensive. Maintenance should be of the same importance as all other areas of responsibility. Maintenance must function on a planned systematic basis. Emergencies and crises are intolerable. A systematic plan should be developed. The plan must not be static. It must continuously be modified.

1- Written Maintenance Job Instructions

Following the identification of routine maintenance jobs for the various areas and facilities, a written maintenance plan should be developed and included as a part of the maintenance manual. It is important that the plan is easily understood by the field personnel, who will be supervising, and by those who will be doing the maintenance job in the end. The maintenance plan should be illustrated and written. A maintenance plan should also be established for specialized machines and equipment and mechanical systems and for utilities like the water system, the sewer system, the irrigation system etc.

Smaller parks will assign the maintenance jobs to people outside the park and recreation agency on a contractual basis. But nevertheless it is an integral part of the maintenance system and should be mentioned in the maintenance plan. The written maintenance plan should be simplified and condensed for easy reference and use. At the same time, it must cover detailed specific maintenance requirements by referring to other sources of specialized information.

2- The work order system

An effective maintenance program depends to a great extent on a work order system that receives all work requests, initiates actions and follows the project through to completion.

Work council desk- A large park recreation organization should establish a work control center to effectively coordinate their work order system. It is important to designate a person and a place for receipt of work requests and complaints.

Work order request form- A work request can come from a variety of sources. In a well-managed maintenance division, most requests should come from department employees trained to identify and report problems during normal work rounds.

Work request forms should be distributed to all higher operational and program officers to facilitate maintenance requesting. Work requests must be analyzed to determine which of them will not need to become work orders. If the job is familiar, the clerk can easily estimate time, assign work order requests and add work to the maintenance schedule. If questions remain, a foreman must investigate and analyze to find out if the orders can be rejected or must be accepted.

3- Assigning Responsibility for Maintenance Work

Organization of the maintenance operation depends upon many individual factors such as visitors and participant use of each of the units or facilities within the system (weekend, weekday and holidays), the size of the area to be maintained and the types of facilities and equipment within the units to be maintained. All those factors have to be considered to be effective.

No two parks or recreation systems are alike. Consequently, the maintenance organization must be designed especially to meet the requirements of each Individual Park and recreation system.

4- Methods for assigning maintenance work

- **Unit maintenance**

In utilizing this method, each unit within the park and recreation system would perform its own maintenance. The advantages of the unit maintenance system are:

- 1) Maintenance personnel becomes very familiar with the facility
- 2) It is relatively easy to determine responsibility when the maintenance service is not properly performed.
- 3) The director of the unit controls both the maintenance and program staff, resulting in a potentially better organized effort.

- 4) Maintenance personnel tend to develop a loyalty to their particular unit and often take more pride in their work.

The disadvantages of unit maintenance are:

- 1) Unit maintenance personnel must learn to perform a variety of jobs and use a variety of equipment.
 - 2) The supervisor must also be familiar with various jobs and equipment.
 - 3) Unit maintenance does not make the most efficient use of expensive equipment.
- **Specialized maintenance crews**

In utilizing the specialized crew method of maintenance, each crew is trained to do a special job such as lawn mowing, floor care or other specialized work. The specialized crew moves from unit to unit to do their work.

The advantages of specialized maintenance crews are:

- 1) The crew becomes extremely proficient in their specialized type of work.
- 2) The specialized crew method provides the best use of expensive equipment which should be used on a regular basis to make the cost of the equipment profitable.

The disadvantages of specialized maintenance crews are:

- 1) The repetition of the job tends to make it monotonous to the crew.
- 2) There is a loss of travel time from area to area.

- **Maintenance by contract**

The third basic method of maintenance is to arrange for maintenance service by an outside contractor.

The advantages of maintenance by contract are:

- 1) There is no capital investment in equipment.
- 2) You hire well-trained specialists for each job.
- 3) There are no in-house personnel problems.

The disadvantages of maintenance by contract are:

- 1) Loss of control as to when and how well jobs will be completed.
-

- 2) The costs may be higher because the contracting firm must make a profit.

Safeguards for the recreational organizations to follow when contracting maintenance work are as follows:

- 1) Choose reputable firms
- 2) Develop complete and detailed specifications
- 3) Inspect contractors' work

Few park and recreational agencies would exclusively use one of the three basic methods of organizing their maintenance work. A combination of all three methods is most common.

2.5.2- Work expectancy concepts of park maintenance management

Opportunities are available to improve productivity in park maintenance operations through the use productivity measures that are similar to those for other industries. The key to improvement is finding adaptable measurement tools that can be applied to park maintenance in a practical way. Work expectancy is the measurement solution presented here. It is a concept based on management science principles that advocate time standards as a performance indicator. The concept represents a hybrid set of measurement components based on eighteen years of consulting experience in the field of park maintenance and operation management.

Public attention has recently focused on productivity in the public sector. Many agencies seem to have a lack of motive. How to react if people demand more green spaces but refuse to pay more taxes? The demand can be assessed in different ways. But regardless of the assessment method a park's organization response is the secret to positive change. Some parks implement canned programs for productivity improvement. It is better, however, to just evaluate the appropriateness of performance measures and to use the existing performance information to find the highest level of service possible.

Assistance for the public sector may be borrowed from the private sector. But selection must be made carefully. The approach presented here yields productivity improvement as a result of applying workload forecasts to time standards that are based on efficient working methods. A park maintenance division may be viewed as a type of production facility. The output of the facility is clean parks and repaired facilities. Market demand in context of park maintenance is a combination of the physical characteristics of the park and of how frequently and how

extensively it is used. So park maintenance work expectancy is an expression of market demand multiplied by the time it takes to perform one unit of maintenance output.

The development of work expectancy begins with a detailed organizational analysis. In four steps, all operations are reduced to their most basic elements. The organization with its function is at the highest level of the hierarchy as for example a municipal park and recreation department maintenance division. At the second level of the hierarchy are the activities defined as work responsibilities to fulfill a function as horticulture, arboriculture etc. At the third level we have the task level as for example trimming trees, pruning trees, fertilizing. The tasks again are reduced to distinct elements, precise steps needed to perform a task.

Work measurement starts at the task level. It establishes the time it takes a qualified worker needs to complete a specific job at an acceptable level of performance. Here we have to consider two components: the work unit and the standard allowed hours. The work unit must be stated by the factor which most influences the activity. It should be measurable. For instance, take the activity mowing grass: how long does a qualified worker take to mow a certain quantity of grass (unit)? When performing this calculation, the manager should include compensatory and contingency allowances for travel time or difficult, time-consuming situations.

Some departments have some usefully maintained manual systems. Others have installed special software systems to integrate with the expectancy functions more successfully to develop the concept.

Work expectancy enhances productivity through three major applications: manpower planning, scheduling and performance reporting.

Clearly there are significant benefits to be achieved by applying work expectancy concepts to park maintenance management. If productivity can be simply viewed as output per unit of input, savings may be realized on either side of the productivity equation. The cost of providing the current service level may be lowered or the service level provided by the current cost of resources may be increased.

Some other factors must be faced, however, before implementing the concept related to work expectancy. Although true implementation begins by stating activities and tasks, such work components must be defined even earlier through meetings with management and supervising personnel, detailed job descriptions and direct observation of maintenance crews on the job. Results are then combined into special charts which remove duplicate information and combine similar operations. The tasks must be classified as regular scheduled maintenance or available-on-demand maintenance.

Work expectancy is a practical tool for improving productivity of park maintenance because it avoids many shortcomings common to other well-known productivity concepts.

The management service principles on which work expectancy is based have been proven in the private sector. The successful examples in which the concept was used in the public sector show that it is transferrable.

Although work expectancy is well-suited to park maintenance activities, the concept also has implications with respect to other areas of park management as well. It can be applied to the administrative staff or the recreation staff as well to improve productivity. Workload forecasting and scheduling functions are also important for the storage and scheduling of equipment and materials. In short, work expectancy principles applied correctly to the park maintenance function allow park management officials to meet the public's demands for service yet stay well within limits imposed by the budget.²⁰

²⁰- Baldwin, Steven R. (1989). "The Application of Work Expectancy Concepts to Park Maintenance Management". *Journal of Park and Recreation Administration* 7.1, (p. 15-25).

2.6- Actual case studies

My thesis concentrates on the policy of parks and open space areas in selected cities in Saudi Arabia. Currently there is no dissertation focusing on the cities of the Middle East concerning this subject. However, as part of their supervision and guidance, my supervisors recommended a report entitled *Is the Grass Greener...? Learning from International Innovations in Urban Green Space Management*²¹ This report examines a number of cities throughout the world from the perspective of green space management. I would like to introduce the benefits of these cities' practices here with respect to the aspects I focus on in my own research.

The report looks at the eleven cities which aspire to excellence in their green spaces and seeks lessons for practice there. It starts with the city of Tokyo.

Case -1: Tokyo, Japan

Special characteristics: high earthquake risk, population density of more than 13,000 people / km².

Tokyo's green space management has changed since the recession of the 1990s. Current goals focus on quality and developing parks as public amenities for diverse social needs. Tokyo has a long-standing goal to increase green open space. The Green Space Plan from 2000 outlines the wish to develop 400 hectares of green space by 2015. This plan has four important goals:

- parks as refuge areas in case of earthquake
- alleviate the heat-island effect
- improve attractions and services for tourists (historic parks and gardens)
- improve and increase recreational space and facilities for the ageing Japanese population

- **Public sector involvement**

After 1998, there was little money for green space management, so Japan encourages partnerships with the private sector. Some of these solutions were:

- transform underused space into small parks (e.g. rooftops)
- Temporary use of vacant land as parks for limited periods
- Extension of the Private Finance Initiative (PFI) to urban green space management. In 2003, the PFI used direct investment in the Hibiya Park project. The park's centennial was

²¹ - This book was issued by CAFE Space, which is part of the Commission for Architecture and the Built Environment. It was established in May 2003 and stands for good design and management of parks, streets and squares in the towns and cities of the United Kingdom. CAFE Space receives funding from the office of Britain's Deputy Prime Minister and support from the Department of Culture, Media and Sport.

coordinated with businesses around the park to link both public and private interest in the park.

- Contracting out maintenance work as a money-saving strategy

- **Community participation**

Urban Park Act 1956: This act encourages community participation in parks. Community groups may establish and manage facilities in public spaces. Residents are encouraged to be involved in planning, especially old people. The local government holds the overall responsibility but entrusts management to other organizations like the Parks Preservation Society (a volunteer organization).

- **The lessons to be learned from case I:**

The lessons to be learned from Tokyo are quoted from the report *Is the grass greener?* (cf. reference 18):²²

1. *The successful management of green spaces depends on a correct understanding of the nature and needs of different types of green spaces.*
2. *Locally-derived green space typologies are valuable to differentiate between green space types and their appropriate aspirations and management regimes.*
3. *A coherent management strategy is required to cope with the diversity of green spaces, and to integrate management regimes, preferably under the auspices of one organization.*
4. *A clear distinction between ownership and management responsibilities for urban green space can help to establish a unified and integrated management regime.*
5. *The benefits of a dedicated urban green space agency/authority were readily apparent.*
6. *Diversity in the problems associated with different types of green spaces needs to be acknowledged and dealt with.*
7. *Dedicated management regimes set up to tackle particular types of green space or green space problems can be effective.*

Case II – Aarhus, Denmark²³

Aarhus is a green city with a strong commitment to environmental issues.

In the 1970s, Aarhus introduced its Structure Plan with a vision of a “city surrounded by forest.” This plan controls urban growth and sets standards: no dwelling should be more than 500 m away from a green space of at least 6,000 m².

This plan created the momentum for a planned highway to be built further west: the land originally intended for the highway became a green belt. It favors a more natural appearance

22- Previous reference no.19. (p 19)

23 - Previous reference no. 19. (p. 26)

for parks: this means less maintenance and a greater variety of plants, landscapes, etc. Water conservation is also a priority of the Structure Plan: sports fields are watered with their own drainage runoff. Artificial lakes have been created on old meadows (biologists and environmentalists were consulted). Landfill sites had too much soil from building sites, so soil was dumped along the green belt to create hills. Golf courses are managed in association with a group of elderly people. This has had enormous health benefits for the old people themselves and a real improvement to the amenities in these areas.

Staff are encouraged to train and learn new things in the low season, and there is regular feedback from the town council and external experts.

A key lesson was...that green space aspirations need to be considered within the broader context of other relevant policy areas if they are to have resonance beyond specific green spaces interests.”

“Another key lesson emerging from most of the cases was that successful green space management depends upon a long-term commitment to a vision for green spaces that by its nature cannot be restricted to a single party agenda.”

The green space strategy must be maintained over many years, regardless of shifts in politics. Green space aspirations must be shared by the citizens. Green space management agencies must make an effort to increase commitment from politicians and citizens when it comes to marketing the vision and applying for funding.

“...Whatever its form, effective community participation needs an information system to facilitate the dialogue between green space managers and the community...community participation in green space management is immensely beneficial.”

Case III- Malmo, Sweden

Malmo is Sweden’s third-largest city. Until the 1990s, it was primarily an industrial centre. High immigration over the past 15 years has led to a housing shortage.

- **Green Plan**

Malmo’s Streets and Parks Department has won many national awards. Parks are a vital aspect of the city’s marketing strategies. In a 2003 study, many people stated that high-quality parks were the most important characteristic of Malmo’s high standard of living.

In 1996, the Green Plan was introduced as part of a general land use plan. The Green Plan began as a pilot project and was approved in 2003. The plan considers both recreational possibilities and ecological values and includes public and privately owned land.

The aim of the Green Plan is to ensure adequate provision and distribution of urban parks, including paths for walking and cycling and to protect existing green space from development. Previously, standards for parks in new development areas were imposed by the national government, but now these decisions are made at the municipal level. The city has the power to acquire land and to negotiate land-use agreements with private owners for the development of recreational areas. For example, a special agreement with the Water Authority has allowed the integration of ponds and canals into the park system. This has enhanced the appearance of the city, increased water-based recreation and increased biological diversity in those areas.

The Green Plan is not legally binding but is used as a guide in decision-making. Adopting decisions depends on good communication between parks authorities, other government departments and all other stakeholders. It is important to persuade local politicians of the importance of green space maintenance as this area is often subject to budget cuts as a means to save money. However, Malmo's green spaces only get 1% of the municipal budget, so cutbacks here would not mean significant savings.

- **Contracting Out Maintenance**

Maintenance is financed by the city. Since the Green Plan has no statutory authority, local politicians are not required to provide a high maintenance standard. The Streets and Parks Department employs both private and municipal contractors.

Over the past few years, contractors have taken on more responsibility. Using different contractors in different geographical areas has created a competitive environment which controls costs. The geographical areas are redrawn for every new negotiation period, so no contractor can be assured of a renewed contract.

The Streets and Parks Department sets standards and the contractors are responsible for implementation and operations. There is currently a gradual move underway from specific instructions towards broadly defined goals the contractors can fulfill. This requires skilled contracted workers and good communication.

In Sweden, decision-making is generally delegated to the lowest possible level. This results in faster decisions and the better use of information from people directly involved in the work. Contractors are encouraged to show initiative when it comes to improving maintenance methods.

Each maintenance zone has a manager responsible for contractors. The contractor must supervise his own activities and report problems to the City Council. The Streets and Parks Department has a customer service division to deal with comments and complaints from local

residents. The area manager watches how contractors respond to suggestions and complaints. Every contractor's performance is evaluated at the end of the contracting period. Therefore, there is high pressure for the contractors to satisfy both the municipal government and the local residents. Each contract is awarded for 3 years, with the option to extend it another 2 years.

Lessons of cases II and III:

The lessons from Aarhus and Malmo cases are quoted from the report *Is the grass greener....?* (cf. reference 18):²⁴

1. *There is a need to link green space aspirations to broader national, regional and local policy areas and aspirations through the effective use of the available policy instruments, e.g. in spatial planning.*
2. *Detailed green space strategies should be prepared, reflecting both a spatial vision for public green space and day-to-day management policies.*
3. *Successful green space management depends upon a long-term, cross-political commitment to green spaces; strong local leadership is the key determinant of success.*
4. *Marketing the value of green spaces and local successes is an important task for green space managers, both to the internal and external audiences.*
5. *A key dimension of successful green space management is a willingness to engage local communities in the task, and to think creatively about means to make this happen.*
6. *Active community support for green space issues is vital if green space is to remain a political priority and if changing needs and preferences is to be reflected.*
7. *Effective community participation requires an information system to facilitate the dialogue between green space managers and the community.*
8. *Community participation needs to happen within a framework which gives weight to different voices within the community and that is not unduly influenced by sectional interests.*

Case IV - Curitiba, Brazil

Achieving planning/environmental objectives

Curitiba was known as the Ecological Capital of the 1990s and is seen by many as a model for urban management. In 1966, the government designated Environmental Protection Areas that allowed for the creation of new parks along rivers for recreation, native plants, protection of water resources and flood control.

²⁴- Previous reference no.19. (p 31)

In the 1970s, the population exceeded one million and urban green space decreased to 1 m²/person. This led to new plans to increase green space and control expansion.

The population was encouraged to settle along the new road structure plan and not in low-lying areas which were subject to flooding. The low-lying areas were reclaimed as green space and green space increased to 51.5 m²/person.

In 1986, the Municipal Secretariat of the Environment (SMMA) was created and took on responsibility for all environmental matters. This became Curitiba's most influential local government agency. SMMA's annual budget for improving green space is more than 4% of the total municipal budget. One-third of this is allocated to green space management. More money can come from income, sponsorships or federal subsidies. Outsourcing to private contractors has cut costs by 50%. SMMA identifies locations for transforming green areas and can appropriate the land or arrange exchange with the owners. In 2002, this system led to the conservation of 9,500 m² of open space.

Curitiba's biggest challenge for the future is maintaining the high ratio of open space to people. In 2000, 70% of squatter settlements were located along watercourses in permanent preservation areas. SMMA has little monitoring power and occupation is often recognized when it is too late.

- **Effective communication and environmental education**

In the 1970s, the high incidence of vandalism meant that education was necessary. With time, people came to support SMMA's programs. Politicians from all parties supported the environmental objectives. The local government is now trying to implement community participation programs based on a partnership between government, private enterprise and civic society. In 1989, environmental education was introduced in all municipal schools and has now spread to all ages and social backgrounds. A social program called "Pia Ambiental" provides extra-curricular activities in low-income schools. At these schools, the students can have some gardening training, which may improve their chances of employment later on. In 1991, the Free University of the Environment was created. It improves people's knowledge of the environment and acts as a meeting point for researchers.

Case V – Minneapolis, USA

The Minneapolis Park and Recreation Board (MPRB) is admired by other park management agencies for its blend of public accountability, financial independence and the expertise of its staff.

A Park Board was established in 1883. As other cities filled in wetlands to create building space, Minneapolis created a chain of natural and man-made lakes and set aside 1,000 acres of waterways and parkways. This attractive solution increased the value of the adjacent properties, which increased the tax base.

The MPRB consists of nine elected Park Commissioners who can hold legal title to property and develop and administer land as parks. The MPRB sets goals, which are evaluated at the end of each year. MPRB may enact its own laws, as long as they comply with national and state laws. Regulations are enforced by resident park-keepers and the Minneapolis Park Police Department.

MRPB has the authority to impose taxes on residential property. The rest of the budget comes from the State of Minnesota or from revenue (user fees, etc.). Income from independent taxes means that Minneapolis' parks are immune to budget shortfalls. There are also some partnerships between the public and private sectors, e.g. the indoor skate park, which is owned publicly but managed privately. MPRB might introduce parking fees to increase revenue.

MPRB employees are generally well-trained and experienced, and have a great knowledge of historical and contemporary parks management in the area. Staff loyalty comes down to a strong union which in turn has brought about

- Good working conditions
- Job security
- Good benefits
- Good salaries

MPRB employees take pride in their parks and in the work they do. Contractors are used only in exceptional cases, and the unionized workforce resists citizen involvement. High pay for these employees means high operational costs (\$120/resident), but the parks system adds enormously to the quality of life.

There is a general trend towards contracting out management tasks to private agencies, but this varies from case to case. Contracting out is most effective in cities with clear structures to manage the relationship between public bodies and private contractors. Involving the private sector can save money, but some cities want to retain the benefits of experienced and responsive in-house services.

Volunteer involvement also varies from case to case. It seems to be especially effective in smaller parks, as in Tokyo. The overall impression is that volunteers are an underused resource, and their involvement may increase over time. Some cities are not actively interested in volunteer involvement (Minneapolis) as parks employees and managers feel that

expertise, training and experience are important in producing loyal workers and high-quality results.

Lessons from cases IV and V:

The lessons from Curitiba and Minneapolis are quoted from the report *Is the grass greener....?* (cf. reference 18):²⁵

1. *The way different management responsibilities are coordinated is more important than the formal distribution of those responsibilities.*
2. *Although not ideal, institutionally separating capital investment responsibilities from day-to-day management responsibilities need not be a problem, as long as communication and coordination are good.*
3. *Clear structures are required to manage the relationship between public bodies and private contractors; the need is to strike a balance between quality outputs and a competitive environment, together with adequate monitoring of standards and vetting of contractors.*
4. *It is important to recognize the contexts and tasks in which the private sector can add value (both qualitative and economic) over and above that of the public sector, and vice versa.*
5. *Involving the voluntary sector in urban green space management can tap an underused resource.*
6. *The availability of a coherent, green space-friendly regulatory framework at the strategic level can be important, but capacity is required to skillfully combine any available powers to their most effective use, as well as a political will to use them.*
7. *The importance of experienced staff, from the strategic to the operational level, is clear, requiring an emphasis on ongoing training across all management and operational levels, and a continual investment in staff resources.*

Case VI – Hannover, Germany²⁶

Hannover is a success story and is known as a “city of gardens.” This success has been attributed to the quality of parks and the decentralized management approach of the authorities. No new parks are needed, which means the focus is on maintenance and improving services. Before, legal requirements drove the agenda (dangerous trees or playground equipment, etc.) but budget cuts made it necessary to modernize the system.

²⁵ - Previous reference no.19. (p 45)

²⁶ - Please read chapter -7 to get more information on Hannover city.

- **Improving maintenance through decentralization**

In the 1980s, the KGST (*Kommunale Gemeinschaftsstelle für Verwaltungsmanagement*, an institution under the German Cities Federation) hired consultants to improve efficiency in local government. In the 1990s, the system was reformed to decentralize resources and results. Hannover adopted a business-style approach which saw citizens as customers. In green space management, outcome overtook cost as a measure of efficiency. Communication now focused on customer satisfaction.

All employees of the FUS (*Fachbereich Umwelt und Stadtgrün*, or Environment and Green Space Division) now receive training in management in conjunction with the Faculty of Landscape Architecture at the University of Hannover. Hannover is also involved in GALK (*Gartenamtsleiterkonferenz*), a standing conference for green space, which brings together urban park and green space administrators from around Germany to exchange information and discuss problems.

Maintenance tasks are defined geographically, so each work team feels responsible for one area and takes pride in producing attractive, functional green spaces. 90% of the maintenance work is done by the city's own workforce, but there is some private contracting as well. This system lets managers respond to each green space in its own context:

- All green spaces of importance for the city's image are prioritized (e.g. historic gardens)
- The characteristic elements of the natural environment are cultivated carefully
- Each district should have a special "garden character" to enhance the sense of place
- Famous historic gardens will receive more financial resources than other green spaces

An important objective is to improve public communication and education. The public should feel that green space management is worth the cost because it improves people's standard of living.

Case VII - Zurich, Switzerland

Zurich is known for its high quality of life, and citizens connect this to the parks and green spaces. The initiative *Grün Stadt Zurich* (GSZ) has existed for more than 100 years and belongs to the Department of Infrastructure.

One problem in Zurich is the unequal distribution of green space. In 1999, the Open Space Concept was established. The target is that there should be a green space no more than 15 minutes' walk from every household. Other targets are an allocation of 5 m² of inbuilt space

for every workplace and that there should be 8 m² of green space per inhabitant. GSZ would like to acquire 50 m² of undeveloped land for every developed floor area.

Planning now concentrates on the redevelopment of former industrial sites or problem areas. Zurich North has a new park on former industrial land. The land is provided by the owners, and then transferred to the city for development and management.

A special project team of GSZ officers, police and others help keep the parks clean and safe. The Cost Transparency Calculation is used to determine the costs and effects of green space initiatives. This system encourages internal competition and transparency and is expected to make the budgeting system more efficient.

- **The resourcing of urban green space management**

All the 11 cities have faced budget constraints, but there is still enough money. 9 of the cities depend on allocation from a municipal revenue pot for core funding. Adequate funding for green spaces depends on the skills and political clout of green space managers to make the case for investment in green spaces.

There is a lot of potential in exploring supplementary sources of funding: capital expenditure, public-private partnerships, volunteer involvement, etc. It is important to the entrepreneurial spirit that these funds go directly to the department they were raised for. This means that the task of fundraiser is increasingly important in green space management.

Lessons from cases VI and VII:

The lessons to be learned from Hannover and Zurich are quoted from the report *Is the grass greener?* (See reference 18):²⁷

1. *The quality of working relationships between those with separate responsibilities for green space is the most important variable in delivering better coordination.*
2. *Exact organizational structure is less important than the integration of activities it should give rise to, but conscious efforts should always be made to remove organizational barriers to inter-departmental cooperation.*
3. *Coordination is most effective when key responsibilities are unified under clear lines of management responsibility, and externally through a single point of contact for green space services.*
4. *Protecting revenue expenditure streams (if necessary over and above capital budgets) must be the priority of green space governance.*
5. *Pledged funding specifically for green spaces will be dependent on the skills and political clout of green space managers and committed politicians.*

²⁷ - Previous reference no.19. (p 59)

6. *Innovative accounting methods which explicitly link green space expenditure to other environmental benefits, or which are more transparent in the relationship between the costs and the benefits they provide, can be powerful tools to promote the cause of green spaces.*

7. *Supplementary funding sources are important for the political benefits they offer and for the quality improvements they bring in particular locations: as long as resources raised in this way are returned in full as “additional” income to the departments responsible for their generation.*

Case VIII - Wellington, New Zealand

Although there is satisfaction with the availability and standard of Wellington’s open spaces, improvements are constrained by resources. In the 1980s and 1990s, Wellington renegotiated its open space provision, which allowed higher buildings in exchange for more open space. This plan was not successful; many of the sites in question were not suitable for green space or no public tenure was secured. Long-term budgeting and asset management were introduced in the late 1990s, which improved the situation. In future, urban containment and higher densities could bring more resources by increasing the rating base but would add pressure to green space management as access to private gardens diminishes and the use of urban green space intensifies. During the early 1990s the condition of many of the city’s green spaces was poor, evidence of long-term deferred maintenance. Over the last ten to fifteen years, better documentation and management have improved understanding of the need for reinvestment and forward planning. This has in turn increased funding.

Wellington’s Parks and Garden Unit, which is responsible for the management of green space, uses asset management software to program maintenance, inspections, replacements and funding. All assets are inspected, their condition assessed, asset management plans are prepared and priorities are set.

The recent advent of the ten-year financial plan has allowed commitment to long-term projects, although the ten-year framework is still a reasonably coarse tool and requires constant review of operating budgets to reallocate priorities and apply additional funding if required.

Although Wellington has 200 m²/person of green space, its historic development resulted in a serious deficiency within the Central Business District (CBD). In 2002, an independent study of CBD greening prompted by politicians’ concerns about poor green-space quality in the inner city found that Wellington had been successful in establishing a broad special framework of green space, but had failed at the more detailed level of site management and

design, particularly in spaces of a more urban nature. Recent projects, such as waterfront development, are leading the way towards the next phase: upgrading at the detailed site level to accommodate intensified use.

Two decades ago, Wellington's port activities relocated to the waterfront adjacent to the CBD became increasingly popular when it opened to the public. Although development attracts people and activities, the community favors a waterfront largely dedicated to green public spaces. Representatives of the Parks and Gardens Unit realized the importance of maintaining the balance between revenue-generating buildings and popular (but less lucrative) public green space. Changes to the district plan in the late 1990s allowed redevelopment of a significant proportion of the waterfront. A Waterfront Development Framework was developed that set out the broad principles for all areas. People understood that only additional public funding could ensure open space provision and reassure the community concerning its continued vested interest in the spaces.

During the 1980s until the early 1990s, when high-rise development replaced older buildings to meet earthquake standards, the council negotiated open-space provision through development control allowing increased building height in return for on-site open spaces. No lasting results were achieved because public tenure of the open space was not secured at the time of negotiation and some of the sites were not suitable. Consequently, many of these spaces have been built over.

Given the high costs of CBD land, Wellington may need to revisit these mechanisms to improve the distribution and the quality of inner-city green spaces.

Case IX - Melbourne, Australia

Parks Victoria is responsible for managing 40% of the network of green space (6,200 hectares) within urban Melbourne (the rest falls under the jurisdiction of 31 metropolitan councils) as well as national and state parks around the metropolitan fringe. Parks Victoria has wide statutory responsibilities for the management of the integrated network and has developed some interesting management techniques.

The agency was created in 1996 from the amalgamation of Victoria National Parks and Melbourne Parks and Waterways to manage most of Victoria's national, state, regional and recreational parks, becoming a statutory authority in 1998. Parks Victoria is responsible for the coordination of open space natural planning at the strategic level, producing in 2002 an open space strategy and vision. Four key output groups have been identified to describe Parks

Victoria's service delivery obligation to the government. The "visitor services" group is directly responsible for the management of green space.

The delivery of sustainable visitor services and facilities within limited resources requires a strategic context for the management and creation of built assets. With an aging asset base and an inequitable distribution of park facilities, the challenge is to reverse the declining quality of visitor services.

Parks Victoria has developed the LOS (levels of service) framework to establish the optimum quantity and mix of visitors, services, given forecast user demand and the level of resources available. The LOS framework uses a comprehensive database of visits, assets and resources and follows five steps to develop optimum approaches for each park. When this process was applied to determine future asset replacement costs, it indicated that Parks Victoria was significantly under spending on maintenance, facing major replacement costs in the next 10 years. Maintenance standards developed through LOS are based on pattern of use, visitors' expectations and geographical distribution. A Visitor Facilities Manual for ground staff completes the framework.

Predicting and monitoring park use is an important element in meeting customer needs and evaluating output performance from a customer perspective. Surveys of visitor numbers, satisfaction monitoring and community perceptions of both the parks and the agency are undertaken on a regular basis. In addition, important work is undertaken to develop predictive models to assess the impact of changes to current service levels and future needs for application in the LOS framework.

The primary source of funding parks is the park charge levied on all domestic, commercial and industrial properties in Melbourne. The tax is collected and administered by the government. Two-thirds of the money goes to Parks Victoria for the management of green spaces. Parks Victoria needs to present the case to the government. A low priority on the government agenda, parks need to gain recognition for the wider benefits to the community.

Lessons from cases VIII and IX:

The lessons from Wellington and Melbourne are quoted from the report *Is the grass greener?* (See reference 18):²⁸

1. Maintenance plans are vital tools for structuring, coordinating and delivering maintenance routines, and to establish links between daily routines and long-term management priorities.

28- Previous reference no.19. (p 45)

2. *When adequately monitored, maintenance plans can help to identify trends in the performance of green space designs, facilities and equipment, and thus prevent costly remediation work.*
3. *There is no single best way to organize maintenance routines, but recognizing where specialist (authority-wide) knowledge and where geographically-bound knowledge are required is key.*
4. *Contracting out should be viewed as an outcomes-focused, mutually supportive partnership between the parties, rather than a cost-cutting exercise; the setting and monitoring of clear standards of delivery through considering the cost/quality ratio for all tasks is required.*
5. *Delegation of some responsibilities to the operational level can help to ensure that maintenance routines are flexible enough to incorporate the changing demands of users and contexts, but requires good communication channels between maintenance teams and green space users.*
6. *Where local flexibility is required, public rather than private employees are likely to be more adaptable, unencumbered as they are by necessarily prescriptive contractual arrangements.*
7. *Systematic approaches are required for assessing and justifying reinvestment needs—thematic reviews, asset management systems, and long-term financial planning provide possible models.*
8. *Reinvestment decisions should factor in lifetime costs on the basis of the close participation of maintenance staff in development and investment decisions.*

Case X - Paris, France

Decision making in Paris is highly centralized. The Mayor has unrivalled powers and is not obliged to consider public views. The Deputy Mayor for Green Spaces is responsible for green space in Paris. The mayor's office raises funds through taxation, and green space receives 1% of the overall municipal budget. No other sources of funding exist, and income from leasing facilities goes directly to the city treasury.

- **Green Space Provision**

Parisians are very proud of their parks and green spaces are a main political priority. The general aspiration is that all citizens should live within 500 m of a green space. 20% of the city's area is open, but this is unevenly distributed. All opportunities for creating green space are carefully considered:

- creating green space in all urban renovation projects

- creating green space by acquiring derelict buildings

Urban renewal projects often take place on former railway land on the periphery of the city, but this amounts only to 200 hectares of land. Only 25% of the 200 hectares are required to be used for green space. The municipal government has introduced small green spaces in high-density areas. Some old houses have been replaced with green space, or some backyards have been opened to the public. These solutions have proven to be quite attractive and popular. Great consideration is given to the needs of children, and sometimes playgrounds are installed in traditional parks and gardens. Here it is necessary to integrate the playgrounds into the traditional style and management methods of the parks.

Watchmen control anti-social behavior by supervising green spaces, enforcing the regulations and locking the gates after hours. In 1990s, a parks police force was set up to aid in conflict intervention. These officers are recruited primarily from the ethnic populations found in Paris.

Case XI- Groningen, Netherlands

Groningen is Netherland's seventh-largest city. It is known for its progressive policies on public space. In the 1970s, it was the first town to put people before cars, and it introduced a highly decentralized system for decision-making concerning green space. This system had many disadvantages, so Groningen developed its own results-oriented system called BORG (Groningen Public Space Management).

In the 1980s, there was a shift from the centrally managed, sector-based approach to a more integrated form of management with more emphasis on consultation and civic participation. This is now known as "neighborhood-based service." In some cases, the local focus went too far and neighborhood-based service led to ad hoc problem solving, inefficient management and a great discrepancy in parks condition between neighborhoods. A central management system was re-adopted. An evaluation of services showed that each department head carried too much responsibility: one person was responsible for development, programming, implementation, evaluation and monitoring.

The BORG system is more professional and efficient. It has a system to evaluate green spaces regularly. The results can be verified and are open to discussion. Another system in the BORG context can assess the effect of damage and pollution on public space. This leads to more efficient decision-making.

One problem with BORG is that there is no framework for involving residents directly in urban green space management. The public participates only in project development.

However, BORG encourages residents to become involved in assessing urban green space quality.

- **Focus on Output**

Under the BORG system, results are based on criteria and visualized target scenarios. The town is divided into “structural elements:” parks, city centre, etc. Quality targets are set using photos and pre-determined criteria. The green space budget has remained fairly constant over the past few years but is a popular target for cutbacks. But BORG has helped management establish a link between projected costs and results—this makes it easier to negotiate for funding from the municipal budget.

Green space development is managed separately from maintenance. This can be a problem because green space designers often don’t know how much it costs to maintain a park. On the other hand, rigid management regimes have been applied to designs requiring special management programs.

In general, BORG has created a better basis for negotiation on new designs and maintenance budgets.

Lessons from cases X and XI:

The lessons from Paris and Groningen cases are quoted from the report *Is the grass greener?* (See reference 18):²⁹

1. *Successful cities understand the diversity of green space types and actively plan for them.*
2. *Some devolution of management responsibilities, e.g. through individual park maintenance plans, dedicated park keepers, area-based managers and user participation, can contribute to the overall quality of green spaces if backed by a responsive, city-wide management system.*
3. *Some management tasks will be most efficiently delivered at a city-wide scale to ensure the optimum use of specialist skills and machinery.*
4. *Ensuring that necessary local regulations are in place (e.g. to combat anti-social behavior, littering, vandalism and dog-related problems), and reacting promptly to problems, is critical.*
5. *Internalizing enforcement processes into the overall green space management system can deliver a more integrated and effective enforcement regime.*
6. *Enforcement should be properly resourced and backed up by information, education and consensus-building about the relative importance of certain norms of behaviour.*

29- Previous reference no.19. (p 87)

7. *Effective monitoring and complaints management systems are essential to monitor management processes, cost efficiency and the impact of decisions on green space quality to encourage stakeholder participation and to feedback intelligence from enforcement activity.*
8. *A balance needs to be struck between responding promptly to local resident views and delivering the strategic and long-term objectives of green space management.*

Chapter Three

The Kingdom of Saudi Arabia

In this chapter, the study will focus in detail on basic information about the Kingdom of Saudi Arabia. It will describe the location of the kingdom and its relationship with the surrounding countries. Also, it will explain its geography and topography in addition to the climate.

Furthermore, this chapter will examine the social characteristics of the Saudi community, such as demography, habits and customs. Then it will explain the park strategy and the regulations which cover parks and open spaces construction and implementation.

3.1 - Background to Saudi Arabia

The Kingdom of Saudi Arabia lies in the southwestern area of the Asian continent. It is located between the latitude of 46' 16" 22 and 32' 14" 00, and longitudes 34' 29" 30 west and 55 40 00 east. It occupies about 80 percent of the Arabian Peninsula. Its area is estimated as 2,149,690 square kilometers. It is roughly the size of Western Europe. Its population is about 22 million inhabitants.

Saudi Arabia lies at the crossroads of three continents: Europe, Asia and Africa. It is bounded by seven countries and two bodies of water. From the north it is bounded by Jordan, Iraq, and Kuwait. From the south it is bounded by Yemen, from the east by the Arabian Gulf, Qatar, United Arab Emirates and Oman, and bounded from the west by the Red Sea.

The maximum width of the kingdom reaches about 1,360 kilometers (east to west), while its maximum length reaches about 2,200 kilometers (north to south).

The municipal services in each province are led by a head municipality headed by a mayor, in addition to 155 municipalities distributed through the cities and villages of the kingdom.



Figure no (3.1) a map of the Arabian Peninsula showing the location of Saudi Arabia, Saudi Arabia's provinces and the surrounding Middle East region.

3.2 - The kingdom's geology and topography:

Saudi Arabia covers about four-fifths of the Arabian Peninsula. In Precambrian times, the Peninsula was attached to Africa as a part of the African shield, before the formation of the Red Sea. In the late Precambrian, its surface was deeply eroded and pineland predominated in the Middle Tertiary, the Arabian plate split away from the African Shield along the Red Sea trough. It then began moving slowly northward, impinging on the edge of the great Asian plate. The Arabian Peninsula is a huge crustal plate composed of ancient sedimentary and volcanic rocks deformed and metamorphosed and injected by plutonic intrusions¹ (Chapman, 1978).

Presently, Arabia can be divided geologically into two structural provinces, the Arabian Shield and Arabian Shelf. The Arabian Shield (The Western Province) is a part of the Precambrian crustal plate, generally exposed and locally covered by Tertiary volcanic rocks. The Arabian Shelf (The Eastern Province) consists of a thick sedimentary sequence covering the plate. The environment of Saudi Arabia consists of 7 regions (Fig.3.4); Arabian Gulf Coastal Region,

1 - Chapman, R. W., (1978). General information on Arabian Peninsula in: Quaternary period in Saudi Arabia. Edited by Al-Sayari, S. S. and Zoti, J. G., Springer – Verlag & Wien New York. (pp 3-19)

AlSumman Plateau, high Sand Areas, Coastal Region, Central Plateau, Mountains of Western Arabia and the Red Sea Coastal Plain² (Chapman, 1978).

Saudi Arabia is one of the largest Arab nations of the Middle East. It is 2,200km from north to south and 1,360 km from east to west. Saudi Arabia slopes gently from the Hijaz Hills on the west coast of the Red Sea to the Arabian Gulf in the east. In Asir, the Southwest region, the hills reach up to 2000 m in height. The landscape of Saudi Arabia contains all known types of topography, so that we can divide the kingdom into seven regions: ³(see Alshareef, 2001) and (Sagga, 2004).

Coastal plains:

The kingdom has two coasts: one on the Red Sea and the other on the Arabian Gulf. The main features of the coastal areas are:

1-Tehama coastal plain:

Its length reaches about 1,700 kilometers, starting from the Gulf of Aqabah at the Jordanian border in the north to Yemen in the south. It is characterized by its narrow width (25 – 45 kilometers) and high temperature with constant wind velocity. In addition, the majority of coastal material includes sand, volcanic rocks and marine precipitated pebbles. Jeddah city is located in this region.

2-Eastern coastal plain:

The length of the Arabian Gulf reaches about 560 kilometers, starting from the Kuwaiti border in the north to Qatar's boundary in the south. Its width reaches on average about 60 kilometers. The plain is characterized by its low altitude, which gradually increases towards the hills of the interior.

Western Highlands:

These highlands are marked by the best-known topographical feature in the country, called the Alsarawat mountain chain. This mountain chain has a rectangular mass and extends parallel to

2 - Previous reference (1).

3 - 1- Alshareef, A., s., (2006). The Geography of the Kingdom of Saudi Arabia (first part – sixth edition).

2- Sagga, A., M., (2004). The natural geography of the kingdom of Saudi Arabia, (third edition)

the Red Sea along 1,700 kilometers from north to south. It is characterized by its height, which ranges between 800 and 3,133 meters above sea level.

Western Hills:

These hills are located in the east of the Western Highlands, starting at the Jordanian border in the north and extending to Najran region in the south (about 1,400 kilometers), They are characterized by their height, which ranges between 700 and 1,600 meters above sea level in the south. Three famous hills found here are Hesmi hill, Alhejaz hill and Asir hill. Sedimentary, basalt and sand rocks predominate on the surface of the hills. The cities of Medina and Tabuk are found here.

Najd Hill:

This hill covers the majority of the heart of the kingdom. Its area is about 520,000 square kilometers. It starts at the edge of the western hills 650 kilometers to the east and at the Alnafud in the north and extends to rub Al-khali 800 kilometers to the south.

The Najd hill is characterized by the sand hills which cover the majority of it. The maximum height of this land mass has been recorded as 1,200 meters above sea level. In addition, the hills have several valleys, such as Hanifah Valley. Riyadh city is located in the middle of Najd Hill.

Eastern Hills:

These hills lie at the eastern edge of the kingdom from the border of the Arabian Gulf plain in the east to the Aldahnaa Valley region in the west and from Rub Al-khali in the south to the Albatan Valley in the north, near the Kuwaiti border. These hills consist of sedimentary rocks, sand hills and small stones. Also, they are characterized by heights which range between 200 and 400 meters above sea level.

Northern Hills:

The Saudi part of the Alsham hills is found in the northern area of the kingdom. This area is covered with small rocks and its altitudes range between 200 and 900 meters above sea level. The most important geographic aspect in this region is the Albatan Valley, which flows into the Arabian Gulf. This area is considered the borderline between the northern and eastern hills. Furthermore, many valleys run in a northeast direction into the Alforat River in the south of Iraq.

Sand Deserts

There are three deserts which Saudi Arabia's topography because they occupy about one-third of the country's area. They are:

1- Rub Al-khali desert:

This desert is located on the southeastern edge of the Kingdom of Saudi Arabia, between latitudes 45° – 56° east and longitude 17° – 23° . Its size is 640,000 square kilometers. It is considered the biggest sand sea in the world. The desert has many types of high sand hills such as lunar, linear and interlocked. Also, it has both constant and movable sand dunes. The heights range between 70 and 1,058 meters.



Figure no. (3.2)

The desert of Rub Al-khali in the south of Saudi Arabia

Source: www.gulflobby.com/lobby/uploaded/118351/21.jpg

2-Alnafud desert (great desert):

Its area is 56,320 square kilometers. It consists of large hollow rocks filled with movable or constant sands. The hills in this desert have various shapes and are characterized by a red color. Altitudes range between 600 and 900 meters above sea level.

3-Aldahnaa desert:

The area of this desert is about 65,000 square kilometers. It connects the Rub Al-khali desert and the Alnafud desert. In this desert, the sand hills have been created by parallel chains and separated by solid rocks. Its heights range between 400 and 550 meters above sea level.



Figure no. (3.3)

Source: www.tumaer.com 17/12/2007

The Aldahnaa desert in the centre of Saudi Arabia.

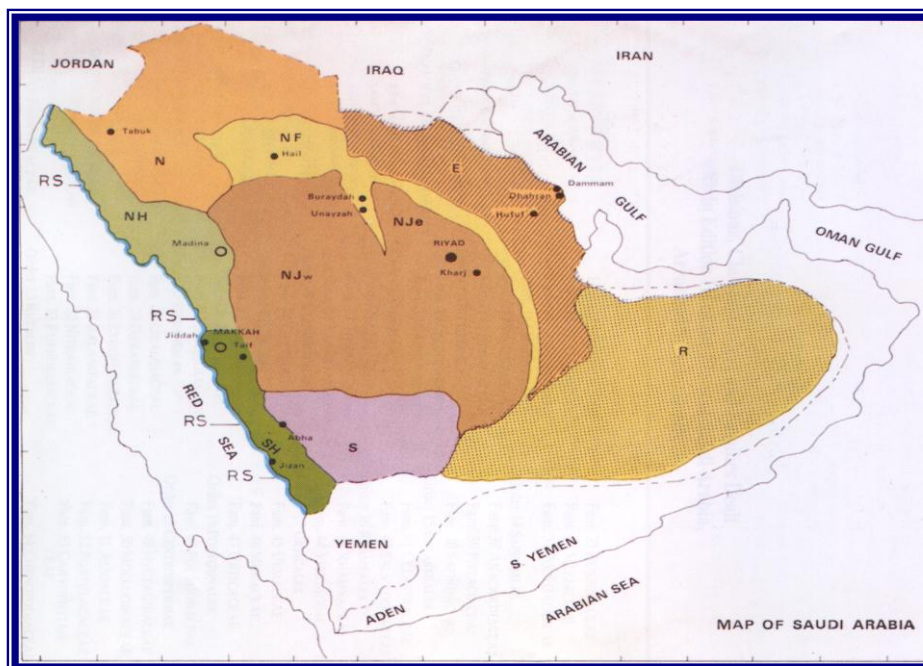


Figure no. (3.4) Environmental Regions of the Kingdom of Saudi Arabia;

Source: (Migahid 1974)⁴

N. Northern region, including Tabuk, Al-Jaouf and Sakaka areas.

NF. Nefud region, including the great northern Nefud area, Aldahnaa' and Al-Qasim area.

NH. North Hijaz, representing the western part of Saudi Arabia that extends alongside the Red Sea coast north of Jeddah.

SH. South Hijaz, representing the southern part of the western region extending south of Jeddah to the Yemen boundaries.

S. Southern region, lying to the east of South Hijaz, to the south of Najd and to the north of Yemen. It includes Abha, Beasha and Najran regions.

E. Eastern region, between Aldahnaa ' and the Arabian Gulf.

R. Al-Rub' Al-Khali, representing most of the southern and south-eastern parts of Saudi Arabia .

RS. Red Sea region, representing a narrow strip of Red Sea water alongside the Saudi coast.

4 - Migahid, A.M. (1974). Flora of Saudi Arabia, 3 volumes. King Saud University Libraries, Riyadh.

3.3- Saudi Arabia's climate:⁵

The location of the kingdom, the annual average of sunshine and the huge area cause the wide variety in the kingdom's climate. Throughout most of the year, the sky is clear over Saudi Arabia. In fact, the annual average amount of sunshine can reach 3,500 hours, which is considered one of the highest in the world. Furthermore, the country is known for its high temperatures. However, it is possible to divide Saudi Arabia's climate into several regions:

The desert climate:

A desert climate dominates the greater part of the middle of the kingdom (Najd, Qasim and the Great Desert). It is characterized by extreme heat during the day followed by a sharp drop in temperature at night. The average summer temperature is 45° C (but can reach up to 54° C), the heat drops directly after sunrise. In the winter, the temperature drops below 0° C.

Rain is a rare occurrence, averaging between 50 and 75 mm/month, usually in winter and spring. The average humidity is very low in summer, when it reaches below 15%, while in winter -with the effects of cold and rain- it reach above 50%.

Riyadh and Medina are both found in this type of desert. However, Medina often experiences higher temperatures due to the dominant land surface of volcanic rock, which absorbs heat at a greater rate than the sand which predominates in Riyadh.

The eastern coast climate:

This climate is affected in summer by hot winds which blow from southern and central Asia or Al-ruba Al-khali, while winter is affected by cold northeastern winds which come from Siberia. The average summer temperature is 39°C. Winter, on the other hand, has an average temperature of 8.5°C and can even drop below zero in winter.

There is a shortage of rainfall, on average between 50 and 100 mm/month. Usually it falls in winter and spring.

The average humidity is between 75% - 90% in summertime and 25% - 60% in winter.

5 - 1- Alshareef, A., s., (2006). The geography of the Kingdom of Saudi Arabia (first part – sixth edition).

2- Sagga, A., M., (2004). The natural geography of the Kingdom of Saudi Arabia, (third edition)

The western coastal climate:

This coast extends from the Jordanian border in the north to the Yemeni border in the south. It is approximately 1,700 kilometers long. This area's climate is characterized by hot temperatures and humidity during the summer season and slight cold to warm temperatures with low humidity in wintertime. It is not affected by any wind because it is protected by Sarwat Mountain.

In summer, average temperatures can reach above 39°C, while they are about 15°C during the winter season. The humidity is very high all year long because the area is affected by high rates of marine evaporation in summer and low temperatures in winter. In spite of this, rainfall is very slight and does not usually exceed 100mm. Jeddah is found here, on the coast of the Red Sea.

Northern region:

This region includes the area which starts from the edges of the central area to the northern boundary. A continental climate is dominant in this area; it is characterized in summer by very hot and dry conditions during the day and similar temperatures at night, while in winter, the day is warm but the night is very cold.

Average temperatures range between 25°C and 45°C in summer, while in winter they range between 20°C and 1°C (occasionally, the temperature does fall below zero).

The humidity in this area can reach 95% in winter, but it does not exceed 45% in summer. Usually, the rain falls in winter and spring and averages between 100 and 150 mm.

Southern region:

This area is characterized by its height, which reaches 1,800 meters above sea level. There is a narrow range between the minimum and maximum temperatures, which are relatively low.

This is advantageous in that the southern region enjoys the most moderate climate in the kingdom. The average maximum temperatures lie between 22°C and 32°C, while the average minimum temperature is usually between 2°C and 13°C throughout the year.

Rainfall is heavy all year round, averaging between 250 and 500 mm annually. The humidity level can fluctuate between 20% and 90% throughout the year. Tabuk is located in the southern region.

Sunshine

The Kingdom of Saudi Arabia is considered to be the region with the most sunlight: the annual average number of sunshine hours per year is between 3,100 (in the southwest) and 3,500 (in the northeast).

Furthermore, the location of the kingdom gives it long periods of clear sky. This affects the average monthly radiation, which are 200-350 calorie/cm²/day in January and 400-600 calorie/cm²/day in July. (Alshareef 2006)⁶

6 - Alshareef, A. Abdualrahman s: The Kingdom of Saudi Arabia: Geography, sixth edition, first part, Riyadh, Dar Almarreakh. 2006 – p(88)

3.4- Saudi society:

The Islamic way of life greatly affects the Saudi people's lives. Separation between men and women is essential in any public area. Saudi society is conservative, which means it has unique social characteristics because it is affected by traditional customs and values related to the adherence to Islam. In general, the Saudi community respects the deep-rooted customs and observes these customs in their everyday lives.

According to the book *Entering the Study of Saudi Society*⁷, the Islamic religious trend is working to maintain the existing social model. It does not function to justify social corruption, monopoly services or political objectives of each social class. However, it seeks to maintain traditional values and social Islamic style. This is determined not according to perceptions of rights, inclinations or objectives, but rather according to the shari'ah [religious law] and its decisions. (Alsaif, 2003. p. 11)

The writer divides social Saudi culture into the following categories:

Social Customs: These are based on binding social behavior included in the composition of customary and religious values which compel individuals go along with the community and show conformist behavior in terms of various events and social attitudes. Anything beyond the common habits is considered a rebellion against society or even a display of decadence. These customs are characterized as automatic and are applicable to all.

Traditions of Saudi Society: Saudi traditions present a range of rules of conduct for a particular social class. They are associated with a limited local environment and are thus less binding than the customs described above. They are transmitted from one generation to another in a selected way.

Norms in Saudi society: Saudi social norms are unwritten and composed of beliefs and ideas derived from the group's ideology, heritage and faith. These social criteria define both desirable and undesirable acts and correct or bad behavior for the culture of the community. (Alsaif, 2003. p.177 – 184)

On the other hand, leisure in Islam concerns wholesome diversions for the sake of relaxing the heart, soul and thoughts so that people can later concentrate on work and worship. In addition,

7 - Alsaif, Mohammed I. (2003). *Entering the Study of Saudi Society*. Second edition. Published by Dar Alkheraji for publishing and distribution. Riyadh, Saudi Arabia. Second edition.

leisure concentrates on maintaining physical health. Leisure in Islam covers a wide area with a colorful variety of activities, including modern trends in various multimedia and technology. However, leisure should include:

- 1- Spiritual discipline (leisure should not go beyond the limits of Islam or violate any taboo).
- 2- Discipline of integration and balance (people must integrate recreation into their daily lives and seek balance with work and other duties).
- 3- Discipline saturation (recreation should refresh people from the rigors of stressful work and help them prepare, mentally and physically, for the work yet to come).

3.4.1-Population structure:⁸

Saudi Arabia has a population of about 22 million inhabitants. The population growth in Saudi Arabia is one of the highest rates in the world, at 2.4% per year.

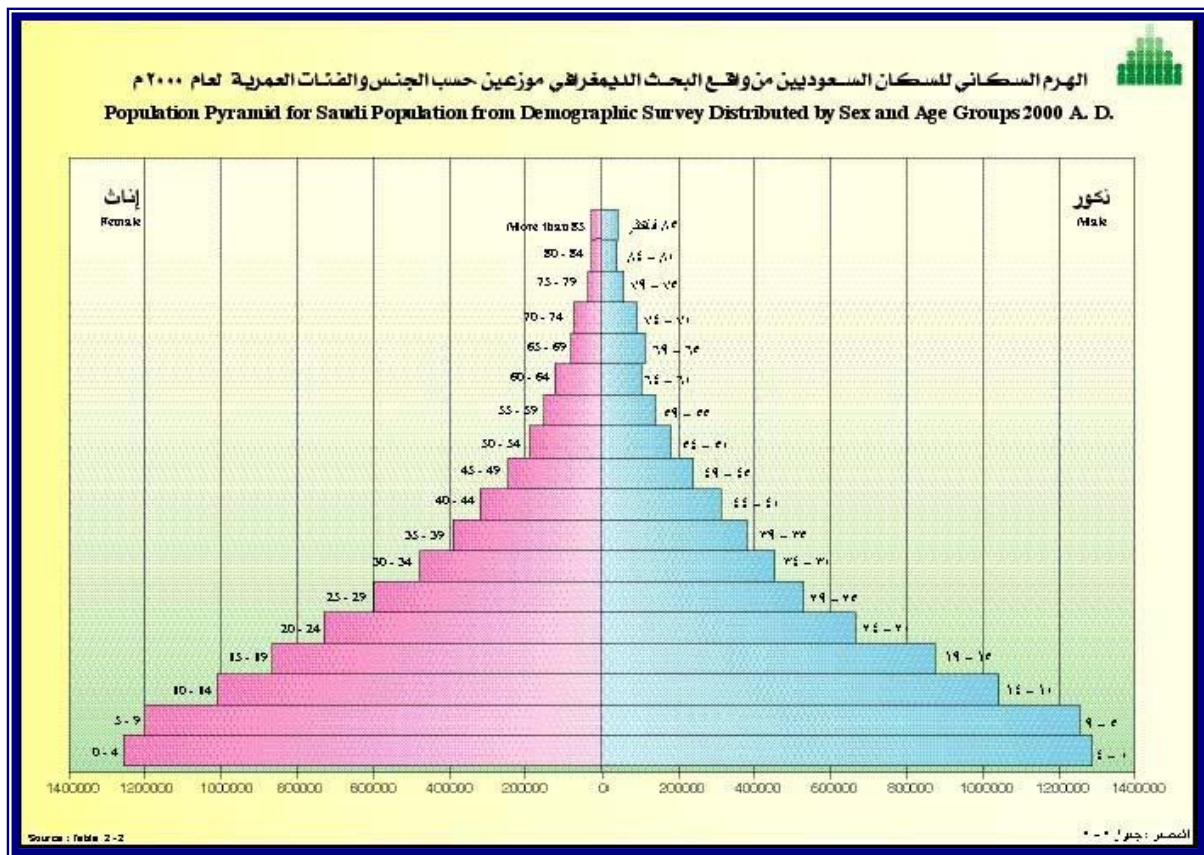


Figure no. (3.5) Saudi population pyramid

8 - Ministry of planning & economics, central department of statistics & information.2004

Source: Ministry of planning and economics, central department of statistics and information, 2004

The above population pyramid of Saudi Arabia illustrates the structure of the Saudi community and the distribution by age.

By studying the population pyramid, it is clear that:

- The majority of Saudi citizens (55%) is less than 30 years old;
- 40% of the Saudi population is less than 15 years old;
- 15% of the community is between 15 and 30 years of age.
- About 25% of the population is between 30 and 50;
- 20% of the community is over 50;

3.4.2-The Social Characteristics of Saudi society:

The Saudi community has unique social characteristics; that is, it has values and traditional customs which are closely connected to Islamic religious observation.

The social system in Saudi Arabia has a significant impact on the design of various utilities and buildings. The study of social behavior in the general population is vital to the success of any project.

1-Privacy and the separation between the genders in public places:

Privacy and the separation between male and female in public places are considered an important aspect in community life.

Behavior is strictly controlled for both individuals and groups. All of this is compulsory according to traditional customs and Islamic religious values.

Gender segregation is usually seen in public places and in activities that involve large groups of people. For example, education at schools and universities, care in hospitals and medical centers, public gatherings such as weddings and other religious occasions are all segregated along gender lines. Also, there is gender segregation in semi-private places, such as waiting rooms in medical clinics. All these public activities require gender segregation according to the customs and traditions of Saudi society.

However, there are some places where segregation is not practiced, such as shopping centers. Walking in the parks does not require gender segregation, but it is expected that

certain traditional customs shared by all in order to avoid causing offence.⁹ (Alhemiddi, 1991, pp 102), (Arab, 2006, pp 13)

2-The usual Saudi habit in promenading:

Usually, Saudi families throughout the country spend their spare time by:

1-Promenading in the desert:

Usually, Saudi people go out to the desert in the moderate seasons, especially after the rainfall. They can enjoy the natural landscape variation such as plains, hills, valleys and highlands. However, they prefer the open areas of desert.

With regard to the traditional customs, Saudi families usually sit in separate groups and that is to respect each family's privacy. Most Saudi families use in the desert and open space areas as the predominant element in their outings, but they also take advantage of natural features such as hills, trees, shrubs and borders of valleys for shade. These natural barriers can also provide them with a degree of privacy.

It is a most striking phenomenon that almost every family leaves a certain distance between themselves and other families to avoid looking at the others closely and to provide privacy for each family.¹⁰ (Alhemiddi, 1991, pp 103 - 104), (Arab, 2006, pp 14)

2-Promenading in the parks:

The style of Saudi leisure time in the parks is similar to that of the desert. When they are one family, they sit together and when they are more than one family, they usually divide into separate groups along gender lines.

Saudi families enjoy sitting around children's playgrounds to watch their children at play. Sometimes they prefer sitting in closed areas to preserve their privacy.

9 - 1- Alhemiddi, H., A., (1991), design consideration of Riyadh Quarter parks, according to environmental, social and urban background. Master degree introduced to department of Architecture and building science. College of architecture and planning, king Saud University.

2- Arab, E., (2006). Garden & public parks study. Produced by Dr, Asem Arab, and consultation Center for Economics & Administration.

10 - Previous reference. (7).

According to the special characteristics of Saudi society, in the parks there is a certain amount of gender segregation for public services, e.g. toilets, snack kiosks and ticket windows.¹¹ (Alhemiddi, 1991, pp 105), (Arab, 2006, pp 14)

3- Promenading on the coasts:

This type of Saudi leisure is found in the cities which lie on the country's eastern and western coasts. This type of leisure is similar to those described above, except when it comes to the natural landscape. Saudi beaches are characterized by level sand on the eastern coast, while the western coast features rocks and coral reefs. Individual families sit together, either close to the sea or in allocated seating places. When two or more families have a day out together, they usually divide into separate groups along gender lines.

According to societal mores it is not acceptable, especially for women, to wear revealing clothes at public beaches.

11 - Previous reference. (7).

3.5- Political System of Saudi Arabia¹²

The Kingdom of Saudi Arabia is a fully sovereign Islamic Arab state. The religion is Islam and its Constitution the Book of Allah (the Holy Quran) and the sunnah of His Messenger (rules of behavior and action which came from the Prophet Mohammed). The official language is Arabic and its capital city is Riyadh.

The regime in the Kingdom of Saudi Arabia is a hereditary monarchy. The king is also the prime minister. According to the basic laws of governance, the king must be one of the sons of the founder of the state, King Abdullaziz bin Abdurrahman Al Saud and the sons of their sons.

The king, along with the Council of the Ministers, considers the executive and legislative power of the state while the shoura council (parliament) expresses opinions on public policy, which is transferred to it by the prime minister.

The country consists of 13 provinces or regions (emirates, mintaqah), each having its own capital, and has many muhavazat (governorates). Each of the Provinces of Saudi Arabia is unique, and offers a different slice of life in the country.

The governor of each region is appointed by the king, On the other hand, municipal services are provided by the regional municipality (called Amanah), which supervises all municipal activities in the region and is managed by each region's mayor, who is also appointed by the king.

The Ministry of Finance supervises the financial aspects of the state and is responsible for supervision and expenditures for all government requirements and projects which cover all the kingdom's regions after its adoption by the Council of the Ministers during the annual state budget.

It is common knowledge that the kingdom does not levy taxes on citizens or residents on its land for basic services to its citizens such as education, health or social security.

Each minister is the responsible to the prime minister (the king) concerning the application and achievements of state plans and strategies which are set by the state to improve and deliver the

12 - The Basic Law of Governance, issued by royal order number a/90 in 27/8/1412 H (2/3/1992)

services to the citizens. The head office of the ministry is considered the reference point of the ministry branches throughout the kingdom.

The following table shows the thirteen Saudi regions:

No.	Region	Capital City	Area (km ²)	Governorates
1	Riyadh	Riyadh	404,240	20
2	Makkah	Makkah	153,128	12
3	Medina	Medina	151,990	7
4	Qasim	Buraidah	58,046	11
5	Eastern Province	Dammam	672,522	11
6	Asir	Abha	76,693	12
7	Tabuk	Tabuk	146,072	6
8	Hail	Hail	103,887	4
9	Northern Border	Arar	111,797	3
10	Jazan	Jazan	11,671	14
11	Najran	Najran	149,511	8
12	Baha	Baha	9,921	7
13	Jouf	Skaka	100,212	3
		Total	2,149,690	118

Table no. 3.1

The governor of each region is appointed by order of the king. The most important gubernatorial task is maintaining security, order and the implementation of judicial decisions. Also, a governor must ensure his constituents' individual rights and freedoms. He works to develop the region socially and economically, and introduces improvements to urban infrastructure and public services. He oversees state funds and property and supervises government departments, ensuring that his staff perform their duties with due diligence. He must take into account the correlation of regional staff with ministries representing different interests. Furthermore, he has the responsibility to directly communicate with ministers and heads of departments to discuss and pursue regional matters. (previous reference number 12)

3.6 -Parks and open spaces areas in Saudi Arabia:

Saudi Arabia is a huge country and the majority of its area is uninhabitable desert. In Saudi Arabian cities, the growth of urbanization has been rapid and intensive as a result of oil wealth. Since 1970, the government has given its full support for unlimited urban growth by guaranteeing and providing infrastructure, utilities, housing and other important services.

The government gives urban development priority in any financial expenditure. As a result, the government has founded many ministries and agencies to manage and organize the development process.

It has implemented the park and recreation facilities according to high standards in order to safeguard the same standard of living that has already been achieved elsewhere.

The task of transforming the desert to park areas means solving many problems. Water, soil and climate form the major challenges. With dry land, poor soil and a hot climate, only selected types of vegetation can be grown. This limits choices and requires the implementation of creative irrigation systems.

3.6.1- The Role of the Ministry of Municipal and Rural Affairs:

There are many ministries and agencies responsible for agriculture and green areas in the kingdom. But the management, development and construction of parks and inner-city green areas is taken care of by the Ministry of Municipal and Rural Affairs. This ministry establishes regulations and guidelines which help the relevant administrative offices to manage their cities.

1- The Ministry of Municipal and Rural Affairs:¹³

Municipal services are the official authority most closely involved in people's daily lives. For this reason, the government established the Ministry of Municipal and Rural Affairs in 1975. Its main duties are to manage and provide for the requirements of municipal services and take care of urban planning throughout the kingdom. Furthermore, it tries to maximize all employees' potential when it comes to working to improve the environment and preserving the general health

13 - Ministry of Municipal and Rural Affairs, administration of public relations and media. (2000)

of the kingdom's cities and towns through its branches countrywide. It carries out its duties in 13 regional municipalities in addition to 155 municipalities distributed through the country. In order to fulfill its duties and best achieve its objectives, it has been entrusted with major responsibilities which include:

- Urban planning of the country.
- The Development of Saudi cities and towns.
- Supervising and managing the civil service and its requirements.
- Preserving environmental health in the country.
- Development, implementation and maintenance of roads and lighting inside the cities.
- Coordinating the regulations and guidelines for planting and urban beautification.
- Managing the land of the country.

2- Park strategy

Saudi Arabia does not have a consolidated strategy for parks, but it has many regulations and guidelines concerning parks and open spaces. The Ministry of Municipal and Rural Affairs gives each municipality the authority to manage parks independently, as the situation requires.

Examples of these regulations:

1- Administrative guide for municipal projects:¹⁴

This guide shows the procedures which are to be used in projects:

- Reducing the project's cost.
- Ideal investment of the project budget.
- Increasing the level of performance.
- Explanation and simplification of project implementation at every stage.
- Reducing the study time.
- Unification of administrative procedures throughout the kingdom.
- Providing assistance with projects as needed.
- Establishing methods and procedures for projects.

14 - Ministry of Municipal and Rural Affairs, deputy ministry of technical affairs. (2005)

2- Planning criteria guide for recreational areas¹⁵

This guide is proposed to:

- Setting standards and determining general requirements for recreational services at various levels of planning
- Identifying requirements of services and determining ease of access to recreational services programs
- Explaining the hierarchy of recreational areas that meet the needs of the population according to the different types of urban communities.
- Striving to satisfy all the social, environmental and aesthetic requirements of residents in any given neighborhood.

3- The technical conditions and specifications for implementing planting projects¹⁶

These conditions and specifications discuss all conditions which satisfy the requirements for planting projects:

- Identifying planting elements.
- General condition of planting and maintenance.
- Site preparation work.
- Specification of used plants.
- Contractor obligations.

4- Basics of design, implementation and maintenance of parks¹⁷

This guide gives details and criteria for the basic planning of parks and park design systems, in addition to parks components, for example:

- Park design types
- Fundamentals of design and planning of parks.
- Factors affecting park design.
- Planning criteria for park structure.

15 - Ministry of Municipal and Rural Affairs, deputy ministry of cities planning, first edition, 2006.

16 - Ministry of Municipal and Rural Affairs, deputy ministry of technical affairs. (2005)

17 - Ministry of Municipal and Rural Affairs, deputy ministry of technical affairs. (2005)

- Elements of parks.
- Types of parks.
- Parks operation and maintenance.

item	utility area (Hectare)		Population (thousand inhabitants)		Transportation		Usage scope	
	High population	Low population	High population	Low population	Walk	Car	minute	km
Group park	0.08	0.3	1.2	0.9	✓		5	0.1-0.2
Playground	0.09	0.6	0.9	0.2	✓		5	0.15-0.275
Neighborhood park	0.4	0.5	5	3	✓		5-7	0.2-0.35
Neighborhood playground	0.3	0.6	5	3	✓		5-7	0.25-0.5
Quarter park	0.5	1.00	15	10	✓	✓	5-7	0.4-0.8
Quarter playground	1.5	3.5	15	10	✓	✓	5-10	1
Sector park	2	6	45	30		✓	15-20	2.5-5
City park	change	7	100 and more		✓	✓	change	
Recreation center	change		The city			✓	change	
Camping area	change		The city			✓	change	
Specialized parks	change		The city			✓	change	
Public parks	change		The city			✓	change	

Table no.(3.2) - Summary of planning criteria guide for recreational areas

Source: Ministry of Municipal and Rural Affairs, deputy ministry of cities planning, first edition, 2006. (p 21)

The above table (3.2) illustrates the classification of the parks in the kingdom and the planning criteria guide for recreational areas issued by Ministry of Municipal and Rural Affairs, deputy ministry of urban planning. The table explains the scope and area of each type of recreational service, the suggested population and modes of transportation to reach the utilities. In addition, the table shows the suggested travel time and the distance to reach each utility.

Recreational regions	Population (Thousand)	Residential Group	Residential neighborhood	Residential quarter	Residential region	sector	city
		0.9 – 1.2	3-5	10-15	30-45	90-135	400 and more
Children's parks and playgrounds	0.4-1.67						
Residential group park	0.30-0.83						
Neighborhood park		0.8-1.66					
Neighborhood playground		0.7-1.2					
Quarter Parks			0.33-1.0				
Quarter Playground				1-2.5			
Sector park					0.7-1.2		
Camping area						change	
Specialized parks						change	
Public parks						change	

Table no. (3.3), the above table illustrates the per capita area of the recreational region at all city planning levels (m²/ inhabitant).

Source: Ministry of Municipal and Rural Affairs, deputy ministry of cities planning, first edition, 2006

5- Criteria and regulations for planting in Saudi cities¹⁸

These criteria explain the scientific regulations for planting inside the cities and the criteria for plant distribution in front of houses and commercial buildings, in addition to the environmental specifications for plants and trees.

- Suitable plants for local environmental situation.
- Specification of plants which are suitable for the local environment.
- The function and use of plants.
- Regulations for tree planting:
 - - Along streets or on roundabout islands
 - - In front of houses - in front of commercial buildings

6- Guide for suitable planting projects in various Saudi environmental regions.¹⁹

This guide explains in detail the criteria for plants chosen in different regions by:

A - Environmental standards:

The guide divides environmental standards into:

- Climatic classification
- planting classification
- Suitable plants depending on the climate and soil classification.

B - Engineering standards

These standards explain how plants can be used for architectural purposes such as:

- Fences, -Pedestrian area limitation
- Noise reduction - Pollution control

18 - Ministry of Municipal and Rural Affairs, deputy ministry of technical affairs. (2005)

19 - Ministry of Municipal and Rural Affairs, deputy ministry of technical affairs. (2005)

C- Coordinating and aesthetic standards

Plants and trees play an important part in urban beautification, so these standards explain how to use different types of plants to make urban areas more attractive.

The guide divides the kingdom into eight environmental regions depending on climatic and topographical factors and recommends suitable plant types for each region.

3.6.2 – Parks construction financing

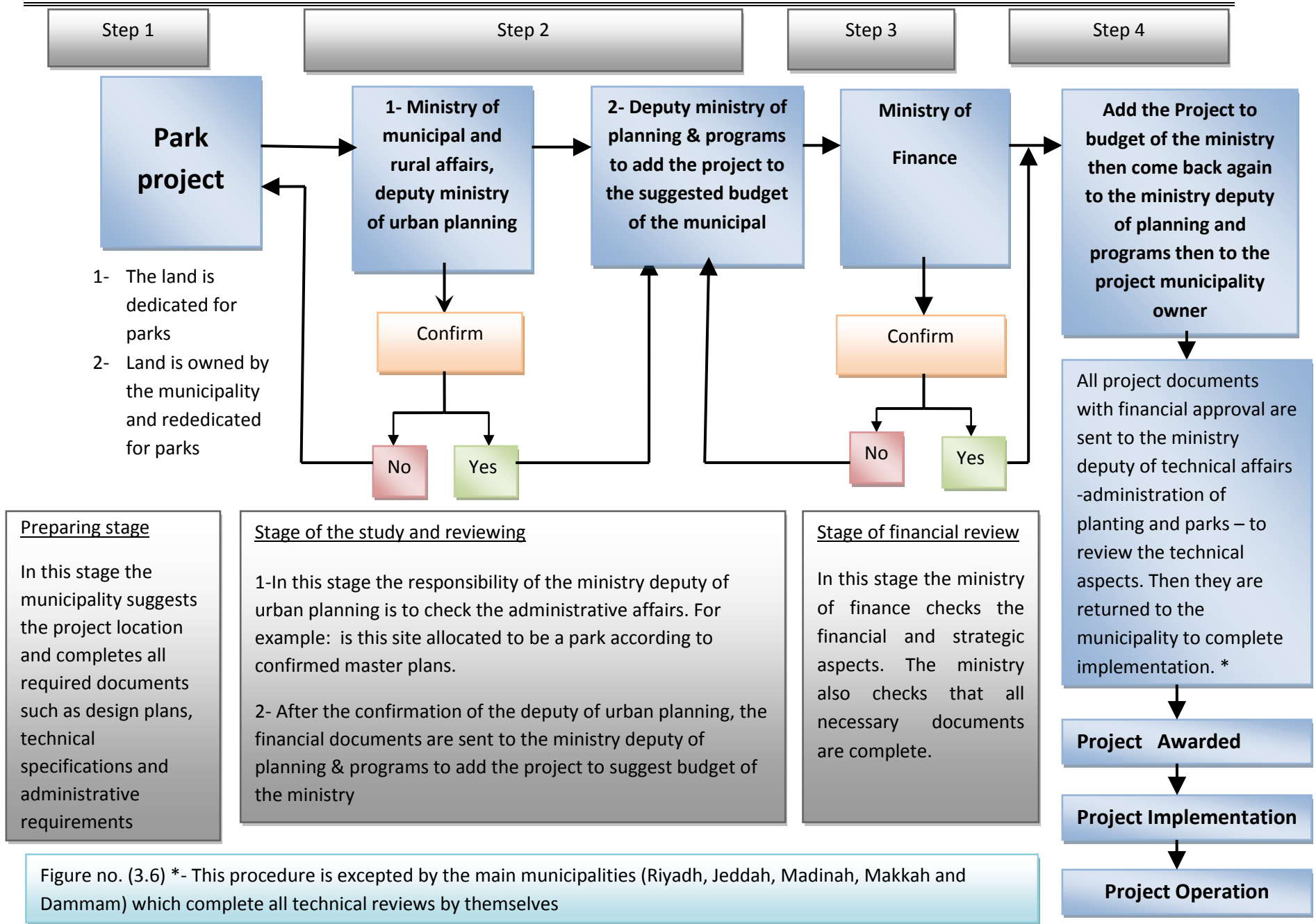
The government is the main sponsor of park project construction. It pinpoints regulations to organize the procedure of park implementation.

The Ministry of Municipal and Rural Affairs is responsible for park construction via its municipalities, which are spread throughout the country's cities and villages. The ministry has the authority over supervising and monitoring the project application process. This approval procedure includes checking any administrative or technical documents which may lead to future financial support and, ultimately, to the implementation of a project.

All these procedures are carried out by the following:

- Ministry of Municipal and Rural Affairs:
 - Deputy minister of urban planning
 - Deputy minister of planning and programs
 - Deputy minister of technical affairs
- Ministry of finance.

The following figure no (3.6) illustrate the steps involved in park planning.



3.6.3 - Important factors in the Saudi landscape

Arid land dominates the Middle East and this must be clearly understood before any new man-made activity is undertaken. Fifty years ago, climatic and physical factors were the strongest influences on settlement design and the surrounding landscaping. Arid lands are complex and sensitive ecosystems. One must observe the dynamic behaviour and the interaction of the components. The primary limiting resource is moisture; this determines the pattern of the ecosystem. This shortfall of moisture has driven natural selection to produce a diverse ecosystem of plants and animals.

It is obvious to most people that to establish planting in their mainly arid or semi-arid conditions; the Middle Eastern countries demand a very different approach from temperate European practice. In addition to climate factors, the people and their cultural and social traditions must also be considered.

1- Physical factors

Temperature

The average annual cloud cover is generally less than 10% in the Arabian Peninsula. During the summer, global solar radiation can exceed $700\text{-cal cm}^{-2}\text{ day}^{-1}$; dust and moisture in the atmosphere reduce this by as much as 25%. In Saudi Arabia, extreme temperatures usually occur during summer (the temperature in shade can be more than 48°C over much of the central part of the country). In winter the temperature often drops below freezing in the central and most northern areas of the country, but snow and ice are uncommon except in the mountains. (Zahran, (1983))²⁰

Saudi Arabia is characterized by high solar radiation. Sunshine days are >300 in most regions. According to the isolene map of Kattani and Lam, as quoted by (Zahran, (1983)), the average daily solar radiation received on the ground during the 1970s varied from 409 to 663-cal cm^{-2}

20 - Zahran, M.A., Younes, H.A. and Hajrah, H.H. (1983). On the Ecology of Mangal Vegetation of the Saudi Arabian Red Sea Coast. *J. of the University of Kuwait (Science)* pp. 87-99.

day⁻¹. The lowest values have been recorded in the northwest part of the country and the highest in the Empty Quarter.

Soil

The identification of soil and surface geology for a particular site will inform the appropriate selection of a plant or plant community. The classification of the Riyadh region's soil is an important factor in the design assessment of the landscape and relates to the availability of natural materials.

Water

Water is the missing element in the establishment of arid-zone landscape: it gains its highest importance where the amount of rainfall is generally low and spasmodically distributed, in infrequently and unpredictable discrete pulses. Ecologists observe that water availability structures and controls desert communities. The introduction of water causes biological activities and rapid increases in biomass and carrying capacity that can crash shortly after. In general, deserts receive less water than any other habitat, and consequently deserts are often considered to be the least productive habitats on earth (Louw and Seely, 1982)²¹.

2- Cultural factors

The users of open spaces

Redesign and reconstruction of these parks is the logical approach. The prime requirements for native users are: firstly complete visual and physical separation between families and bachelors. Secondly, Saudi Arabian people have inherited a respect for nature from their recent past as farmers and Bedouin (Philby, 1955)²². For these reasons the use of open space should be oriented to their traditional way of life. In addition to traditional civic spaces this might also involve creating areas, which are, more like natural camping sites, buffered from each other by native plants, rocks and sand formation as described by (Salama, (1987))²³:

21 - Louw, G.; Seely, M. (1982). Ecology of Desert Organisms. New York: Longman Group Ltd.

22 - Philby, J.B., (1955), Saudi Arabia, first Ed. First Benn, London

23 - Salama M., (1987). Saudi Arabian flora and its application in landscape design projects. M. Phil. theses, Edinburgh University.

“The existing mean of traditional parks in Saudi Arabian life is found in two ways. The first potential open space for Riyadh residents is simply the desert, where some depression in the desert is colonized by some desert species where the depression modifies the macro-climate to be suitable for outdoor activity. The asr (after noon) period 3:00 - 7:00 P.M. is the time for active use of those depressions (sports, etc.) and then all the night is for other passive activities. The main users for these places are families (mainly big groups of relatives) who use their cars to form a lee area where they start a fire and barbecue. Playing cards, walking, hunting and talking are the main activities at night when the temperature decreases to the minimum. In order to maintain the privacy for each family, a radius of 50m area should be allowed for one family. Some families use tents, especially for the weekend. The second potential traditional and recreational open space for Riyadh residents is the surrounding farm land which is mainly palm groves creating under their canopy a modified desired micro-climate. The record of the difference between the macro-climate and the micro-climate under the canopy could reach up to 7°C. The typical farm is used primarily for growing dates and the rest of the year for grasses and minor crops” (Salama, 1987)²⁴

Availability of species

The availability of plant material is one of the factors any landscape architect working in the Riyadh Region must consider. A study was carried out in the summer of 1987 by Salama, 1990²⁵ in order to obtain a record of the plant material available in the market and their country of origin. The main emphasis was to record newly introduced species and their source, how they were specified and by whom and also to find out if any native species were in general landscape use. Most of the species found in nurseries are still imported from tropical and subtropical countries such as North Africa and south Asia, also from the USA, Australia and European countries as a result of continuous demand for such species from foreign consultants. Many of these species are poorly fitted to severely arid conditions: they are typically species that naturally grow in monsoon-like summer rainfall climates. Commercial nurseries supplying plant material in the Riyadh region are located along Wadi Hanifah under the long-established canopy of the palm groves. The original rich soil is removed for potting soil. Stripping Wadi soil is a destructive practice, while the use of this soil for growing imported plant species is extremely costly.

24 - Previous reference no. (21)

25 - Salama M., (1990). Saudi Arabian flora and its application in landscape design projects. PhD. thesis. Edinburgh University.

3 - Ecological / horticulture factors that affect plant use

Plants that are native to arid zones are adapted to water and heat stress, salinity, lack of nutrients and indigenous insects, pests or diseases. It is not simply a question of a landscape architect using such species in landscape projects, since many indigenous plants available in local nurseries are propagated from only a single genotype under ideal conditions, such as modified micro-climate, rich soil and irrigation. This means that other wild-occurring varieties with their unique adaptation to particular environments are essentially lost and with them considerable landscape opportunities that might have employed their special adaptive characteristics (Kelly, 1976)²⁶.

Microclimate

Species of imported plant material require the creation of a suitable microclimate before their successful introduction, i.e., irrigation, suitable soil, fertilizers, implementation of humidifiers and intensive sheltering. Apart from this being expensive, the addition of chemicals and fertilizers to the soil in order to achieve suitable growing conditions for imported species is a considerable cost factor. As the existing native species are adapted to poor soil conditions, drought and a certain level of salinity, these problems are largely avoided.

Pests and diseases

Native plant materials may not be immune to local pests and diseases, however many are able to persist albeit with some damage. Some imported species may be immune to local pests and diseases; however, in some cases they have proved to be very susceptible.

Water consumption and irrigation

In Saudi Arabia, meteorological conditions tend to encourage the excessive use of water. This applies mostly to imported plant material, since most native plant materials are adapted to these conditions. These adaptations may involve fleshy leaves covered by thick waxy cuticles in which water is stored, hollow stomata to minimise water loss, control of stomatal openings, and hairy leaves that slow down movement of air. They may also develop an extensive system of roots to acquire water and may roll their leaves to prevent water loss from a large surface area. Native species will survive with only 100 mm of annual rainfall, but irrigating native species regularly

²⁶ - Kelly, K. and R.T. Schnabel bach. (1976). *Landscaping the Saudi Arabian Desert*. The Del Previews reference aney Press, Philadelphia, Pennsylvania, U .S.A.

will result in changes in their habits, leading to reduced resistance to heat, wind and other environmental factors.

Soil

Sandy soil covers large areas in the kingdom, and has very low water-holding capacity. The efficiency of water use is exceedingly low under the current irrigation methods. It is also very costly to improve existing soil to suit some imported flora (Clouston, 1978)²⁷.

Salinity

The saline ground water table in some areas adversely affects imported plant material. Imported soil is essential for such plant material to raise the root ball level above the saline water. The use of this plant material requires a capillary break between the saline ground water and the non-saline irrigation water in low-lying areas. However, close to ground water, salt-tolerant plants are particularly appropriate and most native species can fulfil that role.

The climate is hot and arid with rainfall not exceeding 101.3 mm years and usually torrential in nature. Irrigation under such arid conditions generally leads to increased soil salinity and overconsumption of the already small amount of ground water. This results in decreasing the quantity of the water resources and increasing salinity levels. Such irrigation problems could be greatly reduced by using indigenous species when we know how to use them.

3.7 - Water sources in Saudi Arabia

Water is the fundamental element for life on earth. It is important for stability and urban development, according to which the life and economy of each city or town are influenced by the water quantity provided.

The natural water resources in Saudi Arabia are divided into two parts:-

27 - Clouston B., (1978). The role of landscape architect. In Ali and Brown 1978.(Landscape design for the middle east). RIBA Publications Limited. London. (pp. 11)

1 -Shallow water:

Usually, shallow water consists of rainfall runoff in the valleys. This type of water is lost quickly because the evaporation rate can reach 70% and the rest is absorbed into the earth. On the other hand, in order to conserve this water the government has constructed dams in many valleys to ensure maximum use and to raise the level of deep groundwater. Such dams have been built at: Jazan Dam, Alleath Dam and Wadi Beash Dam. (Alshareef, (2006), pp. 123-1290), (Sagga, (2004), pp. 132-134)²⁸.

2- Deep groundwater:

This water collects when rainwater absorbs into the earth. At the beginning of the process, the water stays in the middle layers of the soil: this is related to the type of soil present. Gradually, the water seeps into the sedimentary layers which are considered the best rocks for water preservation.

The preservation layers of deep groundwater are characterized by two important phenomena: the first is a gradual sloping from west to east that gives us an explanation for the abundance of water in the eastern regions from discovered preservation layers. The second phenomenon is that of the deep tanks working as water traps. This type of trap is found in many places in the kingdom. Deep groundwater comprises about 80-90% of Saudi water preservation. In general, deep well excavation ranges between 100 and 1,500 meters, but it has reached 2,400 meters in Alasiah – Alqassim region. (Alshareef 2006, pp 129-140), (Sagga, 2004, pp 135-148)²⁹

The kingdom is desert country and it has a great shortage of rainfall. Also, it does not have any rivers or lakes. This means the government must search for alternative sources with which to provide the country with the required water volume.

28 - Previous reference no. (5)

29 Previous reference no. (5)

Chapter four

Analysis of the park situation of selected Saudi cities

The main study focuses on the parks and open spaces polices in Riyadh, but also describes the situation of green areas throughout the kingdom and various municipalities.

This chapter will carry out an analysis of Saudi cities with respect to parks and open spaces. The selected cities are Medina, Jeddah and Tabuk.

These cities have been chosen depending on many consideration points such as geographical location, population, area and climate.

Medina is located in the northwestern area of Saudi Arabia. It is the capital city of its administrative region; also, it is the second holy city for Muslims. Its area is estimated at 589 km² and its population is about 920 thousand inhabitants. It has a desert climate, which is characterized by extreme heat in summer and relative cold in winter. In addition, it has many types of landscape such as mountains, hills and valleys. The predominant surface is volcanic rock, which covers the most of the land.



Figure no. (4.1.1) the above figure illustrates the locations of the selected cities in Saudi Arabia

Jeddah is located in the west of Saudi Arabia, on the west costal plain parallel to the Red Sea and Tehama mountain chain. In addition, it has flat land sloped gradually down towards the sea. It is the second-most important city in the country; it is considered the commercial and economic center. Its area is estimated at about 1,500 km², and its population is approximately 2.8 million, the second-highest population in the kingdom after Riyadh city. Its climate is characterized by moderate temperatures during the year, with an increase in relative humidity in the summertime.

Tabuk lies in the northwest of the kingdom, near the northern boundaries. It is 700 km from Medina and 1,350 km from Riyadh. It is the capital city of its administrative region. Its area is estimated at 300 km² and its population is around 488 thousand inhabitants. It is located on a low plain 600 - 800 meters above sea level. It is characterized by a moderate desert climate which reaches an average of temperature 21°C, while the average rainfall is about 39 mm.

This study will explain the history of these cities, in addition to their urban development. Also, it will illustrate the main components of these cities, focusing on the current and future situations of parks and open spaces. Furthermore, it will include the percentage of green areas in the master plan and existing green areas in each city.

The strategy and planting policy and organization structure used in each city will be studied, as well as current and future expenditures regarding green planting areas.

This study will evaluate government regulations with respect to parks in the chosen cities and examine each city's conformity or non-conformity to the regulations set by the municipal ministries which are responsible for introducing and enforcing these regulations. In addition, the irrigation resources and systems in use will be discussed.

4.1- Medina

Medina is located in the northwestern part of the Kingdom of Saudi Arabia, 250 km to the east of the Red Sea.

Medina lies at the meeting point of longitude 39° 41' 55" east and latitude 24° 32' 53" north. Its area is estimated as 589 square kilometers and its population is about 920 thousand inhabitants.

It has special importance in the local and international Muslim communities. It is the capital city of its region, and in addition, it is the site of the Muslim Prophet's Mosque, which is considered the second-holiest mosque in the world.

In 2002, the number of visitors was estimated at 12 million, and it expects 34 million visitors by 2024¹.

Also it considers the urban center for the reign's cities because it has the head offices of the governor other branches of the ministries in addition to commercial companies and banks.

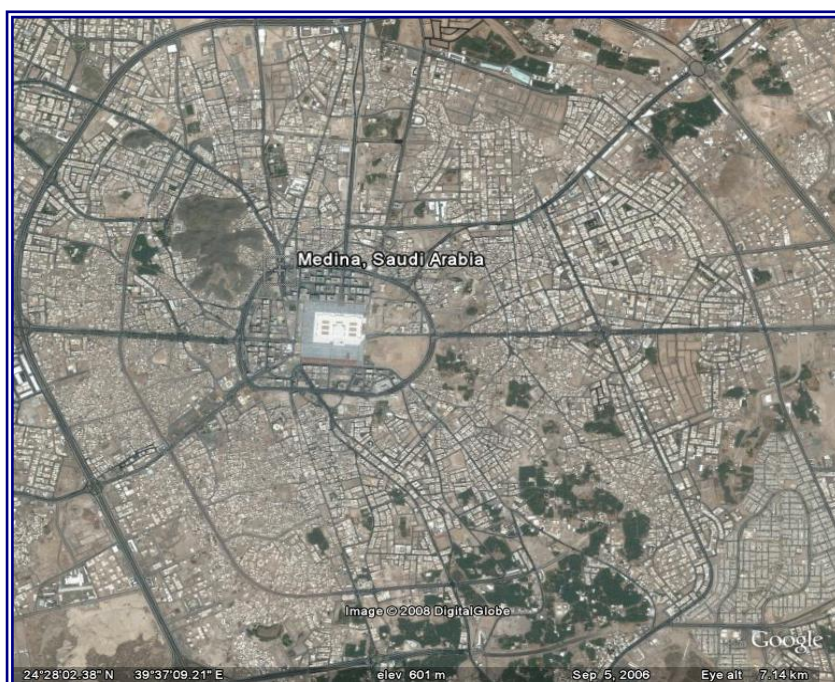


Figure no.: (4.1.2) Medina city aerial view,

Source: Google Earth program, 2008

¹ - Royal Commission for Jubail and Yanbu. The Fourth Forum for Tourism Development (general administration of investment and development)– Royal commission for Jubail and Yanbu

4.1.1- Geography²

Medina lies in a sedimentary area at an altitude of approximately 635 meters above sea level. Its medium altitude means that there are no great differences in temperature or precipitation. Two mountains and two valleys embrace Medina. On the north side, there is Ohod Mountain, which is a famous landmark. Its length is about 6.5 kilometers, its width between 2 and 3 kilometers, while its height is estimated at 480 meters. Also, there are many small mountains beside it, as well as Kanat Valley. On the south side, there is Aear Mountain, which stands 955 meters above sea level, while its average width is about 70 meters. Alaqueaq Valley is also found there.

Between these mountains, there are many other mountains such as Selea, Algreen, Aldwakhel, Alasfareen and Aljamawat Althlath. These are less important, but they give a full indication of Medina's geographical situation. Not all of these topographical details affect the weather, but they have the local effect of protecting the city from storms.

Medina's altitude changes gradually from the south to north; it is estimated between 598 and 635 meters above sea level. Many types of stone such as sandstone, alluvium and volcanic rock characterize medina's natural surfaces.

"It is interesting to compare the monthly and annual rate of stormy days in Medina and Riyadh between 1970 and 1995. There is a noticeable difference in stormy days between Medina and Riyadh. Riyadh had 27.8 days of stormy weather, while Medina had only a few stormy days, not exceeded by 3.6 days. This is related to the important point that Riyadh is surrounded by huge sand areas on all sides while Medina is surrounded by stones and mountain ranges.

In Riyadh, April has the maximum stormy days/year, which was 5.6 days, but May, June, March and July have increasing in storm days reach 4.2, 3.4, 3.2 and 2.4 sequentially. In Medina, the maximum was April, which reached only 0.9days/ year.³

2 - Tolba, S. S., Medina's Climate and Economic Effectiveness, 2002

- Kaki, A. A., Medina Almunawwarah: Features between Architecture and History, Vol. II: (urban development features and Medina cultural progress), Jeddah, 1998.

3- Presidency of Meteorology & Environment Protection (Annual Reports 1970-1995).

4.1.2- Historical study⁴:

Yathreb is the Arabic name for the region that lies in the northwest of the Arabian Peninsula. It is believed that the first Arab tribes immigrated to the region in 450 A.D. Their original homeland was modern Yemen.

At that time, the population comprised simple rural communities without any organized urban plan. Their villages were surrounded by fields and gardens. Agriculture was the major occupation. Abundant water facilitated cultivation of the fields, fruit and vegetables. The steady water supply encouraged other people to come and settle in the area. In 622, massive changes took place which affected the history of Yathreb. In that year, the prophet Mohammed bin Abdullah - (the Islamic messenger) - immigrated to Yathreb, then established the first Islamic state.

The name Yathreb was changed to **Almadinah Almunawwarah** to celebrate the Prophet and the city chosen for his residence after Makkah, which was his home city.

Medina became the center of Islamic government from the time when the prophet arrived in 622 until 657. During this period, the city had a special importance because it was central to the spread of Islam. During the period of the states of Alamawi and Alabbasi, which lasted from 660 until 1258, the state center was moved to Damascus in Syria and Baghdad in Iraq. Also, in the Almammluki period between 1258 and 1517, Medina retained its status as a holy city, and Muslims visit it because of its historical significance.

Under the Ottoman Empire - In the period between 1517 and 1925-, Medina was developed because the government organized modern buildings, schools and services, as well as the railway lines, which connected Medina and Alsham (Syria).

4 - Mustafa, S. L., Medina Almunawwarah: Urban Development and Architectural Heritage, Beirut, Dar alnahda Elarabiya. (1981)

- Kaki, A. A., Medina Almunawwarah: Features between Architecture and History, Vol. II: (urban development features and Medina's cultural progress), Jeddah, 1998.

Since 1925, the Kingdom of Saudi Arabia has controlled the region. Political stability, infrastructure and security, which came with the Saudi state, led to development and prosperity.

The government has implemented road networks, ports and airports, which help to connect the kingdom domestically and internationally. This means that commercial transportation is easier than it was in the past. However, urban expansion has limited, or even destroyed, the surrounding fields and gardens.

4.1.3- A Look at Urban Planning Development⁵:

Medina was first established as a village with a few cottages surrounded by gardens and orchards. When the Prophet came to the city, Medina's situation changed. Over time, the city expanded to four times its original size; in 628 there were about 800 houses.

During the Alamawi, Alabbasi and Almammluki periods, which lasted from 661 to 1517, the city's development included both commercial and urban building. In this period, the city's expansion was limited, although many new services were added to the municipality, such as various types of street and a plumbing system. The gardens and orchards in the west and south, which were economically important, limited urban expansion in these directions. At this time, expansion occurred mainly to the north, which preserved the green areas as an important economic element and as a source of jobs. Under the Ottoman Empire, which ruled from 1517 to 1925, there was a big change in development. Improvements in building techniques and construction materials led to new styles of building, such as multiple-storey structures built of basalt stone and baked bricks. The railway, which was established between the Ottoman state center and Medina, caused an increase in population, which reached about 70,000 inhabitants in 1908.

Nevertheless, prosperity did not last, because the beginning of the First World War weakened the state. This affected development and caused a decrease in population to about 30,000 inhabitants in 1917. New urban designs came out of this period, characterized by narrow roads and houses built close together. This was aimed to provide relief from the

⁵ - previous reference no (3)

high temperatures prevalent in the local climate. In fact, this style was typical for Medina. (See figure no. (4.1.3))

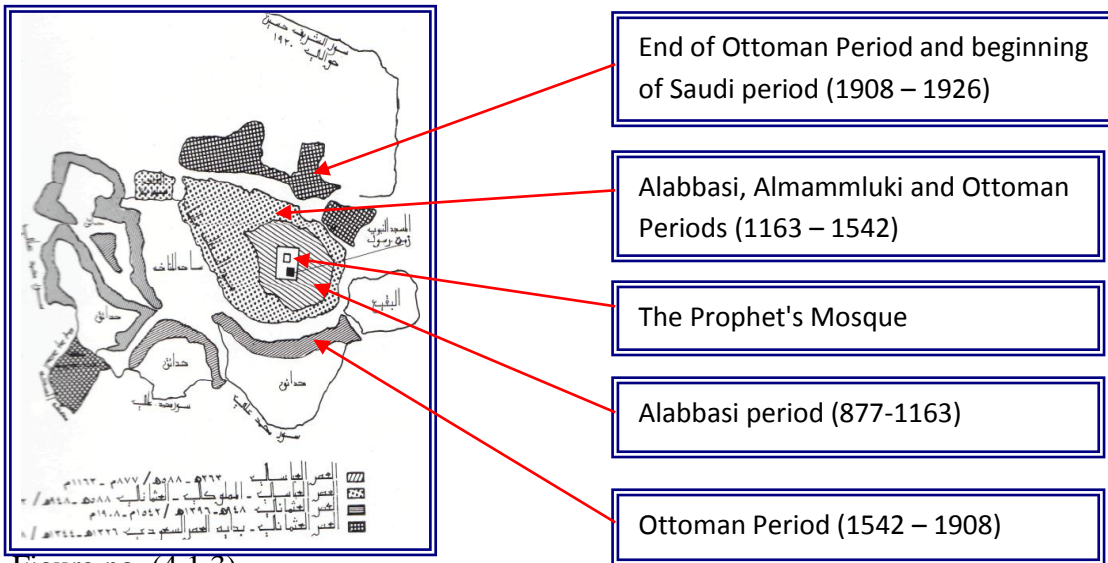
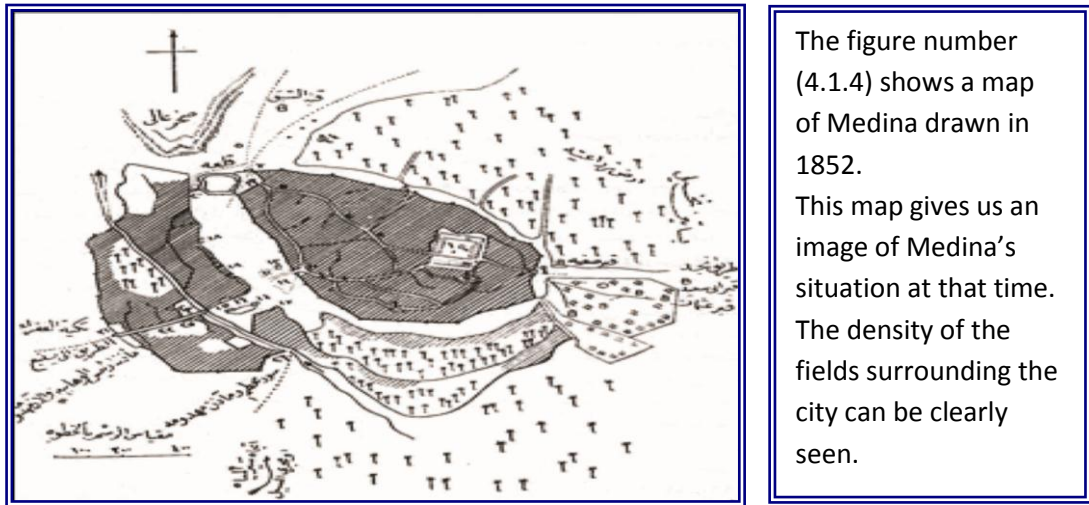


Figure no. (4.1.3)

Source: Medina Climate and Economic Effectiveness by Dr. Tolba, Shahata Said

The above figure no. (4.1.3) illustrates the historical development which happened in Medina city during the different periods.



Ala'nbaria Street	٢٢	Omar Mosque	١٥	Hospitality Door	٨	Prophet's Mosque	١
Prior Pasha House	٢٣	Prior Governor's House	١٦	Friday Door	٩	Entrance in the North Side	٢
Recent Pasha House	٢٤	Sheikh Hamid's House	١٧	Egyptian Door	١٠	Services Center of the Mosque	٣
Bridge on water flood tunnel	٢٥	Families and Rich Houses	١٨	Alkhadriah Market	١١	Alsalam Door St.	٤
Qubaa Door	٢٦	Exterior Department of the castle	١٩	Grain Market	١٢	Large Market of Dates	٥
		The Small Door	٢٠	Public Fountain	١٣	Agency	٦
		Ala'nbaria Door	٢١	Prophet's Place of Prayer	١٤	Syria Door	٧

Figure no. (4.1.4) Source: previous reference no (4) (p.21)

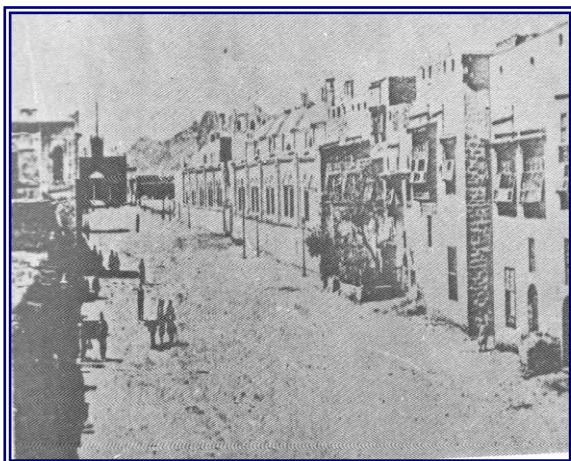


Figure no. (4.1.8)



Figure no. (4.1.9)

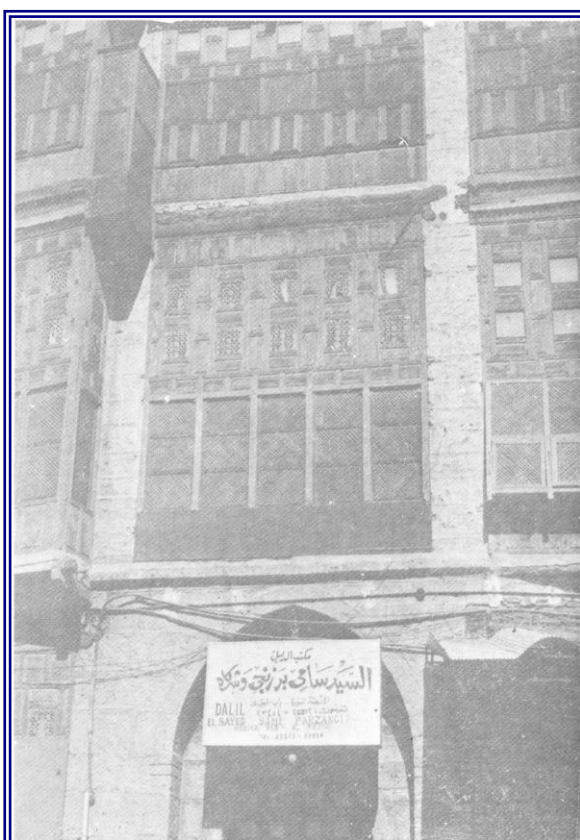


Figure no. (4.1.10) Source: Mustafa, (1981)

Picture no. (4.1.8) shows the development under the Ottoman Empire. This picture is from 1914, while picture no. (4.1.9) illustrates the same road but in 1925, showing the changes which happened during this period.

One can see the change in building styles and means of transportation such as the railway, which connected Medina to Turkey via Syria.

Picture no. (4.1.10) illustrates the architectural style and building materials which dominated at this time. They were an environmental solution meant to make life easier in a changeable climate.

The manuscript of Medina, which was written by Ali bin Mosa⁶, mentions the parks which were found throughout the Ottoman Empire. By the outer city wall, there were more than 15 parks; the most famous park was Alhashemiah Park. Inside the interior wall, there were

⁶ - Aljaser, Hamad letters in Medina history, through the sequence number 16 from geographic and historical research about the Arabic peninsula. Published by Dar Alyamamah for translation and publishing, Riyadh, KSA.

8 parks. The most famous were Aleaniah, Alсахah and Bait Alsafi parks. On the other hand, the historian Ibrahim Refaat Basha⁷ mentioned at the beginning of the twentieth century (1901 – 1908) that the agricultural area was growing rapidly in Medina, especially the farms which were irrigated by the flood of the Alzarqa source. Also, palm tree and grape farms spread in the quarters of Qubaa, Alawali, Qurban and around the Prophet's Mosque from the east, south and west sides. The historian supposed the number of palm tree and grape farms to be about 485.

4.1.4- Medina in Saudi times

When the Saudi state was established in 1925, the city began expanding gradually on all sides. This was the result of political stability, as well as an increase in security. After the end of the Second World War, development increased quickly with stability, and the network of roads, ports and airports soon connected the entire kingdom, both internally and internationally. All of these signs of growth meant increasing development in Medina, which led to infringements on the oasis and green area which surrounded the city. The quick development in Medina encouraged the government to study and design future plans for the city. These will be outlined in the next step of this study.

The first comprehensive study (master plan) was issued in 1973 by Robert Matthew of Johnson-Marshall and Partners Consultants to cover the suggestions for urban planning and extension until 1991. The study was accepted and carried out by request of the Ministry of the Interior (the responsible department before the Ministry of Municipal and Rural Affairs took over in 1975).

The important features of Matthew's master plan were that any future growth in the city must:

- preserve its social cultural fabric. Changes should not be imposed at a faster rate than necessary;
- preserve environmental safety and the quality of life for all citizens;

⁷ - Bash, Ibrahim R, Alharameen mirror. Published by Dar Almarefah. Beirut.

- preserve traditional Arabic characteristics and protect the religious aspects from any function which may conflict with them;
- keep the Holy Mosque as the dominant and central element in the future shape and function of the city;
- exploit the empty lands and open space areas around the urban mass;
- preserve the existing agricultural land north and south of the city;
- find opportunities for light industry;
- provide pilgrims with food, accommodation and other necessities;
- Explore and exploit natural resources⁸. (Kaki. 1998, pp 281 – 283)

⁸ - Kaki, A. A., Medina Almunawwarah: Features between Architecture and History, Vol. II: (urban development feature and Medina cultural progress), Jeddah, 1998.

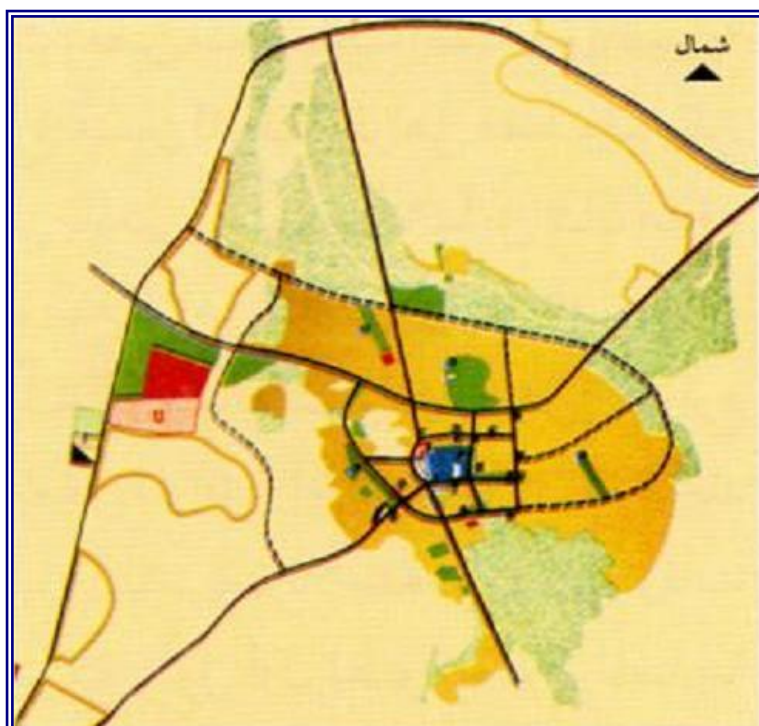


Figure no. (4.1.11) shows the first master plan of Medina, prepared by Robert Matthew of Johnson-Marshall and Partners Consultants in 1973.

Table no. (4.1.1) illustrates the population and area change which happened in Medina's city at the time of Saudi state

Figure no. (4.1.11) first master plan Source: Kaki 1998

Year	Area/ hectares	Area / km2	Source
1928 – 1964	800	80	Survey maps
1965 – 1972	1,300	130	Master plan of Robert Matthew
1973 – 1978	2,360	23.6	Eight technical reports (land development policy) Jacdar
1979 – 1990	291.5	292.92	Dar Alhandasah, Consultant

Table no. (4.1.1) population development of medina through Saudi time

Source: Kaki, 1998

The second master plan was produced in 1978 by the Saudi branch of a Lebanese consultant group. The Ministry of Municipal and Rural Affairs contracted the consultant to study Medina's city planning and produce a guide for development policy to be in effect until 1995.

Analysis and study of the last master plan show that several important factors affected implementation of the master plan as suggested by the planning consultants, such as:

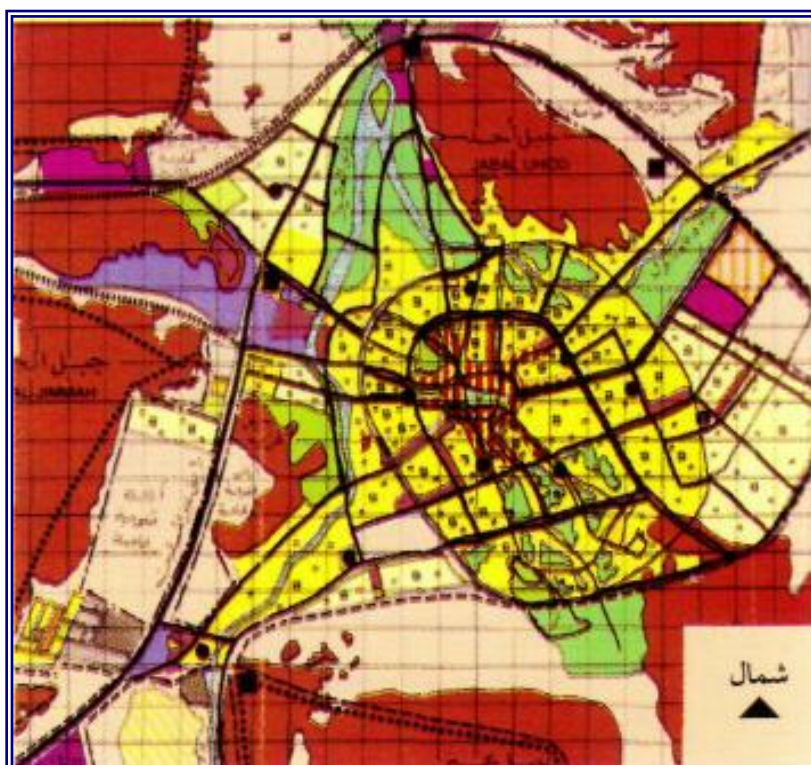
Economic facilities, Housing and population, Investment and public spending, Land Division Projects, Construction, Initial roads network and Land use development.

With respect to the last factors and the third five-year strategic plan (1980 – 1985), the planners took important features of the plan and made them the foundation for economic and urban development. Its main priorities were:

- Increasing rate of national income;
- Guaranteeing economic services to the greatest number of people;
- Finding suitable conditions for healthy economic growth;
- Increasing commercial development.

To satisfy the strategy development targets, the planners examined the following aspects as essential: planning criteria, special limitations, and planning assumptions, land use planning, social services, basic utilities, and future city form.⁹ (Kaki, 1998 pp 284 – 296)

9 - previous reference no (5)



The second master plan of Medina, prepared in 1978 by an Arab-managed consultant group for development and contracting.

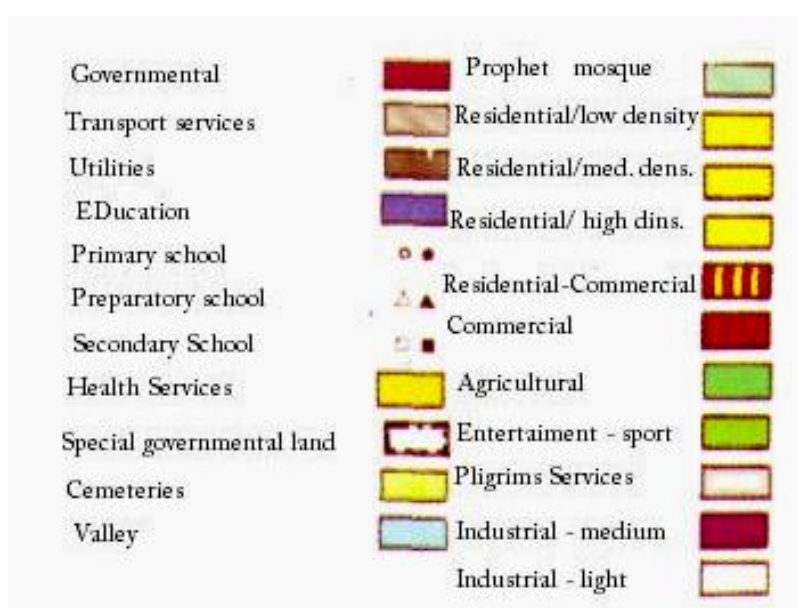


Figure no. (4.1.12)

Source: Kaki (1998)

The above figure illustrates the second master plans of Medina, prepared in 1978 by an Arab consultant group for development and construction.

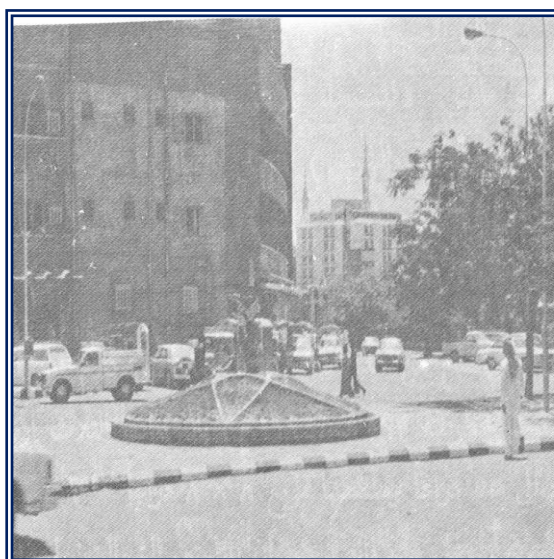
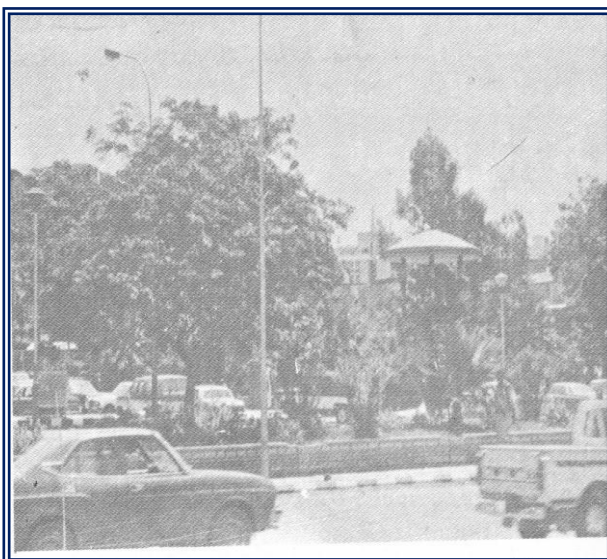


figure no. (4.1.13) urban change in Medina through early Saudi time figure no (3.1.14)



Figure no (4.1.15)

Source: Mustafa, 1981

Pictures (4.13), (4.14) and (4.15) illustrate the huge change which has taken place in the city.

These pictures are from 1978; they reflect the development of urban planning all over the country. Developments include paved roads, more efficient use of space and improved services for the general populace.

The pictures show new high-rises, a building style introduced in the late 1970s. There are also examples of urban lighting and beautification projects.

Medina has grown in recent years. It has developed rapidly and dramatically. Such growth was not expected in 1978 when the second master plan was prepared. The city's population has grown, and increasing numbers of pilgrims and visitors have caused an increase in cultural demands as well as demands on the social structure, science and technology, resulting in the massive development in transportation and communication instruments.

According to the above factors, the Ministry of Municipal and Rural Affairs (Medina Municipality) contracted Dar Alhandasah in 1988 as a design and technical consultant to prepare integrated consulting studies of planning for Medina until 2010. The study came to an end in 1993.

The study involved:

- a review of the last plans in order to evaluate the current social and economical situation;
- three stages of urban scope and guide plan implement (1990–2000, 2000–2005, 2005–2010);
- consideration of land use;
- growth and development of the population;
- a general vision of economic structures;
- criteria for cultural services;
- criteria for municipal services;
- criteria for public utilities services;
- criteria for commercial services;
- Problems and potential solutions for selected city quarters.

(Kaki, 1998, pp 297-485)¹⁰

On the other hand, the consultant's survey for public services found the area of parks and open space areas which are supervised constructed and maintained by Medina municipality in 1990 was 41 parks with a total area of 7.14 million square meters.

According to the study, 75% of the city parks areas do not exceed 10 thousand square meters, which equals 13% of the total area of parks in the city. Parks which have an area of

¹⁰ - previous reference no (5)

more than 50 thousand square meters equal 7% of the total number of city parks, but it equals 65% of the total area of city parks.

The study recommended implementing clear policies to provide green areas and open space areas to deal with the land available in each region. Furthermore, the planner recommended a solution for development areas which suffer from a shortage of allocated places for parks as well as high land prices. According to the study, planners should concentrate on sports facilities which are attached to schools. This land could be used by the schools during the day and open to the public at the quarter level when school is not in.

The planner confirms that it is necessary to dislocate the areas which have high density by creating these utilities to reduce the high population of crowded quarters. However, one condition must be the obligation to provide the types and different levels of green open space areas which satisfy the rate, standards and specifications mentioned in the planner's report.

The planner's standards and criteria agree with the planning criteria guide for recreational regions issued by the Ministry of Municipal and Rural Affairs, which adopted all the recommendations. More information on this topic appears in chapter three.

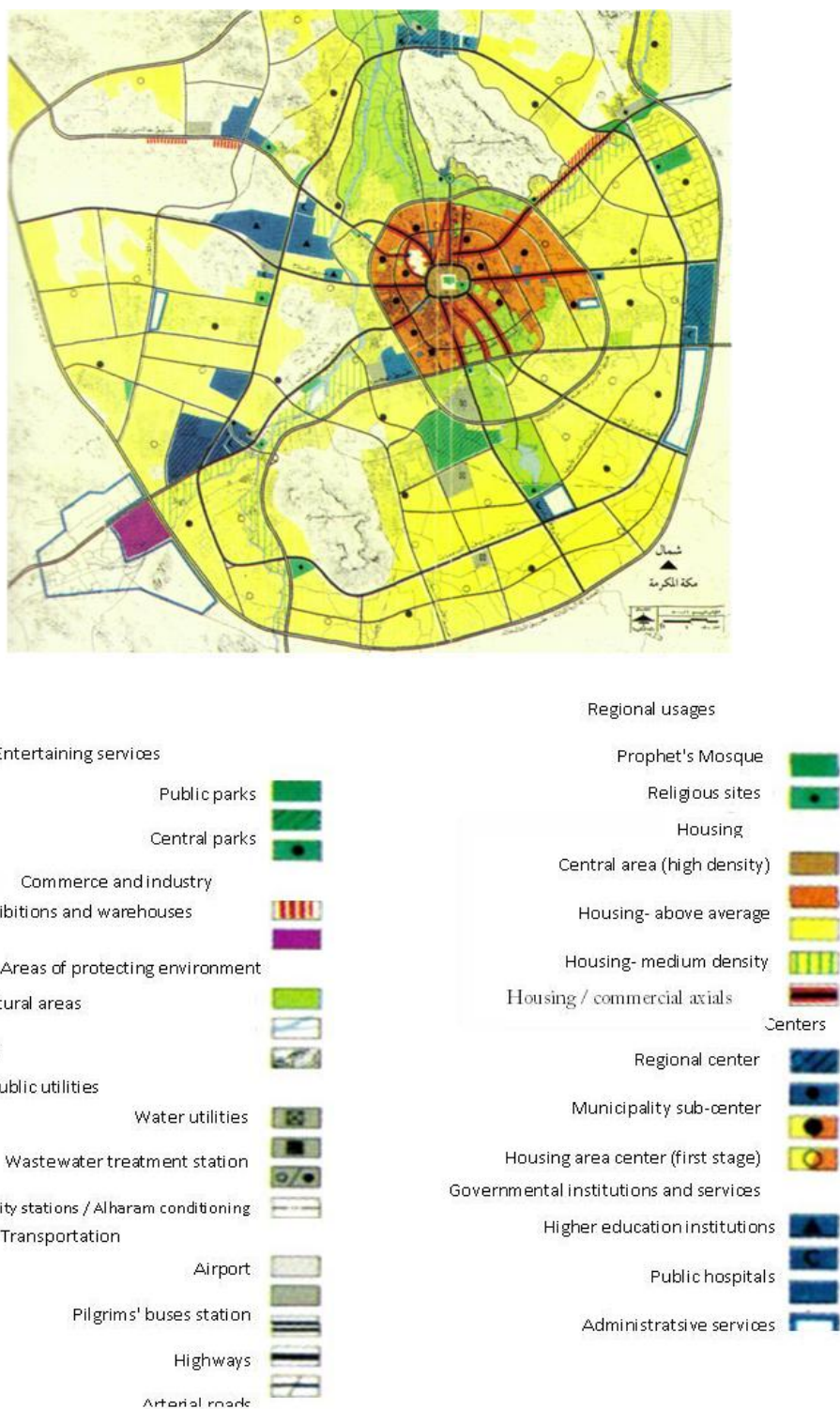


Figure no. (4.1.16)

Source: Kaki, 1998

The above figure shows the detailed comprehensive plan prepared by Dar Alhandasah for design and technical consultants in 1988. It also shows the border of city extension until 2010. The expected area is (57,851.1) hectare (578.5) square kilometers)

4.1.5- Medina today

In the 1970s, Saudi Arabia experienced an economic boom, which had a profound impact on the country's wealth. This new wealth was instrumental in the kingdom's development. An observer of Medina's development throughout history could note that the city is characterized by its circular town plan. This has created a unique look with radial roads which make the city easy to navigate.

Medina today is a modern city with all aspects of luxury and comfort. The government is responsible for urban planning: it has created the road network and other infrastructure requirements. Furthermore, it organizes construction and other aspects of development.

The municipal government carries out all this development. This government manages the city and supervises all plans and strategies tied to urban development. In addition, it has divided the city into seven districts. Each district has the responsibility to manage and follow the main municipal strategy.



Figure no. (4.1.17) Medina Urban Development Today

Figure no. (4.1.18)

Source: Medina municipal website¹¹

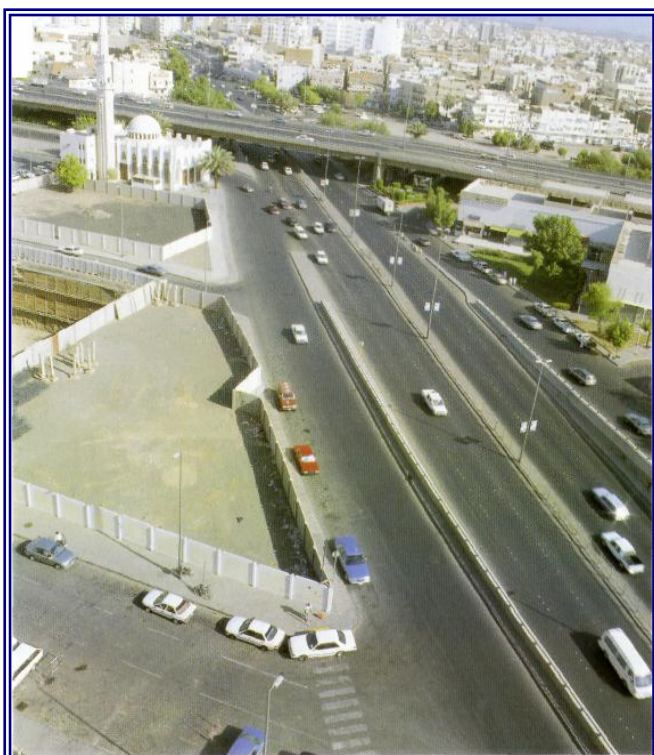
¹¹ - Medina municipal website (<http://www.amanamd.gov.sa/WebLinks/AlmadinaPics.aspx>)-
2/6/2008



Figure no. (4.1.19) Medina Urban Development Today

Figure no. (4.1.20)

Source: Medina municipal website¹²



The above and beside figures illustrate the urban development which have taken place in Medina resulting from both the economic boom and the growth in area and population.

These pictures show such features of development as new roads, which are built of modern materials. In addition, the high-rise buildings in the city center can be seen.

Figure no. (4.21) Medina Urban Development Today

Source: Albenaa Magazine, vol.24 no. 168/ 169 2004.(p 183)

¹² - Medina municipal website, <http://www.madmoc.com/start.php?show=album2> 2/6/2008

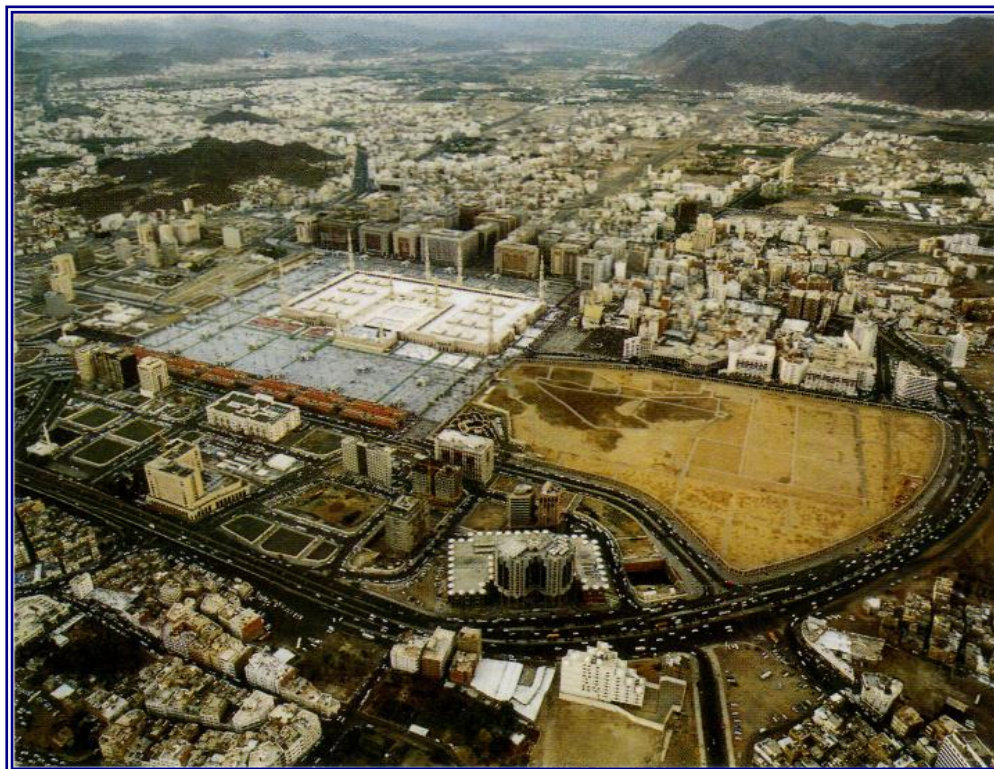


Figure no. (4.1.22) Medina Urban Development Today

Source: Albenaa Magazine, vol.24 no. 168/ 169 2004. (p 123)



Figure no. (4.1.23) Medina Urban Development Today

Source: Albenaa Magazine, vol.24 no. 168/ 169 2004. (p 79)



Figure no. (4.1.24) Medina Urban Development Today

Source: Albenaa Magazine, vol.24 no. 168/ 169 2004. (p 128)



Figure no. (4.1.25) Medina Urban Development Today

Source: Albenaa Magazine, vol.24 no. 168/ 169 2004. (p 182)

Figures (4.1.22), (4.1.23), (4.1.24) and (4.1.25) illustrate the urban design concept also the change and extension which happened in Medina.

It shows the high rise building which spreads throughout the city especially in the city center around the prophet mosque to providing the required accommodation for the mosque visitors.

It shows the architectural style which appeared with the new material in new building construction.

1- City components

By studying Medina's master plan and using the MapInfo program, we can see the main components of the city, such as residential areas, commercial zones, government utilities, public services, etc.

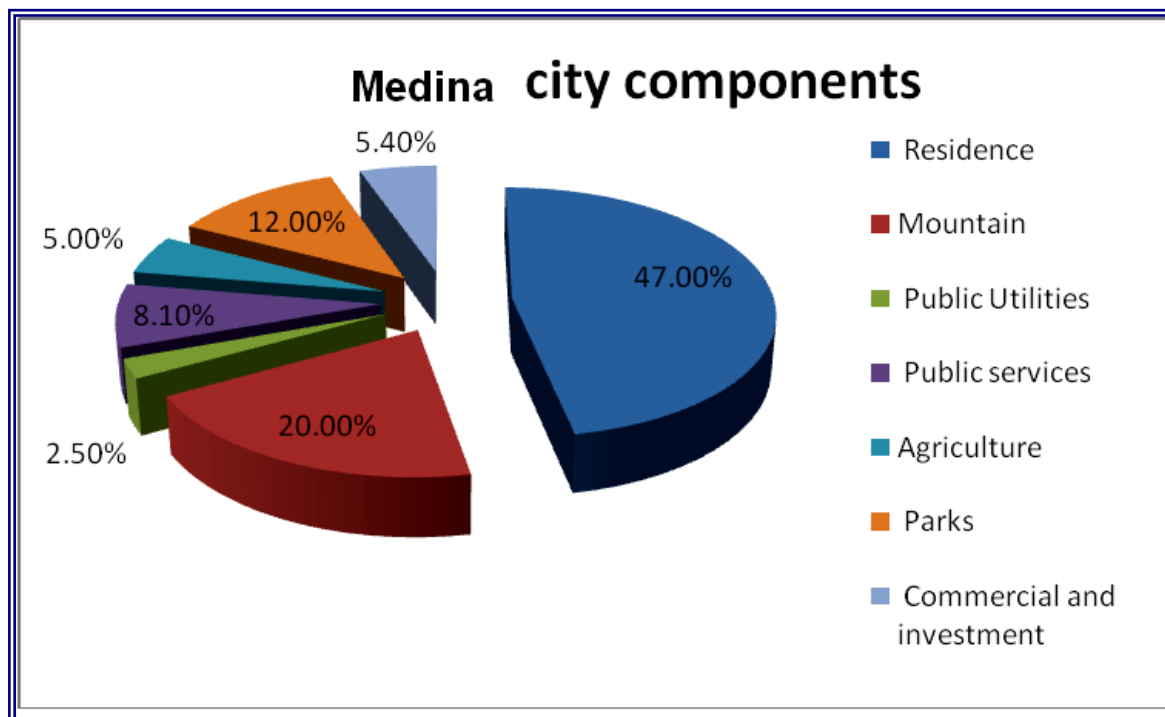


Figure no. (4.1.26) Medina Urban components

Source: The Master Plan of Medina City 2007¹³.

The above figures demonstrate the percentage of the city's components according to the master plan. It illustrates that public services cover 8.1% of the city area. These services include education, health, religion and heritage. In addition to utilities, which cover 2.5%, it includes all public supplies such as sewage treatment stations, water supply plants and other facilities.

There are significant components which affect city planning, such as mountains, agriculture, parks and residential areas. These components cover 20%, 5%, 12% and 47% respectively.

¹³ - The master plan of Medina Municipality. (With using MapInfo, program. 2007

2- The Role of Medina's Municipal Government

The municipal government has many responsibilities. They are as follows:

- 1- Implementation, operation and maintenance of parks, planning and urban beautification projects.
- 2- Protection of the environment through sanitation and control of foodstuffs and public hygiene. Organization and management of abattoirs.
- 3- Participation in the organization of cultural affairs and projects to provide comfort, tranquility and safety to the city's inhabitants.
- 4- Urban planning and surveying, building permits, naming and numbering of districts, streets and plazas.
- 5- Implementation of projects and supervision of subcontracted work.
- 6- Operation and maintenance of municipal facilities and both fixed and moveable property.
- 7- Organization and management of municipal affairs and land and property issues; investments.
- 8- Organization and management of cemeteries and burial.

3- Organization Structure

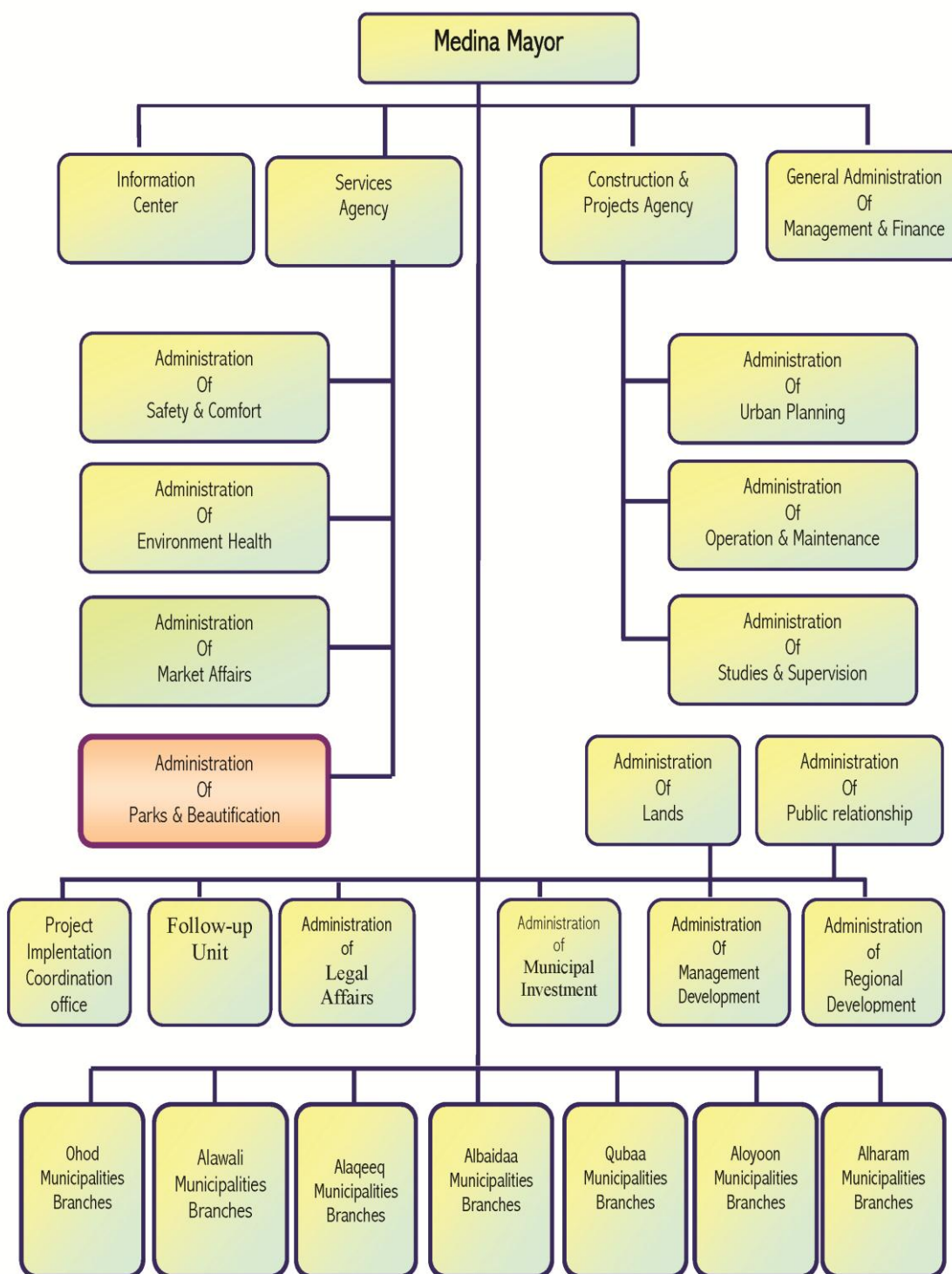


Figure no.:(4.1.27)

The above figure illustrates the organization structure of Medina municipality.

4- The Role of the Deputy Municipal Administration Functions:

According to the municipal organization structure, there are main functions for each deputy administrative office as follows:

A- Projects and construction agency

This office is responsible for managing public and private projects. It also regulates construction projects. It manages its duties via three general administrative offices:

A-1- Administration of Urban Planning

This office concentrates on city planning, all aspects regarding construction such as building permits, conformity to design standards and other construction affairs. Furthermore, it is responsible for surveying and planning, as well as naming and numbering of districts and roads.

A-2- Administration of Studies and Supervision

This administration's function concentrates on the study, design and supervision of municipal projects. In addition, this office is in charge of road and flooding projects.

A-3 - Administration of Operation and Maintenance

This administrative office concentrates on municipal utilities, roads and the collection of rainwater. It also manages and maintains the material laboratory, as well as municipal equipment.

B- Services Agency

This deputy municipality is responsible for environmental protection and managing municipal services. It manages its duties via four administrative offices:

B-1 - Administration of Parks and Beautification.

This administration is focused on the operation and maintenance of parks. In addition, it is also in charge of urban beautification projects. To this purpose, it runs a nursery which grows the plants and trees required for parks and roadside areas. Its duties are:

- Administrative and technical supervision of planting and beautification projects, operating planting nurseries and gardens as well as irrigation systems. Furthermore, this office must coordinate the work of the nurseries, gardens and irrigation systems so as to ensure good performance.
- Suggestion of the programs and plans aimed at highlighting the aesthetic appearance of the city, following up the implementation of those plans and programs upon approval.
- Participating in the study offers and contracts of parks operation in preparation for application.
- Studying the problems and difficulties that face planting, beautification projects and parks, and working to find the required solution.
- Studying the needs of city parks, planting and city beautification and working on scheduling.
- Providing the necessary information to the administration for project budgets.
- Preparing regular reports about the activities and achievements of the general administration and sending them to the Services Agency.

B-2 - Administration of Environmental Health

This administration is responsible for community health protection and urban cleanliness. It also issues permits for projects affecting the environment. In addition, it operates and

supervises slaughterhouses in the city. A further function of this office is the issue of death certificates, management of cemeteries and overseeing preparation of the dead for burial.

It has the following duties:

- Suggesting plans and programs aimed at preserving the safety and health of the environment and following up the implementation of those plans and programs upon adoption.
- Developing standards and specifications for city cleanliness.
- Supervising and controlling the implementation of cleanliness in the city.
- Participating in the preparation of rules and regulations and the necessary of raise the level of environmental health at the national level.

B-3 - Administration of Market Affairs.

This administration regulates, manages and controls food safety and preserves the organization and beauty of markets as follows:

- Monitoring and supervising the implementation of the specifications, standards criteria regarding food safety.
- Outlining the required conditions to those working in the sale of food.
- Supervising and organizing markets and the application of regulations.
- Outlining standards and regulations to be followed with respect to location, size, shape and content of painted panels. Supervising general market activities and cooperating with other responsible agencies.
- Supervising shops and refrigerators, and organizing open areas for the display of vegetables and fruit within the central markets.
- Preparation of regular reports on the achievements of the general administration and the performance of staff and proposals to improve and develop efficiency in the administration.

4.1.6 - The Parks in Medina:

In the past, Medina had many green fields surrounding the city in addition to the farms which were distributed through it, but the extension of the city's area and increase in the population negatively affected the green area, which has decreased over time.

According to the organization structure, the general administration of parks in the municipality of Medina has the authority to manage and supervise parks construction, employment and all luxuries which make citizens' lives comfortable and pleasant.

This administration of parks and beautification works towards implementing and operating the parks and green areas. In addition, it is concerned with bringing out the beauty of the city. It is also responsible for maintenance, coordination and supervision of the future planning and suggestions for parks operation and their development.

The municipal branches are responsible for supervising and operating the parks which are located in their jurisdictions.

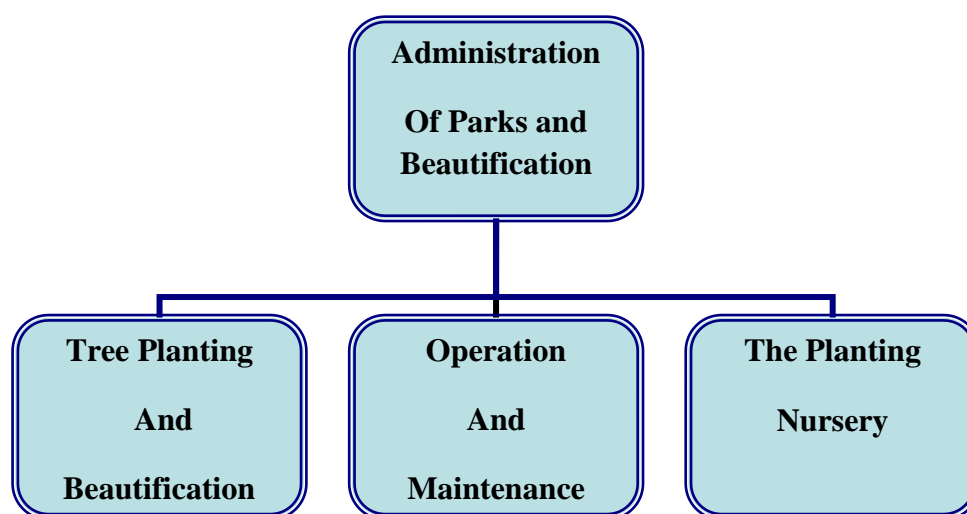


Figure no. (4.1.28)

Source: Medina Municipality organization structure.

The above chart depicts the organization structure of the general administration of parks and beautification.

- **Administration of Parks and Beautification:**

This administration has the function of studying and implementing parks. It is responsible for parks strategy and policy suggestions. In addition, it looks after and implements all aspects regarding beautification projects and the city's appearance.

- **Administration of Operation and Maintenance:**

This administration has the function of operating and maintaining parks and roads with respect to plants, irrigation, road and parks equipment and everything regarding operation and maintenance. Furthermore, it has the responsibility to implement contracts which fulfill municipal targets. In addition, the administration must supervise the contractors who take care of operation and maintenance duties.

This administrative office also has the coordinating responsibility between the main administration and other administration branches in the municipality.

- **Administration of Planting Nursery:**

This administration is responsible for all types of plants provided to the city for parks and roads. That happens through the growing of required trees and annual plants. The office is responsible for planting plants and trees which are environmentally suitable for Medina's climate.

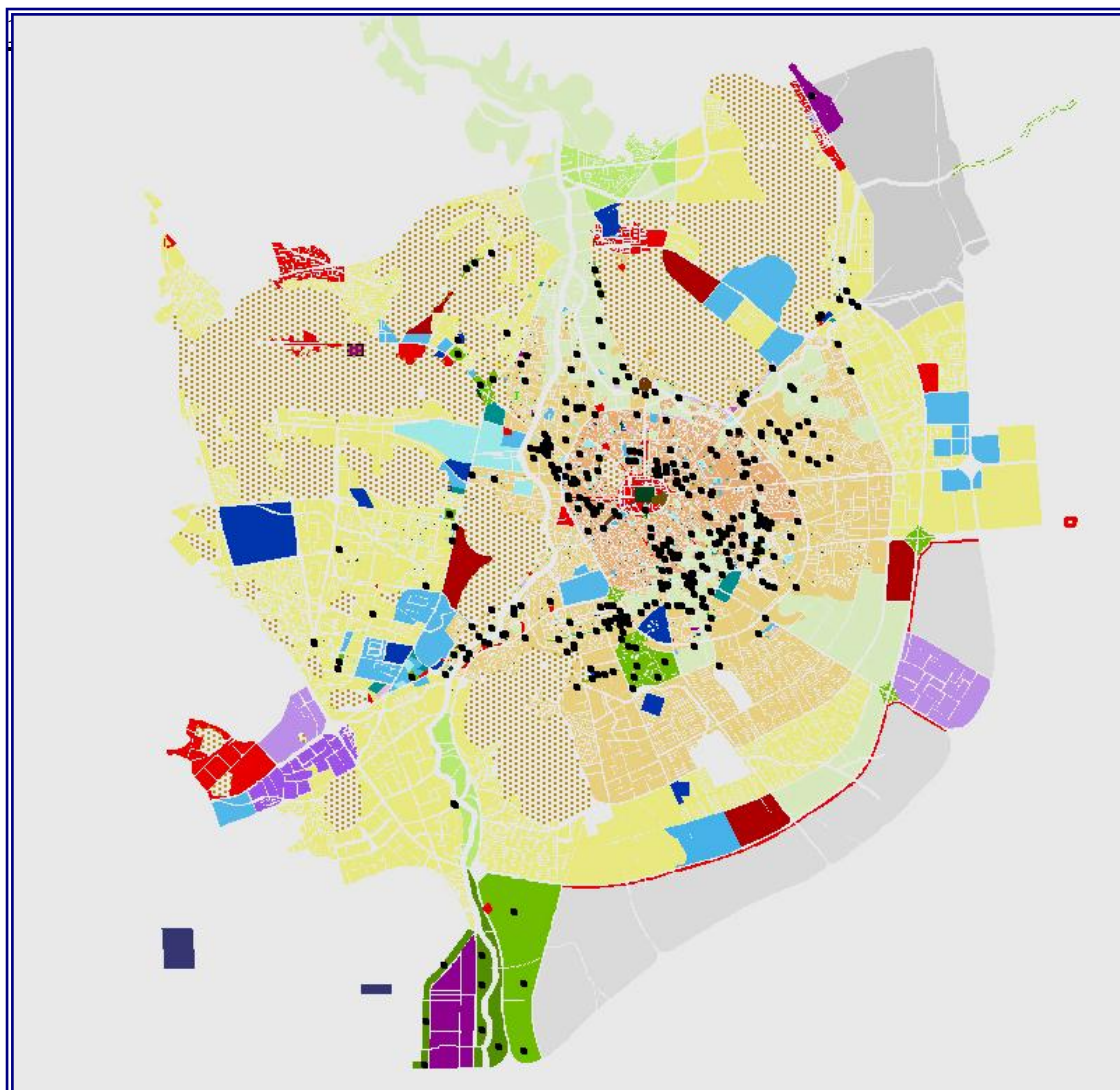


Figure no. (4.1.29)¹⁴ location of Medina Parks

The above figure illustrates the location of parks according to the master plan of Medina. Park area is estimated at 8 million m², which equals about 12% of the city's total area.

The above figure no. (4.1.29) shows the location of parks which are pinpointed on the master plan. Additionally, it shows the distribution of parks in Medina's districts.

This data was collected using both traditional research methods and the MapInfo program.

¹⁴ - Municipality of Medina, Administration of Parks and Beautification , 2008

2 - Parks Policy

Medina municipality does not have a special policy as a guide to manage parks construction and implementation. The dominant policy depends on the confirmed plan and financial approval. The following considerations have a significant effect on project construction and the administration of future plans:

- The government is the sponsor of all projects, so that it must develop strategies to organize its plans, policies and financial expenditures. The government has a **five-year national strategy plan**¹⁵ outlining its development policy, which explains in detail all future ideas and visions. This plan has a schedule for all projects and development processes, which is divided into five years in detail. The strategy explains and limits the level of achievement which must be accomplished during the time period.
- Every ministry must have confirmed suggestions for its project plan which conforms to the government strategy and reflects the efforts of each ministry in its field.
- Depending on the five-year plan, there is a government budget which includes all the financial support for projects that will be implemented over the coming financial year.
- Depending on the government budget, which is allocated to the Ministry of Municipal and Rural Affairs, each municipality receives its own budget to cover its needs.

With respect to the above points, the project employment, operation and maintenance are affected by:

- The confirmed projects in the government strategy.

15 - When the development schemes started in the kingdom in the 1970s, the government used a system called the **five-year strategy national plan**. This plan is considered a short-term development plan with the objectives to state and cover important development matters in the country. It states the priorities of development aspects and provides the required strategies to implement this vision over five years. It covers all requirements such as infrastructure, public utilities and public services. The strategy currently in operation is the ninth scheme; it will run until 2014.

- The confirmed projects in the annual budget.
- The specialized land.
- The level of financial support.

On the other hand, Medina city depends on treatment or well water for park and plants irrigation. However, the administration provided a new system in irrigation, called dry water. This system is considered a new, effective technology to aid in water saving. It uses a gelatinous material which releases moisture over time. Each bottle holds enough water for 90 days.



Figure no. (4.1.30) Dry water bottle

The above figure illustrates the dry water bottle which tries the administration by this system saving the water consumption.

3 - The current situation of green space areas

Green areas and parks are considered central to the nation's development. Their importance is related to the relationship between people and nature. They reflect people's respect for their surrounding environment. It is important that all branches of the municipal government should agree on the level of these facilities because they are places of social interaction and entertainment.

In Saudi Arabia, there are specific planning criteria for recreational regions that classify parks and playgrounds as the following:¹⁶

- | | |
|-----------------------|----------------------------|
| 1- group park | 2- children's playground |
| 3- neighborhood park | 4- neighborhood playground |
| 5- quarter park | 6- quarter playground |
| 7- sector park | 8- city park |
| 9- recreation centers | 10- camping areas |
| 11- specialized parks | 12- public parks |

With respect to the above classification, Medina has more than 47 parks, but its parks are not classified according to the above criteria. Instead, each park includes a variety of the above components.

The following study will analyze the existing situation of green areas and open space areas in Medina. It will show the methods of operation and maintenance, in addition to employee management and financial expenditure.

¹⁶ - Ministry of Municipal and Rural Affairs, Deputy Ministry of City Planning, Planning Criteria Guide for Recreational Areas, first edition, 2006

4- Parks administration staff:

The staff who manage the parks are divided to two sections. The first group works for the municipality; they come under the guidance of the government, while the second group represents the companies and contractors who operate and maintain the parks.

	The municipality	Companies/Contractors
Engineers	17	20
Technicians	30	40
Laborers	10	850

Table no. (4.1.2) Medina's Parks Administration staff

Source: Municipality of Medina, administration of parks and beautification. 2007.

The above table illustrates the numbers of staff who manage Medina's parks. The total municipal staff comprises about 57 employees. They manage the general administrations of the parks duties and follow the operations and maintenance contractors. The engineers number seventeen; ten work in the head office, where they have the important duty of planning strategy and policy for green areas at the municipal level while other engineers work in the branch municipalities. In addition, thirty technicians and ten general laborers participate in administrative planning.

Therefore, every branch municipality has one engineer, two agricultural technicians and one agricultural laborer. They supervise the green areas in their region and follow up on the contractor of operation and maintenance.

On the other hand, there are more than 910 employees for operations contractors. They are responsible for the operation and maintenance of parks and roads, as well as irrigation.

The contractors distribute their employees depending on the operation regions; each region has about three engineers, six technicians and 110 laborers.

5 - Financial aspects:

In this section, the study will focus on the budget allocated for green area maintenance and operations during the period from 2003 until 2007. Also, the study will analyze and compare the percentage of these expenditures with the total budget allocated for maintenance or the total budget of Medina municipality.

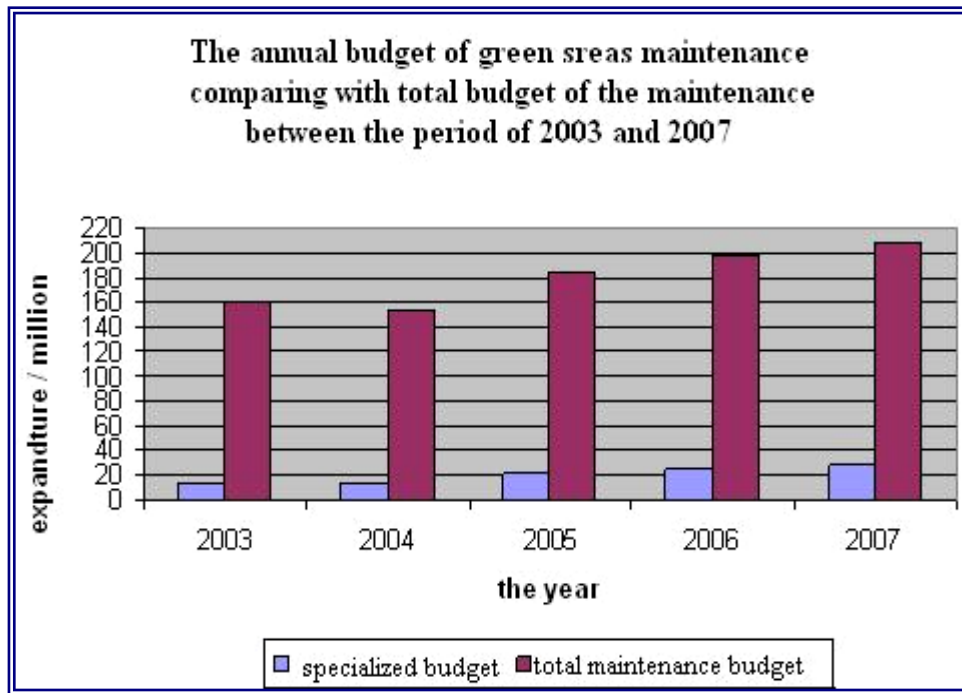


Figure no. (4.1.31)

Source: Medina municipality – (financial administration + information center annual reports)-. 2008

The above figure illustrates the expenditures on green area maintenance during the period 2003-2007.

The maintenance budget allocated in 2003 was about 13 million Saudi riyals, which equals 8% of the total budget for maintenance, which were 161 million Saudi riyals.

In 2004 the budget was about 13 millions Saudi riyals; that equals 8.4% of the total maintenance budget, which were 154 million Saudi riyals. In 2005 the budget was 21.5 million Saudi riyals, which equals 11.6% of 185 million Saudi riyals, the total maintenance budget.

In 2006 the budget was about 27.1 millions Saudi riyals, which equals 13.7% of the total maintenance budget, which were 197.5 million Saudi riyals. In 2007 the budget was 28.15 million Saudi riyals, which equals 13.4% of 209.3 million Saudi riyals, the total maintenance budget.

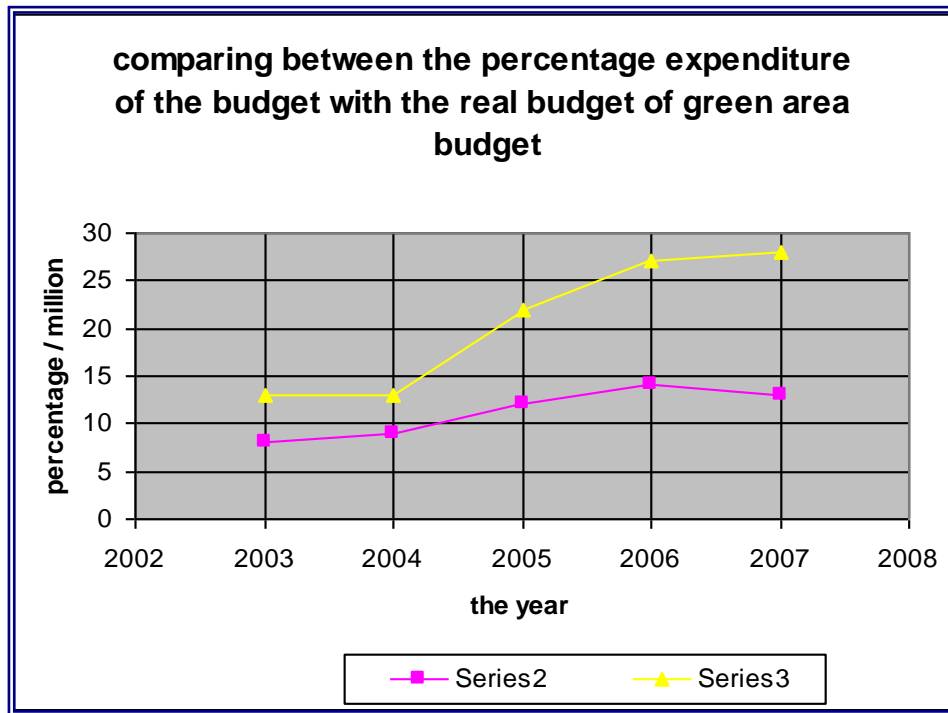


Figure no.(4.1.32)

Source: Medina Municipality – (financial administration + information center annual reports)-. 2008

The above figure illustrates the percentage rate of green area maintenance from the budget for maintenance and the actual annual budget allocated for maintenance.

The chart explains (in pink) the range of percentage change every year regarding the green area operation and maintenance, while the yellow line explains the change in money flow every year during the period from 2003 to 2007.

In 2003 and 2004, the budget was 13 million riyals, but its percentage was 8% and 8.4% respectively. In 2005 the specialized budget increased sharply to 21.5 million riyals or 11.6% of the total budget for maintenance and operation. In 2006, the increase continued to 27.1 million, which equals 13.7% of the expenditure budget. In 2007 the specialized budget increased to 28.15 million, while its percentage decreased to 13.4%.

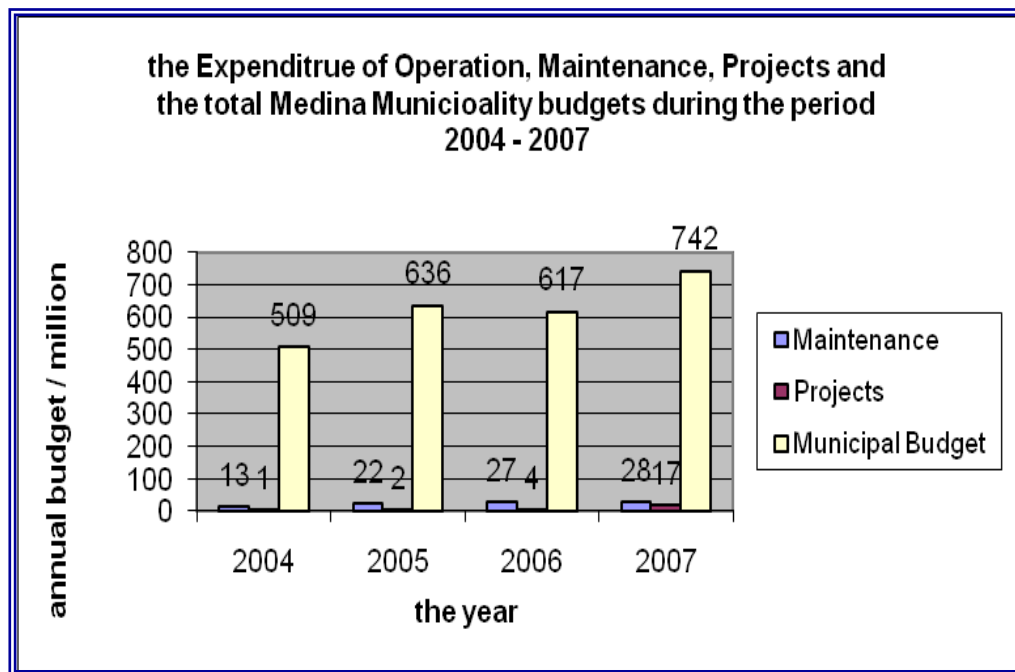


Figure no. (4.1.33)

Source: Medina Municipality 2008 – (financial administration + information center annual reports)-.

The above figure illustrates the value of the total budget of the municipality in addition to the budget allocated for maintenance, operation and green area projects each year during the period from 2004 until 2007.

In 2004 operation and maintenance reached about 13 million riyals, which equals 2.6% of the total municipal budget, which was 509 million. On the other hand, the budget allocated for green area projects was 1.1 million riyals, equaling 0.5% of the total budget for projects, which was 231 million. It also equals about 0.22% of the total municipal budget.

In 2005, operation and maintenance reached about 21.5 million riyals, which equals 3.5% of the total budget for the municipality, which was 616.5 million, while the budget allocated for green area projects was 1.4 million, which equals 0.5% of the total budget for projects, which was 305 million. It also equals about 0.23% of the total budget for the municipality.

In 2006 operation and maintenance reached about 27.1 million riyals, which equals 4.25% of the total budget for the municipality, which was 637.75 million, while the budget set aside for green area projects was 3.6 million riyals, or 1.2% of the total budget for projects, which was 296.3 million. It is also equal to about 0.6% of the total municipal budget.

In 2007 operation and maintenance reached about 28.15 million riyals, which equals 3.8% of the total municipal budget, which was 742.4 million. The budget for green area projects was 17.5 million, equaling 5.15% of the total budget for projects, which was 339.75 million. It is also equal to about 2.4% of the total budget for the municipality.

From the above information, we can conclude the following:

- The budget allocated for green area maintenance ranged between 8% and 13.7% of the total budget for operation and maintenance.
- The budget set aside for green area maintenance ranged between 2.6% and 4.25% of the total budget for the municipality.
- The specialized budget for green area projects ranged between 0.5% and 5.15% of the total budget for projects.
- The specialized budget for green area projects ranged between 0.22% and 2.4% of the total municipal budget.
- The total budget for green areas (operation and maintenance + projects) ranged between 14.1 million and 45.65 million riyals.

According to the interview with the man responsible for parks in Medina, there was an increase in the annual allocated budgets in the period from 2003 until 2007, but we cannot notice any change in the number or type of parks resulting from this increase. The response was that over this time, the administration concentrated on re-qualifying existing parks, some of which were very old and in need of work such as fencing, planting, service buildings, play equipment and path pavement. Therefore, the majority of the budgets were spent on this aspect.

6- The parks

The city has about 47 parks; their area is estimated at about 8 million square meters, which equals 1.4% of the city's area. This means that there are 8.7 m² for every person.

The city does not have a classification system for parks, but there are variations in the area and types of parks. That variation depends on the park equipment and function.

Park area ranges between 390 square meters and 4,000,000 square meters.

A - Parks components

The components of the parks reflect the type of facilities which are available to users. There are variations in the parks components.

Park Name	Area (m ²)	Quarter	Green Area (m ²)	Trees	Playground	Cafeteria	W.C.	Seating Places	B.B.Q.	Car Parking	Prayer Place	Fountain
Alwadi	9,816	Erwah	7,357	340	X	X	X	X		X	X	X
Alnakheel	103,551	Algorf	37,838	1,403	X	X	X	X		X	X	
Alshuhadaa	390	Alshuhadaa	351	37	X							
Alamanah	5,633	Alsahman	5,070	189								
Alnadwah-1	1,736	Alnadwah	1,364	57								
Algamaat	23,645	Algamaat	12,982	8	X	X	X	X		X	X	X
Alsafa	1,350	Alsharqeah	1,142	42	X			X				
Alrehab	1,000	Qurban	700	18								
Alssad	5,952	Prince Abdual-muhsen	2,131	130	X	X	X	X		X	X	
Alnoor	7,950	Alsharqiah	6,201	75								
Alqeblateen	103,788	Alqeblateen	6,286	325								
Alhegrah	40,350	Alhegrah	35,063	679	X	X	X	X				

Park Name	Area (m ²)	Quarter	Green Area (m ²)	Trees	Playground	Cafeteria	w.c.	Seating Places	B.B.Q.	Car Parking	Prayer Place	Fountain
Ameen madani	1,900	Sultanah	1,142	58	X			X				
Alnaseem	5,665	Alnaseem	4,942	86								
Alanwar	644	Qubaa	479									
Alabbas	1,238	Qubaa	986	9	X							
Alnasser	621	Alnasser		14								
Almustrah	1,481	Akmustrah	1,355	46								
Alensherah	7,074	Alsharqeah	4,299	254								
Almaddah-1	2,800	Alanabes	2,450	120								
Alsafeah	3,454	Alsafeah	1,337	44				X				
Alrabeaa	1,930	Alshrqiah	1,120	94	X		X	X				X
Alaswaf	21,885	Alsahman	14,899	188								X
Ahmed bin Hanbal	4,839	Alhezam	2,954	302	X			X			X	
Alkhalediah	17,438	Alkhalidiah	14,093		X	X	X	X		X	X	
Alnadowah-2	1,508	Alnadowah	652				X	X				
Alsaddeaq	5,786	Alqeblateen	5,180	235								
Almaddah - 2	1,508	Alanabes	653	28	X	X		X				
Alfatteh -1	6,000	Saba Almsajed	2,800	153								
Alfatteh -2	1,500	Saba Almsajed	750	53								
Alwafaa	1,846	Almatarrd	1,438	163								
Alsoroor	15,424	Almatar	8,348				X					
Aljumaah	20,000	Aljumaah	8,754		X		X					

Park Name	Area (m ²)	Quarter	Green Area (m ²)	Trees	Playground	Cafeteria	W.C.	Seating Places	B.B.Q.	Car Parking	Prayer Place	Fountain
Almukhtar	1,544	Pr. Abdualmajeed Rd.	732	66								
Saqefat bin Saedah	2,392	Alharam	1,914	56								
Alaqeeq	10,000	Alqeblateen	8,200	191			X					
Alrahmah	8,100	Khaled bin Alwaleed Rd.	5,265	719								
Almanarat	11,000	Othman bin Affan Rd	150	59								
King Fahd	4,000,000	Central park	7,300	11,300	X		X	X	X	X	X	
Alagool	244,983	Alagool	146,990	1,411								
Albaidaa	91,776	Aldoethah	56,603		X	X	X	X		X	X	
Alkhandaq	15,000	Saba Almsajed	9,300									
Alssalam	2,172	Alsalam Rd	1,300									
Alzohor	5,712	Alzohor	4,597									
Jabal Ohod	25,000	Said Alshohadaa	80									
Aleskan	106,368	Aleskan	13,000	2,711		X		X				
Masjed Qubaa	2,983	Qubaa	987									

Table no. (4.1.3) the parks of Medina city.

Source: Municipality of Medina, The administration of parks and beautification, 2007.

The above tables (4.1.3) show the components of Medina parks, which range from 390 square meters to 4,000,000 square meters. From the tables, it is clear that the majority of parks

Consist of green areas (grass) and trees. 30% of parks have playgrounds, while 19% have cafeterias. 27% have seating places, whereas 2% have barbeque places. 9% of the parks have bodies of water. 23% have public facilities, 15% have toilets and parking lots, and 17% have prayer places.



Figure no.(4.1.34) typical walk path



Figure no. (4.1.35) playground equipment



Figure no. (4.1.36) a typical park fountain



Figure no. (4.1.3 Trees, shrubs and grass typical are found in most parks

Source: Municipality of Medina, the administration of parks and beautification, 2007.

Figures (4.1.34), (4.1.35), (4.36) and (4.1.37) illustrate some park components. Figure (4.1.36) shows a typical park fountain. Figure (4.35) shows playground equipment. The other pictures illustrate the trees, shrubs and grass that are found in most parks.



Figure no. (4.1.39) Alnakheel Park

Figure no. (4.1.40) Alnakheel Park

Source: municipality of Medina, Administration of parks and beautification. 2008

Figures (4.1.39) and (4.1.40) show Alnakheel park, which has an area of 103,551 square meters and lies in Aljorf quarter (north the city). It illustrates some of the components of Alnakheel Park and the variation in park design.

Figures (4.1.41) and (4.1.42) show Alensherah Park, whose area is 7,074 square meters. It lies in Alharrah Alsharqeah (center of city). It illustrates some of the park's component and its design style.



Figure no. (4.1.41) Alensherah Park

Figure no. (4.1.42) Alensherah Park

Source: Municipality of Medina, Administration of parks and beautification. 2008



Figure no. (4.1.43) Almaddah Park



Figure no. (4.1.44) Almaddah Park

Source: Municipality of Medina, Administration of parks and beautification. 2008

Figures (4.1.43) and (4.1.44) show Almaddah Park, which has an area of 2,800 square meters and lies in Alanabes quarter (west of the city). Figures (4.1.45) and (4.1.46) show Ahmed bin Hanbal Park, which has an area of 4,839 square meters. This park lies in Alhezam quarter (east of the city).

Here one can see the basic components of parks such as trees, grass, shrubs, walking paths, seating areas and playground areas.

These figures give an indication of typical features in Medina's parks. However, each park has a unique design.



Figure no. (4.1.45) Ahmed bin Hanbal Park



Figure no. (4.1.46) Ahmed bin Hanbal Park

Source: municipality of Medina, Administration of parks and beautification. 2008

7- Another Open Space Area.

For more variation in parks and recreation facilities, Medina municipality has established six sites used as youth play areas (municipality plaza); they are distributed throughout the branch municipalities.

In general, the purpose of the youth open space project is the creation of a special environment which satisfies the requirements of youth play and other activities.

The components of these plazas:

- Areas range between 1,500 m² and 15,670 m².
- Football fields.
- Volleyball and basketball courts.
- Running paths.
- Pedestrian paths.
- Service buildings.
- Green areas and planting.

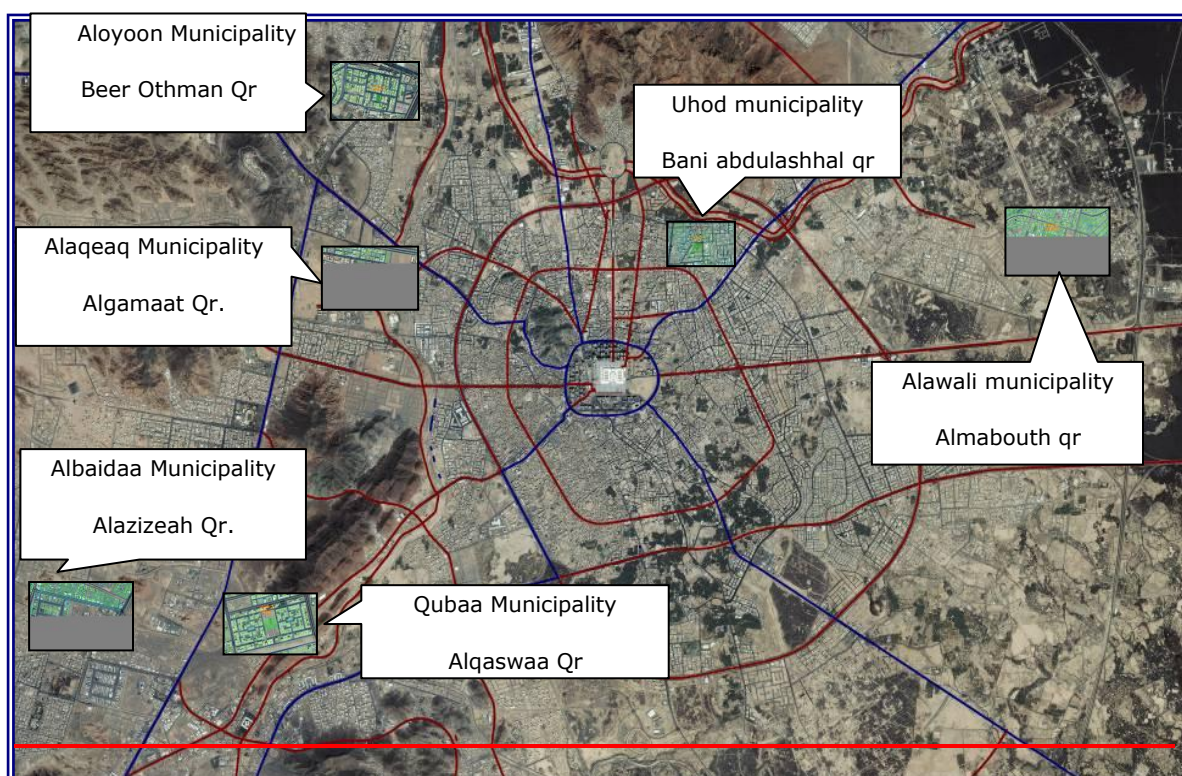


Figure no. (4.1.47) the locations of plazas throughout the city.

Source: Medina municipality, Administration of parks and beautification. 2008

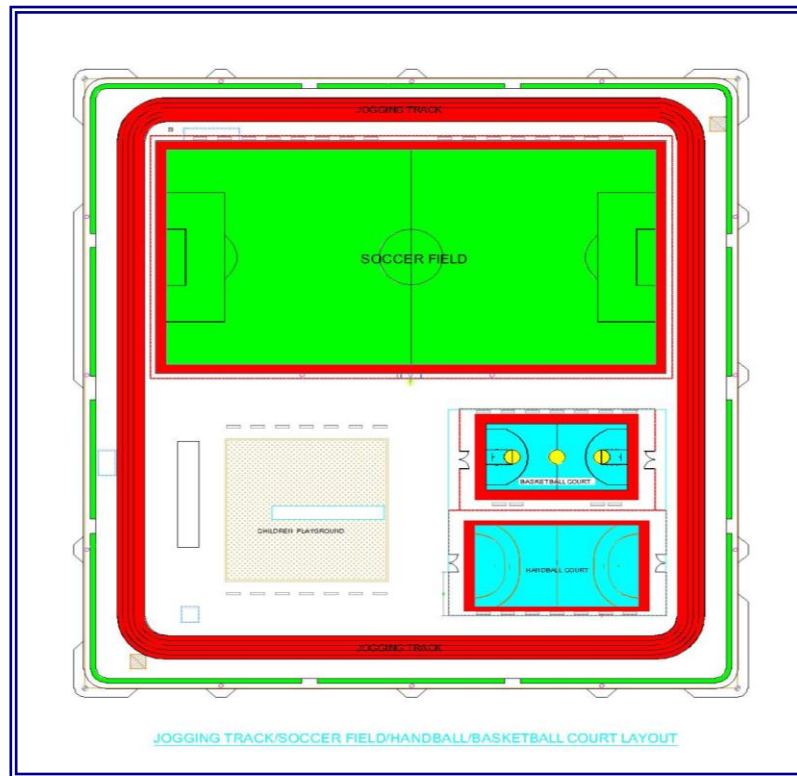


Figure no.(4.1.48) sit plan of design concept of Municipal Plazas



Figure no. (4.1.49) view of plaza



Figure no. (4.1.50) night view of plaza

Figure number (4.1.48) illustrates the design concept of the municipality plazas. While figure number (4.1.49) and (4.1.50) shows one of these plazas after the implementation

8- The Integration of Natural and Artificial Landscaping

Despite the fact that mountains occupy about 20% of Medina's area, they affect the urban plan. The desert weather, which is hot and dry, has also affected city planning.

For environmental solutions and treatments for the current situation, the municipality has created many simulated waterfalls in the mountains. This solution increases the humidity level, which improves the surrounding areas. It is also attractive to look at. On the other hand, the municipality has created parks on some small mountains, which improves mountain use as well as the recreation function of the area.

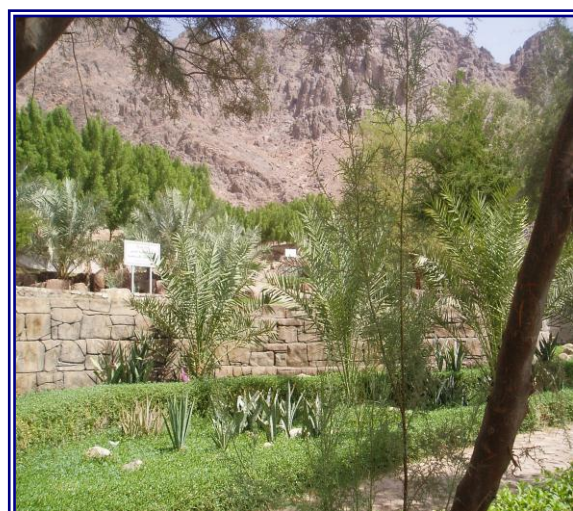


Figure no. (4.1.51) example of integration with the environment Figure no. (4.1.52)



Figure no. (4.1.53) example of integration with the environment Figure no. (4.1.54)

Source: Researcher's own photo, 2008



Figure no. (4.1.55) Example of Integration with the Environment Figure no. (4.1.56)



Figure no. (4.1.57) Example of Integration with the Environment Figure no.(4.1.58)

Source: Medina municipality, Administration of parks and beautification. 2008

Figures (4.1.51) through (4.1.58) illustrate Medina municipality's efforts to integration with environmental situation.

These pictures show simulated waterfalls which have been installed in some of the city's mountains. They improve the high-temperature conditions during working time, which can reach about 20 hours per day.

In addition, they improve the mountain's ability to support tree growth, which helps to hold down the topsoil.

4.1.7- Operation and maintenance¹⁷

Medina municipality manages its parks and open green space areas by itself. Officially, the park projects are implemented by the administration of parks and beautification and then operated under the supervision of the municipal branches.

The general administration of operation and maintenance is responsible for operations and direct supervision, but the maintenance of parks planting and irrigation networks is looked after by contractors under municipal supervision. These contracts organize the relationship between the municipality and operation companies.

Medina is divided into seven districts. Each district belongs to a **municipal branch** which supervises all civic affairs in its area - (see 4.1.5/5 page 124) and figure (4.1.27 page 120) - in addition to managing and maintaining plants in the parks.

Each municipal branch supervises the green and open space areas located in its district. It also supervises and keeps up the maintenance of green space areas. Playground equipment and other support services equipment is maintained by separate contracts under the head office directly.

The evaluation and cost estimates of the contractors' accounting depend on the level of the contractor's commitment to fulfilling the administration's orders and requirements for the quality of plants and realizing the vision for each particular park.

4.1.7.1- Irrigation

It is commonly known that the water in the kingdom is characterized by desert weather, which is affected by a lack of natural water resources in addition to a shortage of annual rainfall. This means it has been a great problem to provide enough water for citizens and irrigation. Compared with European countries, which have many water bodies in addition to a high annual rate of rainfall, the climate in Saudi Arabia is arid.

¹⁷ - The information about operation and maintenance was obtained through personal interviews with a number of responsible people in Medina municipality and some of municipality's branches heads.

1-Irrigation water sources in Saudi Arabia:¹⁸

Rainfall water

Saudi Arabia is considered a high-evaporation area and not an area of deposition (rainwater preservation), and therefore cannot rely on rainfall, which is rare. When it does rain, there is no more than an average quantity per year of 200 mm.

Dams and flooding

Flood water and dams are a form of surface runoff. Some torrents or small seasonal floods, which can occur in periods of heavy rain, follow natural floodpaths already created by former floods. These floodpaths lead east toward the Arabian Gulf or west to the Red Sea. The watershed lies between 100–150 km from the coast of the Red Sea, and therefore flooding heading west can add to the special character of the coastal region.

Dams have been built to preserve the surface water which comes from the valleys and rainfall. The kingdom has many dams distributed countrywide, such as Abha Dam, Jazan Dam and Alleath Dam. The aim of these dams is to increase the deep groundwater level, providing the required water for farm irrigation in addition to protecting farms and the area from flooding.

Sea water desalination

The seas and ocean are the main source of rainwater which rises from the sea by evaporation. In order to imagine the amount of water evaporated from the surface of the seas and oceans throughout the year, it is enough to know the rate of evaporation from the Mediterranean Sea alone, which is around one hundred thousand tons of water per second.

Sewage treatment water.

The latest research conducted in the Plant Protection Department, Faculty of Agriculture, King Saud University, which lasted for three years, showed that waste water contained toxic compounds such as alkaline calcium carbonate, ammonia, sodium chloride and dissolved solids and nitrogen. The study recommended that there is no harm in using

¹⁸ - Ministry of Municipal and Rural Affairs, Deputy Ministry of technical affairs. Guide to plants irrigation in planting projects in Saudi cities.

sewage treatment water (treated twice at least or, ideally, three times) for the irrigation of ornamental plants and that sewage treatment water is safe in terms of chemical and microbial content. Waste water treatment is not recommended for large-scale use because the water contains trace elements of toxic substances. Furthermore, it can have an unpleasant lingering odor. However, sewage water treatment has been recommended for the following:

- 1 - Irrigation of farms and landscaping.
- 2 - Industrial purposes.
- 3 - Re-injection into the groundwater.

Advantages of using treated sewage water to irrigate plants:

1. Sewage treatment water is an additional source of irrigation water and keeps the highest-quality water for drinking and domestic use.
2. It is a cheap source of water.
3. It takes advantage of plant nutrients contained in sewage liquid and solids (nitrogen, phosphorus and other elements).
4. It improves the quality of the sewage before it reaches the groundwater.
5. It improves the physical properties of the soil, including its ability to retain water.
6. It is an economical way to dispose of waste to prevent pollution and health problems.

The disadvantages of using treated sewage water to irrigate plants:

1. Sewage water which is not adequately treated may be a danger to public health.
2. Potential chemical contamination of groundwater.
3. Some of the contents dissolved in the sewage sludge have no solid concentrations in the plants.

4. Sewage treatment solids may clog irrigation systems and leave harmful deposits in the soil.
5. May contain the seeds of some weeds, which require treatment and disposal.

Groundwater (wells).

Groundwater is the most important source of fresh water. This water is not stagnant, but always moving, depending on several factors, especially the level of water preservation and the difference in pressure between the feeding area and areas of flow. The movement may be slow but never less than several meters per day.

The sources of groundwater and surface water have always been either: --

- 1 - Absorption of rainfall through the layers of soil.
- 2 - The seepage of water from one sedimentary layer to another, down to the underground reservoirs.
- 3 - Absorption of flood water from the reservoirs.
- 4 - Poor lining of some groundwater wells can lead to water leaking from one layer to another.
- 5 - Absorption of surplus irrigation water.
- 6 - The presence of caves or cracks can lead to water leaking from one layer to another.

2- The parks irrigation types:¹⁹

Throughout the drier parts of the arid zones, irrigation for amenity planting is a necessity during the plant establishment period. The traditional irrigation method employed in the Middle East is flood irrigation using a mud channel or a hose whereby water is flooded into flat “basins” or parcels or ground at periodic intervals and then left to soak into the

¹⁹- **Brouwer. C. (1988), Irrigation** water management, Training manuals no.5 a manual prepared jointly International Institute for Land Reclamation and Improvement, and **K. Prins, M. Kay, M. Heibloem** FAO Land and Water Development Division.

- <http://www.fao.org/docrep/s8684e/s8684e00.htm#Contents> 1-12-2009

- wikipedia encyclopedia <http://en.wikipedia.org/wiki/Irrigation> , 1-12-2009

soil. These methods are extremely wasteful, and leads to a high salt build up. Drip irrigation, either above or below the surface and sprinklers are now the favourite method of the majority of designed landscape projects in Saudi Arabia.

The fundamental questions the landscape architect needs to answer are: how much water is to be applied, when and at what rate?. What method of irrigation is preferable? What quality of water is desirable for the particular soil type and nature of plant material? What are the alternative sources of water and the quality and quantity likely to be available? The answer of these questions need to be resolved at least in principle in the early stages of a project for they will have major influence on design (Clouston, 1978).

The famous types of irrigation which used in parks irrigation are:

Surface irrigation

Surface irrigation is defined as the group of application techniques where water is applied and distributed over the soil surface by gravity.

A large amount of water is brought to the field and flows on the ground among the crops. In regions where water is abundant, surface irrigation is the cheapest method of irrigation and this low-tech irrigation method is usually used by societies in developing countries. It should be applied only to flat lands that do not curved in or slope downhill so that the water can evenly flow to all parts of the field, yet even so, about 50% of the water is wasted and does not get used by the crops. Some of this wasted water accumulates at the edges of a field.



Figure no. (4.1. 59) surface irrigation method

Irrigation Sprinkler

In sprinkler or overhead irrigation, water is piped to one or more central locations within the field and distributed by overhead high-pressure sprinklers or guns. A system utilizing sprinklers, sprays, or guns mounted overhead on permanently installed risers is often referred to as a solid-set irrigation system. Higher pressure sprinklers that rotate are called rotors and are driven by a ball drive, gear drive, or impact mechanism.



Figure no. (4.1.60) irrigation sprinkler method

Source: www.dallaslandscapeandirrigation.com/irrigati.

Irrigation Drip or Trickle method

Drip irrigation, also known as trickle irrigation, functions as its name suggests. Water is delivered at or near the root zone of plants, drop by drop. This method can be the most water-efficient method of irrigation, if managed properly

This system consists of perforated pipes that are placed by rows of crops or buried along their root lines and emit water directly onto the crops that need it. As a result, evaporation is drastically reduced and 25% irrigation water is conserved in comparison to flood irrigation. Drip irrigation also allows the grower to customize an irrigation program most beneficial to each crop.



Figure no. (4.1.61) irrigation drip method

Movable tanks (cars)

These systems have low requirements for infrastructure and technical equipment but need high labor inputs. Irrigation using watering cans is to be found for example

This way depends on the manual effort in irrigation.

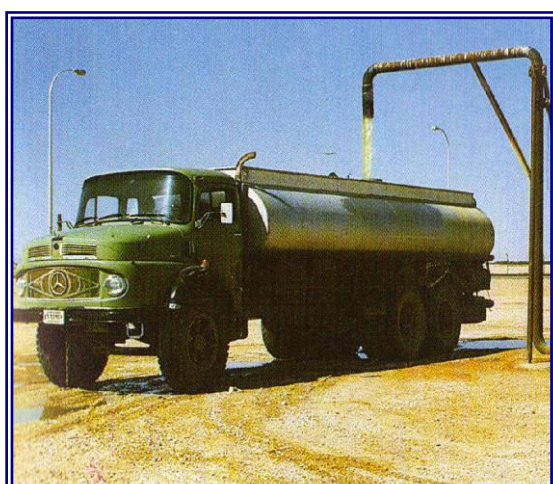


Figure no. (4.1.62)

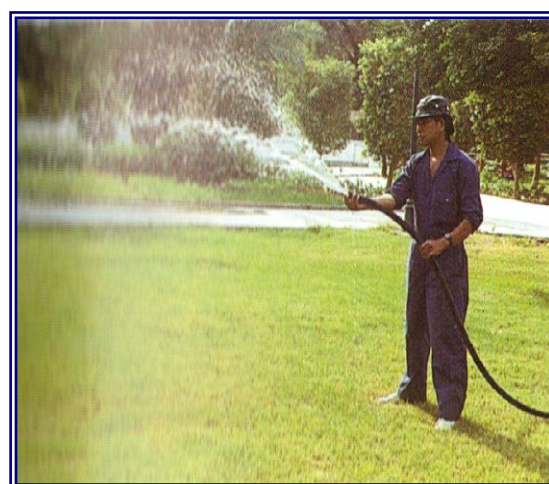


Figure no. (4.1.63)

The Figure (4.1.62) shows the cans which used in water irrigation providing, while figure (4.1.63) explains the manual irrigation method.

3- Medina's Irrigation System

Medina is affected by desert weather characterized by dryness and heat in addition to low precipitation and condensation. These climatic conditions reflect negatively on water levels and mean that the primary water sources are groundwater and rain.

In order to save water, the parks irrigation system uses sewage treatment water for most of its needs.

The water needed daily for parks irrigation is estimated at 70 million liters/ day.

70% of the irrigation water supply comes from sewage treatment water and the rest comes from groundwater (wells).

The administration uses central collection tanks which are distributed throughout the city as the suppliers of the parks irrigation system. The irrigation types in use are modern systems such as irrigation sprinklers, irrigation drip trickle.

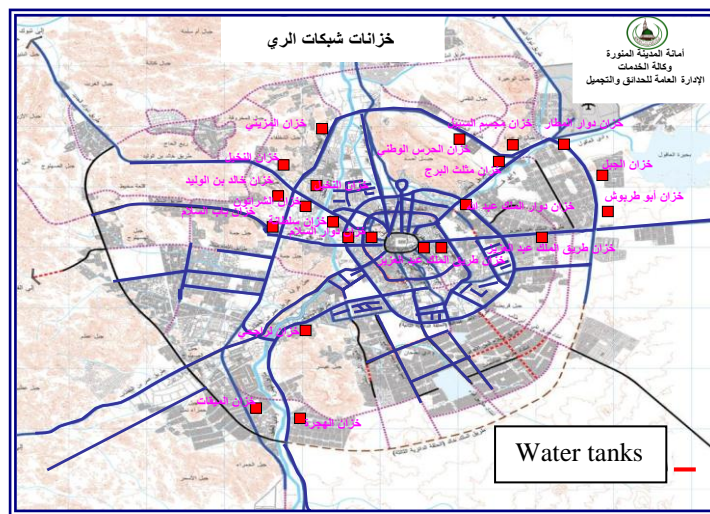


Figure no. (4.1.64) location of water tanks through Medina

Source: Medina municipality 2007.

The above figure illustrates the distribution and location of the 22 irrigation water tanks citywide. These tanks receive the treatment water from sewage treatment station, and then redistribute it through irrigation networks.

4.1.8- The future vision²⁰

Medina municipality has two visions for the short-term future covering the period between 2008 and 2010. That vision is to maintain and improve the green areas of the city. The second vision covers the period between 2010 and 2015.

1- (First vision) - Firstly: the parks and open space areas

Medina's master plan includes the areas and locations set aside for parks. The guide, which organizes the future in all fields, depends on the government's planning strategy and on the available financial resources.

The future budget is meant to cover expenditures in all areas during the period from 2008 to 2010. The future plan includes three parts as follows:

New construction

New construction refers to the creation of new parks and neighborhood playgrounds or the development of irrigation resources and networks.

The plans and contracts have been confirmed and signed for the next three years. The cost will reach about 14 million Saudi riyals. According to the plan, the implementation of 12 neighborhoods – (see figure no. 4.1.43) - will cost 9 million Saudi riyals, while the implementation of the new irrigation networks will add up to 3.5 million Saudi riyals. In addition, the drilling of new wells to support the irrigation networks will cost 1.5 millions Saudi riyals.

In addition to the above projects and work to improve the level of parks and type of service, the municipal government now plans to:

- 1- Allocate an appropriate budget of up to 100 million Saudi riyals to completely re-qualify existing parks during the coming years.
- 2- Build a new zoo inside the central park. The budget allocated for this purpose is 50 million Saudi riyals. The aim of this park is to increase the people's knowledge of animals.

²⁰ - Medina municipality, Administration of parks and beautification. 2007

Open Space Areas:

Medina municipality has implemented six open space areas inside the city. These areas are divided along the lines of the municipal branches.

As mentioned above, each open space has multiple facilities such as sports fields, walking paths and green areas. These areas will be used as district services.

The future plan is to continue and complete these areas in the city.

2- Second vision:

This vision covers the period from 2010 until 2015. This vision is working to increase the green space area to twice its current size. The municipality will try to satisfy the quality and diversity in parks types which agrees with the planning criteria of recreation regions as issued officially by the Ministry of Municipal and Rural Affairs in 2006.

3- Operation and Maintenance

This refers to the expected expenditure on the maintenance of trees, plants, playground equipment and irrigation equipment.

The estimated total is 20 million Saudi riyals. According to the suggested budget, plant maintenance will reach 12 million Saudi riyals, which equals 60% of the future maintenance budget. The maintenance of wells and water pumps will reach 3.5 million Saudi riyals, which equals 17.5%, while equipment maintenance will have the same cost. Maintenance expenditures for playground equipment will add up to 7.5% of the maintenance budget.

4.1.9 – Examples of Park Distribution

A study and analysis of the Medina master plan and the regulations of the Ministry of Municipal and Rural Affairs, which organizes the park types and distribution.

In this aspect, I have selected many quarters for my study. My choice depends on many criteria such as location, provision for green area in the plan, population and the average space for each person. Also, I have chosen some quarters which lie in old city, while the other quarters are located in the newer quarters of the city. The study will investigate all necessary information about park areas in each chosen quarter in addition to the main relationship between parks, population and service distance.

The main reason for this investigation is to explore the rate of green areas in the selected quarters of Medina, the methods of distribution and the degree to which these green areas conform with the criteria issued by the Ministry of Municipal and Rural Affairs.

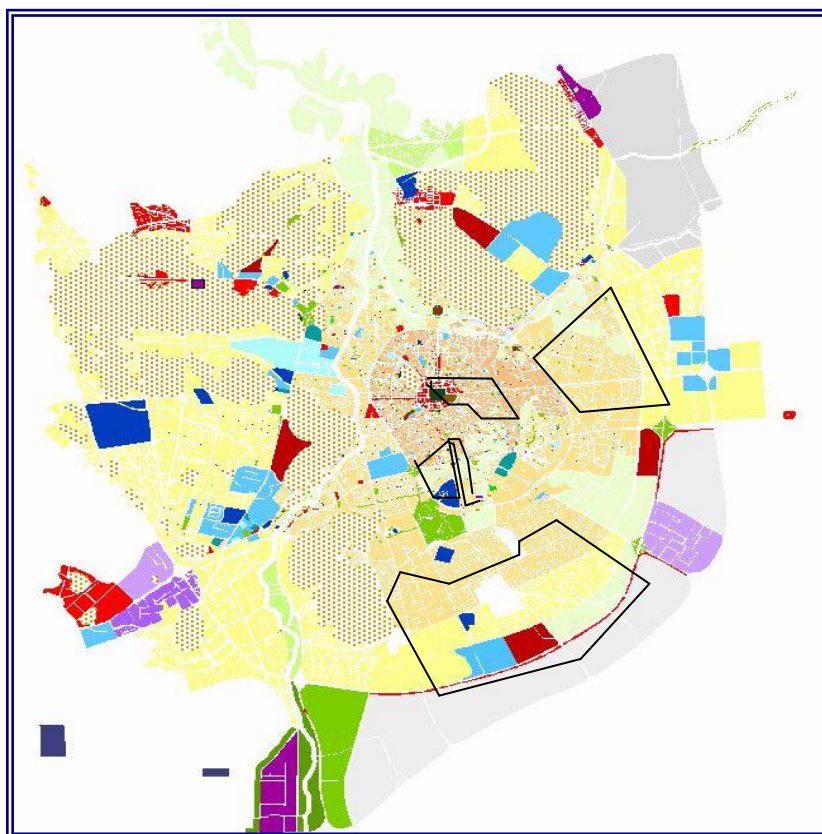


Figure no. (4.1.65)

source: Medina's master plan

This figure illustrates the location of quarters which have been chosen as case studies from Medina.

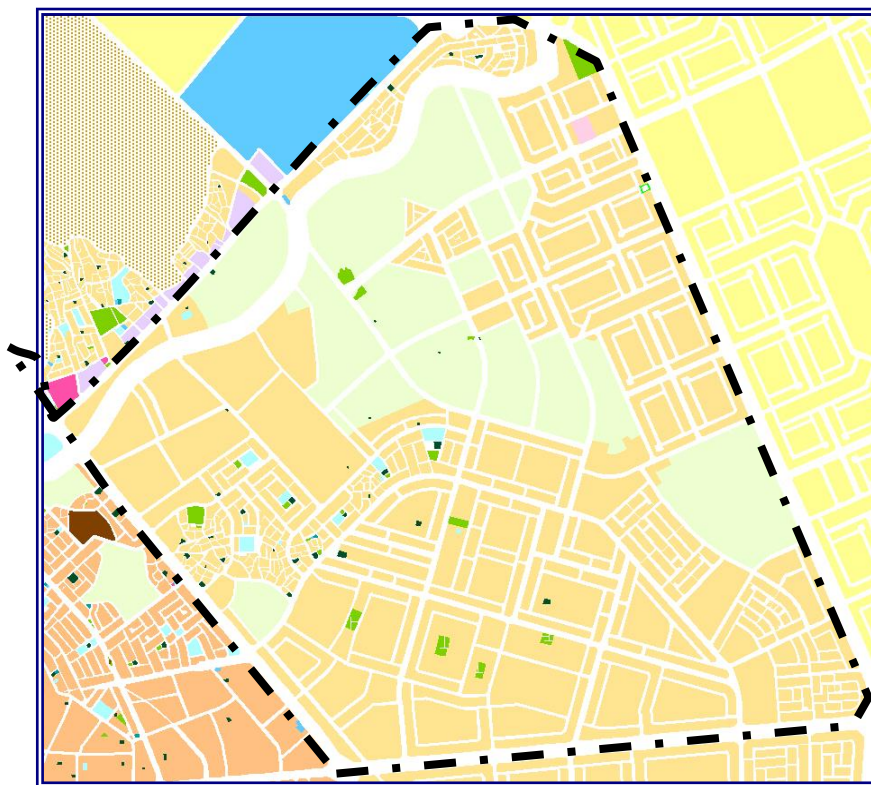
Example -1-(Aldwakhlah Quarter)

Figure no. (4.1.66)

Source: Medina master plan

The above figure illustrates the green areas found in one of Medina's quarter (Aldwakhlah). This quarter has medium density; its population is estimated at 13,500²¹ inhabitants; in addition, the people who live in the quarter are middle class.

The green area is estimated at 104,000²² square meters. This tells us that the average space for each person is about 8 square meters.

It has Simi regular distribution, which is found only in the center of the area. This means that the parks and recreation facilities benefit the people who live around the parks. Other people, who live on the edge of the quarter, are neglected. It distribution does not agree with the regulation and criteria that issued by the ministry of municipal and rural affair.

21 - Central department of statistics & information(2005)

22 - Area collection by the researcher effort by using MapInfo program.

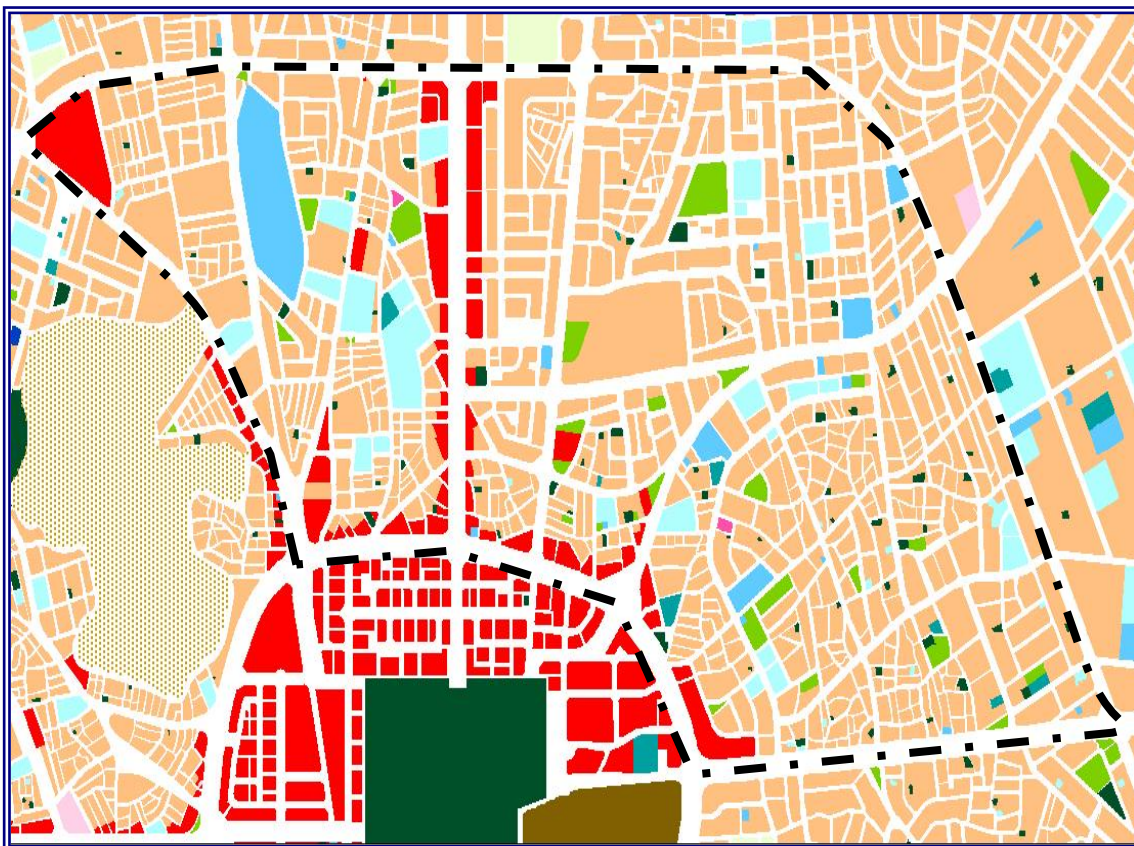
Example -2- (Almasanea, Bani Alashhal and Bani Muawiah quarters):

Figure no. (4.1.67)

Source: Medina master plan

The above figure illustrates the green areas which are found in some quarters at the heart of Medina (Almasanea, Bani Alashhal and Bani Muawiah). These quarters have high density; their collective population is estimated at 75,500 inhabitants, they are middle class or lower. The green area is estimated at 110,000 square meters. This tells us that the average area for each person is about 1.5 square meters.

The distribution of parks is irregular. Its distribution does not agree with the regulation and criteria that issued by the ministry of municipal and rural affairs. In addition, there is wide variation in parks areas and shapes.

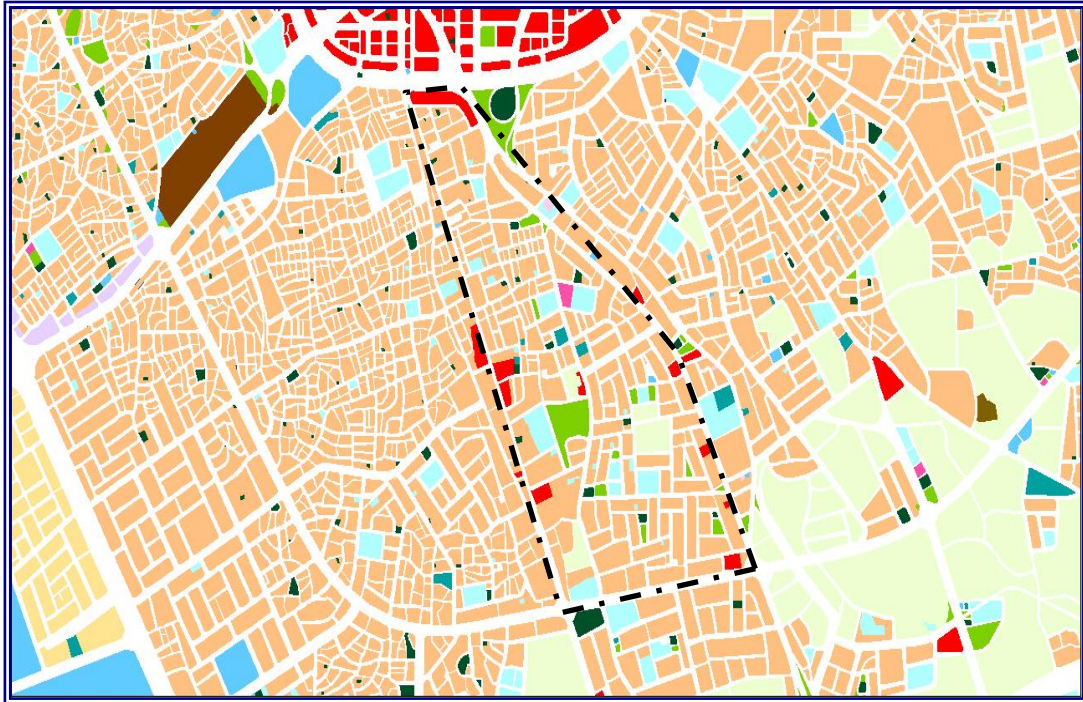
Example – 3- (Aljumah quarter):

Figure no.: (4.1.68)

Source: Medina master plan

The above figure illustrates the green areas which are found in a quarter at the heart of Medina (Aljumah quarter). This quarter has high density; its population is estimated at 29,500 inhabitants, who are middle-class or lower. The green area is estimated at 37,500 square meters. This tells us that the average green space for each person is about 1.3 square meters. The parks have variations in areas and shapes, with no systemic distribution.

The urban plan of the quarter is consider unorganized - (semi random) - that affect negatively on the distribution of the utilities, this led to un-respecting to the ministry organized regulation.

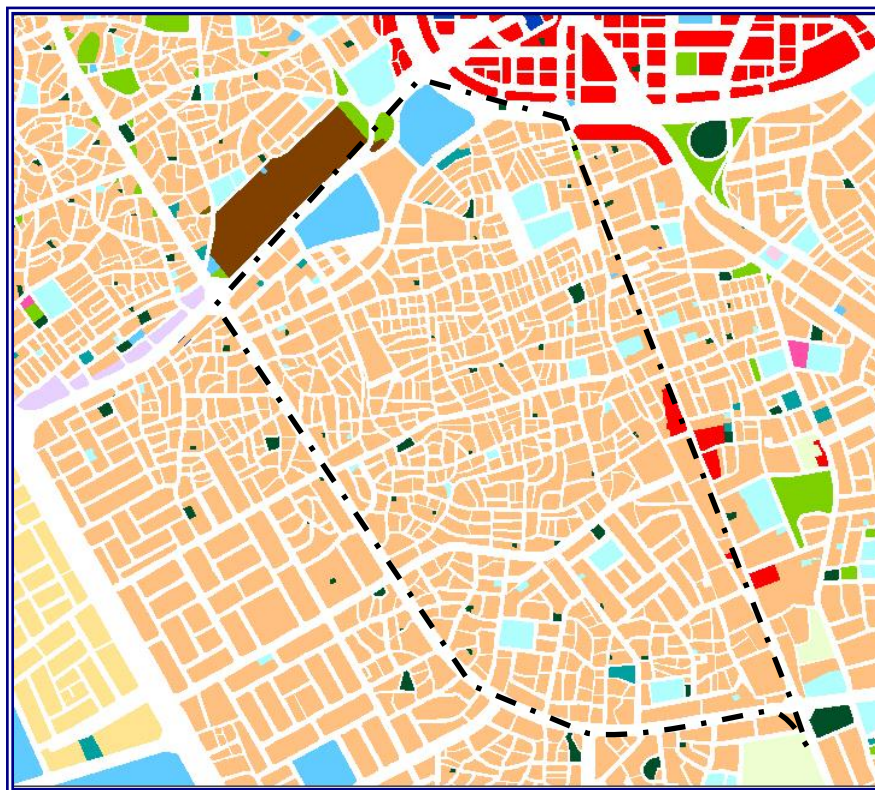
Example – 4-(Almughaeselah, Aldaherah and Qubaa quarters):

Figure no (4.1.69)

Source: Medina master plan

The above figure illustrates the green areas found in some of Medina's quarters that lie in the city's heart - Almughaeselah, Aldaherah and Qubaa. These quarters have high density; their populations are estimated at 74,000 inhabitants. Most inhabitants belong to the middle or lower class. The green area equals zero square meters. Parks are found only in neighboring quarters.

These quarters is considered from the oldest quarters in the city. It is random planning, so it does not have organized urban plan manage the distribution of utilities throughout the quarters. All of above mention led to un-deal with the ministry regulation.

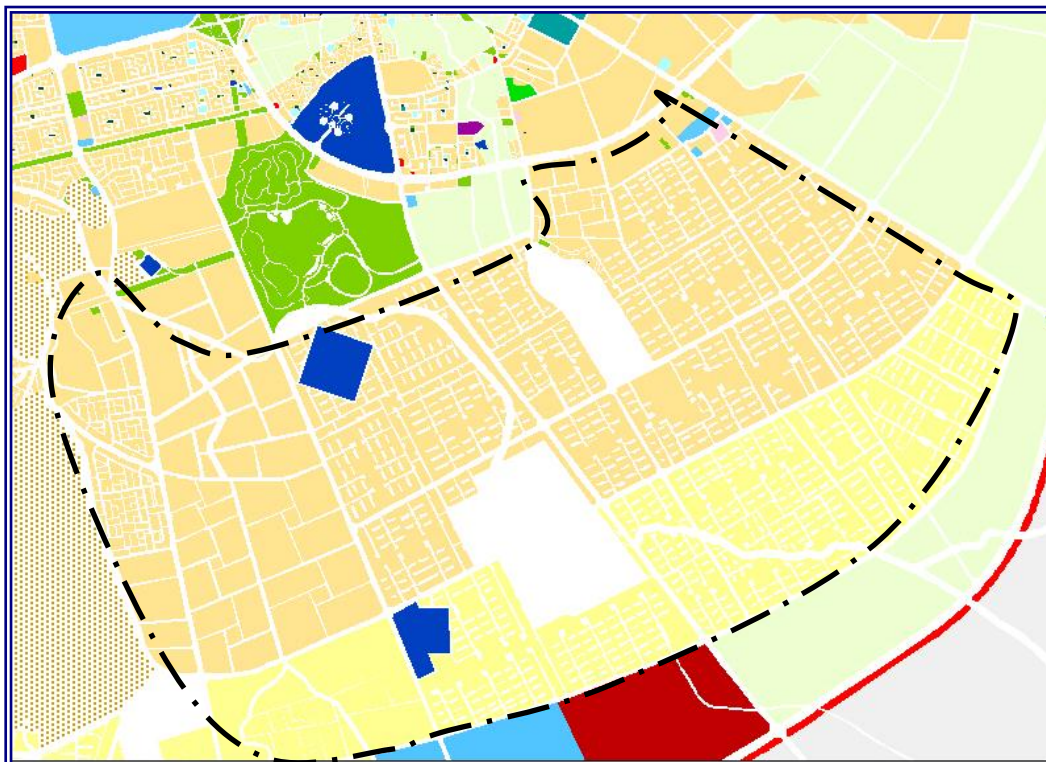
Example – 5-(Alrawabi, Shwran, Alghraa, Alsad, Alranunaa and Alqaswaa quarters):

Figure no (4.1.70)

Source: Medina master plan

The above figure illustrates some of Medina's quarters that are considered new and will expand in the future: Alrawabi, Shwran, Alghraa, Alsad, Alranunaa and Alqaswaa. These quarters have medium and low densities (at the present time); their population is estimated at 28,000 inhabitants, while green areas equal zero square meters (according to the master plan). That tells us that the average green space for each citizen is zero square meters.

These quarters are an urban extension to the city and are considered the new extension of the city. They feature modern urban design. I discussed this situation with the person responsible for parks in Medina's municipality about the lack of parks in these quarters, and was told that there are confirmed allocated areas for parks equaling about 315 thousand square meters. This means that the average green space for each resident will be about 12.5 square meters for the present population, but the area must satisfy the needs of increasing numbers of residents.

4.1.10 - Evaluation of the parks situation in Medina

In this section, the study will explore the opinion of the employees who work in the Administration of Parks and Beautification in Medina municipality; Also, I explore the opinion of Medina municipal council members about the situation of parks and their performance. I conducted a questionnaire to find out their opinion and evaluate the situation of parks throughout the city. I ask Medina's employees questions regarding the situation of city parks and the municipal administration's performance, in addition to their suggestions for park development and their opinions about the difficulties which hinder their work. To explore the questionnaire, please see chapter 6.

4.1.10.1- Medina municipality:

The number of employees who participated in the questionnaire was 9. They have variation qualifications such as university, secondary school or technical institute. In addition, they occupy various positions such as a supervisor, engineer, technician and administrator.

In this part, this evaluation will focus on three parts of the questionnaire regarding the park's situation, municipality's performance and their suggestion for work development.

Part – 1 - Evaluation of Medina's parks

The majority of the participants think the design of parks in the city ranges between acceptable and bad, while most of them consider the size of parks acceptable. There was disagreement on the situation of park distribution through the city: a significant number of the participants think it is very good, while same number think it is not good. The majority thought the park cleanliness is very good, and most of them think the maintenance procedures are acceptable, while one-third of them thought it was excellent.

The basic equipment of parks includes playground tools, planting, seating areas, walking paths, lighting and grilling places. The participants agreed unanimously that the level of seating areas, walking paths, benches and grilling places ranges between acceptable and bad. On the other hand, they think the provision of playground tools is very good, while the planting level ranges between acceptable and excellent. Most respondents thought the parks lighting ranges between acceptable and excellent.

With respect to the situation of public service utilities such as snack kiosks, toilets, parking and prayer places in Medina's parks, most of the participants thought the snack kiosks situation is bad, one third of them said the situation of toilets is very good, while a minority Believe it is suitable and the rest believes it is bad. One third thinks the common areas for prayers are excellent, while a few think it is suitable and the rest believes it is unsuitable. A significant number thought the parking is sufficient and a few found it reasonable, while the rest thought it is not.

Part -2- parks administration evaluation

This aspect of the evaluation will focus on the part which regards the park's administration situation and Medina municipality's performance:

About the question which regards the number of parks, one-third of the participants thought the number of parks is reasonable, while slightly more than half thought it is less than sufficient. Responding to my question about decentralized park management, one-third thought there is decentralization in the parks management, but slightly less than half thought the opposite. The remaining respondents fell between both opinions.

Does urban design help to create parks which satisfy municipal regulations? A few less than half thought it is satisfactory, while about one-fifth thought it is reasonable and a third considered it unsatisfactory. On the other hand, there was a big contrast among the participants in their responses to the question - **does the urban design help to create parks which satisfy society's requirements?**-. One-third thought it is excellent and a fifth said it is very bad, while another fifth thought it is very good and slightly more than a fifth considered it reasonable.

Responding to the question **does the municipality manage the city parks with professionalism? Most respondents** do not think that, while a third considers that the municipality's management is professional. On the other hand, most participants agree with that, while one-third does not think that, that was the response to the question **does the municipality manage the city parks at a satisfactory level?**

Part -3- Suggestions and difficulties:

This part of the questionnaire dealt with questions which explore the opinions of the administration employees with respect to suggesting concepts that guide the development of parks administration. On the other hand, the municipal employees also discussed the difficulties that have a negative effect on parks performance.

1-The suggestion to develop the parks administration:

- organize special training courses to increase the qualification of employees.
- organize visiting trips to distinct parks both inside and outside the kingdom.
- pinpoint encouragement incentives for employees who participate in parks development.
- raise awareness in the community about the importance of parks for the environment.
- use innovative methods in parks planting which improve the parks' appearance and encourage the citizen to use them carefully and keep them in good situation.

2- The Difficulties which have negative affect on the parks and their performance:

- No clear strategy in parks management.
- Minority of qualified companies which have enough experience to operate and
Maintain the city parks.
- Chronic shortages of irrigation water.
- Lack of support from other government agencies and civil community agencies in the parks development field.
- Lack of awareness of parks and how to preserve equipment.
- No systematic organization of technical work depending on specialists in the required field.

4.1.10.2 - Medina municipal council:

Medina municipal council consists of 14 members; half of the members are elected while the rest are appointed by the Ministry of Municipal and Rural Affairs. The main responsibility of the council is monitoring the performance of the municipality and raising efficiency and performance of services through reports submitted to or required by the council. In addition to suggestions, a priority of the projects for implementation is also the annual municipality budget. The number of members who participated in the questionnaire was 9, which equals 64% of the council members.

1- Evaluation of Medina's parks

67% of the participants thought the design of parks in the city is bad while 22% thought it is acceptable. Most respondents consider the size of parks bad, and 33% think it is fair. With respect to the parks' distribution throughout the city, 55% of the participants think it is bad while 33% think it is fair. The majority thought the parks cleanliness is bad and 89% of them think the maintenance procedure is not acceptable.

The basic equipment of the parks such as playground tools, planting, seating areas, walking paths, lighting and grilling places: 89%, of the respondents believe that seating areas in Medina's parks are bad, and 78% of the participants thought walking paths are bad. However, 67% consider the parks planting fair and 89% thought the grilling places are very bad. On the other hand, when it comes to the provision of playground tools, 67% think it is bad and 33% believe it is reasonable, while opinions of lighting levels range between acceptable and very bad. 33% of respondents thought the benches were very good, whereas 67% found them bad.

About the situation of public service utilities such as snack kiosks, toilets, parking and prayer places in Medina parks: 78% of the participants thought the snack kiosk situation is bad and all of them said the situation of the toilets is very bad. 45% think the communal areas for prayer is bad, while 23% think it is bad and the rest believe it is very good. 33% thought the car parking number was sufficient and 56% thought it was not.

2- Parks administration evaluation

This part of the evaluation will focus on the aspect of the questionnaire regarding the parks' administration situation and Medina municipality's performance:

About the question which regards the number of parks, 78% of participants thought the number of parks is not enough, while 22% of them thought it is fair. Responding to my question about decentralized park management, 56% thought there is centralized parks management, but 22% thought the opposite.

Does urban design help to create parks which satisfy municipal regulations? 33% thought it is satisfactory, while 56% considered it is unsatisfactory. On the other hand, there was a big contrast among the participants in their responses to the question - **does the urban design helps to create parks which satisfy society's requirements?**-. 22% thought it is excellent and 45% believe it is very bad, while 33% considered that it is reasonable.

Responding to **does the municipality manages the city parks with professionalism?** 78% of them do not think that, while 22% consider it is reasonable. They gave the same response to the question **does the municipality manage the city parks at a satisfactory level?**

4.2- Jeddah

Jeddah lies at the meeting point of longitude 39° .7" east and latitude 29° . 21" north. Its area is estimated as 1500 square kilometers and its population at about 2.8 million inhabitants.

Jeddah is considered the second city in the kingdom; in addition, it is the commercial gate. It is the economic center of the country and the center of the business and financial companies. It is also important for the import and export of goods and non-petroleum products. Furthermore, it is the main marine gate to holy lands and pilgrims to Makkah. Its site extends from the north and south of the red sea coast. Its location and other advantages make it favorite place for tourism. This natural situation has affected urban development.

Jeddah has in many ways the most excellent infrastructure in the middle east, perhaps in the world. The extreme demands that the large crowded of pilgrims for hajj have motivated the construction of a complex highway system. Jeddah has a very impressive modern city center, with shopping malls and wide boulevards. While much has been demolished, there are still some of the most beautiful quarters of traditional houses in the Middle East, involving multistory building and merchants' houses.²³

23 - Tore Kjeilen, Looklex Encyclopedia, Saudi Arabia/ cities and Towns.

Web site: <http://looklex.com/e.o/Jeddah.htm>



Figure no. (4.2.1)

Source: Jeddah Municipality 2007

The above figure shows a map of Jeddah.

4.2.1- Geography²⁴

The Kingdom of Saudi Arabia has most types of topography, even though the dominant feature is hills. Jeddah lies in the middle of the Tehama coastal plain, which extends from the Gulf of Aqabah in the north to Yemen in the south. (For more information about coastal plains, please refer to chapter 3.2, page 65).

Jeddah is characterized by its flat saline land which slopes towards the sea from two meters. It has two natural boundaries: to the west is the Red Sea, while in the east there are hills that reach 400 meters in height. These are natural boundaries to extending the urban mass to the east and west.

Geological studies show that the western region was originally composed of a variety of rocks, both sedimentary and igneous, when it formed part of a vast continent connecting Africa with southwest Asia.

The soil of the city consists of sandy precipitates which are transported by wind and water. This sand is characterized by granite rock. On the other hand, the soil from the coast consists of saline, which is characterized by a mixed sand type with a high level of salts. These rocks are infrequent in Jeddah, except in a few places near the sea coast. These rocks come from saline precipitate which are the result of petrified animals and coralline rocks.

²⁴ - Alshareef, Abdulrahman S. (2006), The Geography of the Kingdom of Saudi Arabia, (part one), sixth edition. published by Dar Almarreakh for publishing, k.s.a, Riyadh

- Alghamdi, Mohammed G., (2000), Jeddah in the Time of King Abdullaziz (1925 – 1953). First edition. Published by Alwadi Aljadeed for pressing, Egypt, Cairo.

4.2.2- Historical study²⁵

Jeddah is a very old city and has an ancient character. It features the legendary tomb of Eve (the mother of mankind). The very name Jeddah means “grandmother.” The first settlement in the city began 2,500 years ago with the Quda’ah tribe. The next people to live in Jeddah were the traders of Persia. They built the port of Jeddah and surrounded it with a great wall with huge gates such as the Makkah and Medina gates. These two gates led to the roads to Makkah in the east and Medina in the north. (Bokhari p.57-58)

Jeddah was considered the original port of the Arabian Peninsula and the neighboring Arabian countries, e.g. Egypt, El-sham and Sudan, before the opening of the Suez Canal.

In this period, Jeddah was affected by the changeable situation. It seems to have languished at some times and flourished at others. But in general, it kept its status as an economic leader in the region. On the other hand, there were some changes which affected on the city’s importance, such as:

When the Suez Canal officially opened for the international navy in July 1956²⁶, and Port Sudan officially Opened in 1909²⁷, according to that Jeddah became less important port.

1- Jeddah in Saudi Times (1925-):

Since 1925, Jeddah has been under Saudi administration. It has a leadership position related to its long history in the economic field and its experience in international relations. Also, its contact with international trends reflects the inhabitants’ lifestyle.

²⁵- Bokhari, Abdulla: Jeddah: A Study in Urban Formation, Dissertation in Architecture, Presented to Graduate Faculty of the University of Pennsylvania for the Degree of Doctor of Philosophy. 1978

- Alhamdan, Fatimah Abdul-Aziz. (1990). Jeddah City (Location, Environment, Demographic and Urban, presented to the women’s university in Jeddah for the master’s degree.

²⁶ - Egypt state information service, web site, <http://www.sis.gov.eg/Ar/Land&people/suze/0313000000000001.htm>, (16-7-2009).

²⁷ - Marefa encyclopedia. Web site, <http://www.marefa.org/index.php>, (16-7-2009).

According to Jeddah advantages, King Abdul-Aziz declared to make Jeddah the center of government and develop the civil administration of Jeddah to be national ministries for supporting the management of the country.

The modern state of Saudi Arabia started from Jeddah, for the majority of governmental ministries was concentrated there, such as:

- Ministry of Foreign Affairs
- Ministry of Finance
- Ministry of Interior

In addition, diplomatic embassies and other international authorities were located in Jeddah.

Jeddah still an important place after moving the governmental ministries to Riyadh. It was still the main economic center and the main port for the country's imports, in addition to its unique function as the marine gate to the Islamic holy cities.

2- Urban Planning

Jeddah was established about 2500 years ago. Originally, residents lived by fishing the fish from the red sea. The village's strategic location means that it soon grew into a center of commerce, which facilitated trade between the Mediterranean and the Eastern countries.

The historian bin Jubear – (died 1217 CE)²⁸ - describes Jeddah as a small village on the Red Sea coast and most houses were built of palm fronds. Also, it had buildings made of stone and clay. Small rooftop cottages were used at night to provide relief from the high temperatures. Archaeological findings from the location gave some indications of the remains of the old village.

²⁸ - Ibn Jubear (1145 – 1217), Rihlat Ibn Jubear, Beirut, Lebanon: 1964



The oldest existing view of Jeddah and its port, this picture was drawn by the Portuguese fleet of Lopo Soares de Albergaria in the sixteenth-century, which is showing the attack on the city in 1517. By Gasper Correa

Figure no. (4.2.2) Source: Bokhari, Abdulla,

Since the construction of the second city wall by the Mameluks at the beginning of 16th century until its removal in 1947, the wall had no significant effect on the city's urban planning, except in its function of protection from the enemies.

Figure no. (4.2.3) Plan of Jeddah in 1938 according to C.A. Mallino in L'Arabia Saudiana, Ed By M. Mallino, Rome 1939, page 305.

The side map illustrates the size of Jeddah in 1938. Also, it shows well-known places, the surrounding wall and the city gates.

Mallino's plan shows the old wall as an irregular hexagon with five gates, three of which were fortified. The three main gates were Medina gate at the north of the city, Makkah gate at the east, and Sharif gate at the south. In addition, the other two gates were located at the seaside. Called Bab Albent and Bab Jadeed (new gate), they were at the east of Medina gate.

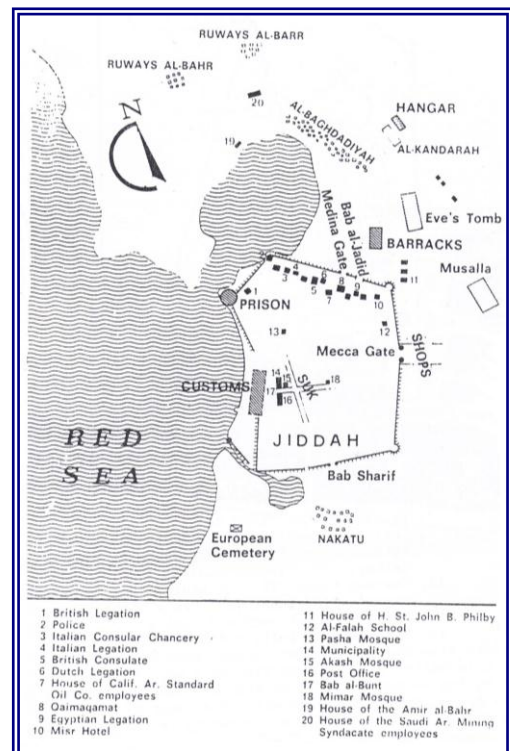


Figure no. (4.2.3)

Source: Bokhari, Abdulla Y. 1978



Aerial view of Jeddah in 1940, showing Alsham quarter. The written numbers show some prominent buildings which still existed in January 1974.

Figure no.(4.2.4)

Source: Courtesy of architect, Photographs of Jeddah Old Town Conservation, 1986



View of Jeddah in 1917. The picture illustrates some of the buildings which were located around the city wall.

The picture shows that the seaside of the wall and Albent gate connected to the city and sea.

figure no.(4.2.5)

Source: Municipality of Jeddah website. 2008

A - Jeddah's Urban and Quarter Concept

Old Jeddah represents one of the various Arab-Islamic types of urban form. The profile of the traditional Jeddah is that of a seaside fishing town. Its urban pattern is that of a crowded and compact city, in clear contrast to the surrounding sea and land. It is considered the result of a blend between natural and man-made situations. The urban form reflects Jeddah's struggle for survival in a harsh climate and difficult local conditions.

Old Jeddah was characterized by narrow and winding alleyways, restricted and intimate residential squares, and the complicated relationship of solid and void in a closely knit structure, the tension and release in its townscape, and a unique architecture marked by its simple cubist style. All these properties, integrated into a specific urban form, were the culmination of a logical harmonious growth, answering directly to climatic conditions, esthetics and lifestyle.



Figure no. (4.2.6), Old Jeddah, the compact urban plan resulting from the interaction of streets with open spaces.

Source: Mortada, Hisham. Traditional Islamic Principles, Built Environment.

The above map – (figure no. (4.2.6)) – depicts the urban plan of old Jeddah which, like many Islamic cities, depended on the creation of harmony among people living together in one area.

As an objective of Islam, the reflection of the concept of social solidarity among people is an essential principle of planning and regulating a Muslim built environment. The configuration of the urban components – (e.g. streets, open spaces and land use) – should respect, and thus be end product of, this principal, this means that the built environment should be more socially oriented or should provide the means that improve the social relation and interaction.

The reflection of solidarity social was clear in the traditional Muslim city. Being demonstration of concept of social harmony, the traditional environment was a communal result. It was less the result of individual desires than the result of society's collectives and aspirations. (mortada 2003, p 62)²⁹

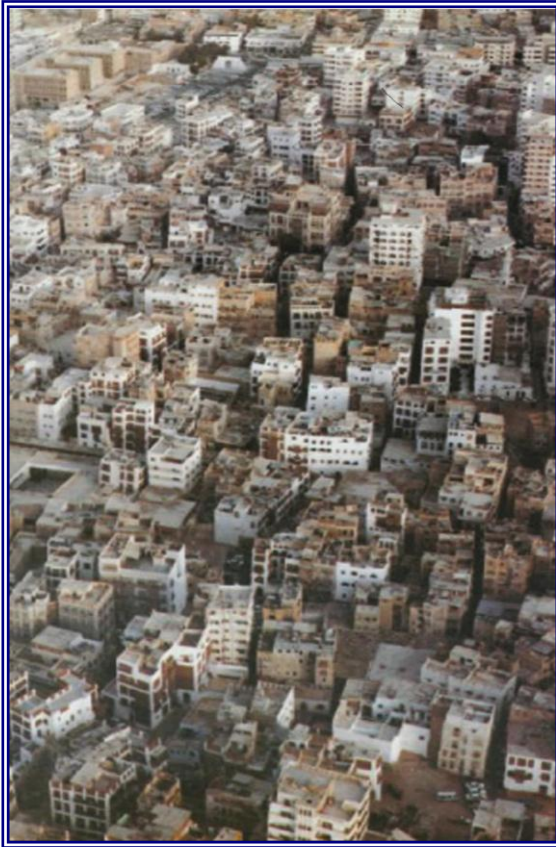


The side figure number (4.2.7) shows how a residential square and roads in the old city function as an extension to the house front. The figure shows the typical appearance of traditional Islamic cities.

Figure no. (4.2.7) old Jeddah architectural style

Source: Courtesy of architect, Photographs of Jeddah Old Town Conservation, 1986

²⁹ - Mortada, Hisham. (2003). Traditional Islamic Principles: Built Environment.



The figure number (4.2.8) shows an aerial view of old Jeddah, including the urban fabric of the city. Figure number (4.2.9) illustrates one of connection point of walkways.

Source:

Addas, Adnan Ahmed, College of Environmental Design, King Abdullaziz University, King Abdullah project for Jeddah historical area developments.

Figure no. (4.2.8) Aerial view of old Jeddah



Figure no. (4.2.9)

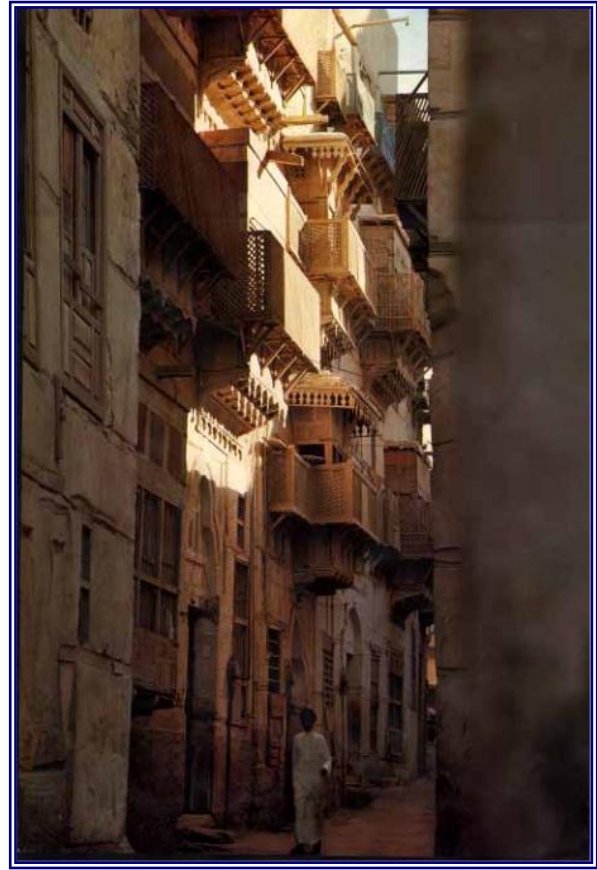


Figure no. (4.2.10) Examples of the narrow walkways in old Jeddah Figure no.(4.2.11)

Source: Courtesy of architect, Photographs of Jeddah Old Town Conservation, 1986

Figures (4.2.8), (4.2.9), (4.2.10) and (4.2.11) illustrate how the narrow walkways within the old residential quarters provide cool air and shade for the pedestrians as well as the contrast and harmonious connection between the quarter's houses and walkways.

Also, it shows that the narrow roads are no longer completely straight.

B - The Traditional Architectural and Residential Building of

The Old City:

The local architecture of old Jeddah emphasized two basic features: simplicity and serenity. It was a homologous type of architecture, looking for esthetics and beauty in a simple way while nonetheless keeping the balanced relationship of void to solid and the application of simple geometry. The building materials used in construction were derived from local sources, except wood, which had to be imported. Wood was used mainly for front doors, balconies and windows.

Responding to the hot and humid climate conditions, builders adopted the solution of relatively tall houses to create continuous upward air circulation and to capture the cool sea and north breezes in the upper apartments of the house. They developed and used the projecting rawshan – (a cantilevered wooden balcony with bay windows) - with imaginative lattice screens and shutters to permit cross-ventilation and alleviate the intense glare of bright daylight while allowing surveillance of the street without being observed.



Figure no. (4.2.12) Example of old Jeddah's building style and materials

Source: <http://www.kh911.com/vb/showthread.php?p=81994>

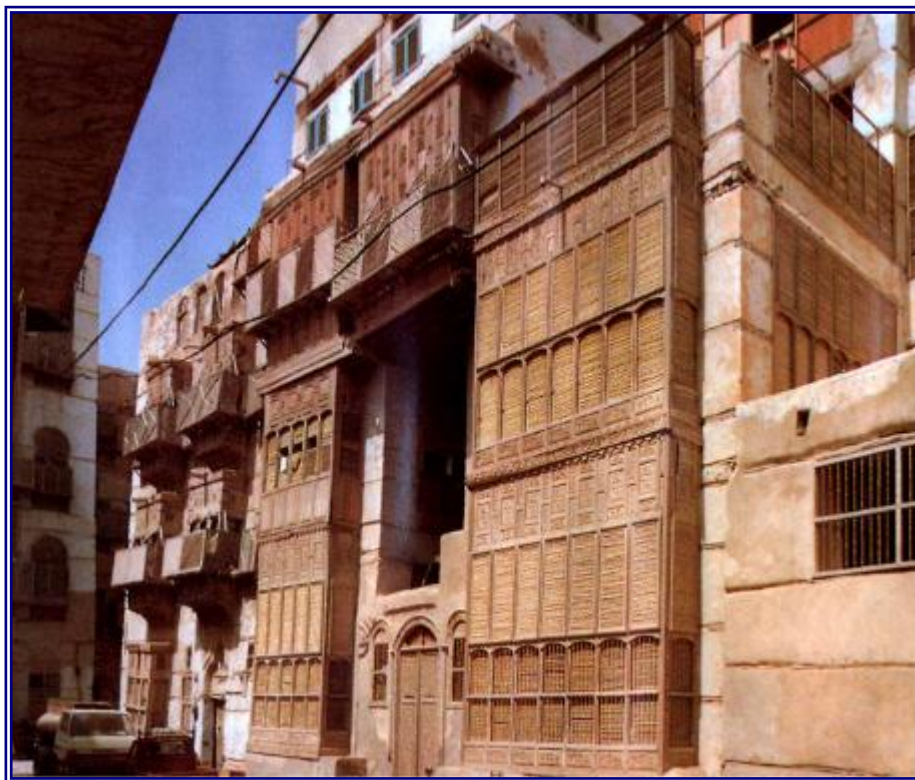
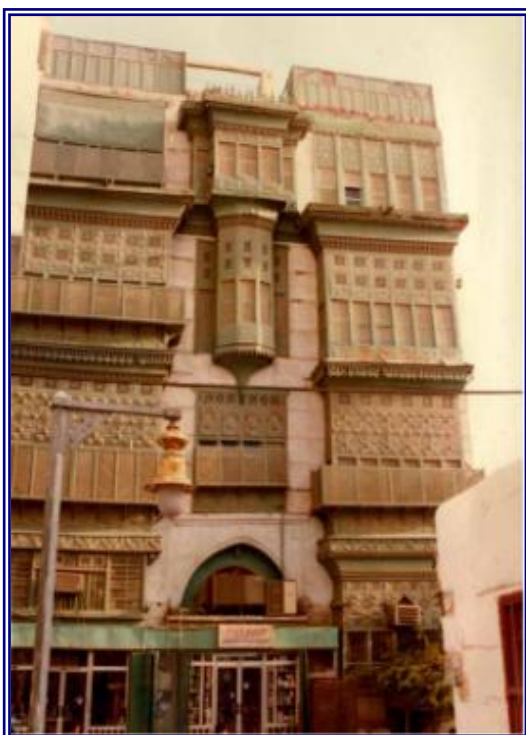


Figure no. (4.2.13) Old Jeddah construction material

Source: Courtesy of architect, Photographs of Jeddah Old Town Conservation, 1986



Figures (4.2.12), (4.2.13), (4.2.14) and (4.2.15) show the building style which was common in old Jeddah.

Also, they illustrate the construction materials used in Jeddah's buildings. Here we see an old house in Jeddah, the plaster of which has worn away, exposing the coral – stone blocks.

The figure shows the cantilevered wooden balconies with lattice screens projecting over the narrow walkways, adding to the intimacy of the residential quarter.

Figure no.(4.2.14) Old Jeddah construction material



Figure no. (4.2.15) Old Jeddah construction material

Source: Courtesy of architect, Photographs of Jeddah Old Town Conservation, 1986

4.2.2.1- Urban Development in Jeddah (1927 – 1995)

Since Jeddah city came under Saudi administration, the urban development of Jeddah has been strongly linked to the Kingdom of Saudi Arabia's economic development, which can be divided into three periods: the pre-economic boom period, the boom period and the post-boom period.

1- The pre-economic boom period (1927 - 1970)

The pre-economic period relates to oil boom .the first oil boom had an effect on the expansion of Jeddah doubling it's population from 25,000 to 50,000 , and was followed by a period of economic austerity and crisis until the second boom in 1973,also the pre-boom could be conveniently divided into two stages :Jeddah remains within its wall with no more than 180 ha until 1945,where the main economic base was revenues from commerce and services affected pilgrims .according to that the situation affected all aspects of city's development ,social ,educational, health, economical and physical. the city had four main gates also the urban fabric of Jeddah during this period remained traditional in character – organic fabric ,narrow streets mainly animals mode of transportation. there was economic upturn of the kingdom of Saudi Arabia ,so it received its first revenues in 1946 about ten million united states dollars and continued to increase up to 280 million US dollars in1956. Because of Jeddah function as a gateway to Makkah, it was one of the first cities to benefit from flourishing economy. because of difficulty by the closure of the Suez canal in 1956 government had to set policy instruments to cut expenditures and to urge private participations and encourage the industrial sector to finance and support economic development. so there are many features and configurations because of it's first master plan in 1962 (see figure 4.2.14)which is returning to the assistance of united nations to the kingdom which are linear pattern, the location of king Abdullaziz airport ,the direction of the main motor transit ways and the ring roads and the Cornish .with this plan ,it was easy for Jeddah to continue its development once the economic crisis was over and replaced by the second boom (Abdu p112-116)³⁰

³⁰ - Abdu Mohammed Sani, Jamalulddin Yousef Salagoor, Fahad An-Nwisher al-Harigi, Jeddah Urban Growth and Development Process: The Underlying Factors. Scientific journal of King Faisal University, volume 3, March2002.

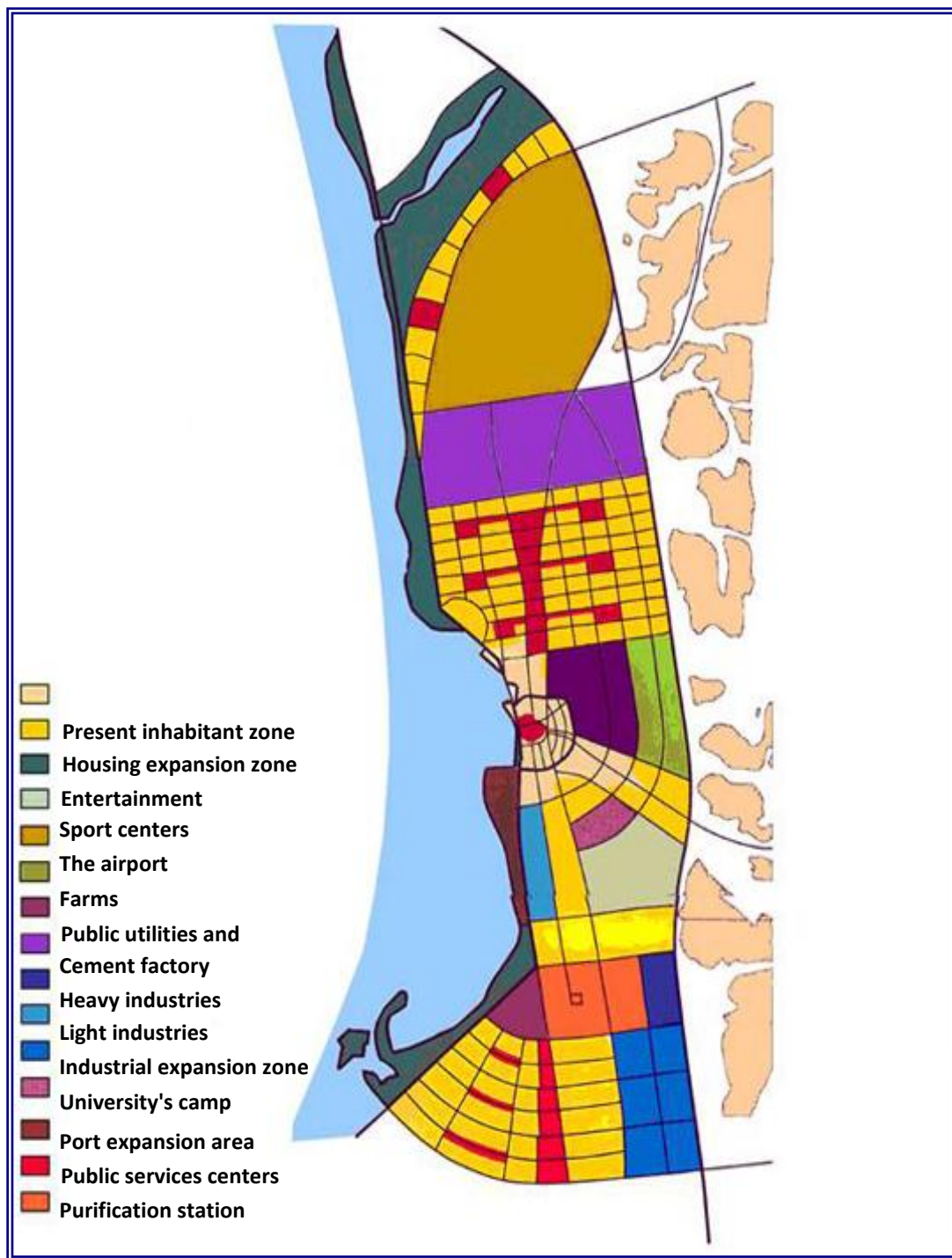


Figure no. (4.2.16), the first master plan of Jeddah 1962, by Dr. Abdul Rahman Makhlof.

Source: Makhlof, A. (1985), the comprehensive Urban Studies for Jeddah city from 1959 – 1963.

A report prepared for the Ministry of Municipal and Rural Affairs, Jeddah Municipality,

Vol. 2, P.94

2- The Boom Period (1973 – 1983):

The previous economic crisis and the increasing inflow of oil wealth began under the first five year national plan (1970-1975). The plan was not only physical developments but included mostly studies like the population, national transports, regional socio-economic and physical studies. The plan took into consideration a sound economic commercial base, the coastal line, open spaces. The second Jeddah master plan (1973) was prepared by an experienced international consultancy consortium.(see figure 30).

In 1971 Jeddah was the diplomatic centre of the kingdom; the headquarters of the Saudi monetary authority. The second national development plan (1975-1980) coincided with the oil boom. The main goals of the second plan are to develop the physical infrastructure to support the achievements of the cultural, historical, political fundamentals, values and principles of the kingdom. According to the second five-year plan, Jeddah stood out clearly as an established national centre. The main role of the city as the principle enter-port (gateway) to the kingdom derived from its geographical location. There are features which provided Jeddah to be one of the most important national centers. A) It is a centre of sea, air and land communication. b) It is a commercial and business centre. c) It is the second diplomatic city of the kingdom. d) It is hajj and Umrah reception for non-Saudis. E) It is an educational health and cultural centre. During the second five year plan about 30% of government's projects expenditure was invested. Besides investment in urban infrastructure like the water desalination and supply, transportation network, the completion of the new airport and expansion of the sea port. Also private investment played an important role in the urban expansion of Jeddah. According to Duncan³¹, Jeddah is less dependent on government investment and funding than other regions or cities in the kingdom. The population growth rate is (14.0%) within a period of three years (1971-1974) similarly in physical terms Jeddah's areas grew four fold from 31,400 ha to 121,500 ha within six years. Also in 1980 the growth of Jeddah becomes so rapid and phenomenal in both population and spatial terms and demand for facilities and services. (Abdu 2003) p 117-121(previous reference) .

³¹ Duncan, G.O. (1978), Jeddah, the planning and development of the city of Jeddah (1970-1980), unpublished, Ph.D thesis, university of Durham, UK

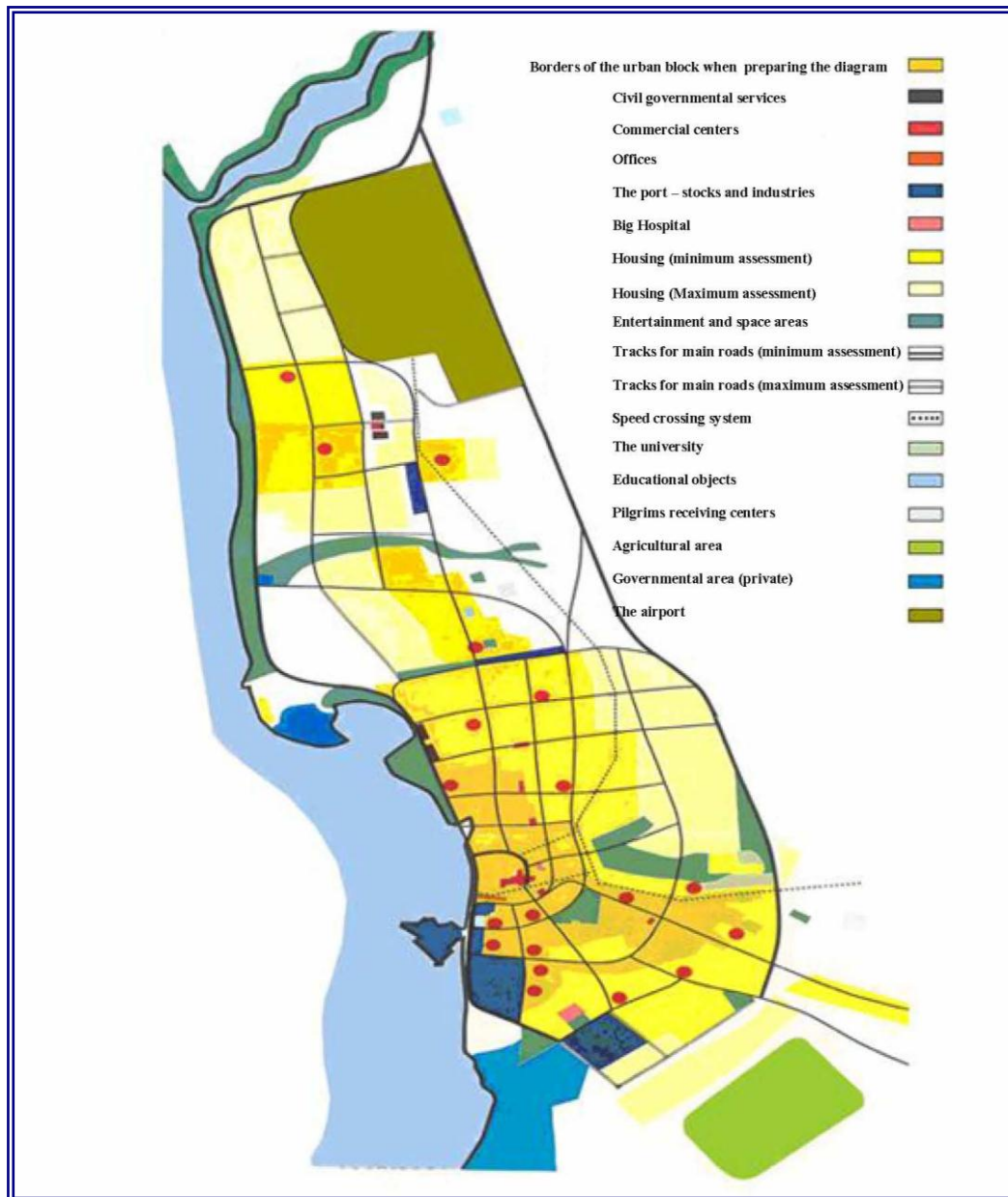


Figure no. (4.2.17) Second master plan of Jeddah, 1973, by Robert Mathew, Johnson-Marshall Partners (RMJMP).

Source: Municipality of Jeddah, the general administration of local planning.

3- The post-boom period (1984 – 1995)

Oil income peaked in 1981/1982 and fall steadily .the expenditure for the fourth five year plan (1985-1990) was about 23percent below the actual expenditure of the third five year plan (1980-1985) according to that municipalities and housing sectors suffered most with huge cuts of about 50 percent to their planned expenditure targets. The city's population fluctuated along with the ups and downs of the economy. Jeddah's population increased by one-and-a-half times its former size within three years, from about 400,000 in 1971 to about 600,000 in 1974. The population continued to increase- albeit at a lower rate of 7.4 percent- until it reached the 1.13 million mark in 1983. Also, the population did not reach the 1.2 million mark by 1985 due to the departure of expatriate workers, who constituted more than half the population of the city. During the boom period, the built-up area doubled from 3,250 to 6,650 hectares in five years (1971-1976). Actually, the built-up area was expected to grow at a rate of 6 percent a year, reaching 39,173 hectares in 1995 and 74,647 hectares in 2005. In the first half of the 1970s, Jeddah grew towards the north and the south. In the second half of the decade, growth was mainly northward due to the construction of the new airport and the generous allocation of low-density residential land to private developers by the government. Some development took place along the Makkah highway in the east, but it was not comparable to the north-south growth described above. (Abdu 2003) p. 121-125 (previous reference)



Figure no. (4.2.18) King Abdullaziz Street 1963

The figures numbers (4.2.18) and (4.2.19) show the new street which implemented in Jeddah during the period of Saudi government started in 1927.

Also, the pictures illustrate the change which occur in the width and finishing of streets in addition to the used materials



Figure no. (4.2.19) A view of one of Jeddah's streets in the early Saudi period

Source: Municipality of Jeddah website.

4.2.3- Open space areas³²

In the last time there was not importance for planting and open space areas because of the urban style was very narrow and there was not enough open spaces specialized for these facilities, also the shortage of water played a great role for not supporting planting but it only used for the human service.

According to the urban development which occurred by the Saudi administrations and municipalities as well the first master plan, the second master plan and the five year national plans founded open space areas within the city such as the following:

Public Open spaces:

The public open spaces include parks, children's playgrounds and beaches, which are wonderful places for peoples to spend their free time.

Certain private open spaces are owned by special authorities, such as members-only sports facilities such as tennis clubs and golf links.

Sport stadiums

The sport stadiums are specialized for public and private use under the supervision of the government and the youth welfare officials.

Pubic open areas ha	Private open areas ha	Sport stadiums ha	Constructed area ha
62,93	61,51	14,70	2,22
Total		141.36 ha. = 1,414,360 m ²	

Table no. (4.2.1) Total area of all types of open space areas in Jeddah's old master plan.

Source: Five-year comprehensive national plan of Jeddah issued in 1970(volume 1, p 76-79)

According to the first master plan, which was drawn by Dr. Makhlof in 1962, the above table explains the types of open space and their area.

32- Five-year national plan issued in 1970(volume 1p 39-40 and 76-79)

The total located area was about 1.41 million square meters, which equals 0.20 % of the total of the city urban scope – (in the first master plan, Jeddah’s urban scope equal 700 square kilometers).

4.2.4- Urban Planning in Jeddah Today

Jeddah has seen great development, as have other cities in the kingdom, because of the economical growth in the 1970s.

Jeddah (also called “Bride of the Red Sea”) - is now a modern city with all amenities and luxuries. The Saudi government has invested in Jeddah to make it a real landmark for Saudi Arabia. It is considered the second city in the kingdom as well as the commercial gate. Additionally, it is considered the economic center of the country; this has encouraged business and financial companies to settle there.

Furthermore, it is the main marine gate to holy lands and pilgrims to Makkah. It is also important for the import and export of various goods and non-petroleum products.



Figure no. (4.2.20)

Jeddah Today, beach road



Figure no. (4.2.21)

Jeddah today, one of the shopping centers

Source: <http://www.ssa-wmu.org/vb/showthread.php?t=459> (15/11/2008)



Figure no. (4.2.22)

Jeddah today, Example of new city streets



Figure no. (4.2.23)

Jeddah today, view of new building construction

Source: General Administration of Relationships and Media (2009)

The above pictures illustrate the development in Jeddah; these pictures also show the new streets constructed in the last years, new buildings, and green open spaces which make beautiful views for residents and visitors.

1- Jeddah's Urban Components

By studying Jeddah's master plan, we can see the main components of the city, such as residential areas, public services, etc.

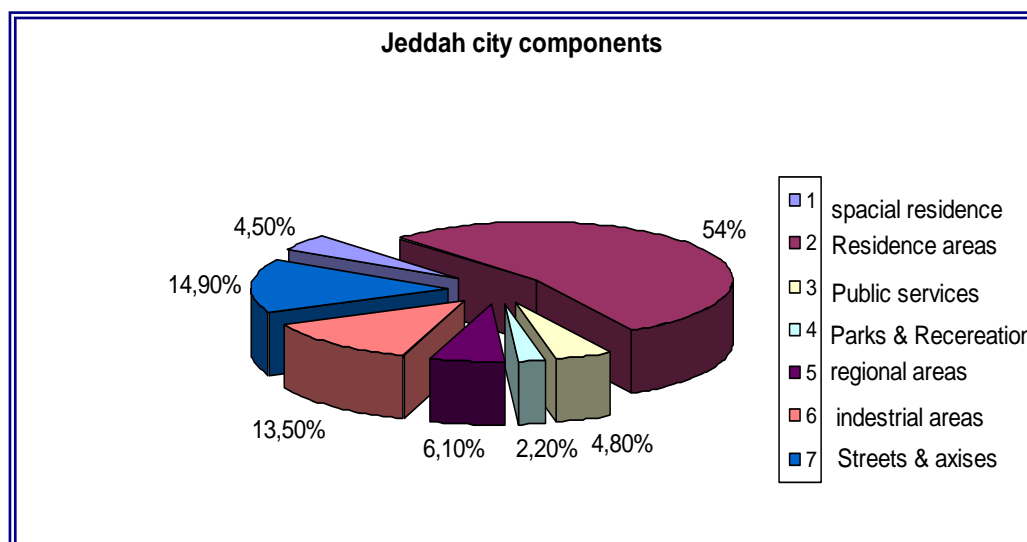


Figure no. (4.2.24)

Source: The master plan of Jeddah 2008 – local planning administration.

The above figure demonstrates the percentage of area taken up by urban components according to the master plan. It illustrates residential areas cover 54% of the city's area. These areas include the distribution of Jeddah quarters and different kinds of housing .we can divide this percentage according to the following: Villas cover about 29%, while multiple-storey buildings cover 6.7%, suggested housing projects are allowed to be 61%. The rest, which covers 3.3%, is random residential areas.

On the other hand, special residential areas cover 4.5% of city area. This includes the historical and central region, which covers 3.7% of the total, while the costal and marine regions cover 88%. The rest is special development regions which include specific projects.

The figure illustrates public services, which are 4.8% of the city's area. Education services are 3.8% and medical services cover about 1.8% while the government services are 55.4% of the activity area. Other government services include the mosques (masjeds) with 6%, cemeteries with 0.17% and car parking at about 1.83%.

In addition, parks and recreation areas cover about 2.2% of the city's area.

The workshop and industrial regions are about 13.5% of city area. It is divided into petroleum industries are about 0.6%, light industry are about 39.5% and middle industries are about 19.1%. The storage area covers about 40.7% of the activity area.

The airport and marine port cover about 6.15% of the city's area. These activities extended beyond the city because they are the main entrances to Jeddah and the surrounding cities.

Finally, the figure illustrates the areas of the streets and the city's axes, which represent about 14.9% of the city's area also divided into the main axis, which are about 6%, and secondary axis, which are about 1%. The main streets are about 5.3% while the local streets are about 87.7% of the activity area.

4.2.5- Jeddah Municipality

The municipal government carries out all urban development. It is responsible for the civil aspects of the city and for supervising all plans and strategies tied to urban development. In addition, it is divided into ten branches. Each branch has its own responsibilities and has to follow the head municipal strategies and duties.

The following organizational structure of Jeddah's municipal government illustrates the structure of the various administrative areas.

Jeddah's municipal functions have a similar structure to those seen in Medina.

1- Jeddah’s Municipal Organization Structure:

The organization structure is the framework which the administration practices its function, also it is the way which enables to connect between variety functions which can be done by different specialties of the municipality. The following figure explains the relationship of the head administration of the municipality.

The following chart illustrates the main Jeddah Municipality Organizational structure:

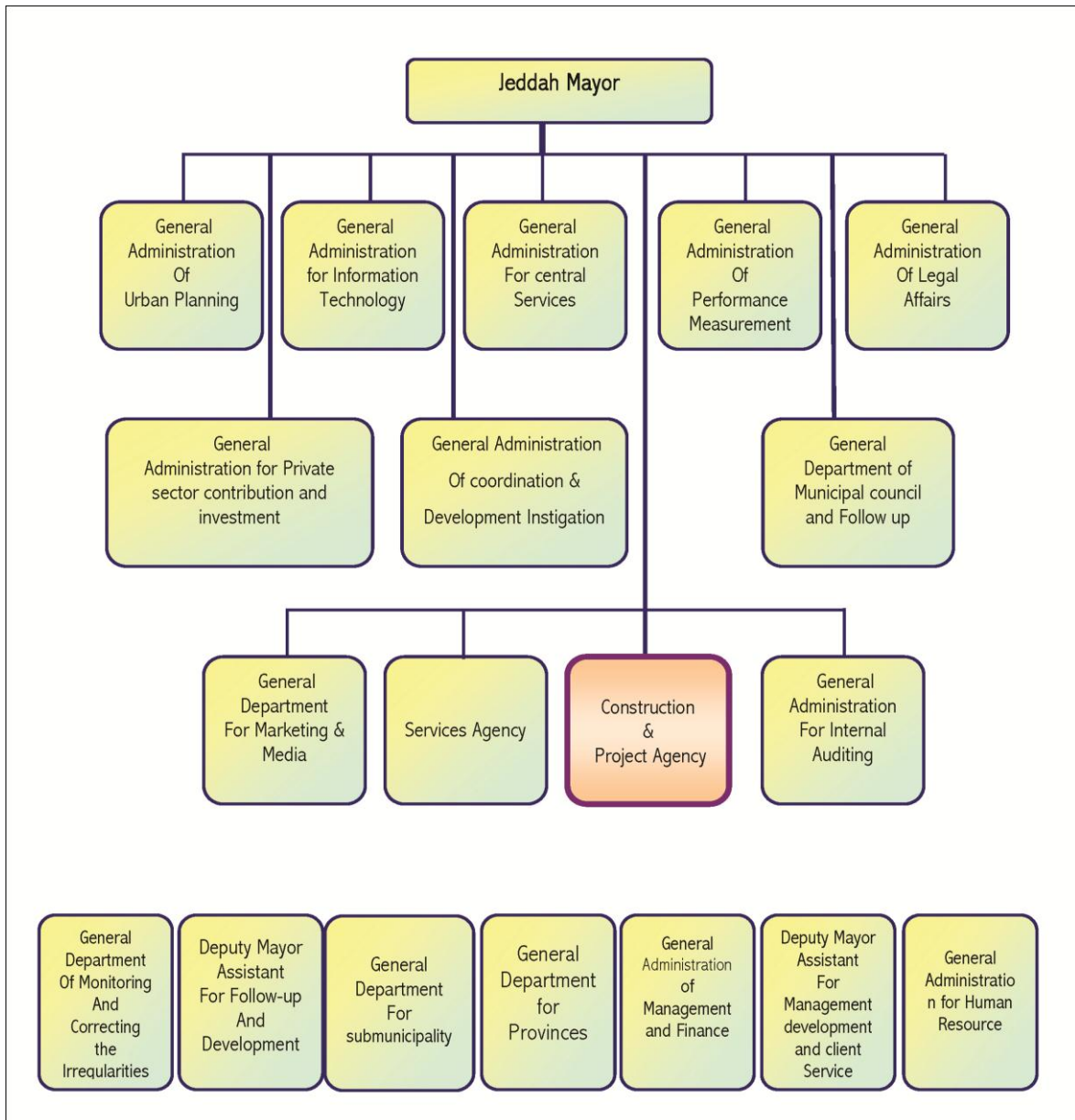


Figure no.(4.2.25) Jeddah’s Municipal Organization Structure

Source: Jeddah Municipality, 2009

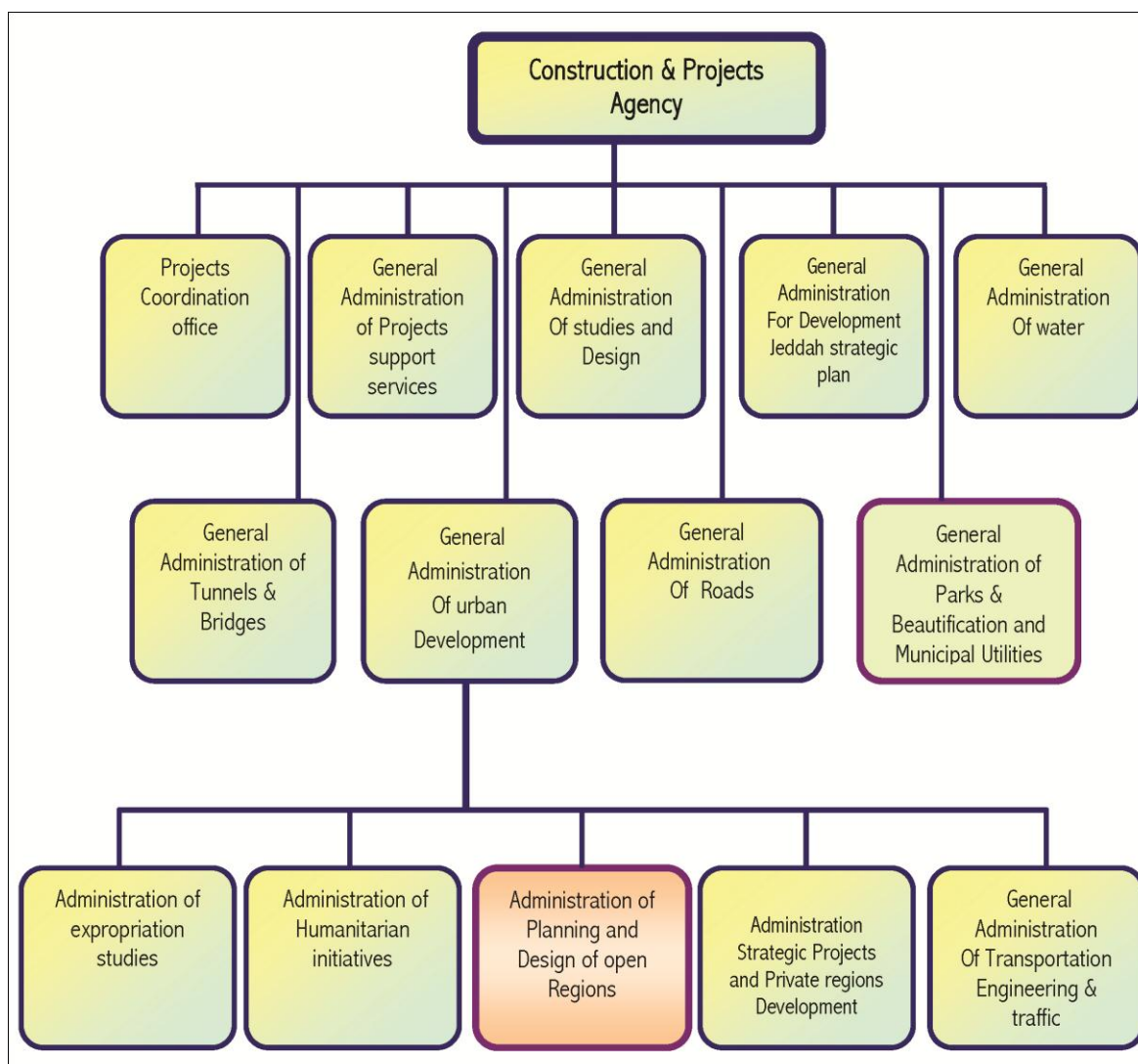


Figure no.(4.2.26) Construction and Projects Agency Organization Structure

Source: Jeddah Municipality, 2009

The above figure illustrates the composition of the administrations in the Agency of Construction and Projects. Furthermore, it shows the administrations which carry the responsibility for parks in Jeddah municipality (in red). On the other hand, the organization structure explains the makeup of administrations under the general administration of urban development, which is one of the administrations that manage the parks in the city.

2- Jeddah's Green open space areas Administrations

According to the organization structure, there are two administrations responsible for supervising the parks and open spaces in the city. These administrations are called: the General Administration of Parks & Beautification and Utilities, while the other administration is the Design & Planning of Open Spaces administration.

The following section will explain the duties of each administration and give some necessary information:

Administrative Obligations:

A - Administration of Design & Planning of Open Spaces

The administration is responsible for studying, planning and designing parks and supervising park implementation. Furthermore, this administration prepares drawings and specification documents of park implements. It has many engineers in various fields that support its performing the duties.

It can provide with suggestions for developing the green open spaces within the city and try best to find solutions for the arising problems.

The following table indicates the numbers of the specialized employees in the administration:

Field Specialization	Number
Civil Engineers	3
Architects	4
Environmental Architects	4
Planning	1
Draftsmen	3
Administrative Assistants	4

Table no. (4.2.2) Administration of Design and Planning of Open Space Staff

Source: Jeddah Municipality- Administration of design & planning of open spaces (2008)

B - The General Administration of Parks & Beautification and Municipal Utilities:

The General Administration of Parks & Beautification and Municipal Utilities is working on implementing and operating the parks and green areas. In addition, it is concerned with bringing out the beauty of the city. On the other hand, the functions of maintenance, coordination and supervision of the future planning and suggestions for parks operations and their development are its duties.

Furthermore, the staffs which manage the administrative affairs are about 52 employees, while contractor's staffs are estimated about 1,347 employees.

The following table explains the number of employees who work on city planting, operating and maintenance.

Employees	The Administration (Municipality)	Contractors
Engineers	23	22
Technical Assistants	29	25
Laborers	-	1,300

Table no. (4.2.3) Administration of Parks & Beautification and Utilities staff

Jeddah city municipal- Administration of Parks & Beautification and Utilities (2008)

The total of the municipal staff is about 52 employees. They manage the general administration of parks and following the operation and maintenance of the contractors' performance. The engineers' numbers are estimated to be 23 engineers. 11 engineers have the duty of administration and planning strategy and policy of green areas in Jeddah municipality, while the rest are working on maintenance projects. On the other hand, the contractor's employees who manage the green areas are about 1,347. Twenty-two engineers are responsible for supervision and maintenance. There are 25 technical assistants and 1,300 are laborers.

B.1 - Administration Organizational Structure:

The general administration of parks & beautification and utilities is consisting of seven departments. Every administration has its own duties which will be discussed in the following in detail:

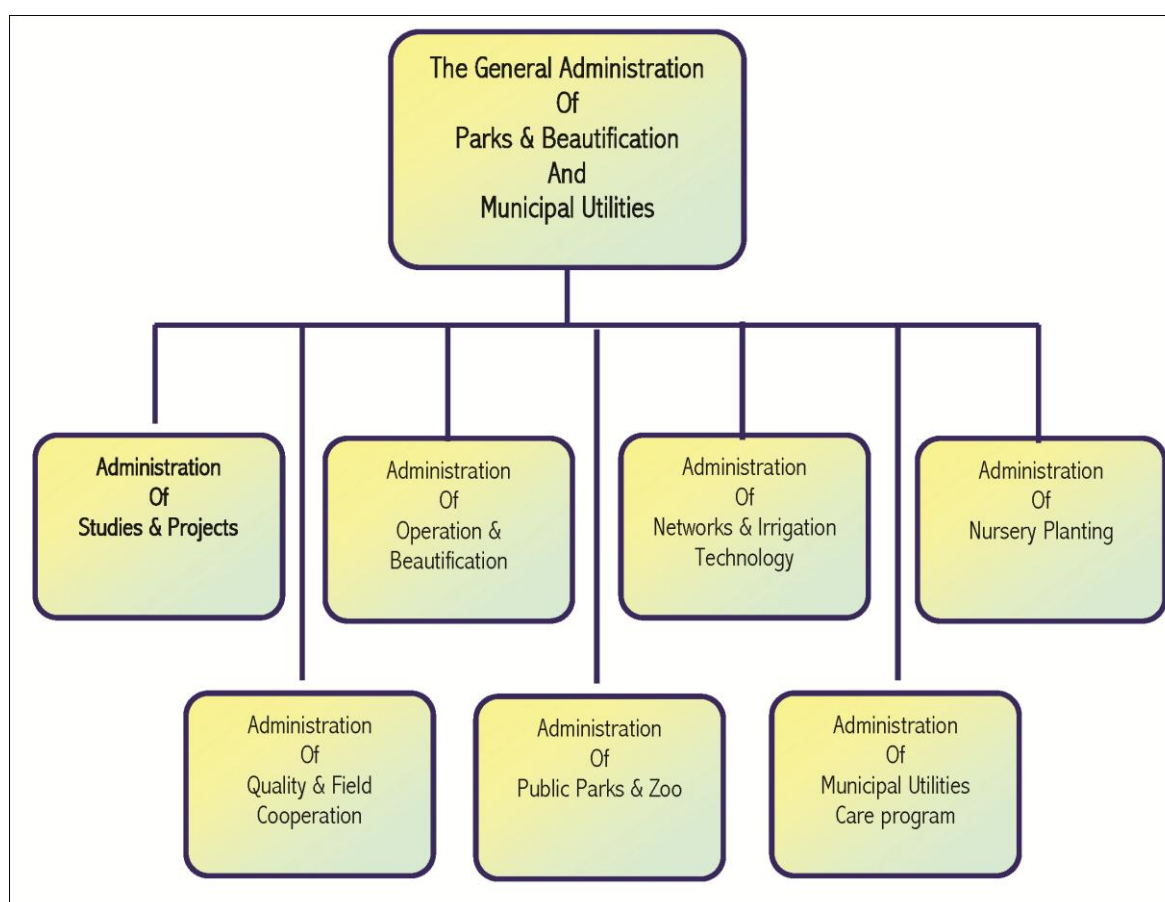


Figure no. (4.2.27) Administration of Parks & Beautification and Utilities Organization str.

Source: Municipality of Jeddah - The general administration of parks & beautification and utilities (2008)

The function of the administration:**1- Administration of Studies and Projects:**³³

This administration has the following duties:

- Preparing the plans for Jeddah's beautification, including the parks, streets and squares.
- Preparing the engineering drawings of new parks and streets.
- Preparing the basic standards for Jeddah park designing.
- Preparing the guide for beautification plans in Jeddah.
- Direct supervision of community education concerning with the importance of parks and green areas in the cities.
- Developing and preparing studies for irrigation projects and planting maintenance, in addition to other administration projects.
- Creating teams for various projects concerning with quantity, scope and cost.

2-The Administration of Operation and Beautification:³⁴

This administration has the following duties:

- Full technical, agriculture, legal and administration responsibilities regarding the planting of parks, streets and squares.
- Direct supervision of green areas operation to ensure the implementation of the contractors.
- Following the daily operation and maintenance of parks.
- Following the contractors' services.
- Following the monthly plans for planting coordination.

³³ Administration of park beautification and utilities document (2008)

³⁴ Administration of park beautification and utilities document (2008)

- Following difficulties and problems and searching for suitable solutions.
- Following the operation and maintenance aspects.
- Following accurately of maintenance and irrigation contracts and finding the qualified implementations to be suitable for the systems and the organized regulations.
- Regular inspection of water tanks, filters and pipes.
- Developing the green areas and using suitable plant types, encouraging creative concepts.

3- Administration of Networks & Irrigation Technology

This administration has the following duties:

- Field supervision of treatment stations, ensuring that they are properly operating.
- Following water-saving measures for parks, streets and storage tanks.
- Following and ensuring the program of water saving for each type of system, also checking water quality.
- Full technical, agriculture, legal and administration responsibility regarding the irrigation of parks, streets and squares.
- Following difficulties and problems and searching for suitable solutions.

4 - Administration of Nursery Planting³⁵

This administration has the following duties:

- Saving the required plants which are suitable to Jeddah's environment.
- Increasing the number of plants and tending growth.
- Forming a plan of the planting products according to types, amounts and size.
- supervising the steps which are involved in the work process.

35 - Administration of park beautification and utilities document (2008)

- Experimenting with new types of plant which might be suitable.
- Using modern technology methods in planting products.
- Cooperating and exchanging information with university research centers and agricultural companies.

5 - Administration of Quality & field cooperation ³⁶

This administration has the following duties:

- Controlling the quality of project implementation.
- Forming the criteria for organizing the field of cooperation process.
- Following the regulations set out by the general administration.
- Inspecting the projects and ensuring the contractors' work.

6 - Administration of Public Parks & Zoo ³⁷

This administration has the following duties:

- Supervising the careful maintenance of garden plants by using a regular program.
- Choosing suitable plants and increasing trees planting to create shade for visitors and zoo animals.
- Supervising and implementing irrigation programs in addition to the required irrigation network.
- Supervising the construction and maintenance of public parks.
- Following the assurance of the contracts which are concerning with the animal nutrition.
- Regular inspecting and quality control of animal nutrition and water.

36- Administration of park beautification and utilities document (2008)

37 - Previous reference

- Supervising the safety of the animals' cages.
- Ensuring the animals' health.
- Working on visitors' safety.
- Creating the veterinary supplies necessary for the safety of animals and the first aids of visitors.

7 - Administration of Municipality Utilities Care Program

This administration is responsible for establishing a good relationship between the municipality of Jeddah and businessmen and the interested people who are especially concerned with the environment and parks. The aim of this program is to support the social relationship between the community members, and it is to increase the participations of richer and the companies with the community without any refund.

The charities contribute in parks construction by giving the opportunity to design, construct and operate the parks in exchange for having the parks named after them.

There are three types for care as the following:

1- Directed care.

A contributor constructs the parks around his varied activities to serve and present a lot of services for a class of the people to have fun and also it returns for him with the benefits.(such as Albeek restaurant)

2- Semi-social care

A contributor constructs the parks around his activity (such as the international hospital) for having the rest and waitness for the people and the patients can walk and breathe and change their conditions of ill.

3- full-social care

A contributor constructs the parks for the public use to have fun and develop their levels of efficiency (such as Alfaisal Park)

4.2.6 The green areas in Jeddah:

Jeddah municipality is responsible for urban planning and other infrastructure requirements. Furthermore, it has the authority for plans, construction and supervise on the civil services that make the life of citizens convenient and wonderful.

Jeddah municipality carries out developments and manages the city and supervises all plans and strategies tied to urban development.

The green open space areas of Jeddah city are estimated about 6.5 square kilometers. These areas include the following: parks, squares and vacant land:

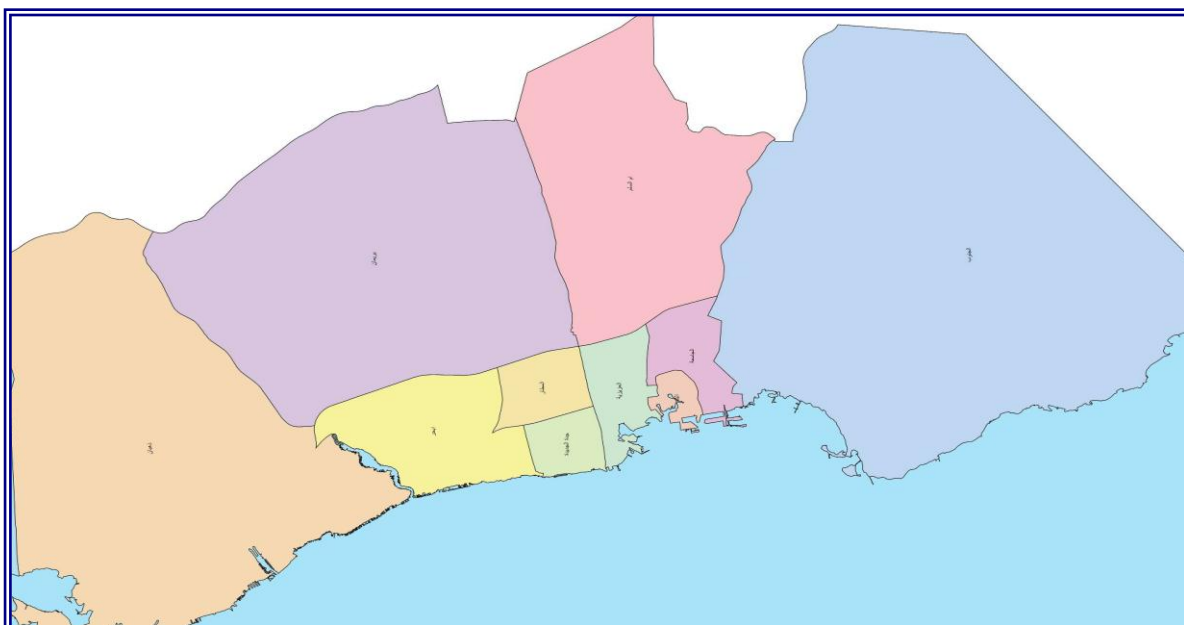


figure no. (4.2.28) - Jeddah branches municipalities map

Source: Municipality of Jeddah, Geographic information systems center, 2009

Jeddah is divided into 10 administrative districts. These districts are managed by municipal branches which have authority for civil affairs regarding the daily life of citizens except the supervising and operating of green areas, which come under the central administration. The green areas are operated by special contracts – (will explain later)-.

According to the master plan of Jeddah and statistical tables, the green areas in the city are estimated at about 8.6 km² including the planting roads. That is equal to 1.15% of the city's area.

The table below, no. (4.2.4), illustrates the number and area of the different types of green areas which are allocated in the city's master plan – the current numbers will be explained in the coming study. In total, there are about 871 parks in Jeddah which cover about 4.2 million m², which equals 0.56% of the city's area. In contrast, the 702 roads cover 2.24 million m², which equals 0.3% of the city's area. There are 323 left over area; their area is estimated at about 1.7 million m² or 0.23% of the city's area. Jeddah's 54 squares cover about 360,000 m² or 0.05% of the city's area.

These green areas are distributed citywide. Depending on the distribution of the municipal branches, the green areas are distributed throughout all the quarters.

No.	Municipal Branch	Parks No.	Area m ²	Roads No.	Area m ²	Square No.	Area m ²	left over area no.	Area m ²
1	Uphor	149	717020	87	532285	12	109799	21	109913
2	New Jeddah	127	609091	108	322915	12	27151	26	123426
3	Almatar	144	513822	219	390118	2	13000	31	149303
4	Alazizeah	135	713854	111	247127	10	122010	56	246331
5	Preman	35	162492	20	41548	0	0	16	16050
6	Albalad	6	50740	30	124938	1	24162	45	179311
7	Algameah	99	276616	47	251229	9	22192	66	285189
8	Um Alsalam	65	681455	15	32020	0	0	21	262430
9	Aljanoob	76	218021	45	227654	5	31300	20	140926
10	Dhaban	35	240025	10	71900	3	12000	21	184750
	Total	871	4183136	702	2241734	54	361614	323	1687629

Table no. (4.2.4) The allocated areas for the different types of green spaces in Jeddah according to the master plan

Source: Municipality of Jeddah Statistical Tables – The General Administration of Parks, Beautification and Utilities (2007)

4.2.6.1- Parks and Planting Policies:

The General Administration of Parks, Beautification and Utilities manages the parks and beautification affairs on behalf of Jeddah municipality. It has the authority for planning and strategies regarding to the construction and implementation of parks.

With respect to the five-year strategy national plan³⁸ and other administrative and financial affairs which organize project construction, the administration's policy according to the rules of the municipality is as follows:

- 1- Increasing the green area to satisfy the objectives of planting within cities, such as providing shade and beauty and contributing to the reduction and filtration of air-borne pollutants, also, controlling temperature in general.
- 2- Developing park designing by using modern methods.
- 3- Improving the image of the parks in the community.
- 4- Giving every street its characteristics of planting and renewal.
- 5- Reducing operation and maintenance expenditures by using developed systems.

In addition to the parks policies organized by the city parks operations, there are many factors which affect park construction and implementation. These factors are population density, availability of land and financial possibility.

On the other hand, Jeddah depends on treated sewage water for its green area irrigation. But the current irrigation network covers only 70% of the green area. The increasing in the city's area and the expected future increases to green areas has obliged planners to study future needs and suggest their vision for saving water:

- Establish four central tanks for citywide treatment water distribution.
- Construct 289 new water tanks for the treatment water according to the distribution of Jeddah's parks for providing water to parks and other green areas in the city.

38 - When the development schemes started in the kingdom in the 1970s, the government used a system called the **five-year strategy national plan**. This plan is considered a short-term development plan with the objectives to state and cover important development matters in the country. It states the priorities of development aspects and provides the required strategies to implement this vision over five years. It covers all requirements such as infrastructure, public utilities and public services. The strategy currently in operation is the ninth scheme; it will run until 2014.

- Establish an irrigation network connected to treatment stations and central tanks.
- Complete the rest of the city's coverage by irrigation network.

The above procedures will require needs about two years for construction. The estimated cost of these works will reach about four hundred million riyals.

4.2.6.2- The current situation of green areas

In this section, the study will analyze the existing situations of green areas. It will focus on parks and other open space areas such as left over areas and square planting.

Here I divided my study into two parts: parks and a kind of open spaces like the following

1 - The Parks

The real existing parks in Jeddah are about 447 parks. The parks area is estimated about 2.5 million square meters, which equals to 0.33% of the city area.

The distribution of the real existing parks is illustrated in the following table:

No.	Municipality branch	Planted parks		Percentage of planted parks (%)	Number of parks irrigated by network	Parks area m2	Area Irrigation By network (%)
		No.	Area				
1	Uphor	29	134171	19	17	83622	62
2	New Jeddah	73	411113	67	49	301277	73
3	Almatar	56	209822	41	10	48247	23
4	Alazizeah	116	623570	90	32	250715	42
5	Preman	22	98893	61	6	22806	23
6	Albalad	6	50740	100	3	8976	18
7	Algameah	83	229357	80	24	94502	39
8	Um Alsalam	35	612780	54	20	106237	17
9	Aljanoob	21	39205	18	7	13200	34
10	Dhaban	6	32100	13	4	27200	85
	Total	447			172		

Table no. (4.2.5) Amount and locations of existing parks in Jeddah

Source: Municipality of Jeddah Statistical Tables – The General Administration of Parks, Beautification and Utilities (2007)

The above table illustrates the distribution of the real parks throughout the 10 districts of Jeddah; it explains the rate of planted parks compared with the total specialized area which appears in table no. (4.2.4). On the other hand, the table illustrates the rate parks which are covered by the irrigation system.

According to the above table, it is clear that Alazizeah municipality has the most planted parks which about 116 parks, which reaches 623,527 m² or 90% of the total parks of the area, which has 135 parks. The total area of the 135 parks reaches 713,854 m². On the other hand, 100% of Albalad municipality's parks are planted; this means 6 parks of the total number of municipality parks reaches 50,740 m².

Dahaban municipality has the least planted parks; that is about 13% of the total specialized area, which equals to 240,025 m² or six of the total 35 parks.

On the other hand, the table illustrates the percentage of parks irrigated by networks. The table shows that not all parks are covered by the irrigation network. Dahaban municipal area has the most parks covered by the irrigation network at about 85%, while Um Alsalam and Albalad municipalities have the least parks covered by the network: 17% and 18% respectively.

- Park components:

The components of the parks reflect the type of facilities. The main components of parks are water tanks, irrigation networks, footpaths, lighting, children's playgrounds and green areas.

The total number of real existing Jeddah's parks is 447, but only about 39% of them have the main components of parks mentioned above which nearly about 173 parks. The remaining parks are traditional parks with basic components such as trees and grass.



Figure no. (4.2.29) Alnakheel Park



Figure no. (4.2.30) Almuatasem Park

The above picture no. (4.2.29) illustrates the components of Alnakheel Park. The park has a traditional design where grass covers the ground. Additionally, the palm trees are distributed throughout the park. The pedestrian path is centralized the park, also there are seating and lighting tools. On the other hand, in picture no. (4.2.30) Almuatasem park gives us an example of a normal park which has palm trees and grass in addition to shrubs which create a border between the parts of the park. It also has a children's playground located in the back corner.



Figure no. (4.2.31) Alashgan Park.



Figure no. (4.2.32) Almustaqbal Park

The above figure no. (4.2.31) shows the components of Alashgan Park. The majority of the park's components are grass, playground places, playground equipment and seating. The park is located inside the quarter where its design is open for the surrounding environment. Its design divides the park into playground areas and pedestrian paths to create various shapes for a harmonic relationship. It is covered by white sand to provide an attractive reverse image on the grass. Much types of play equipment are found in the park like swings and slides. Almustaqbal Park, shown in picture no. (4.2.32), was designed as dividing the park into harmonic shapes and laying wide pedestrian paths which separate the park areas. The main components are seating consisting of benches made of stonework in addition to shaded areas. The lighting system which is used reflects the function of the park, which concentrates on the seating area.



Figure no. (4.2.33) Khuzam Park



Figure no. (4.2.34) Alayman Park

The above picture no. (4.2.33) shows Khuzam park, which design depends on open space covered by grass and small trees at the border of the park. In addition, flower beds are located around the other edges. Generally, it does not have any components except the planting elements. Picture no. (4.2.34) shows Alayman park, which is located at the edge of the quarter; it has a traditional design which divides the park area into similar spaces with narrow paths that covered by cement tile. Its main components are palm trees and other small trees distributed throughout the park and shrubs that are found around the border of the park to the surrounding streets. The playground equipment occupy a significant area: many kinds of slides and swings are found in this park.

Source: Municipality of Jeddah (2008) & Jeddah Municipality Website:

(www.jeddah.gov.sa/news/news.php?id=297) (1/7/2008)

-The General Administration of Parks, Beautification and Utilities

2 - Another Open Space Area:

The open space area plays an important role in providing light, air, landscaping and relief from the enclosing buildings. The public parks, plazas, and streetscapes also serve as a living room for community life: places where people can meet gather and interact.

The Municipality of Jeddah has few public open spaces. The treatment of these spaces is difficult. One of the most dominant forms of open spaces in Jeddah occurs at the square (roundabout). To reach and enjoy one of these roundabouts, people must risk their lives and cross crowded intersections. Once they get at these places, there is usually no shade or facilities to enjoy in the open space. Also, roundabouts are surrounded by traffic jams, noise, and pollution. These traffic roundabouts are wide open spaces, often decorated with sculptures, but are only available for the enjoyment of passing vehicles.

In addition, there are other types of open space found in Jeddah city, such as the plazas inside the quarters and surrounding the mosques and some public buildings.

Jeddah municipality classified the open space to³⁹:

- Neighborhood plaza (quarters open space)
- Pocket park (left over area)
- Hardscape plaza (municipal plaza)
- Linear park
- Roundabout (square)

³⁹ - Streetscape & Urban Design Manual. (Issued by Jeddah municipality 2008)

1- Neighborhood Plaza (Quarters Open Space)

Neighborhood plaza is located at the center of a quarter, shopping centers and governmental buildings. The function of it is to gather the people for using the mosques and other facilities. The quarter open space usually does not exceed a city block area. (The block is the basic unit of the city's urban fabric). Mostly, it is covered by tile and some sort of landscaping.

This picture illustrates neighborhood plaza found in Jeddah's quarters or shopping centers.



Figure no. (4.2.35)



Figure no.(4.2.36) <http://www.panoramio.com/photo/11511388> 20 – 1 - 2009

2 - Pocket Park – (leftover area)

Left over area is a vacant area which resulting from street expansion, public areas or expropriation. These left over area is not needed for city organization and cannot function as public utilities. To increase the environmental situation and city's appearance, they are often used as green areas.

Jeddah has about 336 of these places; their area is estimated about 1.7 million square meters, which equals to 0.23% of the city's area. There are 306 planted left over area, with an area estimated about 1.65 million square meters or 0.22% of the city's area.

Table no. (4.2.6) explains the location of each left over area and the distribution of planted areas, in addition to the number and percentage of areas which are connected to the irrigation network.

No.	Municipality branch	Planted left over area		Percentage of planted left over area (%)	Empty left over area		Percentage of empty area left over area (%)
		No.	Area m ²		No.	Area m ²	
1	Uphor	21	109913	100	0	0	0
2	New Jeddah	26	123426	100	0	0	0
3	Almatar	28	146584	98	3	2719	2
4	Alazizeah	56	246331	100	0	0	0
5	Preman	6	12050	75	10	4000	25
6	Albalad	45	179311	100	0	0	0
7	Algameah	66	175189	100	0	0	0
8	Um Alsalam	19	258230	98	2	4200	2
9	Aljanoob	20	140926	100	0	0	0
10	Dhaban	19	169750	92	2	15000	8
	Total	306			17		

Table No. (4.2.6) Amount and locations of existing leftover areas in Jeddah

Source: Municipality of Jeddah Statistical Tables (2007)

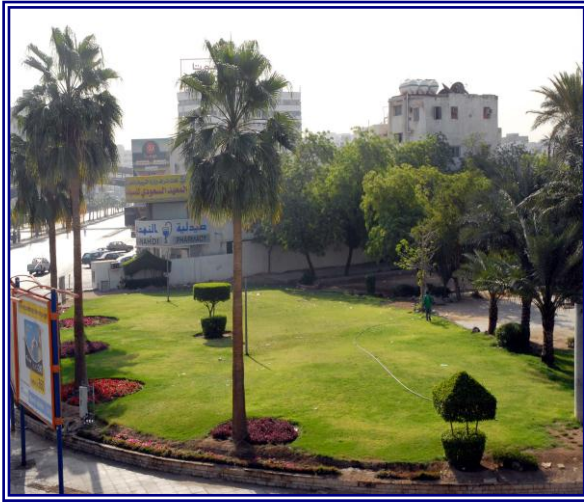


Figure no. (4.2.37) View of some leftover areas in Jeddah

Figure no. (4.2.38)

Source: Municipality of Jeddah - The General Administration of Parks Beautification and Utilities - (2008)

The above pictures illustrate leftover areas. These areas use green spaces in alternation with other land uses to prevent negative effects on the surrounding area or city planning.

3 - Hardscape Plaza - Municipal Plaza

The Hardscape plaza (municipality plaza) is an open space found in the city's quarters. It usually lies among the buildings and covered by tile or asphalt. This type of open space is found in random quarters which do not have any urban plan to organize land use in the quarter. (See the future vision of open space areas)



The picture illustrates the plaza used as a social activities center and gathering place. These areas were established as a result of a lack of specialized places for youth activities.

4 - Linear Parks:

These are long green areas that serve as regional connections; mostly they lie in the middle islands between roads or lanes of traffic.⁴⁰

They are wide enough to include shade trees, paths and many benches.

Linear parks are intended for visitors arriving on foot; they are spread through the urban area wherever feasible. They are often characterized by features or attractive areas which are not fully accessible to the public but which contribute to the enjoyment of the space.⁴¹



Figure no. (4.2.40)



Figure no. (4.2.41)

⁴⁰- Streetscape & Urban Design Manual, Jeddah, Kingdom of Saudi Arabia. 2008

⁴¹- Welch, David. Management of Urban Parks.1991.p 20

5 – Squares (Roundabouts):

The squares as open space areas provide some urban beauty, especially when seen from the passing cars.

Jeddah has about 58 of these squares, with an area estimated about 400,000 square meters, which equals to 0.053% of the city's area. There are 47 planted squares; these have an area estimated about 290,000 squares meters or 0.039% of the city's area.

The table below, no. (4.2.7), explains the location of each square and the distribution of planted areas in addition to the number and percentage of areas connected to the irrigation network.

No.	Municipality branch	Planted squares		Percentage of planted area of squares (%)	Empty squares		Percentage Of Empty Squares %
		No.	Area m ²		No.	Area m ²	
1	Uphor	8	58839	54	4	50960	46
2	New Jeddah	11	26151	96	1	1000	4
3	Almatar	2	13000	100	0	0	0
4	Alazizeah	10	122010	100	0	0	0
5	Preman	0	0	0	0	0	0
6	Albalad	1	24162	100	0	0	0
7	Aljameah	9	22192	100	0	0	0
8	Um Alsalam	0	0	0	0	0	0
9	Aljanoob	4	20700	66	1	10600	34
10	Dhaban1	2	2000	17	1	10000	83
	Total	47			7		

Table No. (4.2.7) Amount and locations of the planted squares in Jeddah

Source: Municipality of Jeddah - The General Administration of Parks Beautification and Utilities - (2008)



Figure no. (4.2.42) Almukaabat square



Figure no. (4.2.43) Altoyor square



Figure no. (4.2.44) Altareekh square



Figure no. (4.2.45) Aljameah-1 square

Source: Municipality of Jeddah (2007) & Jeddah Municipality Website.

(www.jeddah.gov.sa/news/news.php?id=297) (1/7/2008)

The above picture illustrates the style of open space planting used in Jeddah. By their design and distribution, these elements make the roads more beautiful.

Usually, a landmark is considered a beautification element when its normal function is enhanced by a pleasant appearance with no detriment to driver safety.

6- Coastal Open Space Area (Coastal Beach)

Jeddah lies on the west coast of the Red Sea. The beach extends 45 km parallel to the sea from Khleej Salman at Ubhor area in the north to Alrwees in the south.

It is considered a recreation lung for Jeddah's citizens because it was designed to be the best area for them to spend their spare time. It has areas for seating, playgrounds and other required facilities.

It is characterized by a fantastic design which makes it one of the longest and most beautiful beaches in the world. Its length exceeds 45 km, running through the city center and the commercial heart. It includes 14 artificial lakes, 123 fountains – (King Fahad Fountain is considered the second-high fountain in the world and reaches 161 meters in height). The 478 sculptures bring beauty and aesthetic excellence to the beach.



Figure no.(4.2.46)

View of Jeddah's coastal beach



Figure no. (4.2.47) View of Jeddah's coastal beach

Source: <http://www.mofa.gov.sa/media/JeddahNow12.JPG>



Figure no. (4.2.48) Jeddah's coastal beach, children's playground



Figure no. (4.2.49) View of King Fahad Fountain



Figure no. (4.2.50)



Figure no. (4.2.51) Jeddah's coastal beach, an aesthetic landmark

Source: (www.3bnat.com/vb/girl-words61860.html)

4.2.7- Green Area Operation and Maintenance

The park projects and other green areas are implemented by Jeddah municipality, and then the operation and maintenance of green areas in Jeddah city are looked after by operation and maintenance contractors.

1- The operation and maintenance contracts:

Jeddah is divided into five parts for maintenance purposes. Each part covers many municipal branches, as follows:

	Contract name	Municipal branch
1	North Jeddah	Uphor and New Jeddah
2	Middle Jeddah	Almatar, Alazizeah and Preman
3	South Jeddah	Albalad and Algameah
4	East Jeddah	Um Alsalam and Aljanoob.
5	Thowal and Dhaban	Thowal and Dhaban

Operation and Maintenance (office)

The above table shows the distribution of operation and maintenance contractors which cover all Jeddah's city areas. Each contract has the duties for operation and maintenance of all green areas which include parks, roads, squares and left over area as well as irrigation. Every contract has about 270 employees, where there are three supervising engineers, five technical assistants and about 260 laborers.

There are 2- 3 engineers have the responsibility for contract applications.

The evaluation and cost estimates of the contractors' accounting depend on the level of the contractors' performance, the quality of plants and the degree which the administration's vision has been realized.

The total cost of maintenance and operation of all contracts, including irrigation, is estimated at about 40 million Saudi riyals annually, while the total budget of Jeddah municipality in 2008 reached about 1.35 billion Saudi riyalsⁱ. That equals 0.3% of the municipal budget.

2 -The operation of parks by investment contractors.

The operation by investment depends on the renting of the parks to the private sector against the cost of operation and development.

Usually, Jeddah municipality implements these parks then invites interested companies or agencies to participate in Jeddah park support.

In this type of operation system, Jeddah municipality assigned the operation contracts for long periods which range between 15 and 20 years; during this time, the investor is building his commercial projects on part of the park in addition to looking after the park and working to preserve, develop and maintain it.

Forty-one parks are operated by this system. However, any returns on this investment are spent on municipal projects without any additional advantage to the parks sector.

3- Irrigation System

Jeddah, like Saudi city, has a great shortage of water. Its main source of water is the irregular rainfall, which range is between 50 and 100 mm per year.

Most irrigation water comes from sewage treatment water. This water is produced by 7 treatment stations.

The supply of green area irrigation depends on the collection of treatment water in tanks built in some of the parks. The water is transported to these tanks to be the supply for parks irrigation.

The needed water to irrigate the green areas of Jeddah city reaches about 65,000 m³. The system used to irrigate the green areas is a network connected to storage tanks. This network covers about 65% of total green area, while the rest is irrigated by a manual system which depends on tanker cars.

4.2.8- The Future Vision of Jeddah:

Jeddah is considered a very important city on the local, regional and international levels. It is a modern city which faces both historical challenges and current changes. It has confirmed the importance of its geographic setting and its function as a main gate to the kingdom in the west coast and to pilgrims to the cities of the Holy Mosques. On the other hand, it has a deep-rooted history in many fields such as commerce, industry, science, finance, administration, health and recreation.

It distinguishes from other Saudi cities by the integration and balance of activities. The development boom which took place in the kingdom played an important role in creating the comfortable and luxurious lifestyle enjoyed kingdom-wide and in Jeddah especially.

The future strategy study of Jeddah city for 2005-2055⁴² shows that the area of the city will increase to 3,600 square kilometers, while the population of the city should raise more eight million inhabitants. Its location as tourism city and economic and manufacturing center means that it will receive millions of tourists and business visitors annually.

The study examines in detail all aspects involved in the development of Jeddah at this time. The following will focus on the vision of Jeddah's municipality concerning parks and open space areas.⁴³

42 - Urban strategy of Jeddah city between 2005 and 2055, prepared by Albeeah, planners, architectures & Engineers, 2003.

43 - The general administration of design & planning of open spaces.

Type of Park	Municipality branch										Total
	Ujhor	New Jeddah	Almatar	Alazizeah	Pryman	Albalad	Aljamneah	Um Alsalam	Aljanoob	Dahaban	
Family	2	1	3	1	0	0	1	2	1	1	12
Child	10	6	10	3	2	0	2	2	2	2	39
Small child	13	9	11	2	0	0	4	1	3	2	45
Youth	2	1	1	0	0	0	1	2	1	1	9
Women	1	2	1	0	1	0	2	1	1	0	9
Library	1	1	0	1	0	0	1	1	0	0	5
Museum	1	0	1	0	0	1	1	1	0	0	5
School	3	1	1	1	3	0	0	1	1	0	11
Occasion	2	1	3	2	0	0	0	2	1	1	12
Alumdah	3	2	4	1	1	0	1	1	1	2	16
Quarter centre	4	1	2	1	0	1	0	0	2	1	12
Sport	1	0	3	1	0	0	0	1	2	0	8
Mosque	9	2	5	5	5	0	3	2	2	1	34
Environmental	0	4	1	1	1	0	1	2	2	0	12
Talent	2	0	1	1	1	0	1	1	1	2	10
Souq Aljumah	3	3	1	0	2	0	3	0	0	0	12
Al-eid	2	1	3	0	0	0	0	1	1	1	9
Total	72	45	72	32	19	2	26	29	24	15	285

Table no. (4.2.8)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

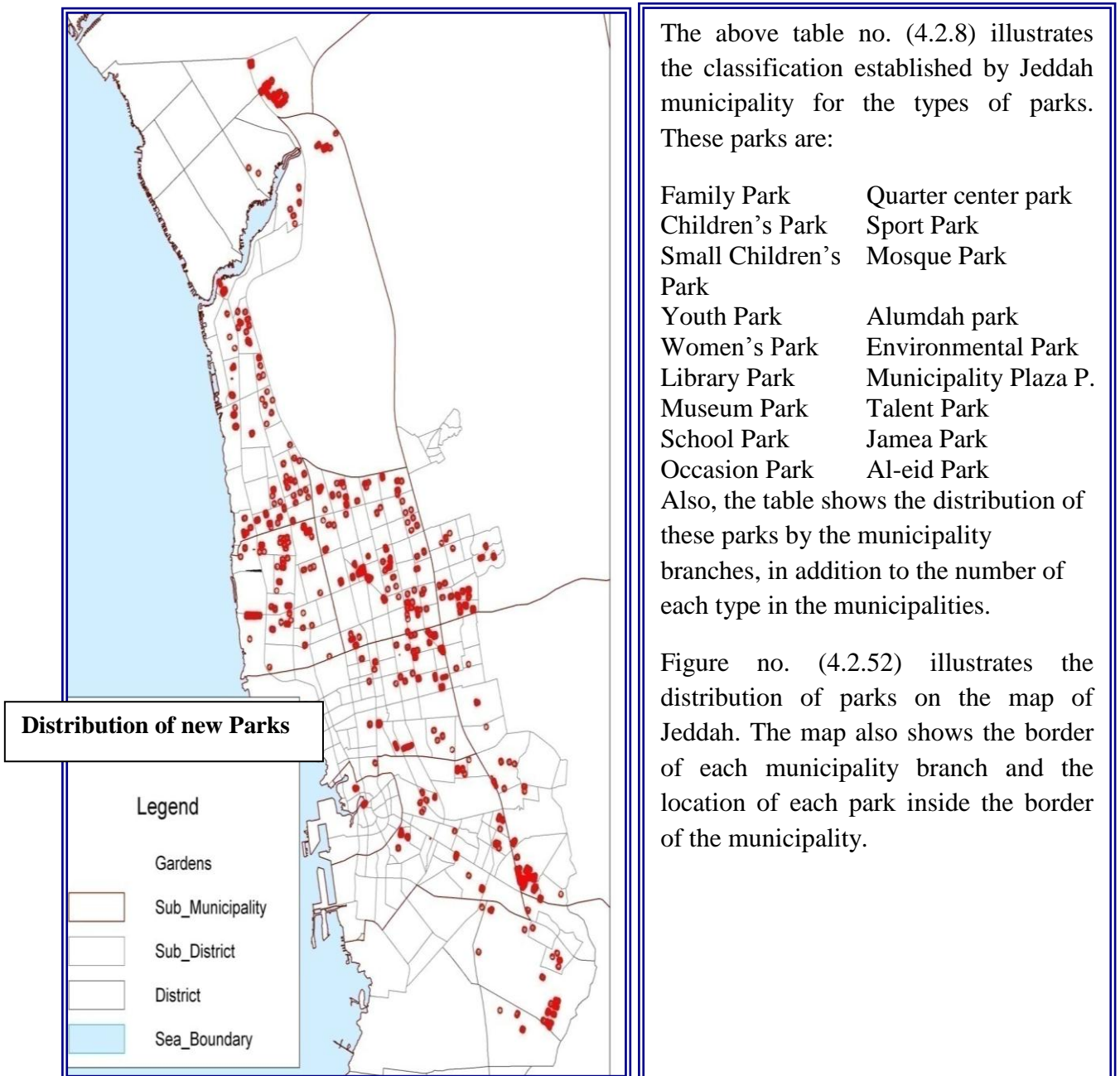


Figure no. (4.2.52)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The administration creates planning criteria to organize the chosen location on the level of municipality branch and the quarter.

Planning criteria for the selection of sites for parks which are distributed at the municipality branches and quarters:

According to the head municipality rules which organizes the distribution of the types of parks in varied branches and quarters, the following criteria should be known and practiced to achieve the vision of the head municipality:

- should be like the same proposed area of each park.
- Satisfying the administrative and sociological requirements.
- Nearness to the main streets (for easy access).
- Presence in the quarters with high population density.
- Suitable for the quality of the park with the surroundings of quarter community group.
- Satisfying a balance in the coverage of all municipality branches in Jeddah.

4.2.8.1-The future parks

The following pages will discuss the type of parks according to the classification of the administration of design & planning of open spaces as well as their efforts to increase the green areas in the city.

1- Al-eid Parks

In Islam there are two Eids (feasts) where the people usually pray outdoors upon the instructions of Islam so there are always open spaces reserved for these purposes only. The municipality has created and made these places for prayers at the special times of year and public park of the rest of the year .in contrast the design concept takes the Islamic style which concentrated on the carves and dooms and depends on planting suitable trees in lines that help to keep the regular of prayer lines. Furthermore, the plants should give shade but have thin trunks. On the other hand, the grounds are planted with grass and the paths are always around the edges of the park. So the suggested park area is about 20,000 square meters.

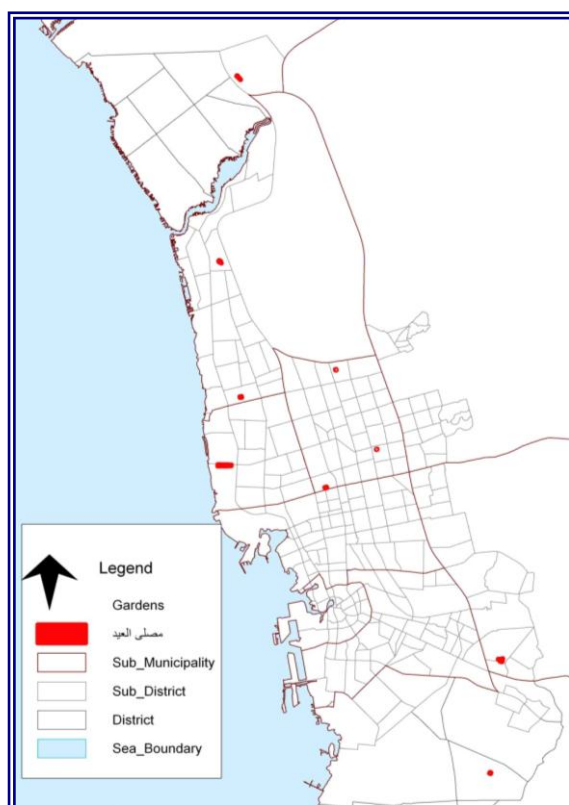


Figure no. (4.2. 53)

Mu. Branch	Number of sites
Ubhor	2
New Jeddah	1
Almatar	3
Alazizeah	0
Pryman	0
Albalad	0
Aljameah	0
Um Alsalam	1
Aljanoob	1
Dahaban	1
Total	9

Table no. (4.2.9)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces(2008)

The above figure no. (4.2.53) and table no. (4.2.8) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

The following site plan and the perspectives show the suggestion design of the park and view some areas of the park.



Site plan



Perspective View



Perspective View

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces(2008)

2- Talents Park

These parks are for talented people and the people who have a desire to improve their talents .additionally; this park concept depends on specializing this space to develop the talents of community members. It has an amphitheatre, outdoor swimming pool and areas for music, drawing and sculpting. It will help people to improve their hobbies and be close to the residential area. It is about 5,000 square meters

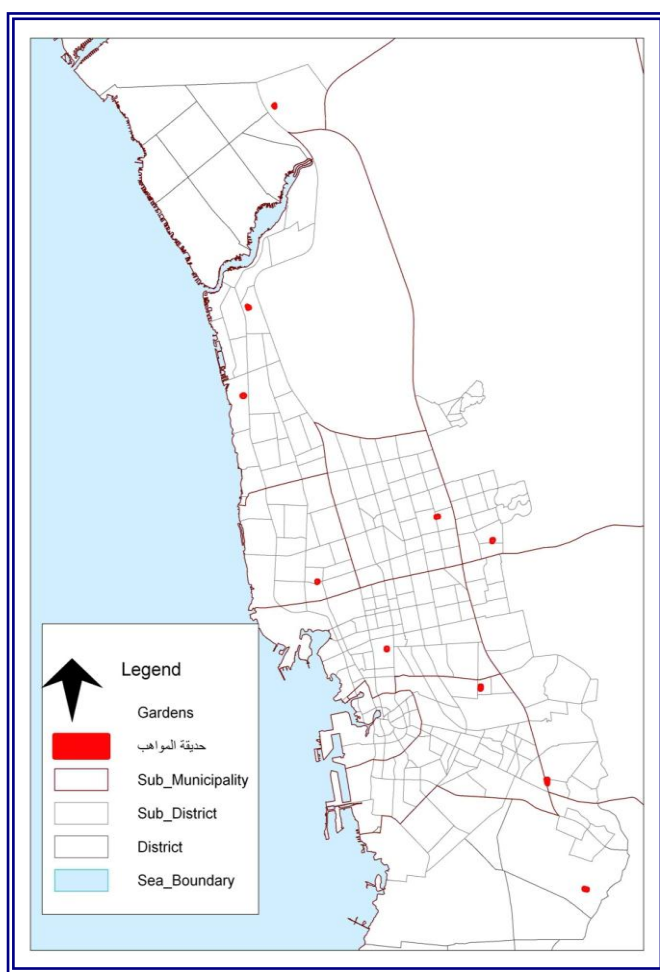


Figure no. (4.2.54)

Mu. Branch	Number of sites
Ubhor	2
New Jeddah	0
Almatar	1
Alazizeah	1
Pryman	1
Albalad	0
Aljameah	1
Um Alsalam	1
Aljanoob	1
Dahaban	1
Total	9

Table no. (4.2.10)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The above figure no. (4.2.54) and table no. (4.2.10) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

The following site plan and the perspectives show the suggestion design of the park and views to some areas of the park.



Site Plan of the park



Perspective of amphitheater



Perspective of open swimming pool



Other Perspective

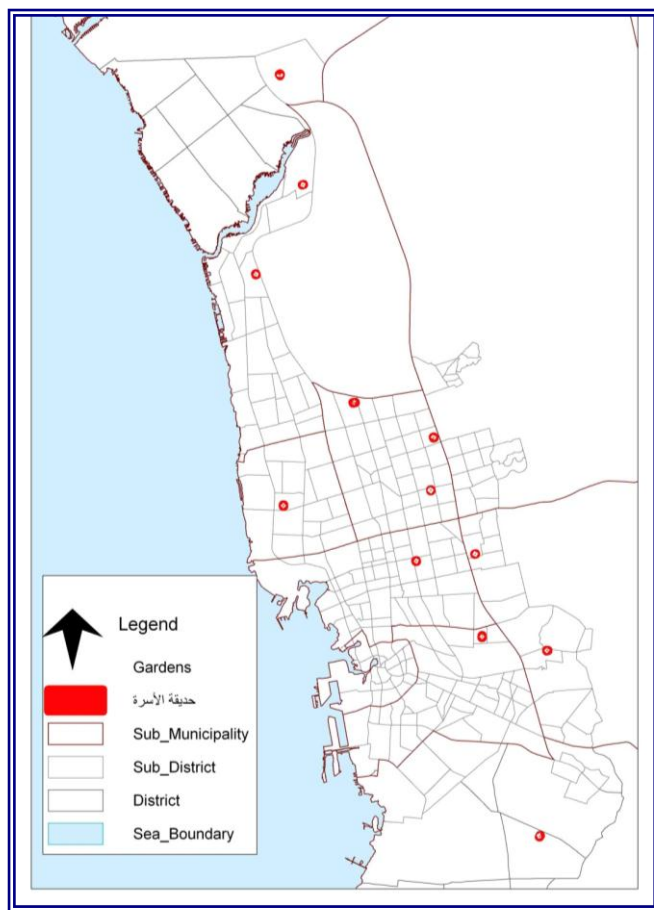


Drawing and sculpting area

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

3- Family Park

This Park is for all family members .Also it is designed to satisfy all family needs. It has several playgrounds and seating areas, which create a suitable environment for all family members. it is about 5,000 square meters .



Mu. Branch	Numbers of sites
Ubhor	2
New Jeddah	1
Almatar	3
Alazizeah	1
Pryman	0
Albalad	0
Aljameah	1
Um Alsalam	2
Aljanoob	1
Dahaban	1
Total	12

Figure no. (4.2.55)

Table no. (4.2.11)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces(2008)

The above figure no. (4.2.55) and table no. (4.2.11) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

The below site plan and the perspectives show the suggestion design of the park and views to some areas of the park.



Site plan of park



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

4- Children's park

This Park is for children needs. It is designed as a playground to create a suitable place for children to enjoy their spare time. The park equipment is appropriate for children in same time it is safe and suitable for kids and young children. It is about 2,000 square meters

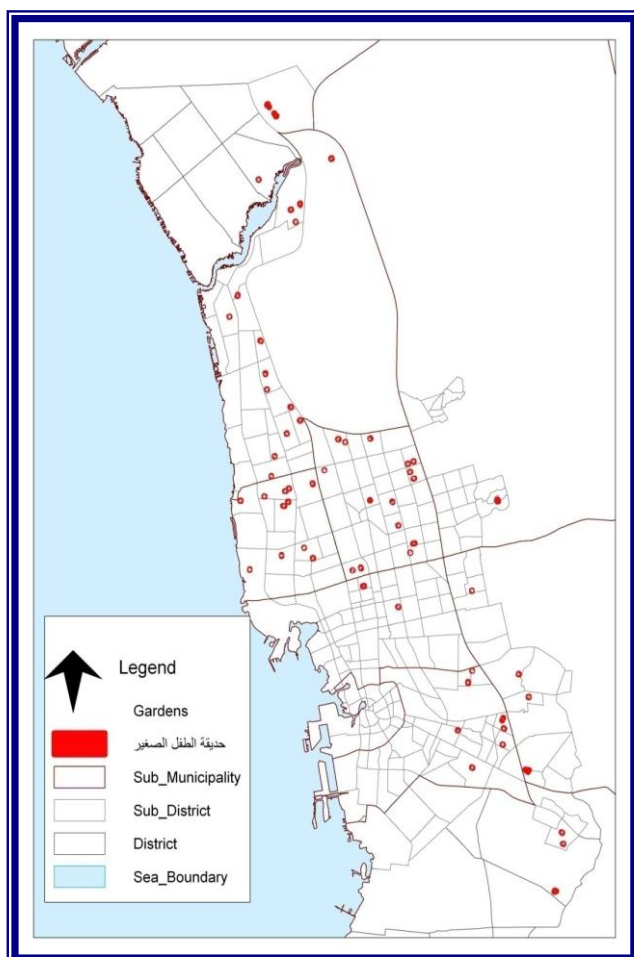


Figure no. (4.2.56)

Mu. Branch	Numbers of sites
Uhor	13
New Jeddah	9
Almatar	11
Alazizeah	2
Pryman	0
Albalad	0
Aljameah	4
Um Alsalam	1
Aljanoob	3
Dahaban	2
Total	45

Table no. (4.2.12)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The above figure no. (4.2.56) and table no. (4.2.12) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

The below perspectives show the site plan and some views of the park elements.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

5-Small Children's Park

The above figure no. (4.2.57) and table no. (4.2.13) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park is for small children. it is designed to create a playground specialized for small children, ensuring that they are not injured during their play. it is about 3,500 square meters.

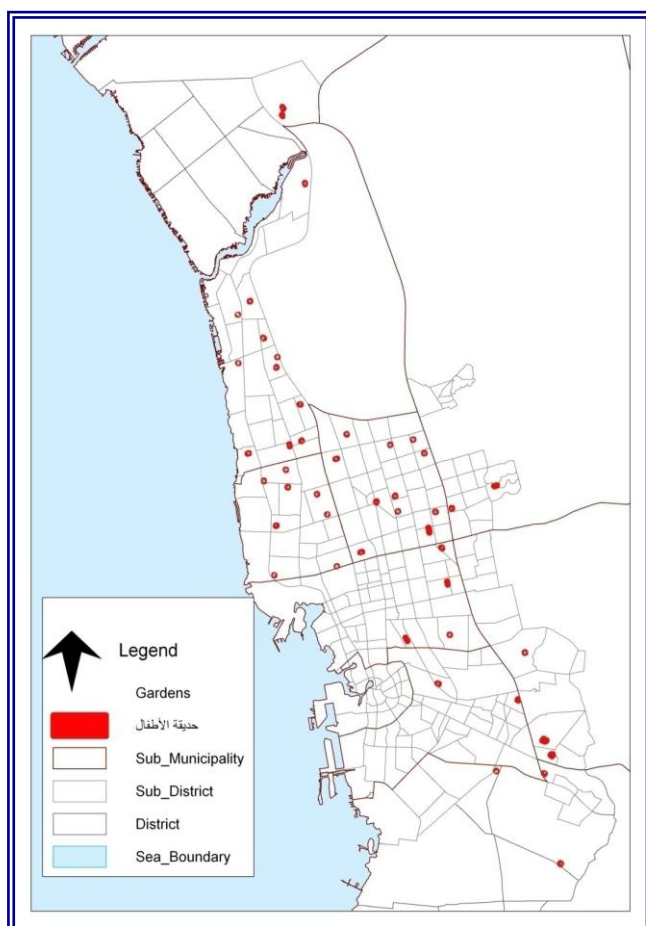


Figure no. (4.2.57)

Mu. Branch	Numbers of sites
Ubhor	10
New Jeddah	6
Almatar	10
Alazizeah	3
Pryman	2
Albalad	0
Aljameah	2
Um Alsalam	2
Aljanoob	2
Dahaban	2
Total	39

Table no. (3.2.13)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and views to some areas of the park.

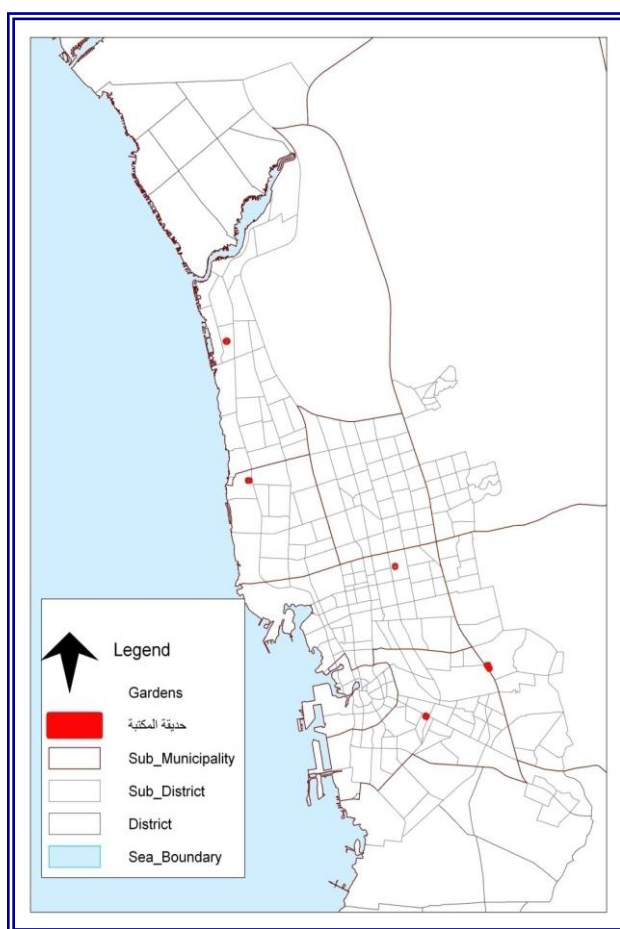


Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

6- Library Park

The below figure no. (4.2.58) and table no. (4.2.14) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park is for library visitors. it is considered an integrated element to the library style. Its design encourages visitors to read outdoors when the weather is fine. It is about 5000square meters.



Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	1
Almatar	0
Alazizeah	1
Pryman	0
Albalad	0
Aljameah	1
Um Alsalam	1
Aljanoob	0
Dahaban	0
Total	5

Figure no. (3.2.58)

Table no. (4.2.14)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and views to some areas of the park.



Site plan



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

7- Occasion Park

The below figure no. (4.2.59) and table no. (4.2.15) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

It is for local residents. It is adjacent to the occasion building, which is specialized to serve local residents who are arranging to their celebrations. The design of the park should be integrated with the building. It is about 8,000 square meters.

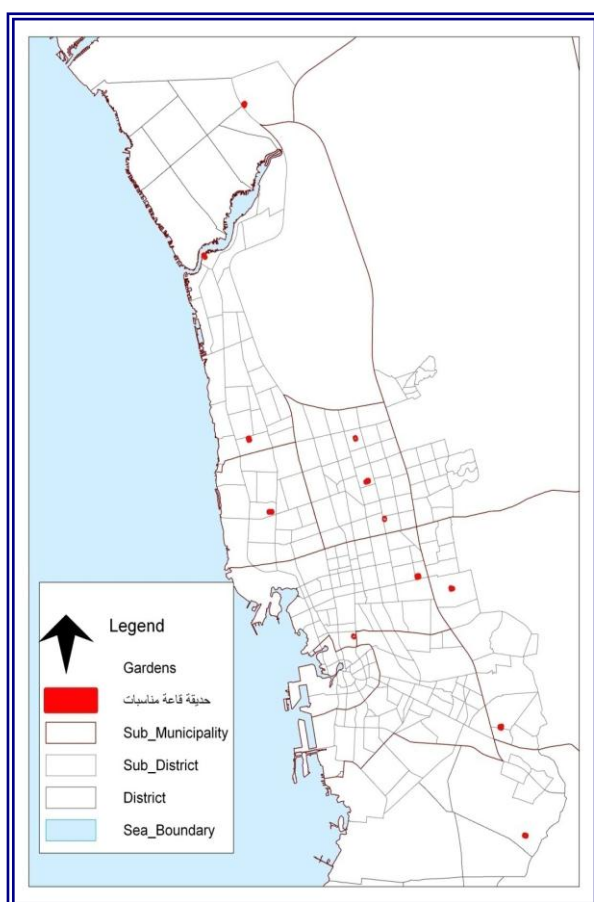


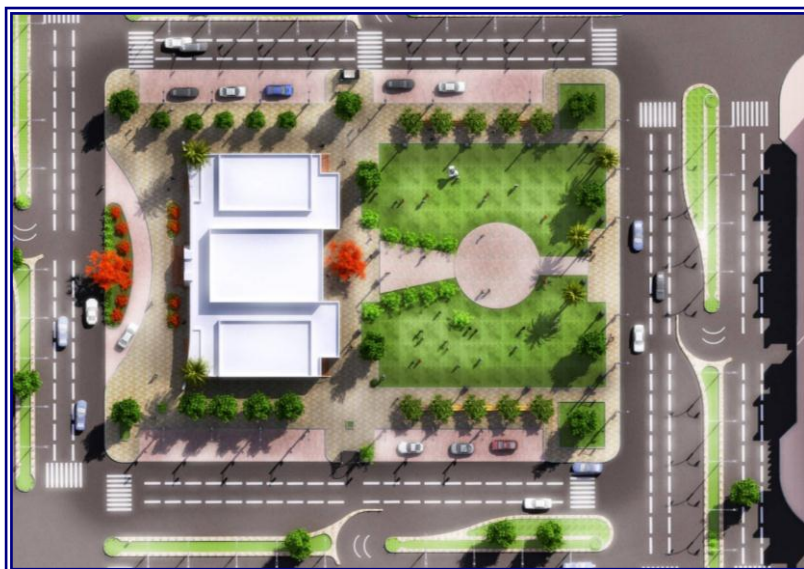
Figure no. (4.2.59)

Mu. Branch	Numbers of sites
Ubhor	2
New Jeddah	1
Almatar	3
Alazizeah	2
Pryman	0
Albalad	0
Aljameah	0
Um Alsalam	2
Aljanoob	1
Dahaban	1
Total	12

Table no. (4.2.15)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and views to some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

8-Museum Park

The below figure no. (4.2.60) and table no. (4.2.16) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park is for the visitors and others. It is adjacent to the museum building, which is specialized to serve museum visitors. The design of the park reflects and integrates with the building's function. Also, it can be considered an outdoor showroom. It is about 5,000 square meters.

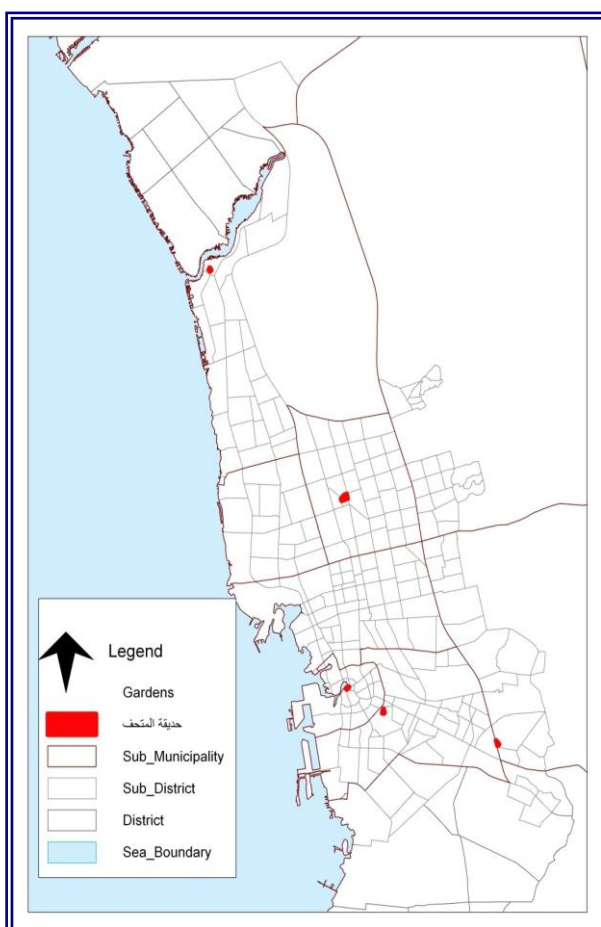


Figure no. (4.2.60)

Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	0
Almatar	1
Alazizeah	0
Pryman	0
Albalad	1
Aljameah	1
Um Alsalam	1
Aljanoob	0
Dahaban	0
Total	5

Table no. (4.2.16)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and views to some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

9- Alumdah Center Park

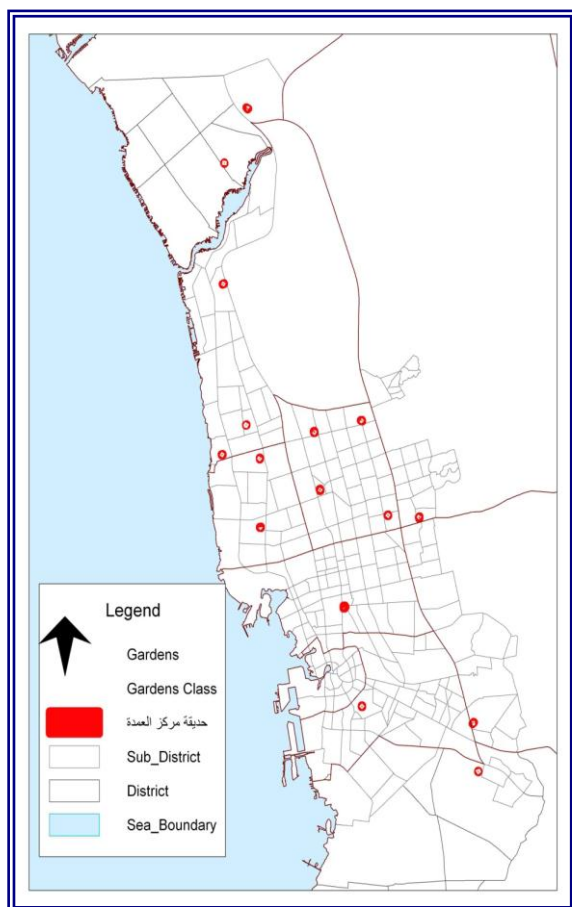


Figure no. (4.2.61)

Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	2
Almatar	4
Alazizeah	1
Pryman	2
Albalad	0
Aljameah	1
Um Alsalam	1
Aljanoob	1
Dahaban	3
Total	16

Table no. (4.2.17)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The below figure no. (4.2.61) and table no. (4.2.17) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

The Alumdah is the quarter leader; he is responsible for the relations between the residents and government administrations and is considered the head of the quarter that have to work to solve social problems and he should have an office for performing his duties. This park is adjacent to the Alumdah building, which is specialized for his purposes as gathering and waiting area for Alumdah visitors. It is about 3,500 square meters.

The following site plan and the perspectives show the suggestion design of the park and views to some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

10- Souq Aljumah Park

The above figure no. (4.2.62) and table no. (4.2.18) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

In Islamic religion Aljumah – (Friday) - afternoon prayer is considered the gathering prayer time, so it takes place in big mosques to gather whole amounts. There is a traditional practice that wandering vendors may come to display their goods for a temporary period after the prayer time as soon as the prayer finished.

This Park is adjacent to Algumah mosque and provides beauty to both mosque-goers and others in the surrounding area. It has kiosks distributed around the park to satisfy their required functions in a convenient environment. It is about 10,000 square meters.

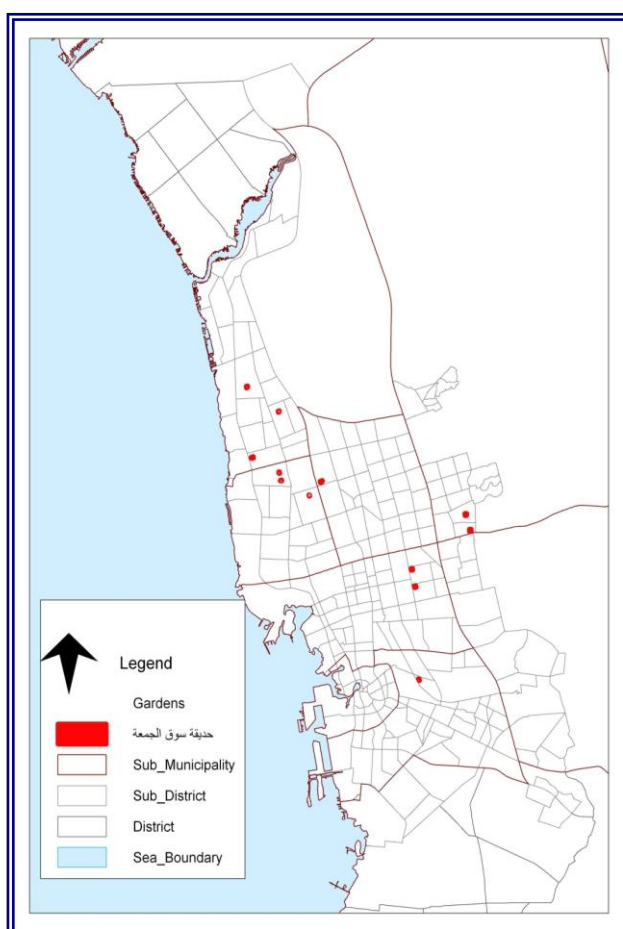


Figure no. (4.2.62)

Mu. Branch	Numbers of sites
Ubhor	3
New Jeddah	3
Almatar	1
Alazizeah	0
Pryman	2
Albalad	0
Aljameah	3
Um Alsalam	0
Aljanoob	0
Dahaban	0
Total	12

Table no. (4.2.18)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and views to some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

11- School Park

The below figure no. (4.2.63) and table no. (4.2.19) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

These parks are for pupils and others. They are adjacent to school buildings and are specialized for use as playgrounds. They feature many courts in addition to the special design which encourages the children to develop their talents. They typically measure about 5,000 square meters.

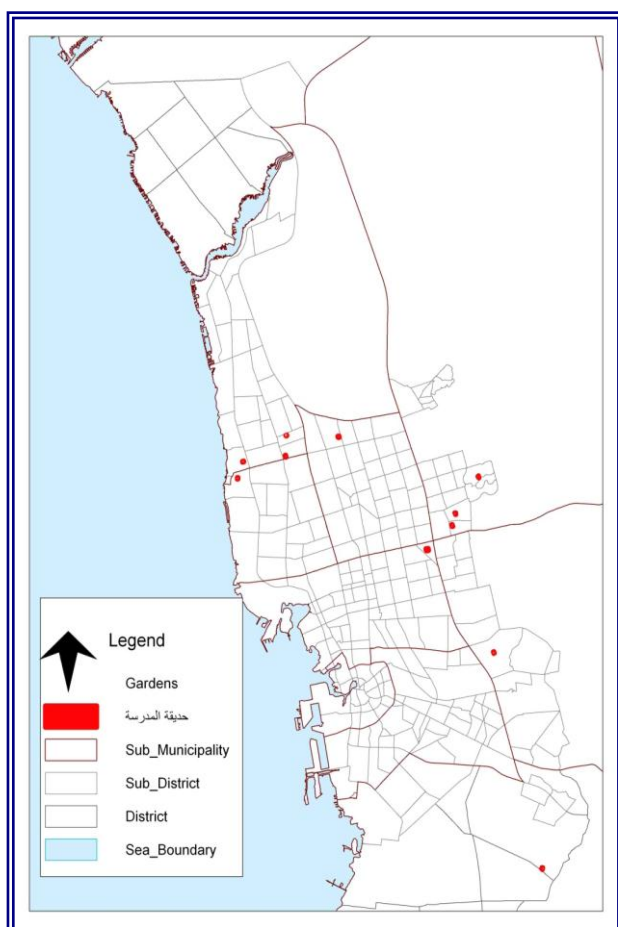


Figure no. (4.2.63)

Mu. Branch	Numbers of sites
Ubhor	3
New Jeddah	3
Almatar	1
Alazizeah	0
Pryman	2
Albalad	0
Aljameah	3
Um Alsalam	0
Aljanoob	0
Dahaban	0
Total	12

Table no. (4.2.19)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the suggestion design of the park and views to some areas of the park.

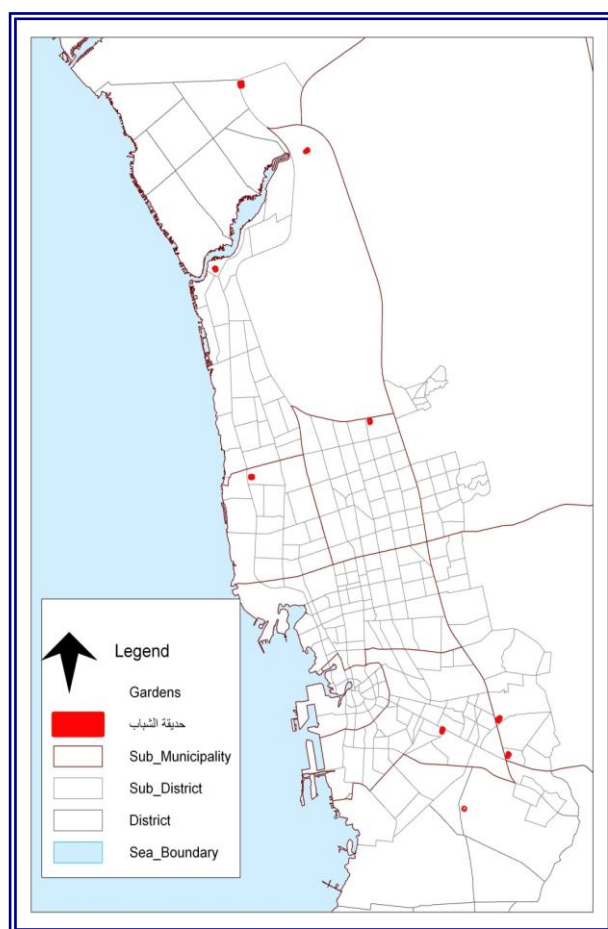


Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

12- Youth Park

The above figure no. (4.2.64) and table no. (4.2.20) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park lies in the center of the quarter and is specialized for as gathering area for young people to practice their activities such as football and basketball. An indoor hall is available for multipurpose activities. It is about 5,000 square meters.



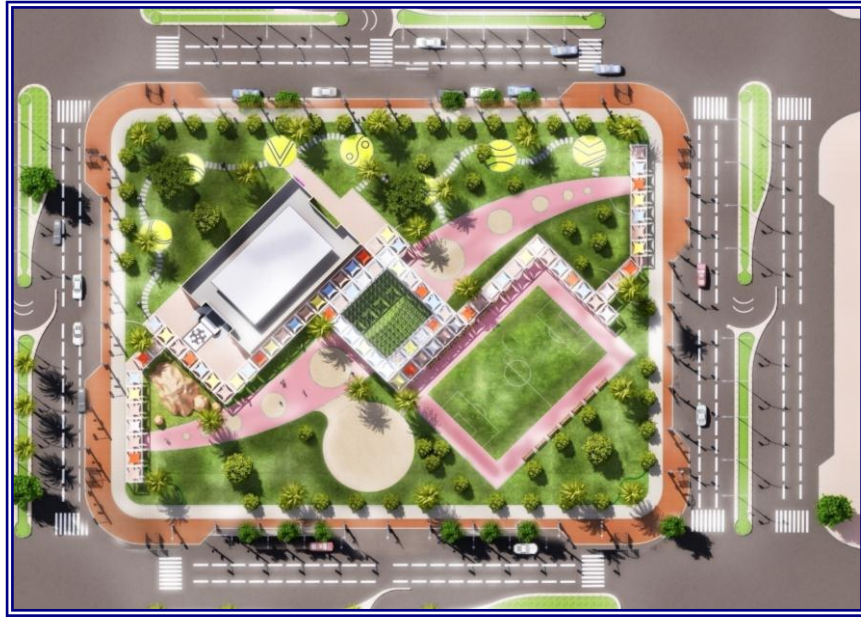
Mu. Branch	Numbers of sites
Ubhor	2
New Jeddah	1
Almatar	1
Alazizeah	0
Pryman	0
Albalad	0
Aljameah	1
Um Alsalam	2
Aljanoob	1
Dahaban	1
Total	9

Figure no. (3.2.64)

Table no. (4.2.20)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and view some areas of the park.

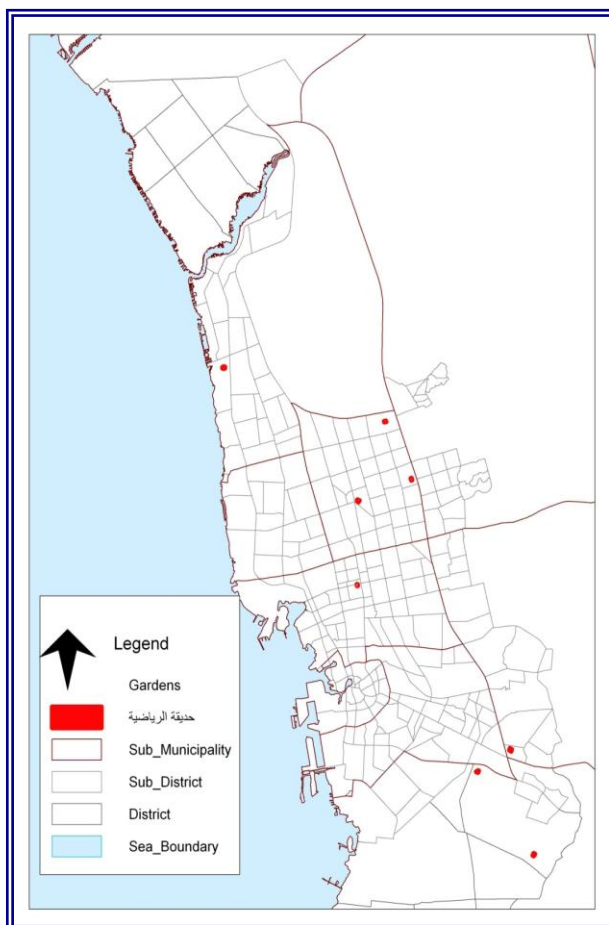


Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces. (2008)

13- Sport Courts Park

The below figure no. (4.2.65) and table no. (4.2.21) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

These parks are for people who wish to practice sports which are located in quarters which have a high population density. They are specialized for sport practice areas. It is about 5,000 square meters.



Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	0
Almatar	3
Alazizeah	1
Pryman	0
Albalad	0
Aljameah	0
Um Alsalam	1
Aljanoob	2
Dahaban	0
Total	8

Figure no. (4.2.65)

Table no. (4.2.21)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and view some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

14- Women's Park

The below figure no. (3.2.66) and table no. (4.2.22) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park is designed especially for women to carry out their activities in a closed area specialized for them to satisfy their privacy. In Islam, there is a separation between the genders. It is about 5,000 square meters.

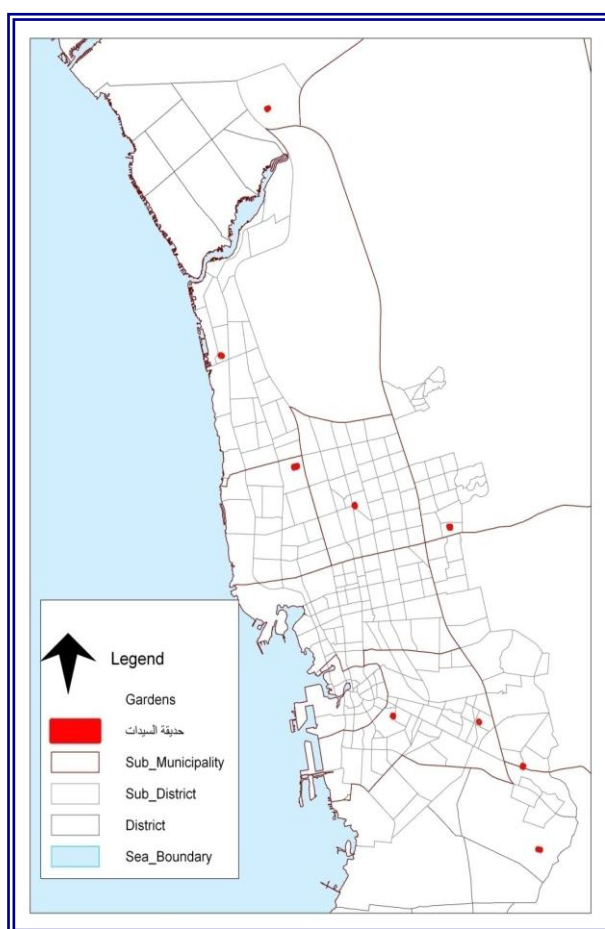


Figure no. (4.2.66)

Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	0
Almatar	3
Alazizeah	1
Pryman	0
Albalad	0
Aljameah	0
Um Alsalam	1
Aljanoob	2
Dahaban	0
Total	8

Table no. (4.2.22)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and view some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

15- Mosque Park

The above figure no. (4.2.67) and table no. (4.2.23) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

These parks are generally adjacent to mosque buildings and are specialized to serve the surrounding community. In Islam there are five prayer times per day, so the development of the area surrounding the mosque encourages the people to use these facilities and keep up Islamic duties. They measure about 2,500 square meters.

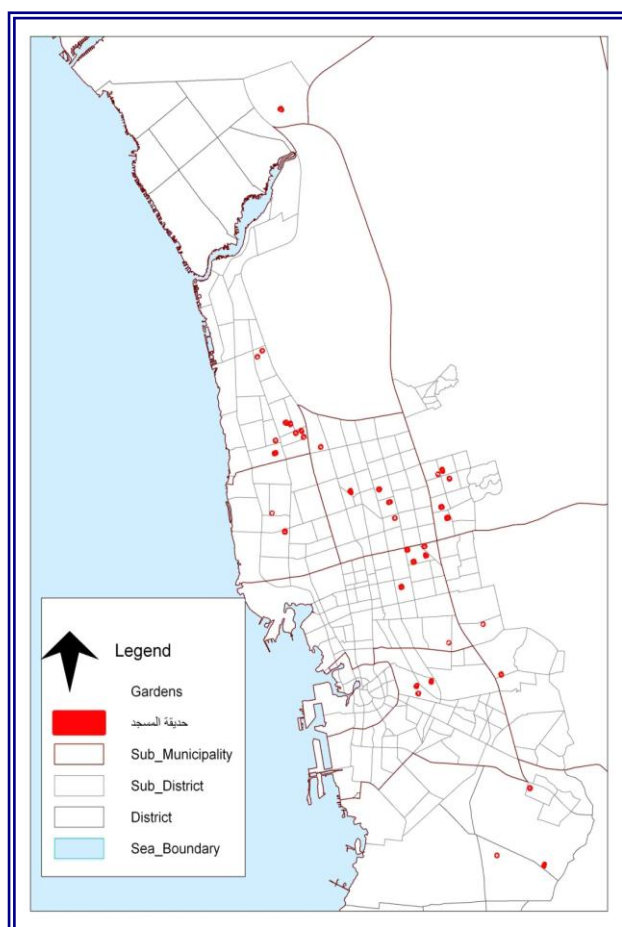


Figure no. (4.2.67)

Mu. Branch	Numbers of sites
Ubhor	1
New Jeddah	0
Almatar	3
Alazizeah	1
Pryman	0
Albalad	0
Aljameah	0
Um Alsalam	1
Aljanoob	2
Dahaban	0
Total	8

Table no. (4.2.23)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

The following site plan and the perspectives show the design of the park and view some areas of the park.



Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

16- Environmental Park

The above figure no. (4.2.68) and table no. (4.2.24) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

Jeddah suffers from a high level of interior water which creates many unhealthy lakes that cause many diseases such as dengue fever. Therefore, the municipality suggested this park to be a way to participate in environmental protection by growing kinds of trees to help controlling against these diseases. it is 3,000 square meters.

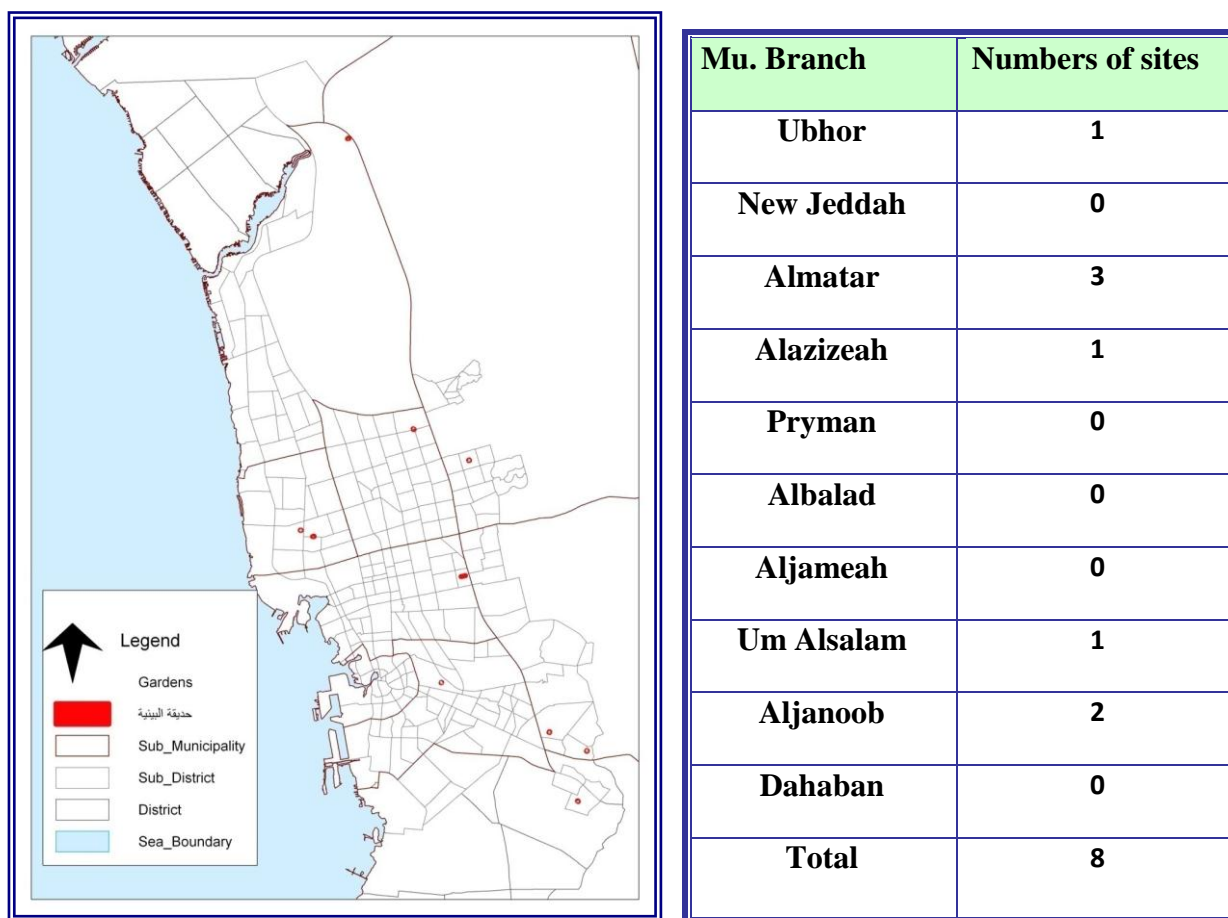


Figure no. (4.2.68)

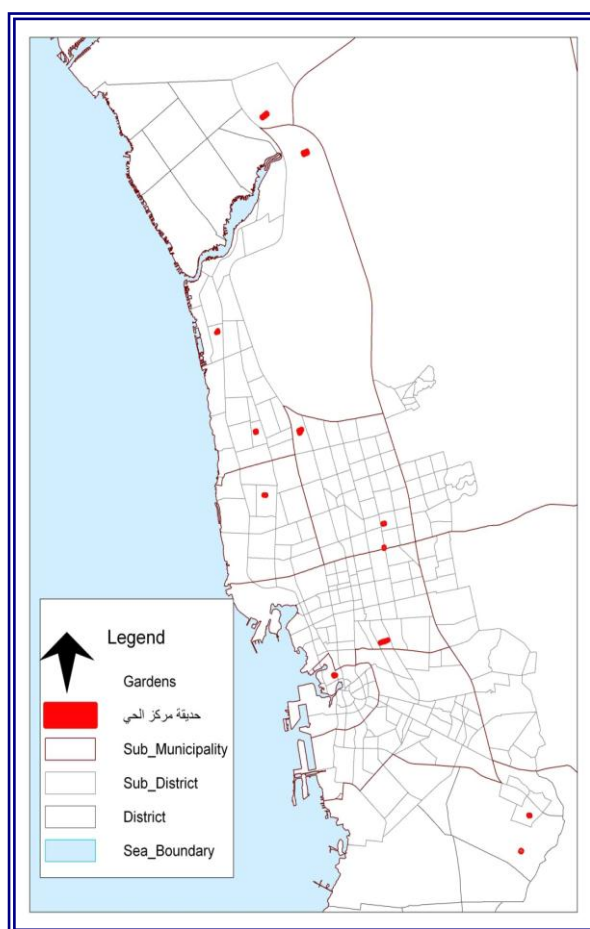
Table no. (4.2.24)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

17- Quarter Center Park

The above figure no. (4.2.69) and table no. (4.2.25) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This park is adjacent to the quarter center building which develops the skills and abilities of the citizens and providing knowledge of the current actions and professions to integrate with the whole society. it is about 10,000 square meters.



Mu. Branch	Numbers of sites
Ubhor	4
New Jeddah	1
Almatar	2
Alazizeah	1
Pryman	0
Albalad	1
Aljameah	0
Um Alsalam	0
Aljanoob	2
Dahaban	1
Total	12

Figure no. (4.2.69)

Table no. (4.2.25)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

4.2.8.2- Another Open Space Area:

According to the review of the current situation of open space areas found in Jeddah, planners are using the streetscape and urban design manual as a guide to show their vision for providing practicable solutions to the existing problems.

The following will show some aspects of this vision:-

1- The linear parks:

The planned improvements to these parks show great overlapping between people and traffic. Some of the suggestions for creating an integrated environment are including the following:

- Crosswalks provided to offer safe crossing for pedestrians.
- Formally planted rows of trees provide enclosure and buffer pedestrians from traffic.
- Benches provided for safe seating.
- Organically planted trees should provide shade.



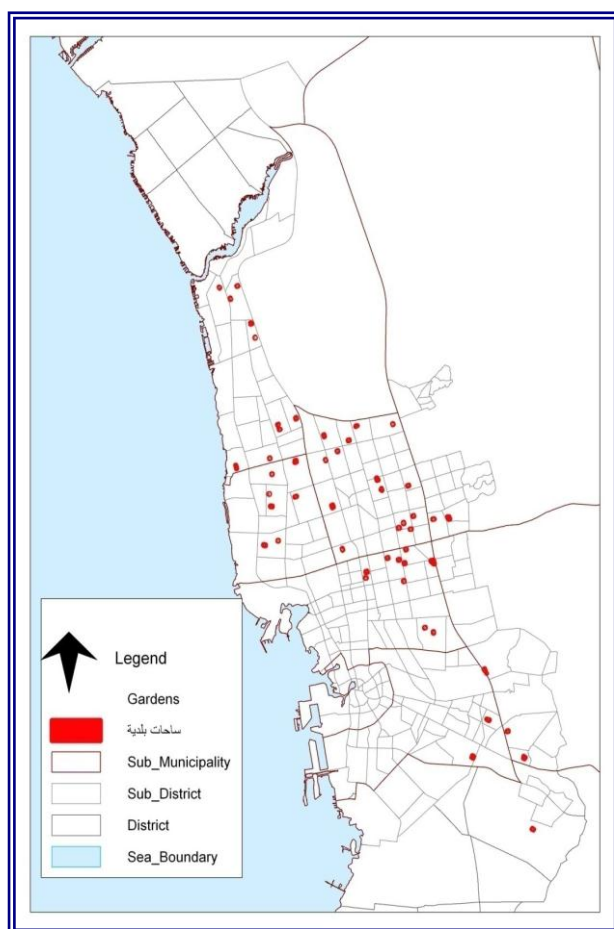
Figure no. (4.2.70)

Source: Streetscape & Urban Design Manual. (Issued by Jeddah municipality 2008)

2- Municipality Plaza

The above figure no. (4.2.71) and table no. (4.2.26) illustrate the distribution of the parks throughout Jeddah. The number of these parks in each quarter is also shown.

This plaza was established to be a gathering area for the quarter's residents. It is specialized to serve the people when they enjoy free time. It has places for sports such as football, basketball and volleyball. Furthermore, there are many walking paths. it is not less than 5000 square meters.



Mu. Branch	Numbers of sites
Ubhor	10
New Jeddah	7
Almatar	15
Alazizeah	10
Pryman	2
Albalad	0
Aljameah	2
Um Alsalam	3
Aljanoob	1
Dahaban	0
Total	50

Figure no. (4.2.71)

Table no. (4.2.26)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)

3- Coastal Beach

Jeddah's beach is the most significant place of the city. It is the most favorite breathing place for families. In addition, its situation as a landmark for tourists and other visitors is significant.

Today as for coastal beach situation, it has much upset and not be more convenient as before, so that it has a lot criticism, which is up to the urban and environmental situation; it has not expanded to follow the increasing of the population and is often more overcrowded than before. Also it has lacking in suitable parks and green areas. This leads families to use the middle island parks of streets and pavement sides as alternatives to green areas and support services.

On the other hand, the existing situation was constructed twenty years ago, so the quick increase in the city's area and population have compelled Jeddah municipality to redesign the infrastructure of the beach to provide the necessary requirements to face the increase which has occurred and try to solve the environmental problems.

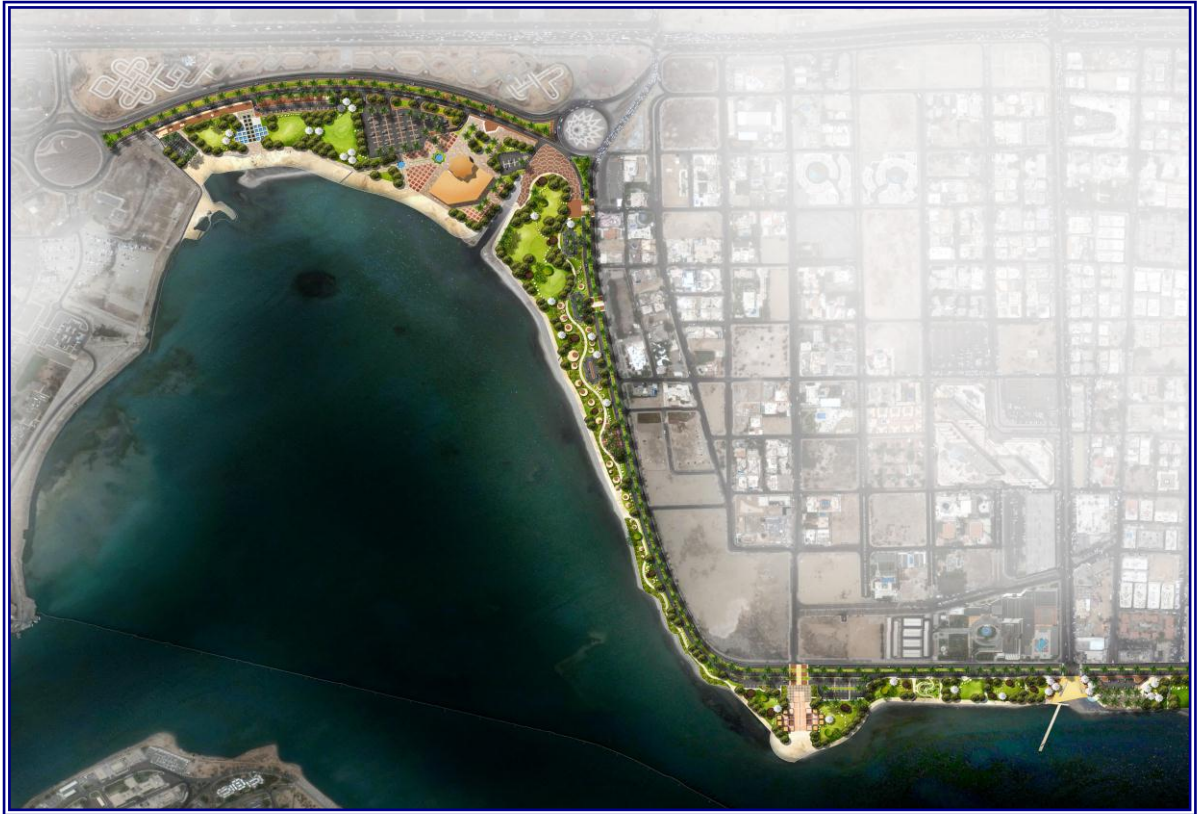


Figure no.(4.2.72)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)



Figure no. (4.2.73)

Source: Municipality of Jeddah, Administration of Design and Planning of Open Spaces (2008)



Figure no. ((4.2.74)

The above and side figures illustrate the future concept of Jeddah municipality that will improve the situation of the beach and create a new environment which brings beauty and pleasure to the users.

The new design divides the main part of the beach, located at the city center, into many different zones. Each area has a specific function, for example:

- Scaffolding beach: this area looks like a hanging water platform; it includes many services such as restaurants, boats, cafés, water games, a sport yard and children's recreation plaza.
- Sand beach: this area has a sandy beach in addition to shops, submarines, marine buses and kiosks for snacks and drinks.
- Floating area: this area has water entertainment, a celebration plaza, car racing by remote control, cable car and painting wall. Another area, which is devoted to youth, includes facilities such as fishing scaffolding, a café, boats and kiosks for snacks and drinks.



figure no. (4.2.75)

4.2.8.3- Another effort to increase green areas:

Jeddah lies on the Red Sea coast and has an increasing level of water. The increasing water level caused finding many sewages and lakes, such as Almesk Lake, which affects negatively upon the surrounding environment. Therefore, Jeddah municipality is working to destroy the sewage lake and transform it into a recreation park for Jeddah's citizens on the east side of the city.

The specialized area is about 52 million square meters and has many projects which aim at:

- constructing a permanent green area on the east side of the city.
- reducing the water level by using Almesk Lake's water for the irrigation supply.
- creating another suitable place away from the sea coast for people to spend their free time.
- establishing an environmental balance.

1- Eastern Forest:

The suggested area for the forest is about 7 million square meters. Its forming will be of tree groups used to create geometrical shapes in the park which will be irrigated by treatment water which comes from the sewage lake after it has been filtered before.

It is designed for simple recreation activities, such as:

- Camping.
- Walking and swimming.
- Sitting and relaxing.
- Driving through the forest.

2- National Park:

This park's proposed area is about 20 million square meters. Its length is estimated about 11 kilometers. It will be a new lung for Jeddah's citizens, by increasing the green area and provide pleasure. It will have:

- Hotels.
- Play Plaza.
- Restaurants.
- Open space areas for special occasions and other celebrations.

3- Jeddah Safari Park

The Safari Park is an open park where the total area is about 25 million square meters. It is designed to have contrasting natural environments and various types of familiar animals with the local environment. Furthermore, it offers many forms of recreation and a chain of lakes and beautiful water channels used as water tanks to support the irrigation supply.

4.2.8.4 - The Irrigation⁴⁴

As mentioned, Jeddah depends on treated sewage water for its green area irrigation. But the current irrigation network covers only 70% of the green area. The increasing in the city's area and the expected future increases to green areas has obliged planners to study future needs and suggest their vision for saving water:

- Establish four central tanks for citywide treatment water distribution.
- Construct 289 new water tanks for the treatment water according to the distribution of Jeddah's parks for providing water to parks and other green areas in the city.
- Establish an irrigation network connected to treatment stations and central tanks.
- Complete the rest of the city's coverage by irrigation network.

The above procedures will require needs about two years for construction. The estimated cost of these works will reach about four hundred million riyals.

The vision of Jeddah municipality is to improve the green areas in the city and increase them to more 58 square kilometers or about 8% of the total city area. About 1950 million Saudi riyals have been allocated to implement this vision over two years.

This vision is an ambitious plan, but after implementation, a generous budget will be required to provide occasional laborers to face the requirements of operation and maintenance.

⁴⁴ - Jeddah municipality, The General Administration of Parks & Beautification and Utilities 2008

4.2.9- Example of park distribution throughout Jeddah:

The last study of the current situation focused on the green area types and their distribution throughout Jeddah. Also, it explains the administrative system which is used.

Jeddah's green area distribution is divided into ten branches of municipalities, and each municipality is responsible for supervising and managing many quarters of the city. However, the municipalities' branches do not have any responsibility for parks affairs, but the parks distribution comes under each municipality's scope.

The criteria which I used for choosing these quarters is up to the density ,urban design ,functions of the quarter, choosing varied positions of the city. in addition to park situation in this region.

The following will describe some chosen municipalities:

Example – 1- Albalad municipal branch:

Albalad municipal scope serves the heart of Jeddah and has an area of 25 km². It includes the quarters Alkandarah, East & West Albughdadeah, Alhandawiah, Alsabeel, Alsahaifah, Alammariah and Albalad.

This quarter is considered the oldest quarter in the city. It is the commercial center which has the old shopping centers, in addition to the historical region that blends yesterday's and today's building. Most of the urban network is random, so there is not enough area for parks. Most of the residents of this quarter are from the middle or laborer classes.

According to the current situation and the master plan, this region has only 6 parks, which approximately the total area is 50,740 m², while it has a population of about 350 thousand inhabitants.

Therefore, the average green space for each person is about 0.15 m².

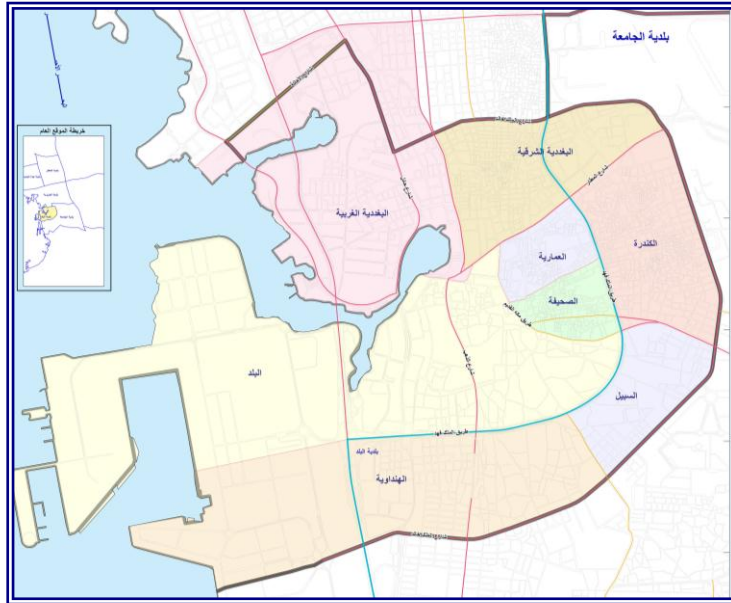


Figure no. (4.2.76) Source: Jeddah municipality website

The figure number (4.2.76) illustrates the scope of Albalad municipal branch and its quarters. The figure number (4.2.77) shows the actual situation of some quarters that lie in the municipal scope. On the other hand, it shows the urban plan of the region in addition to the actual green areas.

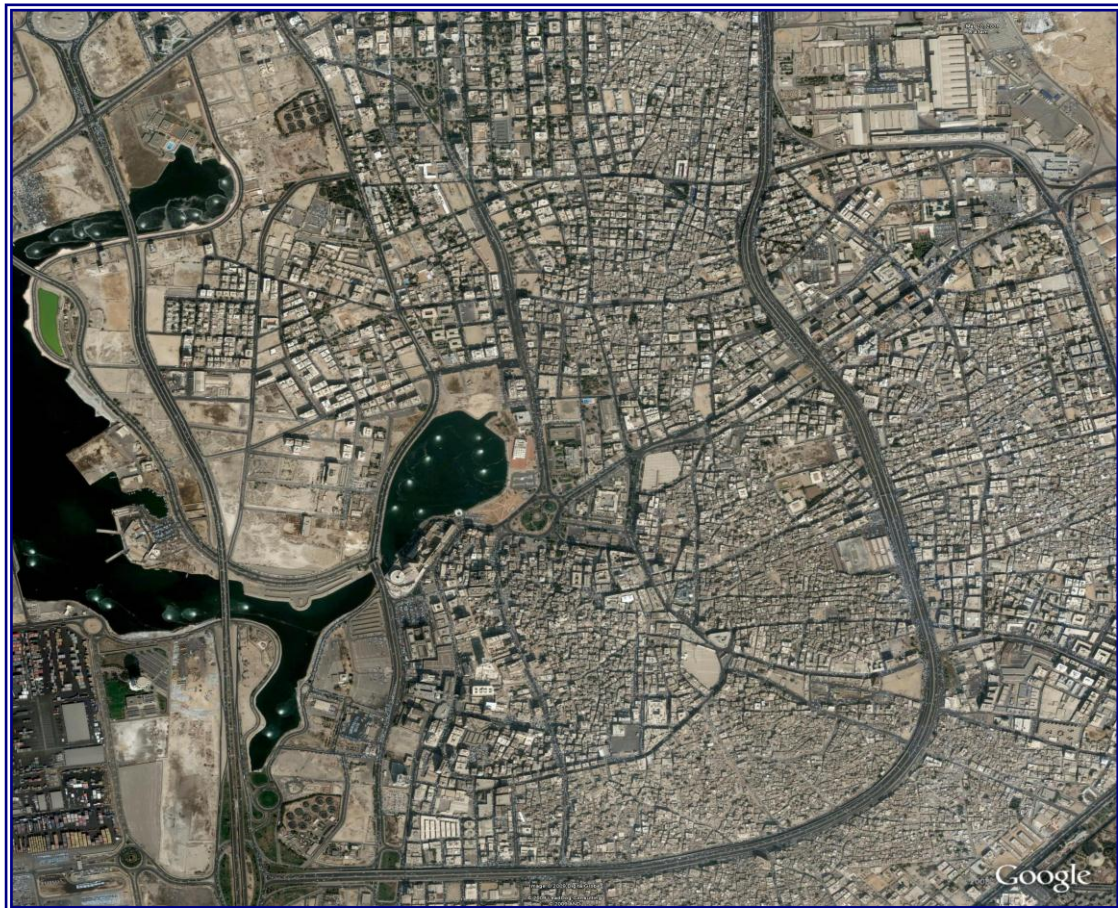


Figure no.(4.2.77), Source: Google Earth program. (2009)

Example 2- New Jeddah municipal branch:

New Jeddah municipal scope serves the middle north-west of Jeddah and has an area of 42 km². It includes the quarters Alrawdha, Alsalamah, Alzahrah, Alkhalediah and Alshatee. These quarters are of the modern quarters which have a new urban design. This region has most of the tourism projects in the city, furthermore to coastal beach. Most of the residents of these quarters are from the high classes people.

According to the current situation and the master plan, this region has 127 parks, which approximately the total area is 609091 m², while it has a population of about 238 thousand inhabitants.

Therefore, the average of green space for each person is about 2.6 m².

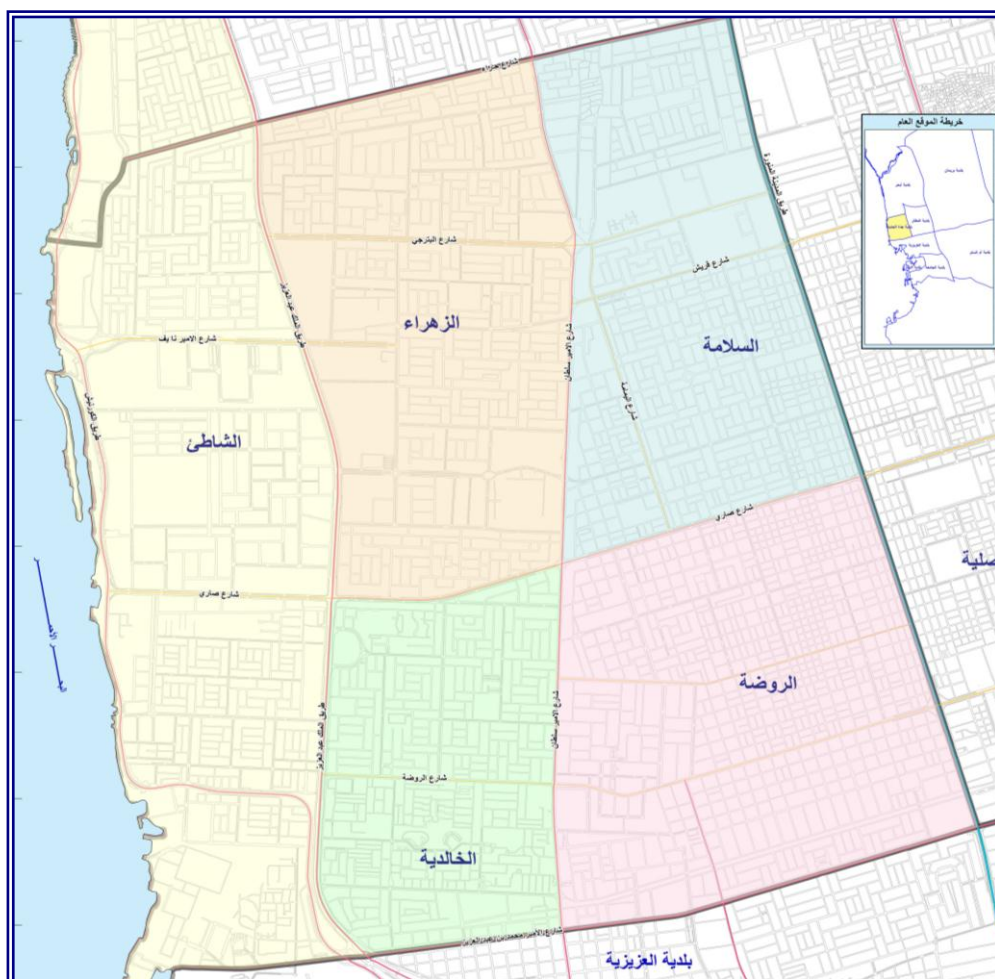


Figure no. (4.2.78), Source: Jeddah municipality web site

The above figure number (3.2.78) illustrates the scope of new Jeddah municipal branch and its quarters

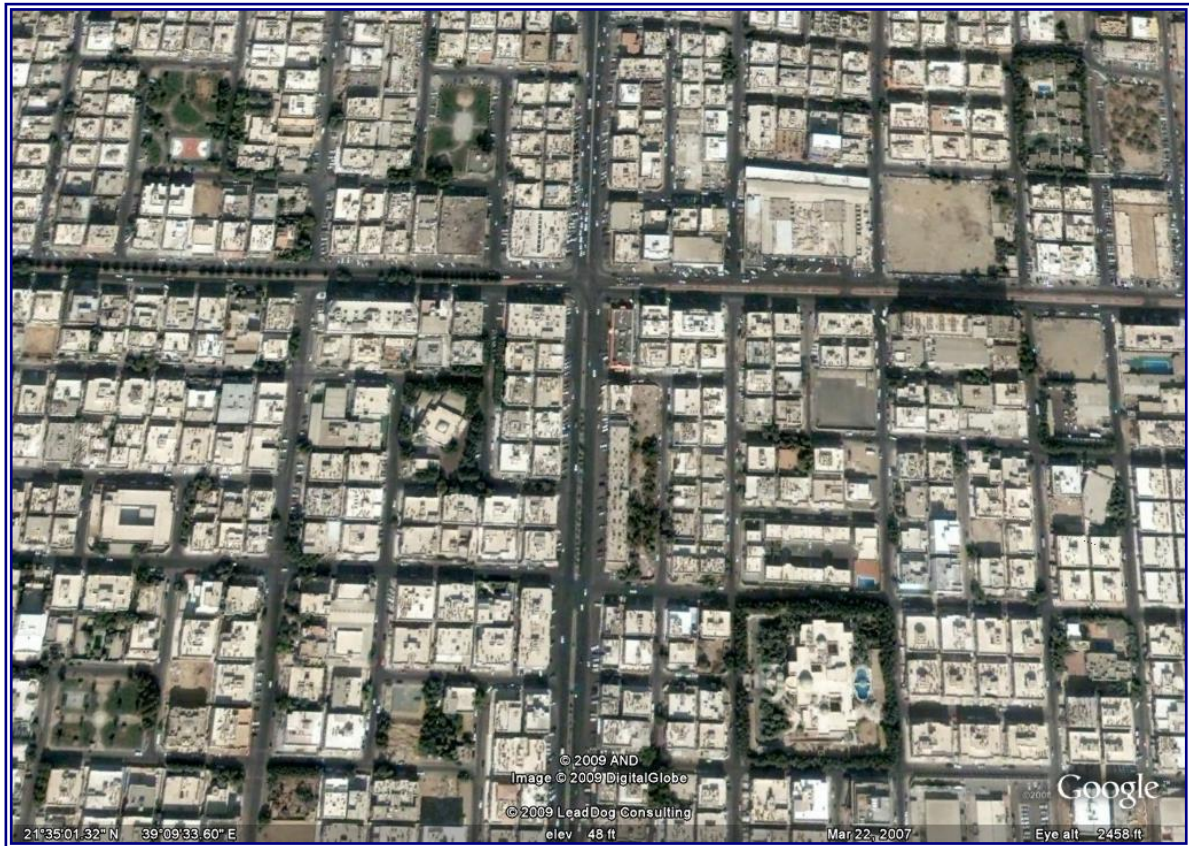


Figure no. (4.2.79) Source: Google Earth program.

. The figure number (4.2.79) shows some of the parks which are found in Alsalamah quarter. In this quarter the used urban design is a grid system that founded regular organized urban blocks which enabled to find an urban center for each block and quarter parks in regular distribution.

Example – 3- Alazizeah municipal branch:

Alazizeah municipal scope serves the Middle west of Jeddah and has an area of 66 km². It includes the quarters Alandalus, Alhamraa, Alazizeah, Mushrefah, Alrehab, Alshrafeah, Alrewais, Albughdadeah, Bani Malek, Alnaseem, Alnakheel and Alworood. This region has high density. Its population is estimated about 620 thousand inhabitants. The majority of quarters have an organized urban network. The residents of these quarters are from the middle classes peoples.

According to the current situation and the master plan, this region has only 135 parks, which approximately total area is 713854 m².

Therefore, the average green space for each person is about 1.15 m².

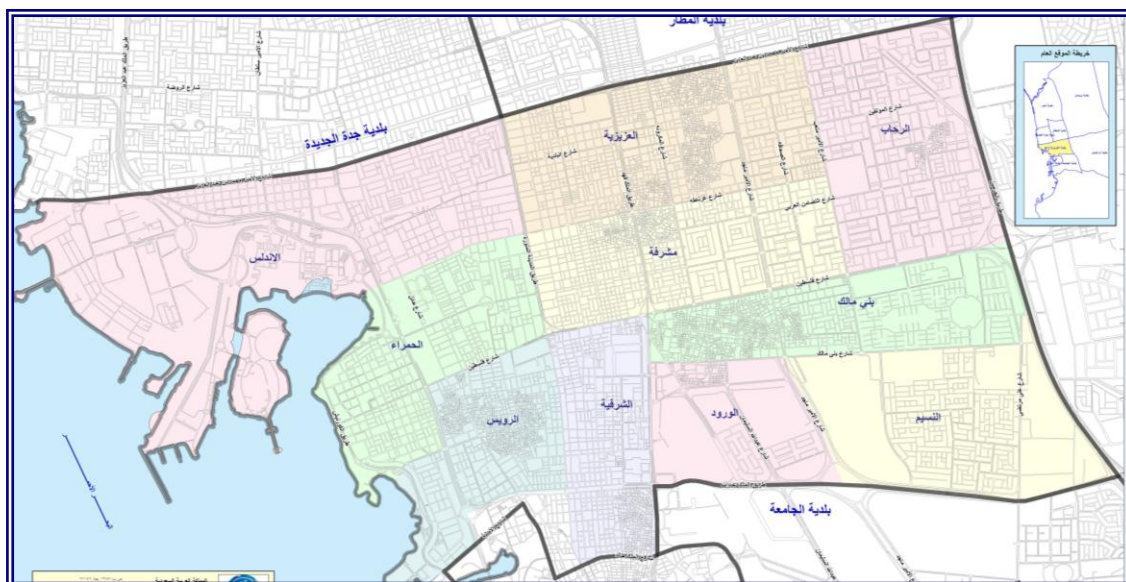


Figure no. (4.2.80), Source: Jeddah municipality web site

The above figure number (4.2.80) illustrates the scope of Alazizeah municipal branch and its quarters.



Figure no. (4.2.81) Source: Google Earth program.

The figure number (4.2.81) shows an aerial view of Alnaseem quarter, which is considered as new quarters located in the east of the city. The image illustrates the modern urban design and some of the free areas which are allocated for the parks in Alnaseem quarter.

Example – 4 - Aljanoob municipal branch:

Aljanoob municipal scope serves south Jeddah and has an area of 444 km². It includes about 21 quarters, such as Prince Fawaz, Almursalat, Aladel and Alsanabel. Also it has a mixture of organized and random urban network, in addition to the industrial city which has bigger national factories. This area has very low density. Its population is estimated about 89 thousand inhabitants. The residents of these quarters are from the middle and low classes of people.

According to the current situation and the master plan, this region has only 76 parks, which approximately total area is 218021 m².

Therefore, the average green space for each person is about 2.45 m².

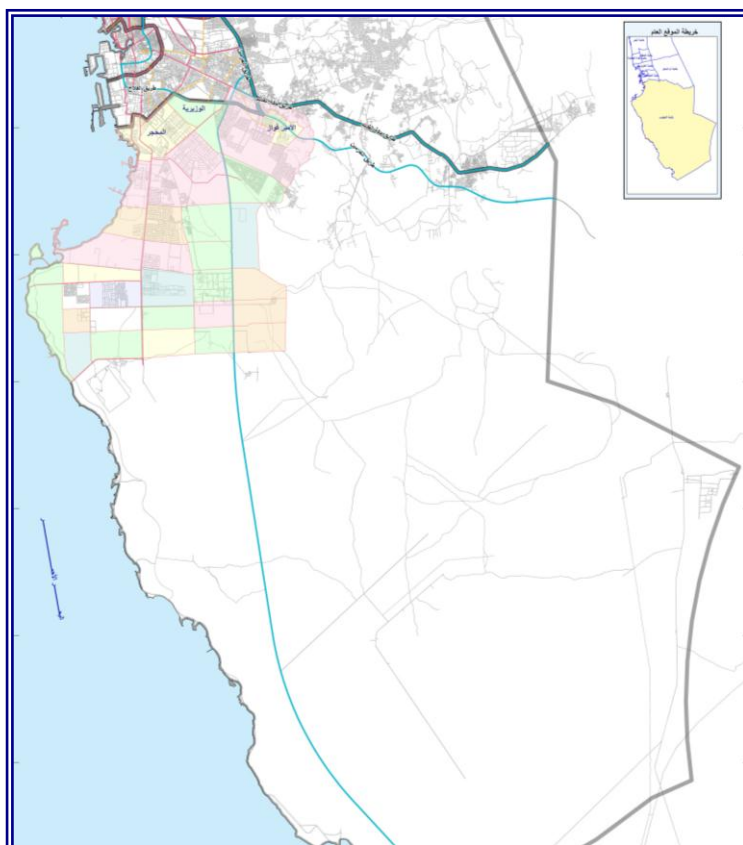


Figure no. (4.2.82), Source: Jeddah municipality web site

The above figure number (4.2.82) illustrates the scope of Alazizeah municipal branch and its quarters

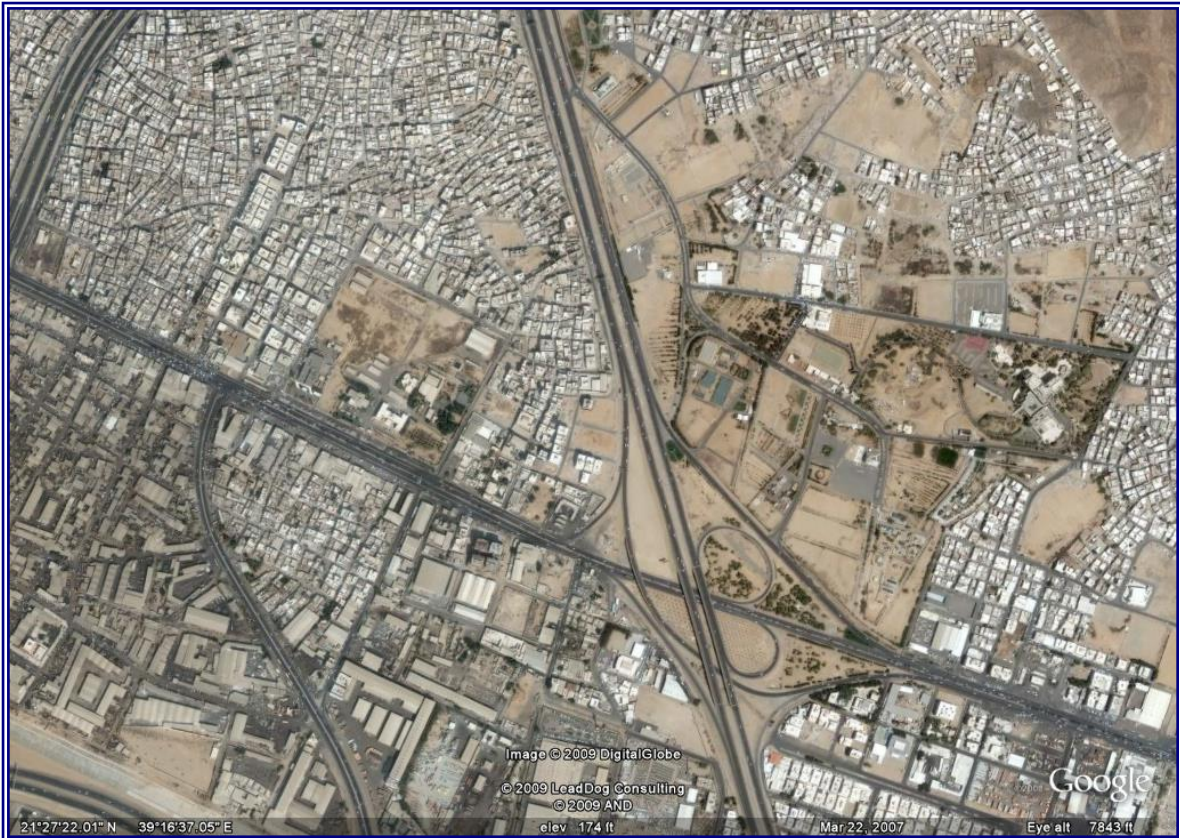


Figure no. (4.2.83) Source: Google Earth program.

. The figure number (4.2.83) shows an aerial view of many quarters, which appear the mixture urban network. Also, it shows the irregular distribution of some parks which are found in this region.

4.2.10- The evaluation of parks situation in Jeddah

In this section, the study will explore the opinions of the employees who work in the General Administration of Parks & Beautification and municipal Utilities and the Administration of Design & Planning of Open Spaces in Jeddah municipality, about the situation of parks and the municipality's performance. I conducted this questionnaire in order to evaluate their opinions and the situation of parks through the city.

The number of employees who participated in the questionnaire was 19. They have various qualifications such as post-graduate, university, secondary school and technical institute. In addition, they hold various positions such as manager, supervisor, engineer, technician and administrator.

In this part, the evaluation will focus on three parts of the questionnaire which regard the park situation, the municipality's performance and suggestions for future development.

Part – 1 - Evaluation of Jeddah's parks

53% of the participants thought the design of parks in the city is acceptable and 32% believe it is bad, while 47% consider the size of parks to be acceptable and 32% claim it is bad. However, 21% thought it is very good. There was some disagreement on the situation of parks distribution throughout the city because 16% of the participants think it is very good while 42% think it is acceptable and 37% thought it is bad. The majority thought the parks' cleanliness is bad and 37% of them think it is acceptable, while 10% thought it is very good. Regarding maintenance procedures, 58% thought it is bad and 37 of the participants thought it is acceptable.

The basic equipment of parks such as playground tools, planting, seating areas, walking paths, lighting, benches and grilling places: 42% of the participants thought the level of seating areas is fair whereas 47% of them thought it is bad. 53% thought the walking paths are bad while 37% thought it is acceptable and 10% thought it is very good. 63% of the employees thought the benches are bad, while 16% think they are acceptable and 21% think they are very good. On the other hand, 95% of participants thought the grilling places are very bad.

Concerning the provision of playground tools, 32% think it is very good, while 32% think it is acceptable and 37% find it bad. 37% of the participants think the planting level is acceptable, whereas 42% thought it is bad and 16% believe it is very good. But 53% of them believe the park lighting is acceptable and 42% think it is bad.

The situation of public service utilities such as snack kiosks, toilets, parking and prayer places in Jeddah's parks: 89% of the participants thought the snack kiosk situation is bad and 95% of the participants said the situation of the toilets is very bad, while 79% of them thought the allocated areas for prayers are bad. 37% believe the amount of car parking is reasonable and 58% of them think it is not enough.

Part -2- Parks administration evaluation

This part of the evaluation will focus on management performance regarding the parks' administration situation and Jeddah municipality's performance:

About the question which regards **the amount of parks**, 32% of participants thought the number of parks is reasonable while 58% of them thought it is less than sufficient and 10% thought it is very good. Responding to my question about **decentralization of park management**, 21% thought there is decentralization in parks management, but 47% thought the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 16% think urban design is satisfactory, while 32% thought it is reasonable. 52% consider it to be unsatisfactory. On the other hand, there was a contrast among the participants in their response to the question - **does urban design help to create parks which satisfy society's requirements?**-. 10% thought it is excellent and 59% believe it is bad, 10% thought it is very good, and 21% consider it reasonable.

Responding to **does the municipality manages the city parks with professionalism?** 53% of them do not think that, while 16% of the participants find the city's management professional. 31% of the respondents thought the management is fair. 26% of the participants agreed, while 32% do not, and 42% thought it is reasonable. These are the responses to the question **does the municipality manage the city parks with satisfactory level?**.

Part – 3 - Suggestions and difficulties:

According to the questionnaire content and the questions which explore the opinions of the administration, employees were asked to suggest some concepts to improve the development of parks administration. On the other hand, employees mentioned some difficulties that affect negatively on the parks' performance.

1- Suggestions to develop the parks administration:

- increase financial support.
- increase the support of specialists and professional employees.
- increase special training courses to enhance the qualifications of employees.
- organizing visiting trips to unique parks inside and outside the kingdom.
- pinpoint encouragement incentives for employees who participate in parks development.
- raise awareness in the community about the importance of parks for the environment.

2- Difficulties which have a negative affect on parks and their performance:

- Shortage of financial support.
- Shortage of agriculture specialists' jobs.
- Lack of qualified companies with enough experience to operate and maintain the city's parks.
- Lack of support from other government agencies and civil community agencies in parks development field.
- Lack of awareness in the community of the importance of parks and how to look after equipment.

4.3- Tabuk City

Tabuk is located in north-western Saudi Arabia; it is the capital and headquarters of the governor of the Tabuk region. It is 700 km from Medina, 1350 km from Riyadh and 950 km from Jeddah. Its area is estimated at about 300 km², and its population is approximately 488 thousand inhabitants.

It lies at the meeting point of longitude 56° .26" east and latitude 49° . 28" north. Also it is located on a low plain 600 – 800 meters above sea level.

It is the northern gateway to the Kingdom, close to the Jordanian border. It is the largest city in north-western Saudi Arabia and has been the fastest-growing city for at least the past twenty years.

Tabuk has become famous for its agricultural products and it is one of the most important agricultural regions in manufacturing and trade, particularly flowers. The region exports flowers worldwide.



Figure no. (4.3.1)

Source: Google Earth program, 2009

4.3.1- Tabuk geography⁴⁵

The Tabuk region is parallel to the Red Sea in the west while Jordan's borders lie to the north. Alnafud and the other regions border to the east. The region's geography can be divided into five areas:

-Tehamah (coastal plain):

This is the area which lies beside the Red Sea and the Gulf of Alaqabah. Its surface is composed of alluvial deposits dominated by sand-silt from the valley water and the wind. The southern sector of Tehamah is characterized by gradual wide plains and coastline. The coast becomes narrow as it extends to the north, and many areas of the coastal marine environment are rich in coral reefs.

-Alhejaz mountain chain:

This is the most prominent geographical feature in Tabuk region, highlighted by the coastal plain hills rising gradually to about 500 meters. The many valleys have different widths and carry alluvial deposits of gravel and small stones.

-Hassmy Hill:

Hassmy Hill lies to the east of the Alhejaz chain. It rises to about 1,000 meters and is a sandy hill characterized by protrusions interspersed with rock and gravel deposits, in addition to mountainous formations from small and medium sand hills.

-Interior basin and surrounding hills:

The interior basin and surrounding hills cover about half the area of Tabuk region. The hills have a wavy surface and are quite high; the difference in height ranges between 800 and 1,000 meters. The most important geographical feature in this area is Tabuk basin, which is a great collector of natural deposits.

⁴⁵ - Alatawi, mussad Eid. (1993), Tabuk Old and New, first edition, published by Altubah library, Riyadh, Saudi Arabia. (P 33 – 36)

-Al-Nefud Desert

This desert lies in the northern part of the Arabian Peninsula; it occupies about 103,000 square meters and consists of sand dunes. The sand dunes have been formed by climatic factors and wind erosion, which strip and fragment the rocks, as well as rain.

4.3.2- Tabuk city history ⁴⁶

Tabuk has a long historical background. Historians have traced its foundation back to 500 B.C. Before Islamic times, Arabic tribes dominated on the peninsula. During Islamic times, Tabuk was the location of a famous battle – (Battle of Tabuk) - which took place in 630 AD between Muslims and Romans. This invasion was led by the Islamic prophet Mohammed.

The marks of Tabuk's long history can still be seen today. Tabuk fortress was built by the Ottoman Turks about 1655 and has been recently restored by the Saudi Government. Tabuk was also one of the major stops on the Hejaz Railway.



Figure no. (4.3.2) Tabuk fortress⁴⁷

Figure no. (4.3.3) Tabuk fortress, interior view.

⁴⁶ - Alatawi, mussad Eid. (1993), Tabuk Old and New, first edition, published by Altubah library, Riyadh, Saudi Arabia (P 37 – 45 and 65 – 68)

⁴⁷ - Ministry of education, (2003) Tabuk region antiquities book, issued by, deputy of antiquities and museums. Printed and produced by Dar Alhelal press. Riyadh, Saudi Arabia. pp 160 – 161.

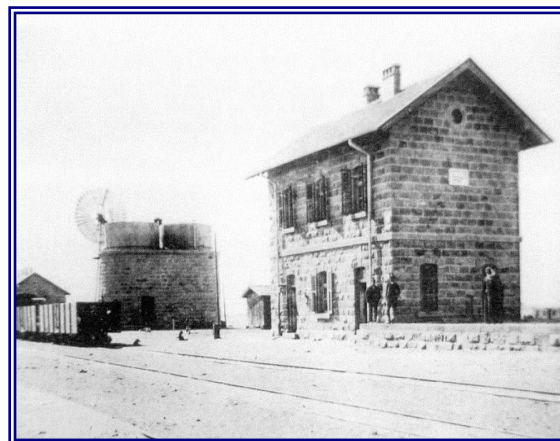
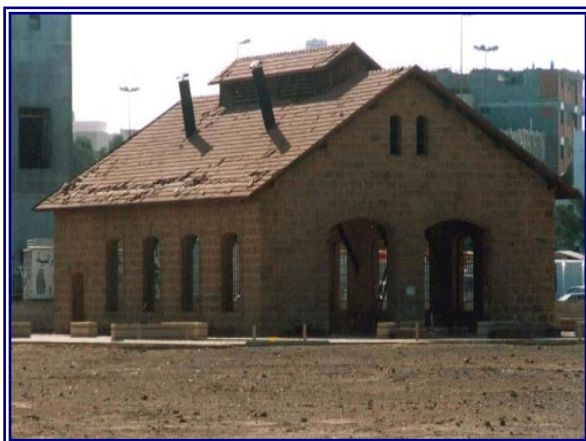
Figure no. (4.3.4) Tabuk train station⁴⁸

Figure no. (4.3.5) Tabuk train station in

The above figures, numbered (4.3.2) and (4.3.3) show Tabuk's city fortress, built in approximately 1655). The figures numbered (4.3.4) and (4.3.5) show some views of the train station, which was a stop on the railway line that connected Turkey and Makkah. This station is a symbol of the changes which have happened in Tabuk city throughout time.

4.3.3- Old Tabuk

There are some differences of opinion regarding the first confirmed location of the city. These differences stem from factors which affected life in that time and culture. In the beginning, clay was used in city construction but disappeared as a result of erosion. Also, its location was far from the mountains which would have created natural protection from wind and other factors of erosion.

In the Islamic period, the city prospered and developed more when the center of the Al-Amwaaen state moved to Damascus.

Tabuk fortress has been famous throughout history. All the successive states, such as the Alayobeen. participated in maintaining the fortress.

There is some evidence which gives us indications about urban life in Tabuk:

⁴⁸ - previous reference no (45)

- In 1850, Augustus Wallin ⁴⁹ – the first European visitor to Tabuk city- said that the number of houses did not exceed sixty.
- In 1877, Doughty⁵⁰, visited Tabuk and found the city reduced to about 40 families. This was the result of drought or wars. This information concurs with that of Huber,⁵¹ who visited the region in 1884 and found the city practically empty. When Gezoterz visited the city in 1910, the number of residents was about 200.
- During their trip to the region in 1907, Jaussen and Savignac mentioned that Tabuk lay between green farms. It was built on the highlands, in a sandy plain. It contained about forty houses built using dry clay for walls. Roofs were made of tree branches and covered in clay. (Jaussen and Savignac, 1997. pp 67)⁵²
- In 1910, on his Alhijaziah trip, Mohammed Labeeb Al-betony described Tabuk city as having a small train station about 300 meters away from the residential area. Its houses were situated on a high place in the desert and surrounded by palm trees and some farms planted with grain. Some buildings were built of brick and stone. The city was divided into three parts:
 - -The pilgrims' gathering place, which lay in the south of the city, near the well, to serve the pilgrims during their passage to Makkah.
 - – train station and workshop area.

⁴⁹ - George August Wallin, born in 1811, was a Finnish traveler. He was concerned with traveling to Arabic countries and studying their languages, traditional culture and customs. (source: Western Travelers in the Arab Peninsula, by Robin Bedul.- translated into Arabic by Dr. Abdullah Adam Naseaif, King Saud University, Saudi Arabia, 1989

⁵⁰ - Charles Montiglio Doughty (1843-1926) was an English traveler who visited the Arabian Peninsula between 1875 and 1878.

⁵¹ - Charles Huber was born in 1837 at Strasbourg in the Alsace region – (now in France near the German boundary)- was a traveler, concerned with the Arabic Peninsula campaign. The German historian Julius Euting traveled in the region between 1878 and 1882.

⁵² - Jaussen, Antoine. Savignac, Reveal. (1997), Archaeological expedition to the Arabian Peninsula between March and May 1907, published by Ernest Urno Luro, Paris. France

Arabic translation by Alfares, Seba Abdualwahab. Published by the King Abdullaziz Foundation for Research and Archives.

- – The main city, including the fortress, residential buildings and the market.⁵³

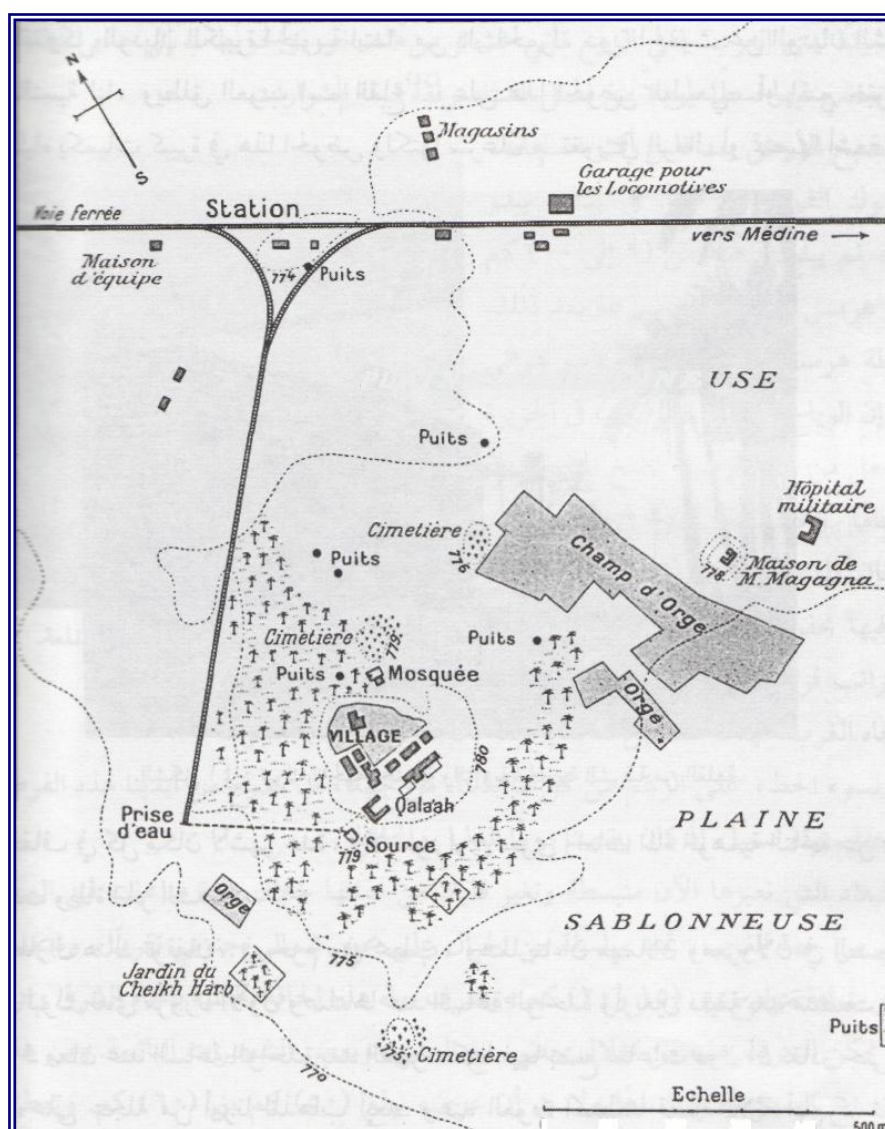


Figure no. (4.3.6). old Tabuk map 1907

Source: Jausen and Savignac, 1997. (p. 66).

This map was drawn by the engineer Magania and his son. Magania was responsible for the hermas well station. His map shows the main features of Tabuk at the time.

53 - Alobaidan, Mosa Mustafa. (2000), The Art in the Southwest of the Arabian Peninsula Old and New, first edition, issued by Tabuk literary club. Tabuk, Saudi Arabia. (p. 11 -12)

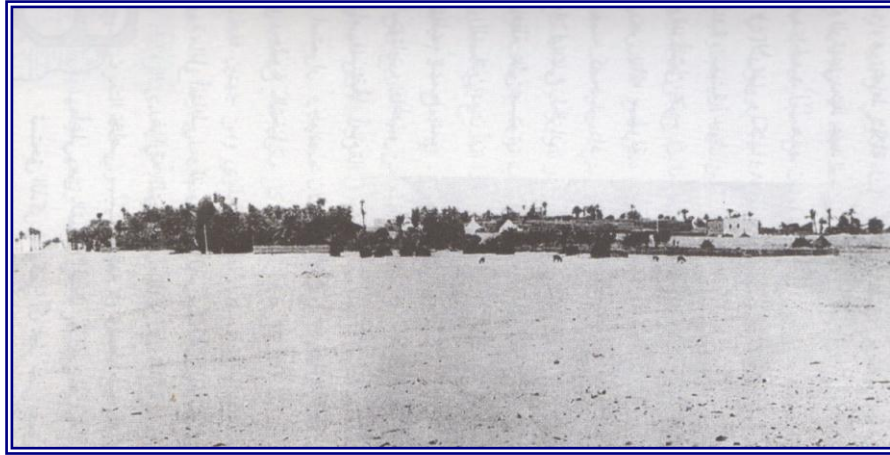


Figure no. (4.3.7) View of Tabuk from the northeast, 1907

Source: Jaussen and Savignac, 1997, p 70

The above view indicates Tabuk's location and some of its features. It also depicts the farms surrounding the city. It was photographed by the authors during their trip to the region.



Figure no. (4.3.8) View of Tabuk city's main road and some residences in 1957

Source: Tabuk region antiquities book 2003, p 197

The above photo shows both the building style which was used at that time and the materials used in construction.

4.3.4- Tabuk today

Since the kingdom of Saudi Arabia was founded, the government has created a modern lifestyle for the entire country by developing its cities, infrastructure and roads network. Today, Tabuk city is the capital city of its region and is the center of governmental administration which works to make life comfortable and pleasant for the inhabitants.

Tabuk region is also a great producer of wheat, fruit and flowers, known in the country and throughout the world.



Figure no. (4.3.9) View of urban development in Tabuk

A picture taken from Tabuk's water tower. It shows the front part of the main municipal government building and the surrounding roads and buildings. 2009.



Figure no. (4.3.10) View of Tabuk today



Figure no. (4.3.11) View of a shopping center in Tabuk

Source: <http://www.osbane.com/vb/showthread.php?t=10448> (1.11.2009)

The above figure illustrates the features of development which have taken place in Tabuk city and shows the infrastructure and road network.

1- Urban Planning in Tabuk:

As mentioned above, Tabuk was originally a small town with few houses and a low population.

Since 1930, the year of the unification of the kingdom, the town started growing in both the urban area and population. But 1961 was the real watershed, when the government established the military base as the main center for national defense on the northern border. This had a positive effect on the city's development in all aspects.⁵⁴

In 1961, the area of Tabuk had reached about 6 square kilometers, then increased to 300 square kilometers by 2005. At the same time, the population of Tabuk increased rapidly. In 1974, Tabuk's population was about 75 thousand. By 1986, it had grown to 150 thousand. In 1992, the population was 286 thousand inhabitants; it had reached 488 thousand by 2004.⁵⁵

Like the other cities of Saudi Arabia, Tabuk has developed in all aspects of life. It is considered a rapidly growing city since its area has increased twofold during the last twenty years.

In this section, the study will examine the situation of the city according to the master plan and confirmed organizational structure.

54 - Tabuk Old and New, Dr. Mussad Eid Alatawi, 1993 (P.131 – 137)

55 - Central department of statistics & information, census of 1974, 1994 and 2004

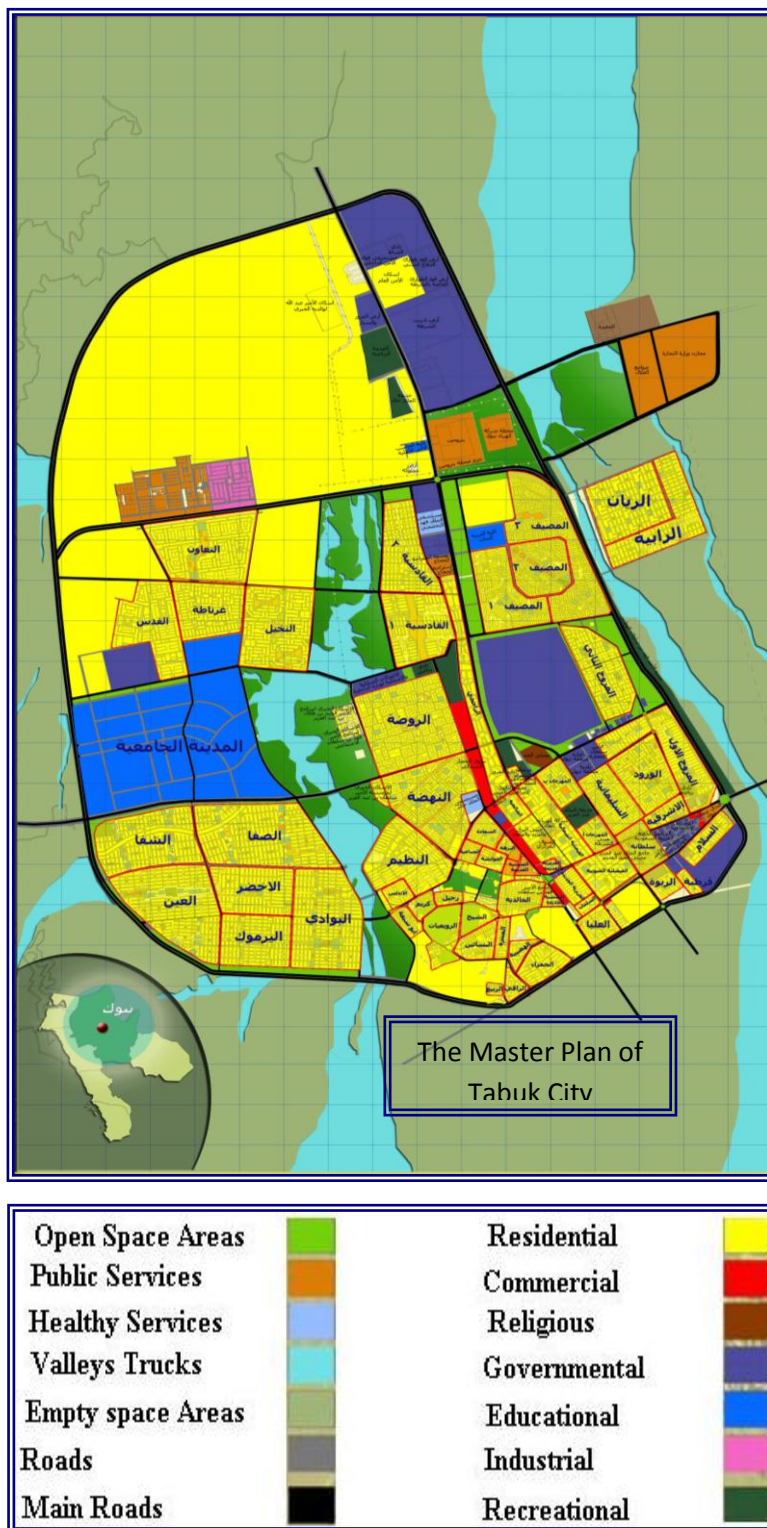


Figure no. (4.3.12) Tabuk master plan.

Source: Tabuk municipality, administration of urban planning, 2009.

2- Tabuk's Urban Components

By studying Tabuk's Master Plan, we can see the main components of the city, such as residential areas, commercial areas and governmental services.

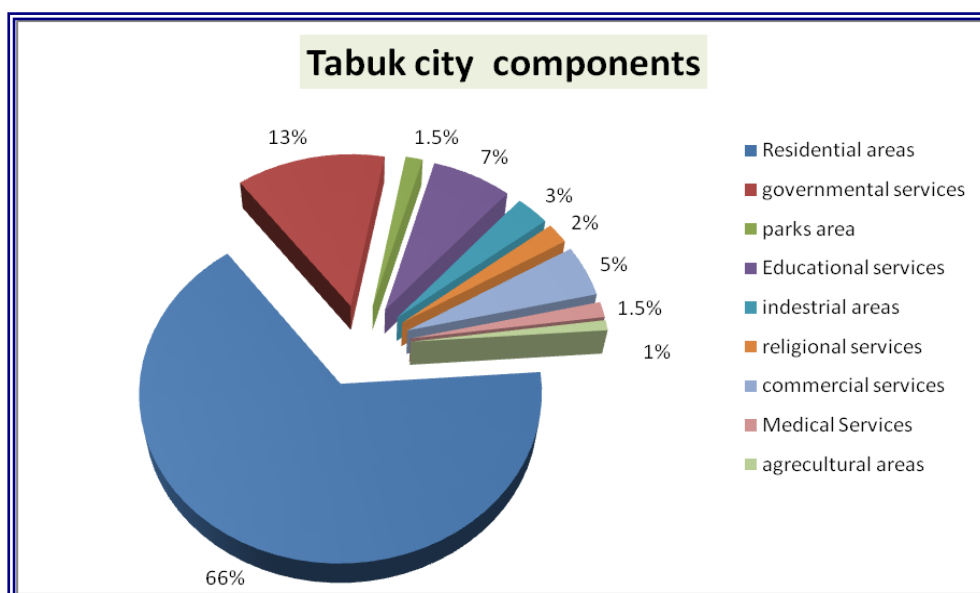


Figure no. (4.3.13) Tabuk's components.

Source: Researcher's own work drawn from Tabuk's municipal website on statistics and the master plan of the city.

The above figure demonstrates the percentage of area taken up by urban components according to the master plan. It illustrates that residential areas cover 66.5% of the city's area. These areas include the distribution of Tabuk's quarters. Villas or two-storey buildings cover most of the area.

The figure illustrates governmental services, which equal 13% of the city's area. These services include all utilities which serve the people's daily needs. Education services equal 7% and medical services cover about 1.5%, while religious services equal 1.5% of the city area.

The industrial regions equal about 3% of the city area. Parks cover 1.5% in addition to the agricultural region, which covers 1%.

The graph depicts commercial zones, which cover 5% of the city's area. These services include banks, shopping centers and hotels.

3- Tabuk city obligations:

According to the federal government of the Kingdom of Saudi Arabia, the municipality is the responsible for city management regarding development in all sectors which make life stable and comfortable. For instance:

- 9- Implementation, operation and maintenance of parks, planning and urban beautification projects.
- 10- Protection of the environment through sanitation and control of foodstuffs and public hygiene. Organization and management of abattoirs.
- 11- Participation in the organization of cultural affairs and projects to provide comfort, tranquility and safety to the city's inhabitants.
- 12- Urban planning and surveying, building permits, naming and numbering of districts, streets and plazas.
- 13- Implementation of projects and supervision of subcontracted work.
- 14- Operation and maintenance of municipal facilities and both fixed and movable property.
- 15- Organization and management of municipal affairs and land and property issues; investments.
- 16- Organization and management of cemeteries and burial.

4- Organizational Structure:

The following chart illustrates the organizational structure of Tabuk city and explains the chain of command of the main administration of the municipality.

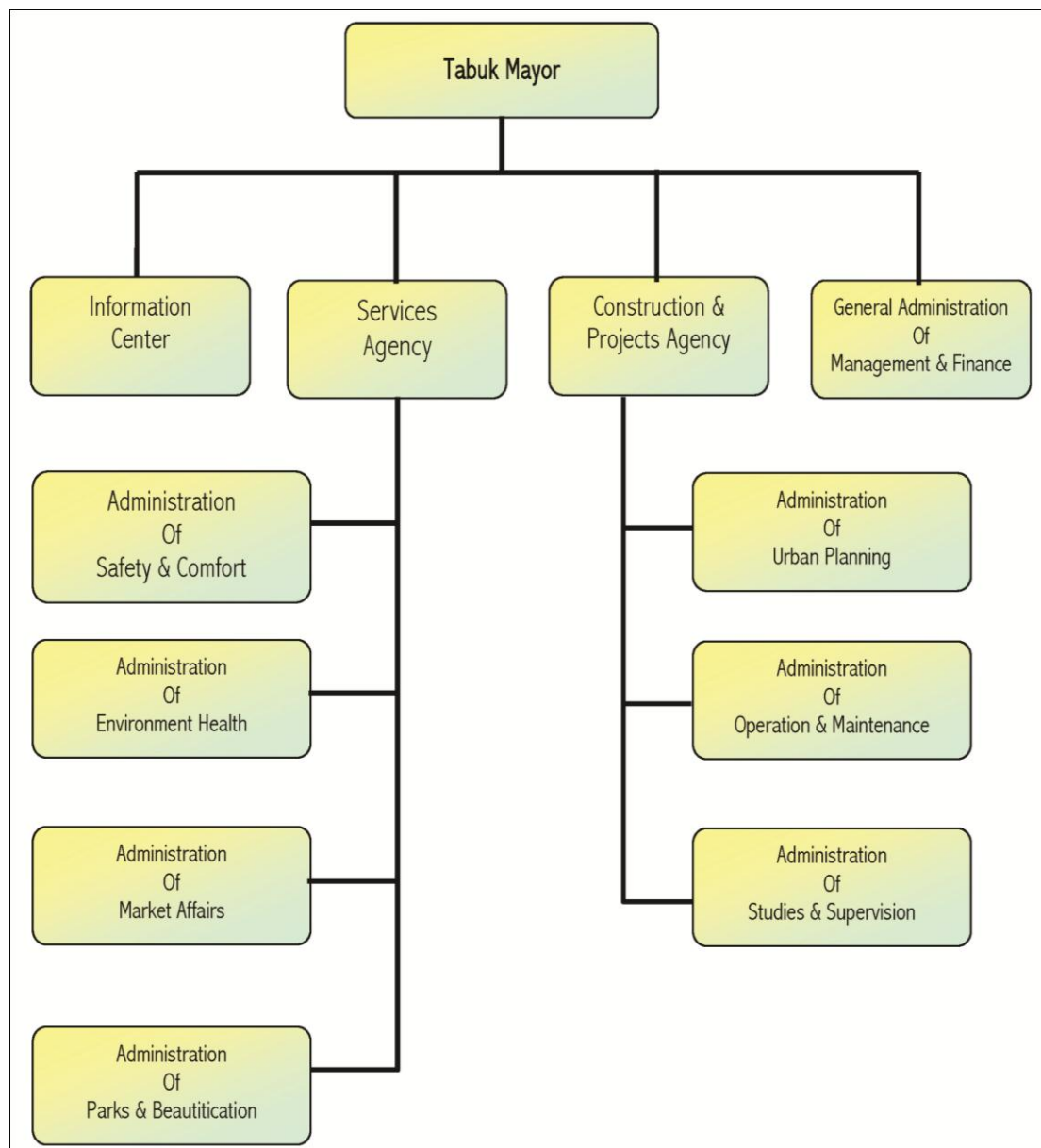


Figure no. (4.3.14) Tabuk Municipality Organization Structure.

Source: Tabuk municipality, 2008

The above figure illustrates the main administration of Tabuk city municipality. The administrative functions are similar to the administration in Jeddah and Medina.

5- Responsibility for Green Areas in Tabuk

According to the organization structure, the general administration of parks and beautification in the municipality of Tabuk has the authority to manage and supervise parks and green area construction, employment and operations.

This administration of parks and beautification works towards implementing and operating the parks and green areas. In addition, it is concerned with bringing out the beauty of the city. It is also responsible for maintenance, coordination and supervision of future planning and suggestions for parks operation and development.

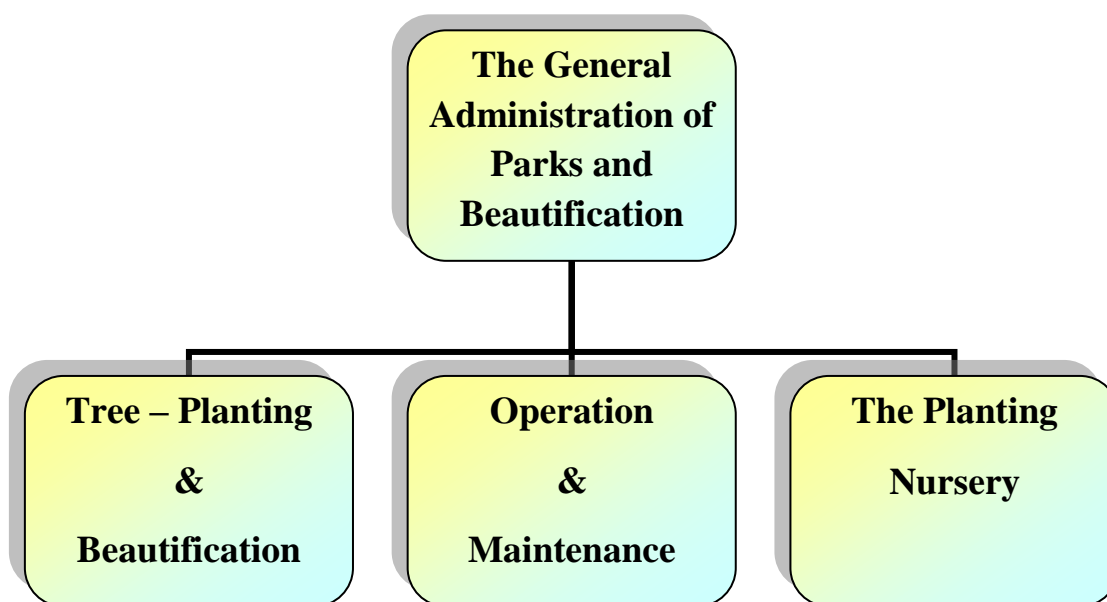


Figure no. (3.3.15) Administration of Parks and Beautification organization structure.

Source: Tabuk municipality organization structure.

4.3.5- The Current Situation of Parks and Green Areas

This section will study and analyze the current situation of green areas. It will show the methods of operation and maintenance, in addition to employee management and financial expenditure.

1- The Administration of Parks and Beautification:

According to the municipal organization structure, the current administration does not have any departments which are responsible for administration duties regarding parks and beautification. This is managed by the supervisor of this administration; he is in charge of the relationship between the high administration and the administration employees whose offices are located outside the municipality's main building (see table no. 4.3.1). He has the authority to delegate the administration duties among the administration's employees and contracted companies. The administration cooperates with the specialist administration in the municipality and private sector to achieve their aims, such as designing new projects and carrying out studies.

Tabuk municipality does not have a specific policy as a guide to manage parks construction and implementation. Therefore, the implementation of green areas depends on either the higher administration policy or direct instructions from the municipal government.

Tabuk is considered a very important city for its region because it is the capital. This means that improvements usually start in the capital city, which leads the development cycle.

Tabuk municipality has a vision for the short-term future of green area development. This vision is to maintain and improve the green areas of the city.

Tabuk's master plan includes the areas and locations set aside for parks. The guide, which organizes the future in all fields, depends on the municipal strategy and on the available financial resources. The policy includes:

A - Construction of a new planting nursery. This project will use the plants to provide directly for the municipality's needs. Another goal is to investigate plants suitable for urban environments.

B - Irrigation:⁵⁶

Tabuk depends on well water for its green area irrigation. However, the current irrigation network covers only 40% of the total green area.

In order to improve the quality of the irrigation system and reduce water consumption, the administration is going to complete the irrigation network to cover all city green areas and establish a new control system base which will manage and observe the network from the municipal center.

C - Open space areas:⁵⁷

According to studies carried out between 1993 and 2008, population growth in Tabuk equaled 3.3%, while the total national growth in the kingdom was about 2.3%.

This clearly shows the municipal government's responsibility to accompany this increase with the necessary services which have a direct relationship to people's daily lives.

Open space areas are considered an important factor in measuring the development of national well-being, in addition to their effect on the surrounding people's lifestyle.

Tabuk has positive factors, such as location and a pleasant climate, which have led the municipality to suggest strategies to provide a permanent system for open space areas to serve the citizens' needs while protecting natural systems. The important targets of the strategy are meeting people's recreational needs, improving the quality of life and preserving the city's natural resources.

The municipality's concept classifies open space areas at five urban levels in order of importance:

56 - Tabuk Municipality, Administration of Parks and Beautification, 2009.

57 - Municipality of Tabuk, Administration of Urban Planning, 2009

- 1- Regional open space areas, such as parks outside the city.
- 2- Open space areas at the city level, such as King Abdullaziz Park.
- 3- Linear open space regions, such as the regions which lie alongside the valleys.
- 4- Protected and separated regions, such as the regions surrounding industrial and manufacturing areas.
- 5- Local open regions.

2 - Administration Staff:

The staffs who manage the parks and green areas are divided into two sections. The first group works for the municipality and come under the responsibility of the government, while the second group represents the companies which operate and maintain parks and green areas.

	Municipal Employees	Contracted Staff
Agricultural engineers	8	3
Administrative assistants	4	-
Technical assistants	8	3
Agricultural inspectors	2	-
Laborers	112	156
Total	134	162

Table no.(4.3.1) Administration of Parks and Beautification staff.

Source: Municipality of Tabuk 2008.

The above table illustrates the numbers of employees who manage Tabuk's parks and green areas. The total municipal staff is about 134 employees. It has 8 engineers, equaling 6%, while the majority of staff is the laborers, who equal 83%. The rest are divided among the assistants, administrators and inspectors.

On the other hand, the operation companies have approximately 162 employees. The laborers are 96% of all employees, while the engineers and technicians each cover 2%.

3 - The Financial Budgets:

In this section, the study will focus on the budget allocated to green area maintenance and operations during the period from 2000 to 2007. Furthermore, the study will analyze and compare the percentage of these expenditures with the total budgets allocated for maintenance and the total budget of Tabuk municipality.

Year	Total budget of the municipality ⁵⁸ (millions)	Total operation budget ⁵⁹ (millions)	Budget allocated for green area maintenance ⁶⁰ (millions)	Budget allocated for green area construction & equipment ⁶¹ (millions)	% ⁶²
2000	48.84	20.4	2.67 *		5.5
2001	46.35	21.37	0.92	1.64	5.5
2002	50.37	23.69	0.99	1.54	5
2003	49.45	23.70	1.05	1.47	5.1
2004	50.10	23.70	1.12	1.85	5.9
2005	51.61	23.71	1.17	2.44	7
2006	68.51	35.47	1.22	4.12	7.8
2007	93.71	37.74	1.21	5.65	7.3

Table no. (4.3.2)

Source: Tabuk municipality, General administration of administrative and financial affairs, 2008. The above figure illustrates the expenditures for green area maintenance during the period from 2000 to 2007.

*- this number includes maintenance and construction expenditures.

58- This value represents the total municipal budget, which covers all expenditures.

59- This value represents the specialized budget which covers all operations aspects in the municipality.

60- This value represents the budget allocated for green area maintenance only from the total maintenance budget of Tabuk municipality.

61- This value represents the expenditures paid for projects and purchases regarding green area affairs.

62 - This percentage represents the value of the total expenditure for parks (maintenance + operation + projects) from the total budget of Tabuk municipality.

The maintenance budget which was allocated in 2000 was about 2.67 million Saudi riyals, or 13.1% of the total operations budget, which was 20.4 million Saudi riyals. In 2001, the budget was about 0.92 million Saudi riyals, equaling 4.3% of the total operations budget, which was 21.37 million Saudi riyals, while the construction budget equaled 3.5% of the total municipal budget, which was 46.35 million Saudi riyals.

In 2002, the maintenance budget was 0.99 million Saudi riyals, which equaled 4.2% of the total 23.7 million Saudi riyals allocated for the operation budget, while the construction budget equaled 3.1% of the total municipal budget, which was 50.37 million Saudi riyals.

In 2003, the maintenance budget was 1.05 million Saudi riyals, equaling 4.4% of the total 23.7 million Saudi riyals allocated for the operation budget, while the construction budget equaled 3% of the total municipal budget, which were 49.45 million Saudi riyals.

By the same system, we can see that the operation budget allocated in the remaining years-2004-2007- did not exceed 4.9% of the total operation budget. In the same period, the change to the construction budget did not exceed 6% of the allocated municipal budget.

From the analysis of financial information, we can conclude the following:

- The budget allocated to green areas maintenance ranged between 1.3% and 2% of the total budget for Tabuk municipality.
 - The budget allocated to green areas maintenance ranged between 1.3% and 4.3% of the total operation budget.
 - The total expenditure of green area operation – (maintenance and construction) – ranged between 5.1.1% and 7.8% of the total budget for Tabuk municipality.
 - The total expenditure of green area operation – (maintenance and construction) – ranged between 7.3% and 18.2% of the total operation budget.
 - The average total municipal budget from 2000 to 2005 was about 49.67 million riyals, but in 2006 and 2007, this increased to 68.51 and 93.71 million riyals respectively. These increases affected the operation budget, which involved other municipal services such as roads, lighting, buildings and other city requirements. The increase to the budget did not affect the budget for green area maintenance. However, it did affect the budget for green area construction and equipment, which covers the renewal of irrigation networks and is used to buy maintenance tools.
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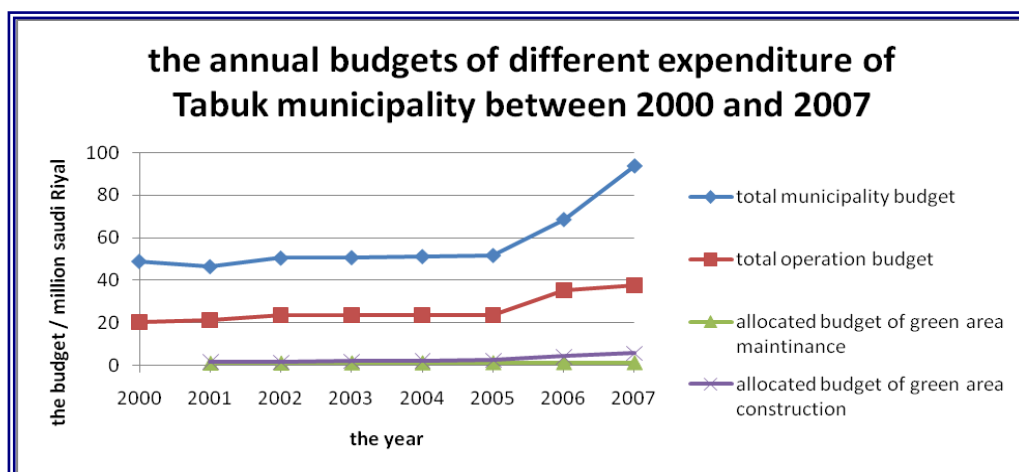


Figure no. (4.3.16)

Source: Tabuk municipality, General administration of administrative and financial affairs, 2008.

The above figure illustrates the annual budgets allocated to support various facilities in Tabuk municipality during the period from 2000 to 2007.

The blue line depicts the change to the total municipal budget- this budget includes all municipal expenditures in all aspects – in the above-mentioned period. In 2000, the budget was 48.84 million riyals and rose slightly until 2005, when it reached 51.61 million riyals. This shows a maximum increase of 1% annually. However, in 2006 and 2007, the budget increased by about 33% annually, reaching 93.71 million riyals in 2007.

The red line shows the change to the total operation budget for all aspects of the municipality. In 2000 the budget was 20.4 million and increased slightly (no more than 1% annually) to reach 23.71 million riyals in 2005. In the last two years, the change rhythm changed to 46% for 2006 and 6% for 2007.

The green line depicts the budget allocated to green area maintenance. The change was minimal: expenditures in 2001 were 0.92 million riyals and reached 1.21 million riyals in 2007. This shows a change which equaled, on average, 5% annually.

The violet line shows the construction and purchases regarding the green area facilities budget. It illustrates the same pattern of budget allocation for the period in question: that is,

we see a slight change between 2001 and 2005 and a rather dramatic increase in 2006 and 2007, reaching 69% and 38% respectively.

4.3.5.1- The types of green areas in Tabuk

Tabuk is famous for agriculture, as well as exporting agricultural products throughout the Kingdom and worldwide. The green areas in the city are concentrated on road planting and surrounding areas; there is a shortage of park implements. The total area of the green areas is estimated at about 1,000,000 m² while the length of planted roads is estimated to be about 76 kilometers long.

It is characterized by the variation of green open spaces types, such as linear parks, which are found along the roads and at the centre of roundabouts, as shown in the following pictures:



Figure no. (4.3.17) King Fahad Road

Source: Researcher's own photo, 2008



Figure no. (4.3.18)



Figure no. (4.3.19)

Another view of King Fahad Road.

Source: Researcher's own photo, 2008

The above figure number (4.3.17) and numbers (4.3.18) and (4.3.19) below show the planting style used along Tabuk's roads. Also, the pictures show the dense plants which perform the main function of road planting in addition to providing road limitation, shade and beautification.



Figure no. (4.3.20) Source: Researcher's own photo, 2008

Intersection of King Fahad Road and Prince Abdal-Majeed Street



Figure no. (4.3.21)



figure no. (4.3.22)

Source: Researcher's own photo, 2008

The above figures (4.3.20), (4.3.21) and (4.3.22) demonstrate the style of planting which is considered a significant characteristic of open space areas in Tabuk city. These figures illustrate some of the linear parks which are distributed in Tabuk city. This style adds more beauty to the surrounding area.



Figure no.(4.3.23) Source: Researcher's own photo, 2008



Figure no. (4.3.24) Source: Researcher's own photo, 2008

The above figures (4.3.23) and (4.3.24) illustrate some of the roundabout distributed throughout Tabuk city.

They are considered a characteristic landmark for Tabuk.

4.3.5.2- The city parks:

The Tabuk city green areas concentrate on street planting, so the city has limited space for parks. The city has one park only; it lies in the north of the city. The area of Prince Fahad bin Sultan Park is estimated at about 300,000 square meters. It was designed and implemented by Tabuk's municipality. It was opened to the public in 1998.

The main components of the park are children's play equipment, car parking, kiosks and toilets. It also features trees, green areas and barbecue spots.

The park design style is a combination of linear park and circles. At the edges, there are many cottages which provide seating during all types of weather. The children's play equipment is found in the middle of the circles.

The back area of the park has been planted with many types of trees to create a suitable environment for all activities.



Figure no. (4.3.25), the site plan of Prince Fahad bin Sultan Park

Source: Google program, 2009



Figure no.(4.3.26)



Figure no.(4.3.27)

Source: Researcher's own photos, 2008

The above figures (4.3.26) and (4.3.27) illustrate the linear park which is considered a suitable area for people to spend their spare time.

The pictures show some of the fixtures found in the park, such as seating benches and lighting columns. The flora consists mainly of plants and grass.

The below figures (4.3.28) and (4.3.29) illustrate some park components, such as playground equipment, which are distributed throughout the park. Ground cover is also shown here. It is also possible to see the pedestrian walking path and parking spots for cars.



Figure no. (4.3.28)



Figure no.(4.3.29)

Source: Researcher's own photos, 2008

4.3.5.3- Green area operation and maintenance⁶³

Tabuk municipality manages its park and green areas by itself. Officially the park projects are implemented by the administration of parks and beautification, and then operated by the administration with the cooperation of operating and maintenance contractors.

The operating system used in the city depends on direct orders. The administration suggests the protocol for work and provides the required tools and equipment, then the contractor implements the orders.

The operation and maintenance contractors provide physical labors. This means the operating contractors don't have any planning or design responsibility for the green areas. The municipality must buy and provide all requirements such as plants, irrigation net tools and spare parts for maintenance.

Irrigation system

Tabuk, like any Saudi city, has a great shortage of water. Its main source of water is the irregular rainfall; its average is 45 mm per year.

The supply of green area irrigation depends on groundwater (wells). There are about 23 wells - (there are four deep wells ranging in depth between 650 and 850 meters, while the rest are shallow wells ranging between 50 and 100 meters deep)- providing the needed irrigation water. These wells are excavated as a cooperative project between the municipality of Tabuk, which has excavated 15 wells, and the agriculture authority, which has excavated 8 wells.

The daily water needed to irrigate Tabuk's green areas reaches about 37,500 m³. The system used to irrigate the green areas is a combination of a network connected to storage tanks and a manual system.

Tabuk city has 8 tanks used as water storage. They are distributed between north and south of the city. It has pumps to fill water tankers and supply the network.

The network supplies about 40% of the water needed for the total green area, while the rest is irrigated by a manual system which depends on tanker trucks.

63 - The source of this information resulting to the interview with the Administration Supervisor 2009.

4.3.6- The Future Vision of Tabuk⁶⁴

The shortage of park areas has resulted in a negative effect on the level of recreation available to city residents. Parks planned for the future should introduce new leisure spaces to residents, as well as playgrounds where children can spend their free time. The municipality is now working to refurbish six city parks:

1- King Abdullaziz Park:

This park lies in the center of city; its area measures about 87,400 square meters. It is considered a multiple-use area. According to the vision of the municipal planners and the suggested design of the park (figure no. 4.3.30 designed by a private consultant), its design concept takes the irregular system through its curved lines, which form a circle. It should have a playground, many types of trees, green space areas, shaded seating areas and a lake, in addition to all required utilities such as wooden bridges, a mosque, kiosk, toilet, restaurant and recreational areas. Furthermore, it is specialized to serve families.



Figure no. (4.3.30) King Abdullaziz Park

Source: Tabuk Municipality, Administration of Parks and beautification. 2010

64 - municipality of Tabuk, administration of parks and beautification, 2008

2- Alshalal park, (waterfall):

It lies in the middle north of the city. Its area is about 50,000 square meters. The park site has a flat, irregular shape. The concept design of the park (4.3.31, designed by municipal engineers) consists of two concentric circles connected by curved paths. Similar curved paths lead towards the perimeter of the park. The main elements of the park are trees, shrubs and green space areas. In addition, car parking is available around the outside of the park. The park's name, Waterfall, does not correspond to its actual appearance: in the past, a waterfall was located here, but it has since been removed.



Figure no. (4.3.31)

Alshalal Park

Source: Tabuk Municipality, Administration of Parks and beautification. 2010

3- Alharam Park, - (the pyramid)-:

Alharam Park lies in the middle of the city. Its area is estimated at 88,000 square meters. This park has a flat regular shape. Its design concept depends on the forming of ornamental shapes using circles and curved lines in a harmonious style. The components of the park as envisioned by the designers– municipality engineers – are trees, green space areas, shrubs and shaded seating areas. In addition, car parking is provided around the park.



Figure no. (4.3.32)

Alharam Park

Source: Tabuk Municipality, Administration of Parks and Beautification, 2010

4- King Abdullaziz Mosque Park:

It lies in the south sector of the city. Its area is estimated at 22,000 square meters. The park site has a flat regular shape. The park is a redevelopment of the area surrounding the King Abdullaziz Mosque, which is currently covered with asphalt. The concept design for the park (4.3.33, designed by municipal engineers) is based on organized green space around the mosque which enhances the appearance of the mosque and makes it pleasant for visitors. The concept concentrates on the integration of the required services to the mosque, with green space areas running along paths leading to the mosque's entrances and car parking.

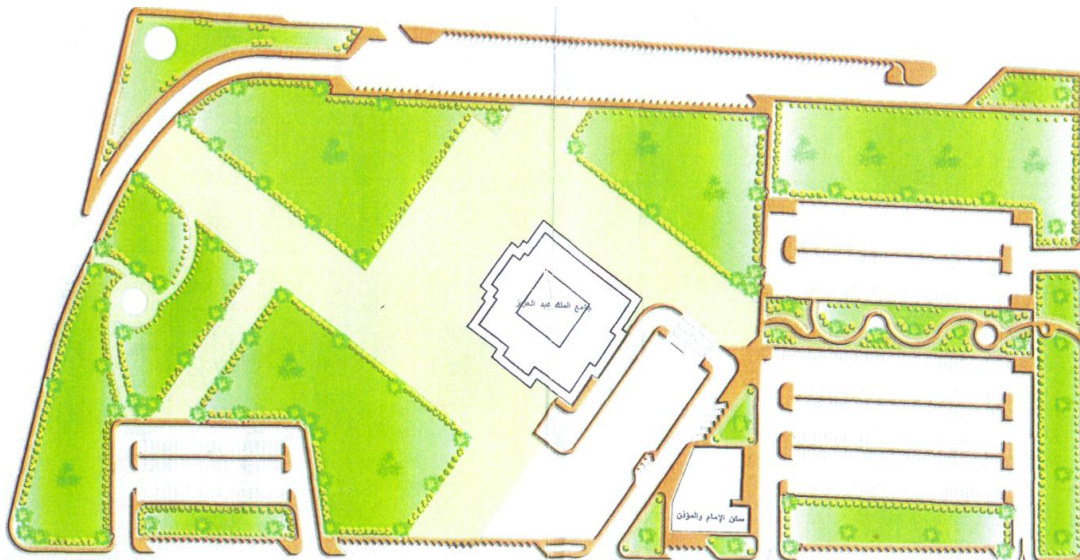


Figure no. (4.3.33)

Source: Tabuk Municipality, Administration of Parks and beautification. 2010

5- Alnaforah Park, - (the fountain)-:

Alnaforah Park lies in the south-central part of the city. Its area is estimated at 17,000 square meters. The suggested concept design of the park depends on a fountain, which is considered the dominant element besides other important facilities.

6- Sahari Park:

This park lies in the southern east of the city and its area is estimated at 37,000 square meters. It is considered a multiple-use park. As the classic parks it has the basic requirements in addition to the services utilities.

7-Playgrounds:

The municipality is now implementing about 10 playground parks. These parks are distributed throughout city quarters which have high population density. Also, these playgrounds are being designed to encourage children to create a suitable free-time environment close to their homes.

The area of each playground is about 1,800 square meters, which will add up to an overall 18,000 square meters of additional green area.

The municipality is planning to increase the total park area to 603,000 square meters, which will increase the specialized green area for each citizen to 1.24 square meters. Once the number of parks has been increased, they will cover 0.21% of the total city area.

4.3.7 - Example of park distribution throughout Tabuk

The planning criteria for parks depend on the local circumstances for each city. These criteria are issued by the Ministry of Municipal and Rural Affairs, which is responsible for creating green spaces. Each plan allocates a specific number of square meters for each citizen according to the categories Group Park, playground, Quarter Park and City Park.⁶⁵ The criteria pinpoint specific distances to use as a guide for the type of park distribution and the proportion of the population of a city quarter⁶⁶ to the size of its local park.

A study and analysis of the Tabuk master plan and the regulations of the Ministry of Municipal and Rural Affairs, which organizes the park types and its distribution.

In this aspect, I have selected many quarters for my study. My choice depends on many criteria such as location, green area, population and the average space of each person. The study will investigate all necessary information about park areas in each chosen quarter in addition to the main relationship between parks, population and service distance.

⁶⁵ - Ministry of Municipal and Rural Affairs, Criteria of Planning Guide for Recreation Region, first edition , 2006

⁶⁶ - Ministry of Municipal and Rural Affairs, Basics of Design, Implementation and Maintenance of Parks.

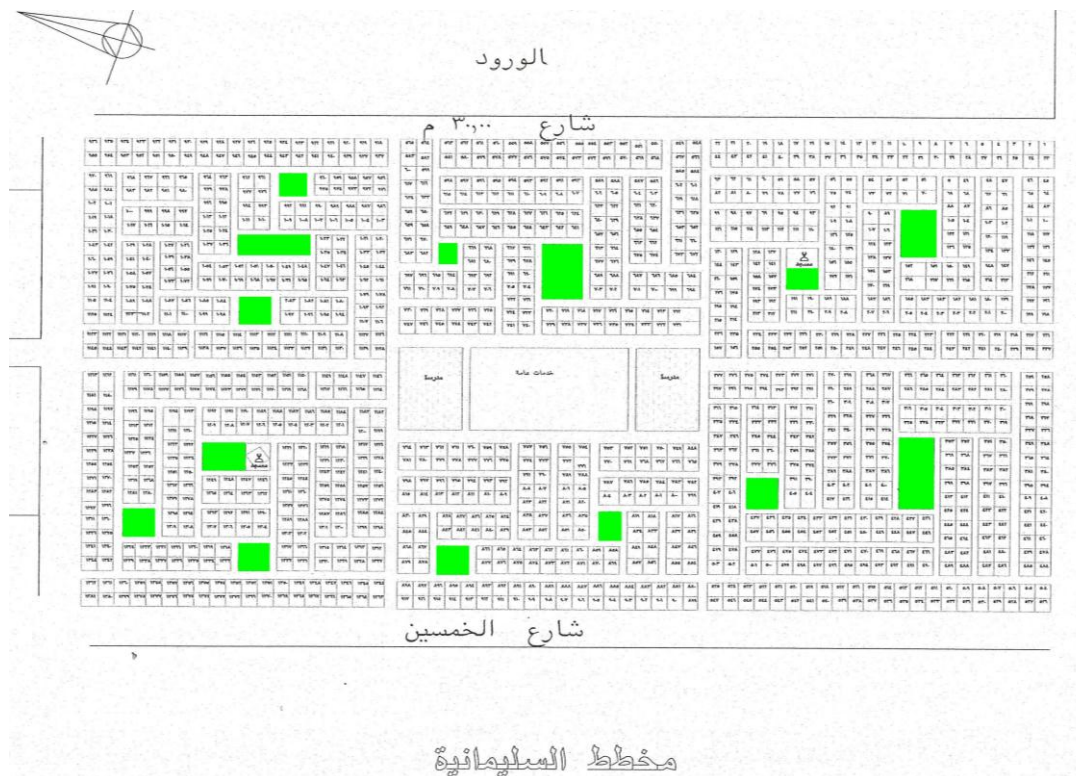
Example -1- Alsolaimaniah Quarter:**Alsolaimaniah Quarter Plan**

Figure no.(4.3.34)

Source: Multaqa Al-Afaq Group, Abdullah Al-Ahmari, Tabuk, 2008

The above figure illustrates the green areas found in Alsolaimaniah Quarter. This quarter lies in the heart of city and has high population density compared to other quarters. Its population is estimated at 26,350⁶⁷ inhabitants and in addition, the people who live in the quarter are middle-class.

The green area is estimated at (29,500)⁶⁸ square meters. This tells us that the average green space for each person is about (1.12) square meters.

According to the criteria of the recreation guide, a city quarter with a population between 10,000 and 15,000 should have an area between 0.33 and 1 square meter for playground

⁶⁷ - Ministry of Economics and Planning, Central Department of Statistics & Information (2004)

⁶⁸ - the area is collected by the researcher, 2008

and parks for each resident. By this calculation, the green area in Alsolaimaniah Quarter is well within the allocated in the range.

The above plan shows that the quarter is divided into 6 residential groups. Each group has playground areas in addition to the group's main park. The groups are designed as linear blocks with streets following a grid pattern.

The park's distribution style satisfies the regulations for parks distribution because the distance to the parks does not exceed 200 meters or a radius of between 125 and 190 meters.

Example -2- Albawadi Quarter:



Albawadi Quarter Plan

Figure no.(4.3.35)

Source: Multaqa Al-Afaq Group, Abdullah Al-Ahmari, Tabuk, 2008

The above figure illustrates the green areas found in Albawadi Quarter. This quarter lies in the southwest of the city. It has low population density compared to other quarters. In fact, it is one of the quarters forming a new extension to the city. The green area is estimated at (24,000) square meters. The quarter is designed for about 20,000 residents. The allocated green area tells us that the average space for each resident is about 1.2 m². Officially, this satisfies regulations regarding required green area.

The quarter is divided into 10 residential groups, each of which was designed as a linear block with regular grid streets. The utilities and parks distribution style used in the quarter is concentrated in two parallel axes, except the middle groups, which concentrate the green area space in the center of the group.

The gathering of allocated areas in and axial line has a negative effect on the parks distribution caused by the short distance between the parks types. In addition, not every park location is suitable. The official criteria suggest that the residential group's children's playground not be more than a 100-meter radius from each residence. On the other hand, the group parks service organization suggests a range between a 100 and 200-meter radius from the group center.

Park distribution in Albawadi Quarter has the radius of distance to reach the parks ranging from 300 meter to more than 600 meters in the north corner.

According to the Saudi criteria of recreation planning, the locations of these parks does not satisfy the minimum requirements for quarter parks.

Example -3- Alhamraa Quarter:

Alhamraa Quarter Plan

Figure no.(4.3.36)

Source: Multaqa Al-Afaq Group, Abdullah Al-Ahmari, Tabuk, 2008

The above figure illustrates the green areas found in Alhamraa Quarter. This quarter lies in the south of the city; it is considered a new quarter and a natural extension to the city. Currently, it has a very low population density. At present, the population is estimated at 889 inhabitants but is expected to reach 5000. The people who live in this quarter are middle-class.

The green area is estimated at (11,500) square meters. This tells us that the average space for each resident is about (2.3) square meters.

The quarter design is divided into four residential groups with an area for utilities services and Quarter Park. Each group has space allocated for a group park.

According to the Saudi criteria, distance to the park should range between 100 and 200 meters.

The parks distribution style does not satisfy the regulations of the parks distribution criteria because in time, the distance to the area covered by the park will reach a radius of about 300 meters. The scope service of a quarter park ranges between 400 and 800 meter, which satisfies the official criteria.

That leads us to consider that this quarter does not completely satisfy the regulations, but its concept in park distribution is significant.

Example - 4 - Almorouj Quarter:



Almorouj Quarter Plan

Figure no.(4.3.37)

Source: Multaqa Al-Afaq Group, Abdullah Al-Ahmari, Tabuk, 2008

The above figure illustrates the green areas found in Almorouj Quarter. This quarter lies in the east of city and has a high population density compared to other quarters. Its population is estimated at (15,881) inhabitants and in addition, the people who live in the quarter are middle-class.

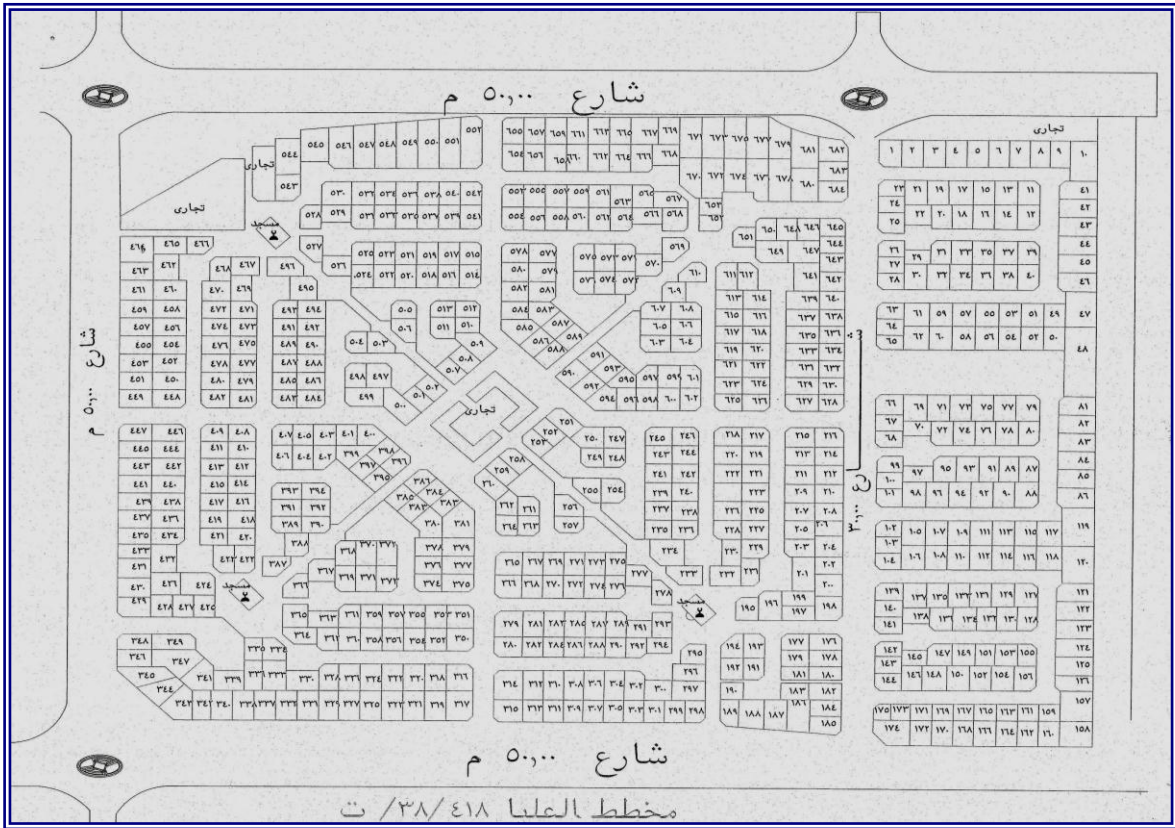
The green area is estimated at (36,750) square meters. This tells us that the average space for each resident is about (2.3) square meters.

Almorouj Quarter is designed according to a linear shape with linear blocks along parallel lines pinpointing the government utilities inside the quarter. The park is located in the center of the quarter.

Although the park is located in the center of the quarter, it does not satisfy the official criteria because the scope service exceeds the acceptable range.

Therefore, the distribution of parks does not satisfy the regulation but the allocated area for green area covers the required space for the quarter's needs.

5- Example - 5 - Alulaia Quarter:



Alolia Quarter Plan

Figure no.(4.3.38)

Source: Multaqa Al-Afaq Group, Abdullah Al-Ahmari, Tabuk, 2008

The above figure illustrates the green areas found in Alulaia Quarter. This quarter lies in the mid-south of city and it has medium population density compared to other quarters. Its population is estimated at (12,856) inhabitants, and in addition, the people who live in the quarter are middle-class. The green area is estimated at zero square meters.

The quarter design divides it into four groups. Each group has a special shape to create integral units respecting the privacy and safety of the residents. The secluded quarter provides a comfortable life.

With all due respect for the advantages of this quarter's design, the planner neglected the green area space and the people's need for recreation places that add beauty to the surroundings and provide balance for the urban environment.

Alolia is considered a new quarter and has a modern urban design, but it does not have any specialized areas for green or open space purposes except road planting.

4.3.8 - The evaluation of parks situation in Tabuk

In this section, the study will explore the opinions of the employees who work in the Administration of Parks and Beautification in Tabuk municipality. I carried out the questionnaire to find out their opinions and evaluate the situation of parks through the city.

The number of employees who participated in the questionnaire was 4. They have variation qualifications such as university and postgraduate. In addition, they occupy various positions such as director, supervisor and engineer.

This part of the evaluation will focus on three parts of the questionnaire regarding the park's situation, municipality's performance and the employees' suggestions for improving work development.

Part – 1 - Evaluation of Tabuk's parks

Half of the participants think the design of parks in the city is very good, while the remaining responses range between acceptable and bad. Furthermore, half of the respondents consider the size of parks to be acceptable. The majority think the parks' distribution throughout the city is good, but they think the parks' cleanliness is bad. However, most respondents think the maintenance procedure is very good.

When it comes to basic park equipment such as playground tools, planting, seating areas, walking paths, lighting and grilling places, the participants think the level of seating areas ranges between acceptable and excellent, walking paths are excellent and benches are reasonable, while the grilling places are unacceptable. On the other hand, the respondents find the provision of playground tools very good, while the planting level ranges between acceptable and excellent. In general, the respondents think the lighting in parks is acceptable.

Concerning the situation of public service utilities such as snack kiosks, toilets, parking and prayer places in Tabuk's parks, most of the participants think the snack kiosk situation is bad, the majority of participants said the situation of toilets is very good and half think the communal areas for prayers are fair. Most respondents think the amount of parking space is sufficient.

Part -2- Parks administration evaluation

In this part, the evaluation will focus on parks management with respect to the park's administration situation and Tabuk municipality's performance:

About the question which regards the **number of parks**, one participant thought the number of parks is enough, while most of them thought it is less than sufficient. Responding to my question about **decentralization of park management**, half thought there is decentralization in the parks management, but the other half were of the opposite opinion.

Does urban design help to create parks which satisfy municipal regulations? Three-quarters find the urban design satisfactory. Interestingly, all respondents gave positive responses to the question **do the urban design helps to create parks which satisfy society's requirements?** Half think the urban design is excellent and one-quarter believe it is fair, while another quarter think it is very good when responding to **does the municipality manage the city parks with professionalism?**. In their responses to the question **does the municipality manage the city parks at a satisfactory level?** half of the respondents thought it is very good, while one consider it is excellent. On the other hand, another participant thought it is reasonable.

Part 3- Suggestion and difficulties:

Part of the questionnaire was a request for suggestions from the respondents for ways to improve and guide the development of parks administration. On the other hand some employees mentioned difficulties which affect negatively on the parks' performance.

1-Suggestions to develop the parks administration:

- organize special training courses to increase the qualifications of employees.
- support the administration with people who have qualifications and experience in the parks field.
- encourage creative people to participate in parks management.
- raise awareness in the community about the importance of parks for the environment.

- support the administration by using modern programs, equipment and tools which improve the level of parks performance.

- use an investment system for parks development (but there must be some revenue).

2- Difficulties which have a negative affect on parks and their performance:

- Lack of financial resources.

- Lack of qualified companies with enough experience to operate and maintain the city's parks.

- Shortage of irrigation water.

- Shortage of qualified laborers and specialists in the parks field.

4.4 Summary

This summary will compare the cities shown in the last sections. The study will explain the difference between the cities in all aspects regarding green areas management and will describe the methods of operation and maintenance.

Furthermore, this section will discuss each city's integration with the surrounding environment its parks' functional role in society.

4.4.1- Statistical information:

	Jeddah	Medina	Tabuk
Location	West	Northwest	North
Area (km ²)	1,500	589	300
Population (million)	2.8	0.992	0.488
Municipal branches	10	7	-

Table no. (4.4.1)

4.4.2 - The cities' components

The selected Saudi cities are of different sizes and areas. In addition, their populations and topography differ. According to the master plans analysis of the selected Saudi cities, the main components can be summarized as follows: the residential area of Medina covers 47% of the city's area and Jeddah covers 54%, while in Tabuk it covers 66.5%. Public services in Medina equal 8.1% of the city's area, Tabuk equals 13% and Jeddah equals 10.4%. Industrial areas cover 13.5% of Jeddah's area and in Medina, they cover 5%. In Tabuk, industry covers 3% of the total area. Media has 12% of the city's area as parks, Jeddah has 2.2% and Tabuk has 1.5%. Both Jeddah and Tabuk are characterized by flat and sandy surfaces, while Medina is characterized by volcanic stone. In addition, 20% of the city's area is covered by mountains.

4.4.3- Policies and strategies discussion:

In general, these cities do not have clear policies guiding the operation of parks and planted open space. The strategy of the government and the annual budget has a significant effect on the policies used for green area implementation. However, every city has special guidelines affecting its methods of green area management. In Medina and Jeddah, establishing and implementing parks depends on citizens' needs, available land and confirmed budgets, while in Tabuk the strategy depends on administrative policy.

4.4.4- Administrative Discussion:

From the previous section on administrative affairs concerning parks and open spaces in the selected cities, the following can be seen:

- In Medina and Tabuk, the administrations which manage the parks come under the municipal deputy for services, while Jeddah's park administration comes under the municipal deputy of projects and construction. This tells us that parks management is not coordinated between the two cities.
- Medina and Tabuk have the same parks administration distribution and names for the various departments. On the other hand, Jeddah differs in the name and number of departments which come under the parks and open spaces affairs.
- Jeddah has two administrations responsible for parks and open spaces; each administration has the special duty to integrate green area operation and field missions.
- Medina's municipality is divided into 7 municipal branches. These branches help in parks management by operating and looking after all the parks' needs. While Tabuk municipality does not have any branch municipalities, it has central management. On the other hand, Jeddah municipality has 10 branch municipalities, but it does not have authority in park management. Because park operation depends on special divisions, it contains five offices. Each office supervises a limited area which comes under the control of the general administration.

4.4.5- Green area discussion

This part of discussion will examine the green area situation on various levels

A- The master plan:

According to the master plans of the selected cities, we can see the variation of allocated green area in the urban plan of these cities. In Jeddah, 2.2% of the total area of the city is allocated to parks and recreation facilities. This percentage equals about 33 km², which means about 1.18 m² for each person. In Medina, the allocated green area is 12% of the total city area. This equals about 70.7 km² or 71.3 m² for each person. In Tabuk the green area is equal to 1.5% of the total city area. This equals 7.5 km² or 16.7 m² for each person.

B - Current situation:

A look at the real situation shows us the actual level of green area in each city. In Jeddah the total area is estimated at 8.6 km², which equals only 0.57% of the total city area, while each person has 3.1 m² including roadside planting. In Medina the total area is estimated at 8 km² or 1.45% of the total city area, which equals 8 m² for each person. The existing green area in Tabuk is estimated at 0.3 km², which equals 0.1% of the total city area and means 0.61 m² for each person.

C - Future vision:

The above section outlines the situation of green areas in each city. In Medina, development has concentrated on extending the number of playgrounds and establishing new open space areas (open municipal areas) that will increase the total area to about 8.5 million m², in addition to the re-qualification of existing parks. Tabuk has a development vision to increase the number of parks and playgrounds by creating about six parks with a total area of 301,100 m² and ten children's playgrounds with a total area of 1,800 m². These new parks will increase the total green area to 603,000 m², which will have a significant effect on the city's available green area.

In general, in these both cities the future vision concentrates on work methods which should improve equipment such as the irrigation network.

On the other hand, Jeddah has a development strategy for the next fifty years. This strategy covers all aspects which affect Jeddah's citizens and make their lives more pleasant and pleasant. The future vision includes improvement to the city's parks using a special classification which will create parks that satisfy both government regulations and the surrounding community. In addition, the municipality plans to increase the green area throughout the city; its future vision will add about 53 km² to the green area. This will increase the total area to 62 km², which equals 8% of the total city area.

4.4.6- Parks components:

The parks in the cities are similar; the traditional design has combined many components. The main components of parks are children's play equipment, benches, bathrooms, car parking, kiosks and walking paths, in addition to the planted areas. There is no classification for the park types. When we compare the components of parks, we can see:

In Medina, the range of parks area is from 390 m² to 4,000,000 m². Most parks consist of green areas (grass) and trees. 30% of parks have playgrounds, while 19% have cafeterias. 27% have seating places, whereas 2% have barbeque places. 9% of the parks have bodies of water. 23% have public facilities, 15% have toilets and parking, and 17% have prayer places.

In Jeddah, which has 447 parks, only 39% of the total numbers have the main park components. The main components are water tanks, irrigation networks, footpaths, lighting, green areas and children's playgrounds. In Tabuk's parks, the components are the same as for other cities parks, such as children's playgrounds, kiosks, toilets and seating places.

4.4.7- Parks operations:

There are some variations in park operation methods; every city has an individual system which is used in parks and green area operation. In Medina, the central administration has the authority over planning and parks implements. The operation of parks runs under the supervision of the municipal branches. The layout of the operation system used in Medina

is suggested by the general administration, and then the municipal branches take on the duty of supervising and looking after the contractors who reflect the administration's vision and perform the maintenance required by planting and equipment.

In Jeddah, there are two types of parks operation: the investment type, which is operated by private investors but directs surpluses to the municipality's income. The second type is self-operation by contractors. The city is divided into five operation zones. Each zone includes many municipal branches. The operation method depends on performance of the operation, so the administration designs its vision for the parks and green areas and the contractors work to satisfy this vision. Evaluation and accounting depend on their performance completion for the required mission.

In Tabuk, the operation system depends on the central administration, which has the authority of planning and operation methods. It then gives the orders to the contractors, who implement the work orders without any direct responsibility.

The above shows three different operation systems; the variation between them is clear. There is a noticeable difference in the degree of dependence on the contractors' standard of accreditation, ranging from full responsibilities to the implementation of the tasks only.

4.4.8- Operation Staff:

With respect to the difference in the population and areas of the selected cities, the number of employees who operate the parks and green areas also differs. In Jeddah, there are about 1,400 employees who manage the city's parks. Fifty-two of these people work under the supervision of the municipality, while the rest are managed by operation contractors. Twenty-three engineers work for the municipal government; they are responsible for supervising city projects. There are also 29 technician assistants, whose duty is to realize the vision for each park. The total of the contracted employees is 1,347. Most of these (1,300) are labourers. The rest of the staff comprises 22 engineers and 25 technical assistants.

In Medina the total number of employees is 967. The municipality has about 57 employees responsible for city parks management. There are 17 engineers; they are divided among the general administration departments and the green area departments in the municipality's

branches. The rest of employees are technicians and labourers. On the other hand, there are about 910 operation contractors employees. Most of them (850) are labourers, along with 20 engineers and 40 technicians, whose duty focuses on the implementation and practice of the municipality's plans.

Tabuk has 296 employees. The municipality staffs comprise 134 employees, including 112 labourers, 8 engineers, 4 administrative assistants, 8 technical assistants and 2 agricultural inspectors. On the other hand, the contracted staffs are 162 employees, including 156 labourers, 3 engineers and 3 technical assistants.

According to the above information, we can say:

- From the area of Jeddah, we can estimate that the number of employees is 0.93 workers/km², while the rate of actual green area is 165 workers/km².
- In Medina, the rate of the total area is 1.64 workers/km², while the rate of the actual green area is 121 workers/km².
- In Tabuk the rate of the total area is 1 worker/km².

4.4.9- The green area financial budget:

This section concentrates on financial affairs regarding parks and green areas in the selected cities. In Medina the average of parks maintenance budget equalled 3.6% of the total average of the municipality budget during the period 2004 - 2007. On the other hand, the average budget for projects during the same period was 1%.

In Tabuk the average of green area maintenance budget equalled 1.9% of the total average of municipal budget during the period 2001 - 2007. The average of allocated budget for projects during the same period was 4.7%.

In Jeddah, the average budget for green area maintenance over the last ten years is 40 million Saudi Riyals, which equals to 2.2% of the total municipal budget for the year 2008. In other words, the total maintenance budget does not exceed 3.6% of the total municipal budget. This gives a clear indication of the low fund in this area.

4.4.10- The Integration of Natural and Artificial Landscaping

The cities have different surrounding environments. This led to different types of green areas according to what is suitable to each environment.

In Medina, mountains occupy about 20% of the total city area. This affects the types of parks which are appropriate for the landscape. For example, artificial waterfalls have been installed in some of the city's mountainsides.

Jeddah's coastal location and its high level of water led to the creation of many lakes. Not only do these lakes reduce the overall water level in the area, but they also enhance the appearance of the green areas. On the other hand, the topography of Tabuk is characterized by flat land and agricultural fields. This is led the municipality to take advantage of the available situation by creating some types of open space areas which increase the city's green area.

4.4.11- Parks and activity management:

The dominant function of parks and the open space areas in these cities is to create a place for people to spend their free time and enjoy recreation facilities. However, there is no direct relationship between the park and the community's need of places for these activities.

One exception is Annual Tree Week, which has been running in the Kingdom since the past 20 years. During this week, specialized departments organize activities which concern with increasing citizens' awareness of the importance of green areas to the surrounding environment and the importance of people being able to interact with nature.

On the other hand, Jeddah's future vision considers new additions to the park's world – this new classification cannot be found in any European park. It reflects the role which played by parks and other green areas in the daily life of the city.

The new classification system including park types such as:

1- Religious parks:

This type includes parks adjacent to Islamic religious buildings, such as the mosque park, Aleid Park and Souq Aljumah parks.

2- Family parks:

This type includes parks which serves family members. Examples are the family park, children's park, small children's park, women's park and Youth Park.

3- Cultural parks:

This type of park includes parks which allow citizens to learn new things and enhance their skills, such as: talent park, Museum Park, Library Park and School Park.

4- Quarter service parks:

This type of park includes parks, which provide additional services to residential areas, such as the quarter centre park, Alumdah Park, Sport Park and Occasion Park.

There are other park types, such as the environment park, which is meant to protect the surrounding environment from diseases, and the municipal plaza, which is considered a gathering place for sport activities.

Medina and Tabuk do not offer any occasions for civil agencies to participate in parks or open space area construction, operation and maintenance except specialist projects such as the military city in Tabuk. On the other hand, Jeddah city has wide experience in the participation of the public sector; there are three types of cooperation between the municipality and the public sector: directed care, semi-social care and full social care.

Chapter Five

Riyadh

In the previous chapters, the study has reviewed the main information about the Kingdom of Saudi Arabia and concentrated on the responsibility and regulation of parks and open space areas in addition to the factors which influence plants in the country. It has also discussed the history and urban development through time of selected Saudi cities; furthermore, it has explained the situation of parks and open space areas and their administration, regulation, responsibilities, operation and maintenance methods and the efforts of these administrations in their park development.

In this chapter, the study will focus on Riyadh city. It will explain the progress of the city in all aspects such as history, urban planning, population and the emergence of parks and open space areas. In addition, special attention will be paid to the policies and strategies which affect the city's park development. It will analyze the classification and components of city parks and offer a future vision of developing and increasing of green space area throughout the city.

Riyadh is the capital and the largest city of the Kingdom of Saudi Arabia. It is also the capital of Riyadh Province, and belongs to the historical regions of Najd and Alyamama. It has over 5 million inhabitants¹ and is situated in the interior of the country, 400 km from the Arabian Gulf and 900 km from the Red Sea.

Riyadh is located in the center of the Arabian Peninsula on a large oasis. Originally Riyadh was located along a green river, which in addition to sources of underground water made agriculture possible. With extreme expansion in the area, all natural water has long sources since it has been allocated for domestic use and for industries.

Riyadh is largely a modern city, dominated by high-rise buildings along boulevards. Some quarters are dominated by less impressive modern buildings from the earlier stages; however, we have a modern impression of the kingdom. Most of the traditional quarters have been torn down, but some of the historical buildings have survived, of which the nineteenth-century Masmak Fortress is the most noteworthy.

¹ - High Commission for the Development of Riyadh, 2009.

Riyadh has one of the fastest growth rates of any city in the world. The original population, of Najd ancestry, has been long blended with groups from all over Arabia as well as foreign nationals.²

As the country's capital, Riyadh hosts numerous governmental ministries and public services headquarters, making the public sector the city's largest employer.

The government employs more than one-third of the city's workforce and is the source of approximately half of Riyadh's total production of goods and services.

In the private sector, more than two-fifths of the workforce is employed in services, about one-fourth in construction, more than one-fifth in trade, and about one-tenth in industry.

Riyadh is an important financial, business, and manufacturing centre. A number of banks are headquartered in the city, including Saudi Arabia's central bank and several national banks; several private companies are also located there, and every publicly quoted company is compelled by law to have an office in the city. About one-third of the country's factories are located in Riyadh, producing machinery, equipment, metallurgical goods, chemicals, construction materials, food, textiles, furniture, and publications.³

The city's heart and its many souks (marketplaces) attract pedestrians, emphasizing the city's intense feeling of vitality. Riyadh's physical layout is dominated by its street system - a highly defined grid made up of 2-km by 2-km square blocks- which provides a network across the cityscape. This grid system is navigable, but it is also considered by some to be confining because of its regimented compartmentalization of the city's communities and neighborhoods.

² - Tore Kjeilen, (1996). Riyadh City, (p7)

³- Encyclopedia Britannica. 2009. Encyclopedia Britannica Online. 06 Aug) p 79



Figure no. (5.1)

The above figure illustrates a Riyadh city map by Google maps.2010

5.1- Riyadh's Topography:

The city of Riyadh is located approximately 1,950 feet (600 meters) above sea level in eastern Najd (“Highland”) - a region largely dominated by a rocky plateau landscape - in the centre of the Arabian Peninsula.

Najd’s broad, mountain-studded plateau gives way in the centre and east to a series of escarpments arching from north to south, including Al-Khuff, Jilh Al-Ishār, and, the longest and highest of these, the Tuwayq Mountains.

With a length of some 800 miles (1,300 km), the Tuwayq Mountains constitute the backbone of the most densely settled part of Najd, to which Riyadh belongs; the topography of Riyadh itself, however, is relatively flat. Soils in and around the city are made up of an alluvium of gravel, sand, silt, clay deposits, and a limestone subsoil.

5.2- Early History of Riyadh

Riyadh has been a city for the last 250 years, while the oldest mention of Riyadh as a settlement comes from 750 B.C. originally; Riyadh was founded on the location of Hajar, the capital of Alyamama region⁴. For hundreds of years, Riyadh remained an oasis in the middle of a sweltering desert, a patch of green in a sea of gold. Historical travelers' accounts make mention of this almost magical settlement, which managed to survive and prosper in one of the most arid, barren regions in the world.

The settlement was known by the name 'Hajar' in pre-Islamic times, and is referred to in the diaries and journals of merchants and tradesmen who visited it. It seems that it was as prosperous then as it is now, for it was a center of commerce. Trade flourished and travelers from all over the world came to barter their goods and carry home stories of this unique little place in the middle of what is now the Arabian Peninsula.

Hajar was primarily known for its many date orchards. Parts of the settlement were known as Riyadh, a name derived from the Arabic word 'rowdhah,' meaning 'place of gardens.' These parts comprised several orchards, which is probably how they got their name. It was an amazing sight to see the green trees stretching across the otherwise barren sands. Gradually the whole of the settlement came to be known by this name.

Life in Riyadh continued thus for centuries. Kingdoms rose and fell the world over, but the little oasis town remained undisturbed.⁵

The First Saudi state was destroyed by forces sent by Muhammad Ali of Egypt, acting on behalf of the Ottoman Empire. Ottoman forces attacked the Saudi capital Diriyah in 1818. In 1823, Turki ibn Abdallah, the founder of the Second Saudi State, revived the state and chose Riyadh as the new capital. Internecine struggles between Turki's grandsons led to the autumn of the Second Saudi State in 1891 at the hand of the rival Al Rashid clan, who ruled from the northern city of Ha'il. Riyadh itself fell under the rule of Al Rashid in 1865. The al-Masmak fortress dates from this period.⁶

The city was recaptured in 1902 from the Al Rashid family by King Abdullaziz Ibn Saud. He went on to establish the modern Kingdom of Saudi Arabia in 1932, with Riyadh as the capital of the nation.

⁴ - High Commission for the Development of Riyadh, (2004). Riyadh in fifty years, (p. 12)

⁵ -Anthony Guise and Chris Gent, (1988), *Riyadh*, rev. ed. (p.9)

⁶ - Arab Urban Development Institute, (1984.) Riyadh: The City of the Future, trans. from Arabic p13

The 20th century, however, had some of the most historically relevant actions that would shape the future of the city. In the year 1902, King Abdullaziz seized Riyadh in his quest to establish a singular Arabic kingdom in the desert of the peninsula. King Abdullaziz was one of royal lineage; the Al-Saud had lorded over a large part of the peninsula since the 17th century. However, in the 18th century, they were driven from their holdings by the Egyptians and the Ottoman Turks.

In the process of regaining his lost empire, Abdullaziz conquered Riyadh and spent the next three decades laying the foundations of his kingdom. On September 23, 1932, the country of Saudi Arabia was born, and Riyadh was declared the capital.⁷

5.3- Riyadh's Architecture and Urban Planning History:

5.3.1- Historical Background

Riyadh's rise as an urban center began in 1824, when Turki bin Abdallah bin Muhammad bin Saud (ruled 1824-1834), the founder of the second Saudi state (1824 – 1891), established his control over the city and made it his capital instead of Diriyah, which is located about 20 kilometers northwest of Riyadh and was the capital of the first Saudi state (1744 – 1818).⁸

Before 1824, Riyadh consisted of a number of small villages that spread throughout the area of Wadi Hanifah. Riyadh had another period of growth beginning in 1902.

It was again governed by King Abdullaziz between 1902 and 1953.

Al-Hathloul⁹ said in his public lecture "Riyadh Architecture in One Hundred Years" presented by Dr. Saleh al-Hathloul at Darat al-Funun - (art house)-, Amman, Jordan on April 21, 2002. He notes that Riyadh is a twentieth-century city. It grew from an area of

7 -London Centre of Arab Studies, (1999). *Riyadh: History and Development*, Overviews of the history, geography, people, and development of the social and economic life of the city. (p33-35)

⁸ - al-Turath al-'Umrani fi al-Mamlaka al-'Arabiyya al-Saudiyya [The Architectural Heritage in the Kingdom of Saudi Arabia] (Riyadh: Ministry of Municipal and Rural Affairs, 2002), pp. 46 – 47.

⁹ - Saleh al-Hathloul is an educator and a critic in the field of architecture and urban planning. He holds a Bachelor's degree in architecture from King Saud University, Riyadh, a Master's degree in architecture and urban design from Harvard University, and a Ph.D. in Architecture and Environmental Studies from the Massachusetts Institute of Technology (MIT). He was an assistant professor and chairman of the Department of Architecture at King Saud University and has been a member of the boards of directors of several governmental organizations in Saudi Arabia. He was also Deputy Minister for Town Planning, Ministry of Municipal and Rural Affairs.

one square kilometer and a population of 14,000 people in 1902 to an area of 1,500 square kilometers and a population of 4,300,000 people in 2000¹⁰.



Figure no. (5.2) an aerial view of the city of Riyadh in the early twentieth century

The one-square-kilometer city was enclosed by battlements (figure 5.2). The walls were built of mud and bricks, had a height of almost 8 meters, and incorporated towers and defended gates. One of the main structures located inside the walls of Old Riyadh is al-Masmak Fortress (also called al-Masmak Palace; (figure 5.3)), which was the first part of the city to be overtaken by King Abdullaziz in 1902, and which was renovated in recent times¹¹.

¹⁰ - Nadav Safran, *Saudi Arabia: The Ceaseless Quest for Security* (New York: Cornell University Press, 1988). And Roy Leblicher, George Rentz, and Max Steineke, *Aramco Handbook* (The Arabian American Oil Company, 1960), p. 54 – 77.

¹¹- Ministry of Municipal and Rural Affairs. (2002), *Al-Turath al-'Umri fi al-Mamlaka al-Arabiyya al-Saudiyya*. (Urban Heritage in the Kingdom of Saudi Arabia). Riyadh. (p. 67 – 69)

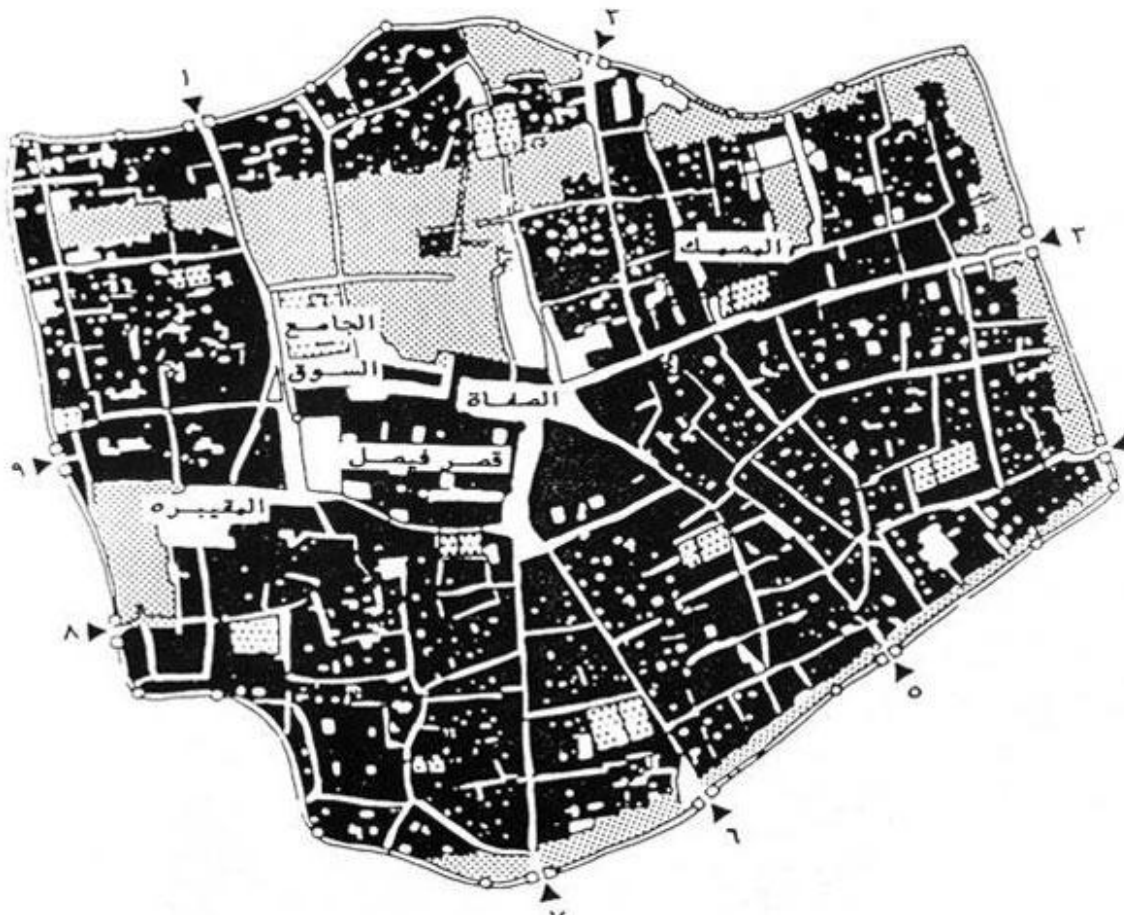


Figure no. (5.3)

The above figure illustrates an overlay of the walls of Old Riyadh superimposed on a more recent aerial view of the city, and a layout plan of the urban fabric of Old Riyadh showing the city walls, gates, and some major places in the city.

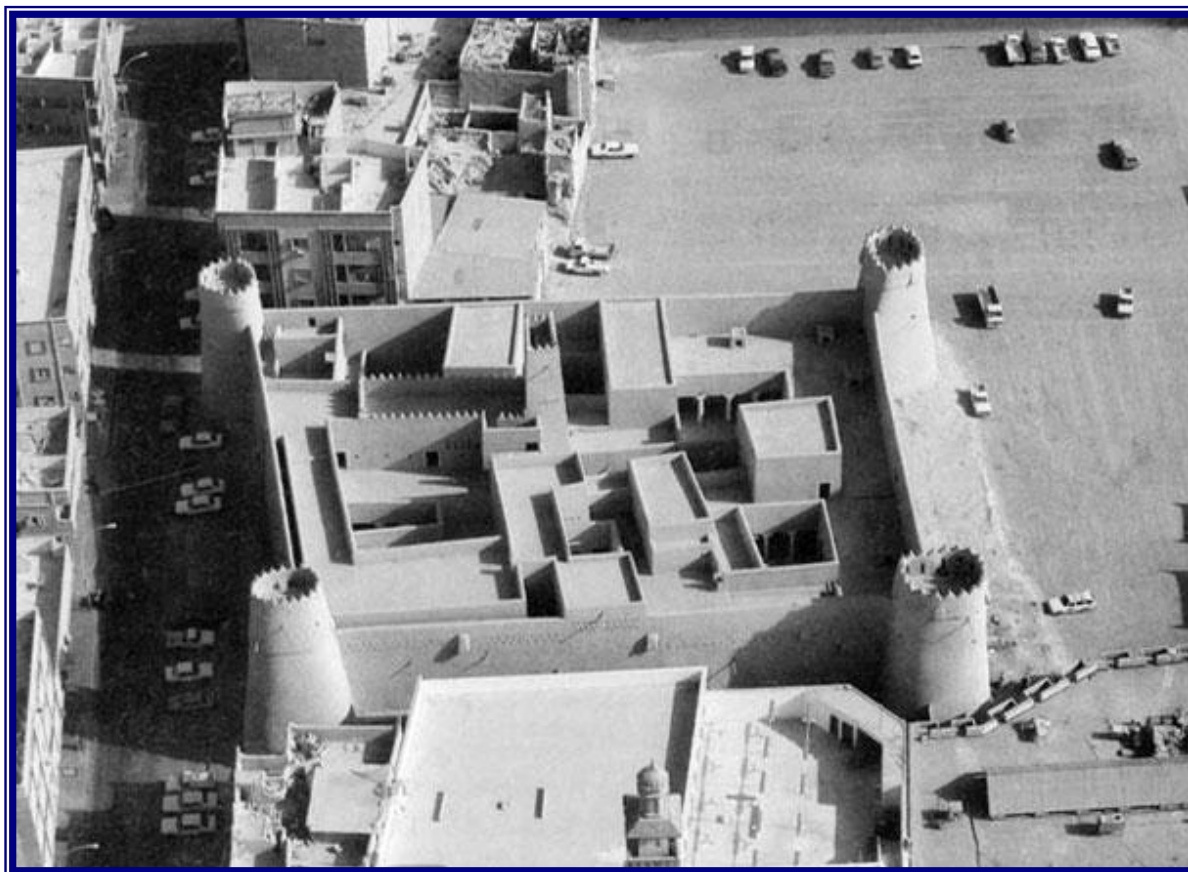


Figure no.(5.4)

An aerial view of the early-twentieth-century al-Masmak Fortress in Old Riyadh.

5.3.2-Old Riyadh's Architecture and Buildings:¹²

Architecture and construction styles in general, are considered essential cultural components. Architectural style reflects the dominant culture from any given historical period.

Traditional architecture in all its forms and levels is connected with visual, aesthetic, cultural and economic values, so that all buildings of a particular style or period are pleasing to the eye as a result of their continuity and harmony with their surroundings.

The concept of an Arabic city is characterized by compact structural masses which confine urban open spaces. An important characteristic of Arabic cities is the movement system, which begins with blocked roads or courtyards, and finishes in the center of the city. Roads tend to be narrow in residential areas and become wider as they approach the city

¹² - Alhusain, M., Haroon, A. (2003). Pictures From the Urban Heritage, first edition , King Fahad National Library, Riyadh,

center. This road system is a successful Arabic design in that it has created open spaces which still preserve a feeling of privacy. (See figure number 5.3)

Historically speaking, the central area of the kingdom was not affected by other nations due to its location in the center of Arabic peninsula and separation from the coast by natural barriers. The climate is considered the main affective factor in the region's architecture.

Clay brick was the most common construction material for wall structures, while stone was used in the foundations. In addition, mosques and residential courtyards were often surrounded by columns.

The courtyard is considered the main element of a Najd house; there is some variation in the size of houses and interior decoration, depending on the residents' income.

1- Najd Architectural Features:

- Interior courtyard.
- Harmony of construction material using the clay in the walls and stone in the foundations.
- Decorating doors and windows by painting the surrounding gypsum material.
- Carving on the sides of buildings located at intersections.
- Decorating using the prominent triangles along the perimeter of each facade.
- Using small openings for ventilation purposes.
- Dominance of solid areas on facades.
- Engraving gypsum material used in finishing.

2- Najd Traditional Housing:

Traditional housing in the Najd region is characterized by simplicity in its appearance, strength of construction and functionality in the design. The housing provided privacy and safety for its residences because of the lack of openings at the ground-floor level, which received natural light and ventilation from the courtyard. The small openings on the first floor provided natural lighting for the space allocated as seating areas for guests. This was usually connected directly with the main entrance by stairs leading up from the foyer.

The many and prominent triangles had many function; they were used as decorative elements and protected the walls from erosion due to rainfall.

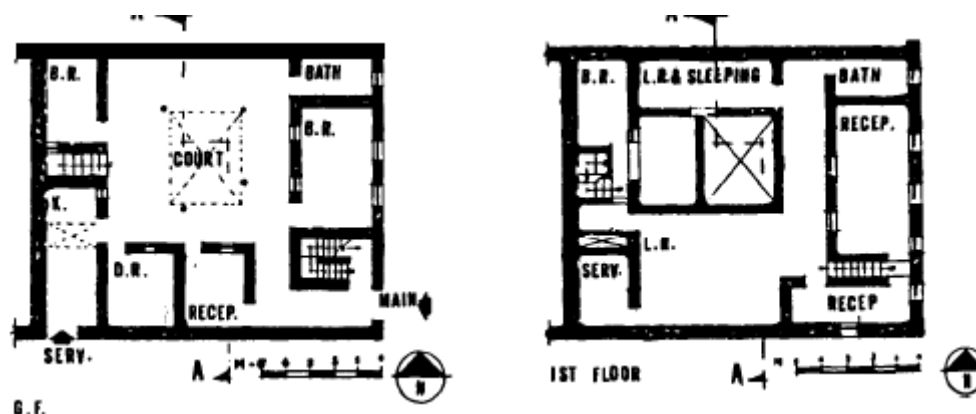


Figure no. (5. 5)

Source: (Saeed 1989)¹³

The above figure illustrates the ground and first floors of Najd traditional houses. It shows the interior design of the house and other important components.

The below figure illustrates the top view of the urban fabric of old Riyadh and some typical building features. (The picture dates from 1917)



Figure no. (5.6) top view of the urban fabric of old Riyadh

Source: High Commission for the Development of Riyadh. (1990), Riyadh Yesterday. The second edition (1992). Riyadh.

¹³ - Saeed, A.S. (1989). Climate and Socioeconomic Influence in House Design, with Special Reference to the Hot-Dry Regions of Saudi Arabia and Sudan. King Saud University. Vol.1 College of Architecture and Planning, Riyadh. (pp 37-57), ..

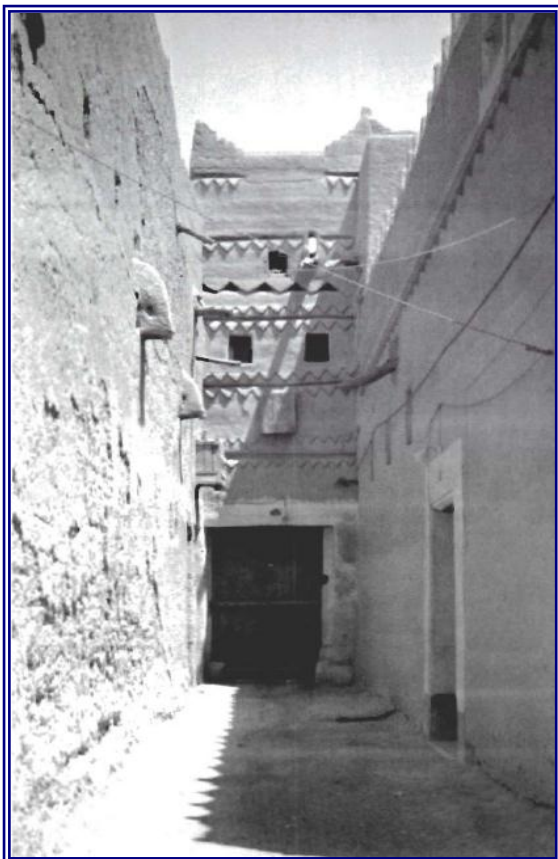


Figure no. (5. 7) type of Street in old Riyadh

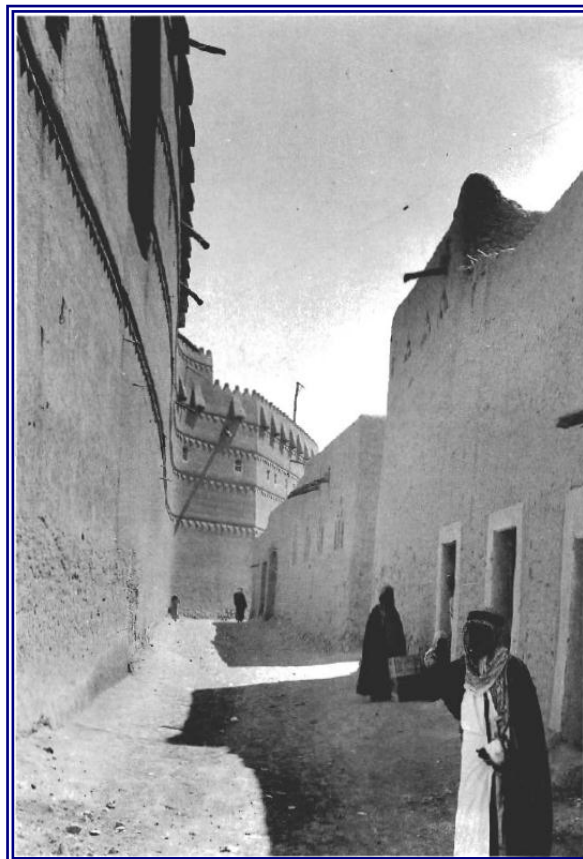


Figure no. (5.8)

Source: Riyadh Yesterday publication, issued by the High Commission for the Development of Riyadh, second edition (1992). Riyadh, 1990

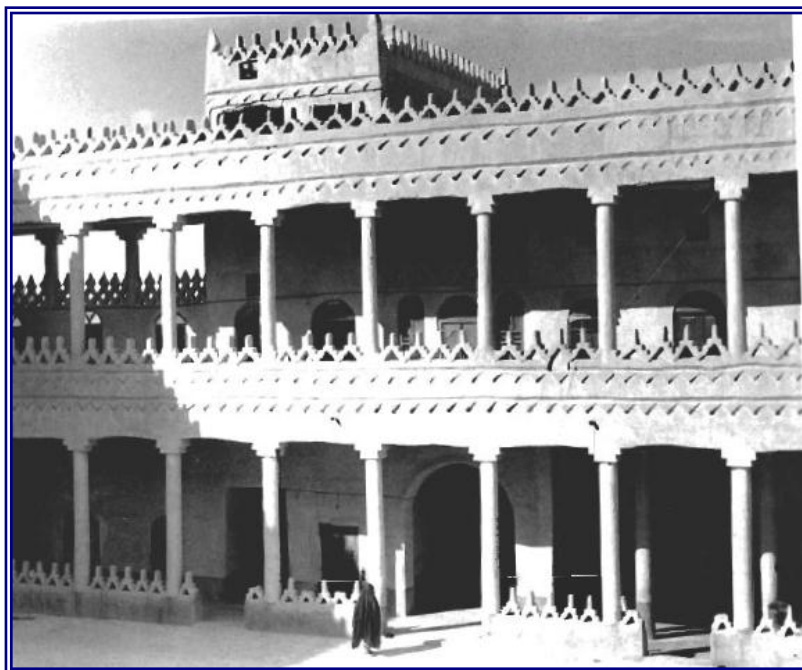


figure no. (5. 9) Example of building courtyards

The above figures illustrate some types of streets found in old Riyadh. They also illustrate the variety of width, straight and blocked or through roads. Furthermore, they show the outlining of the doors with gypsum, in addition to the finishing materials used in old Riyadh buildings.

The side figure illustrates one of the courtyards which characterized old Riyadh building design. It shows the stone columns used as load-bearing elements around the courtyard, and the well-known triangles typical of Najd architecture.



Figure no. (5.10) view of the city center

Source: the High Commission for the Development of Riyadh. (1990), Riyadh Yesterday, the second edition (1992). Riyadh.

The above figure illustrates the center of the old city, which was considered the city's gathering point as well as the location of the governor's office and other government buildings. It clearly shows the regional materials and finishing style.

The below figure illustrates the main mosque, which was considered the most important building after the government building. Usually, the mosque was located in the commercial center as in this figure. These pictures date from 1937 and 1943 respectively.

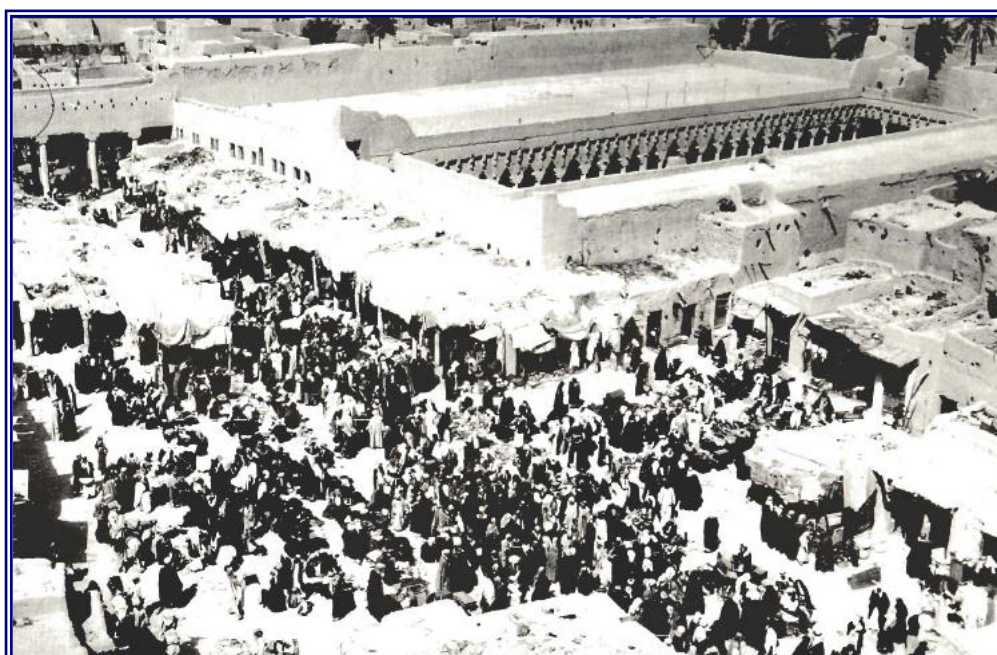


Figure no. (5.11) **Source:** as above view of the main mosque and commercial area

5.3.3- Riyadh's Urban Development:

According to the High Commission for the Development of Riyadh's reports and Al-Hathloul's essay, the urban development of Riyadh was affected by two stages which had a massive impact on the urban changes in the city.

In the mid-1930s, Riyadh extended for the first time outside the walls of the old city. This was marked by the construction of Qasr al-Murabba' (al-Murabba means *the square*) palace), which was established by King Abdullaziz himself in 1937. The palace was located about 2 kilometers north of the old city of Riyadh and extended over an area of 16 hectares. It took its name "al-Murabba' (the square)" from its square 400 by 400 meters shape. Al-Murabba was a kind of walled palatial complex that included a few palaces for the king and the members of his family, a few residential buildings that housed the king's retinue, and some administration buildings (figure 5.5).

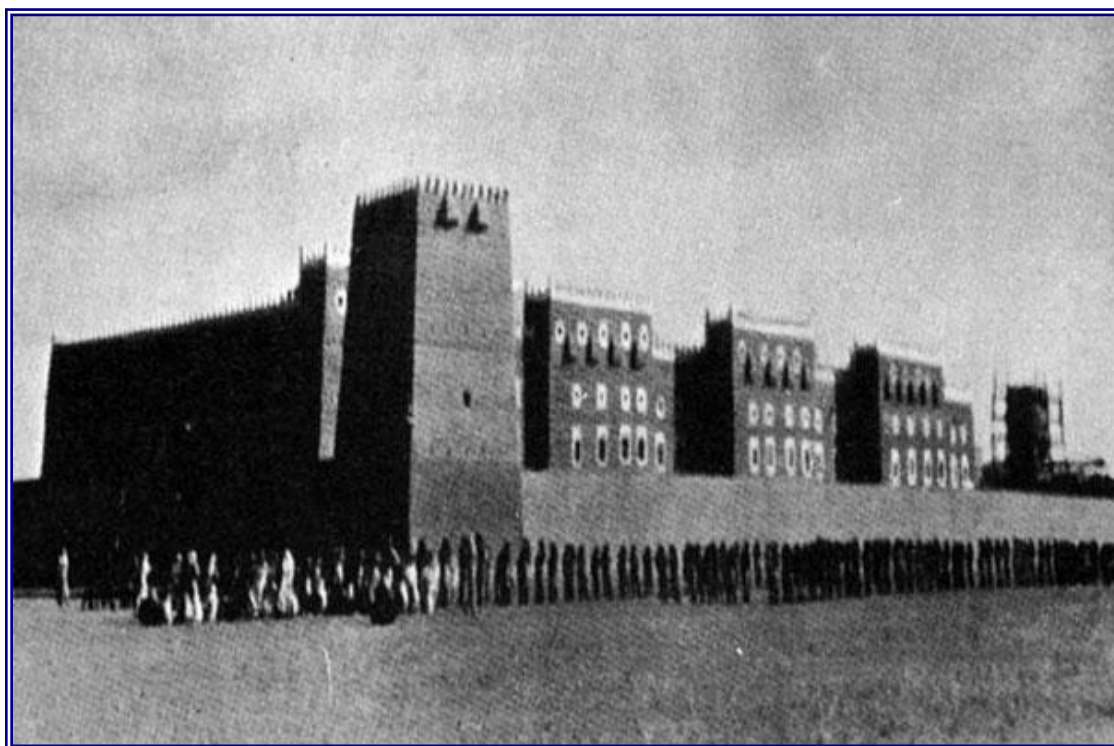


Figure no. (5.12) Qasr Al- Murabba

The above figure shows a view of the 1930s Qasr al-Murabba' (the Square Palace), which was established by King Abdullaziz, located north of old Riyadh.

The construction of al-Murabba encouraged the development of the area known as al-Footah, which is located between al-Murabba and the old city, along the western side of the street that later connected al-Murabba with Old Riyadh. The development of al-Footah

dates to the 1940s, when a few of King Abdullaziz' sons decided to build their palaces there.

The construction of al-Murabba Palace had a strong impact on the physical development and growth of Riyadh. The city expanded considerably. Also, al-Murabba itself was sizable, and occupied an area almost one-third that of Riyadh. In addition, its construction resulted in the emergence of the al-Footah area. Also, by locating al-Murabba to the north of the old city, northward expansion was set as the primary direction for the growth of Riyadh. Furthermore, the construction of al-Murabba outside the city walls demonstrated that living within the walls was no longer a necessity, and that citizens would be safe living outside the walls. Thus, building expansion beyond the city walls was initiated.

According to Al-Hathloul's notes, three new technologies were introduced for the first time in Riyadh with the construction of al-Murabba. **The first** is the automobile as a means of transportation. Consequently, the streets inside al-Murabba were widened to allow for vehicular movement. However, the later introduction of the automobile to the old city of Riyadh had negative consequences as some of the buildings of Riyadh were torn down to allow for the widening of streets. **The second technology** was electricity, which was available through the use of generators. **The third technology** was indoor plumbing with sophisticated drainage systems.

An important point concerning the construction of al-Murabba is that although it incorporated these three new technologies, it retained much of the general features of the traditional urban patterns of the central Arabian region of Najd, which included solid masses, covered streets, and the incorporation of courtyards.¹⁴

Also, it was built using local Najd building techniques and materials. Therefore, clay and sun-dried mud bricks were used for the construction of walls, and Tamarisk tree¹⁵ trunks plastered with mud were used for the roofs. Being of much larger size than any other

¹⁴ -Saleh al-Hathloul, 1996 *The Arab-Islamic City: Tradition, Community and Change in the Physical Environment* (Riyadh: Dar al-Sahan 1996), p. 158 – 188, 200 – 229. Also see al-Turath al-‘Umrani fi al-Mamlaka al-‘Arabiyya al-Saudiyya, p. 21 – 26.

¹⁵ - Tamarisk trees (*tamarix aphylla*) were a common source for wood used in traditional buildings in the region of Najd, where Riyadh is located. For details on the Tamarisk tree, see http://www.csbe.org/water_conserving_landscapes/plant_lists/trees/tamarix-aphylla.htm.

earlier building in Riyadh, al-Murabba provided a positive example of how one can adapt and apply traditional building technology to large-scale projects.

5.3.3.1- Riyadh's Uncontrolled Urban Planning Stage:

The period which began in the 1950s is called the period of uncontrolled urban planning; throughout this period, a departure from traditional building techniques took place in Riyadh. One example is the construction of a rural palace in al-Nasriyah Farm, located to the west of old Riyadh. The palace was probably the first building in Riyadh for which reinforced concrete was used. Also, an orthogonal grid planning pattern was introduced in al-Nasriyah in 1953 and in the later project of al-Malaz, which, in turn, influenced city planning practices in Riyadh, as will be discussed below. A more direct effect of al-Nasriyah on the development of Riyadh was the expansion of the city by some 6.5 kilometers to the west.

The two projects of al-Murabba and al-Nasriyah necessitated that they should be linked to the walled city of Riyadh as well as to each other. Thus, in 1953, the first street that linked al-Murabba with al-Nasriyah was constructed and paved with stones (not asphalt). Also, in the 1950s, a small airport was constructed in the northern part of Riyadh. Moreover, a railway that linked Riyadh with Dammam in eastern Saudi Arabia was inaugurated in 1951.

Figure (5.13) shows the locations of the old city of Riyadh (no.1) and the major projects that brought about the city's expansion beyond its walls, including al-Murabba (no. 2); al-Nasriyah (no. 3); and al-Malaz (no. 4).



Figure no.(5.13)

A site location plan of Old Riyadh and the major projects that took place in Riyadh during the first half of the twentieth century.

Upon the succession of King Saud bin Abdullaziz to the throne of the kingdom in 1953, he took two major decisions that played a major role in the further expansion of Riyadh. King Saud ordered the transfer of the Kingdom's government offices from Jeddah, which is located in the Western Province of Saudi Arabia, and which until that time was considered the religious and administrative capital of the kingdom, to Riyadh. Subsequently, a group of buildings were constructed along the airport road (King 'Abdullaziz Street) in Riyadh to house the various ministries.

. (Figure 5.14) In order to house the employees of those ministries who moved from Jeddah, a large-scale housing project was needed.



Figure no. (5.14) King Abdullaziz Street

A view of the 1950s ministries' buildings along the airport road (King Abdullaziz Street) in Riyadh

The Al-Malaz project, which later came to be known as al-Riyadh al-Jadidah (The New Riyadh), was constructed about 4.5 kilometers northeast of the city center. (Figure 5.15) Al-Malaz covers an area of almost 500 hectares and consists of around 750 villas, three apartment buildings, as well as the necessary supporting facilities.

Living in apartment buildings was a new concept that was only introduced to Riyadh during the mid-1950s through the al-Malaz project. The case is different in al-Hijaz, or the Western Province of the kingdom, which includes Makkah, Medina, Jeddah, and Taif, where apartment buildings ranging from two to five stories had been a common residential building type.



Figure no. (5.15) Almalaz Quarter

A layout plan of al-Malaz Housing Project (known as al-Riyadh al-Jadidah), located to the northeast of the old city center of Riyadh.

The second decision that King Saud took that had an impact on the physical growth of Riyadh was the reconstruction and considerable expansion of al-Nasriyah in the mid 1950s as a royal complex that included a number of palatial residences, a group of villas, and a number of residential buildings as well as other necessary facilities.

The three projects of ministries' buildings, al-Malaz housing, and the rebuilding of al-Nasriyah had a great impact on the architectural and urban development of Riyadh and the kingdom in general. These projects, particularly al-Malaz, introduced a new way of thinking in terms of planning and construction in the city. First of all, the gridiron planning that was adopted in both al-Malaz and the reconstruction of al-Nasriyah was a clear departure from the traditional urban pattern of Riyadh, which, as is the case with other traditional Islamic cities, was characterized by a complex urban pattern.

It was the use of the gridiron pattern of planning in al-Malaz project that served as a model in the more recent planning projects for Riyadh. After all, al-Nasriyah was a palatial residence enclosed by walls, and therefore was unlikely to be taken as a planning model for residential neighborhoods in the city.

Another important building type that emerged from al-Malaz project as a new model for residences in the city was the detached villa¹⁶.

Between the 1950s and 1960s, government employees were considered of high social standing and the general public often emulated their way of living, including the way their residences looked. Also, since al-Malaz project was initiated by the government, people considered it an authoritative statement regarding the way their dwellings should be. Therefore, as soon as government employees moved to their new villa-type dwellings in al-Malaz, this building type quickly spread in Riyadh. Also, land prices in Riyadh rose dramatically in the 1960s and 1970s as a result of land speculation. This was facilitated by the grid-planning pattern in Riyadh, which had become well established by the introduction of the 1972 Riyadh master plan (see below).

Along with the spread of grid planning and the villa building type, building ordinances and zoning regulations in Riyadh started to be set up. Those ordinances and regulations adopted some issues that already had been incorporated into al-Malaz project, such as the hierarchical pattern of streets, the square lots on which villas were built, and the setbacks on all sides of the lot. With this institutionalization of building ordinances, both grid planning and villa-type dwelling assured their continuity in Riyadh and in other cities in the kingdom.

5.3.3.2- Riyadh's Controlled Urban Planning Stage:

Until the end of the 1960s, Riyadh did not have a plan to organize the development process. The last wave of urban development reflected official decisions. However, the municipal authorities understood the importance of regulations to organize the development process, so that the first master plan was assigned in 1968 to the Greek firm

¹⁶ - The detached villa as a type of residence was first introduced in 1951 by ARAMCO (the Arabian American Oil Company) in its Home Ownership Plan in Dammam and al-Khobar, as well as elsewhere in the Eastern Province of Saudi Arabia. For more information on the villa-type dwelling in al-Malaz housing project, in particular, and in Saudi Arabia, in general, and the way it affected land subdivision in Riyadh, see *The Arab-Islamic City*, p. 167 – 171.

Doxiadis Associates and completed in 1972 (its scope area is 632 km²). It followed the grid pattern that was, more or less, aligned along the north-south and east-west axes.

The planners believed that 2 by 2 kilometers – (figure 5. 16) - was the most suitable area for a neighborhood, and set up the grid on that basis.

The plan assumed that the city would expand within a 10-kilometer-radius circle. It determined Wadi Hanifah as a natural boundary to the expansion of the city from the west, and proposed an industrial zone as an artificial boundary for the city's expansion from the east. Basically, the master plan established a north-south longitudinal central spine along which commercial uses would extend, and another spine, perpendicular to the first one, along which institutional and governmental buildings would be located. According to this master plan, residential neighborhoods would extend behind the longitudinal spine¹⁷.

The Doxiadis Master Plan for Riyadh adopted the car as the main means of transportation. Thus, streets were designed in a hierarchic pattern that included freeways that linked the city with other regions in the kingdom; expressways that served high-speed traffic inside the city of Riyadh; arterial streets that served heavy traffic inside the city; collector streets that linked the neighborhoods together; and local streets that ran inside the neighborhoods.

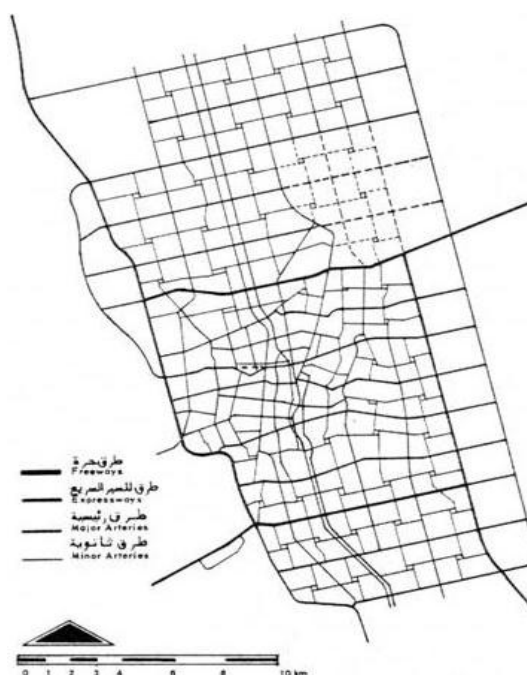


Figure no. (5. 16)

The above figure illustrates the basic grid of the first master plan for Riyadh in 1972, designed by Doxiadis Associates. It explains the grid method used as the essential guide for city extension.

17 -Saleh al-Hathloul, (1996). The Arab-Islamic City: Tradition, Community and Change in the Physical Environment p. 171 – 188

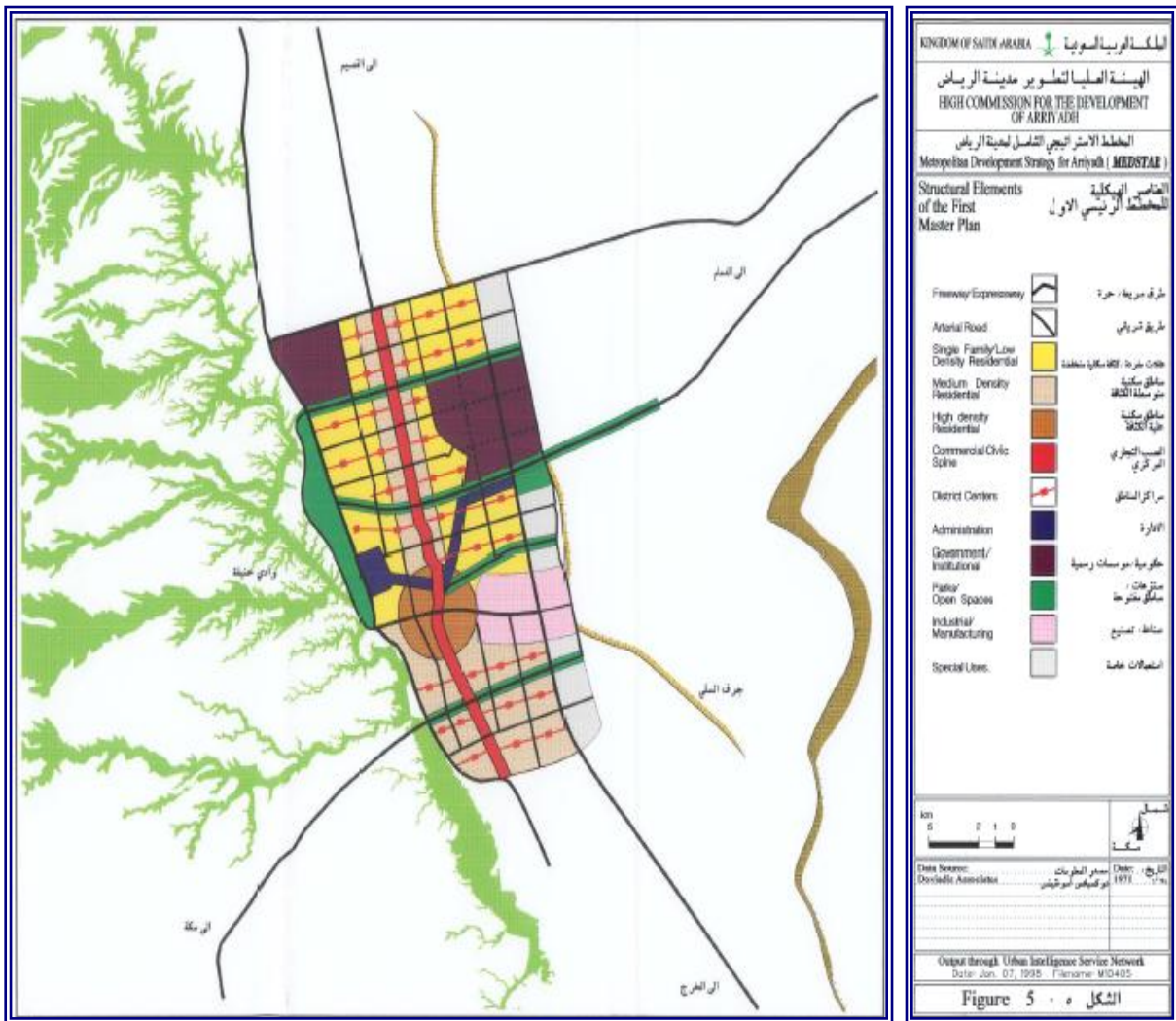


Figure no. (5.17) the first master plan of Riyadh city which indicates land use

Source: High Commission for the Development of Riyadh

The economic boom which happened in the 1970s and the increase in both government expenditures and personal income led to a rush in urban development to high levels that threatened to exceed the Doxiadis master plan boundary before the decade's end. The second master plan – (completed in 1981 and equaling 1150 km²) - was at a later stage upgraded by the French planners SCET International. However, the main features of the first master plan, primarily the 2 by 2 kilometer grid, were maintained. Riyadh needed to expand, it extended eastwards and northwards, and that the grid pattern allowed too much undesirable horizontal expansion of Riyadh.¹⁸

¹⁸ - High Commission for the development Of Riyadh, (2003), comprehensive strategic plan of Riyadh city, final report. brief report (p 4)

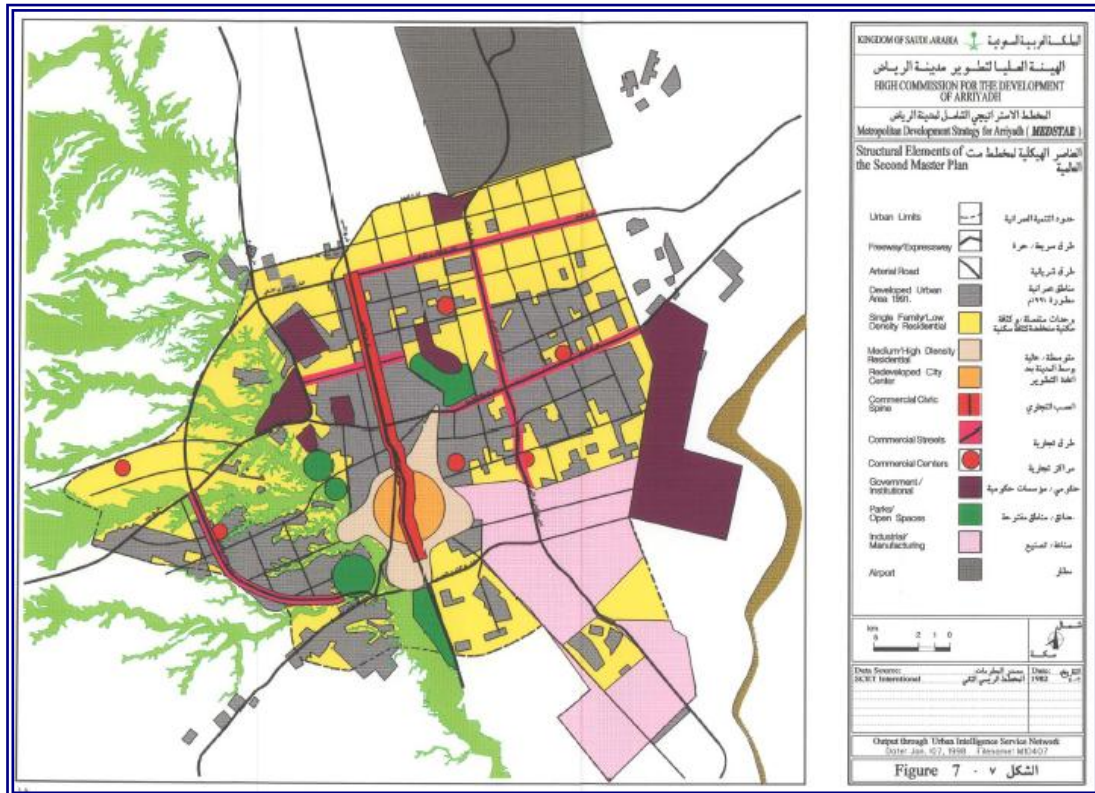


Figure no. (5.18)

The second master plan, which was prepared by SCET International

Distinguishing Projects throughout this Time:

Riyadh observed a great construction boom during the 1970s and 1980s as a result of the rise in oil prices in the 1970s.

At that time, Newsweek Magazine described Riyadh as “the biggest construction site in human history.” In fact, during the decade extending from 1977 to 1986, an average of 11,500 building permits was issued in Riyadh each year.

According to Al-Hathloul's essay,¹⁹ there are some of the buildings that belong to this period, particularly pioneering projects that influenced the evolution of architecture in Riyadh.

In this period, many famous architects participated in the design of some buildings which were planned at that time. These designs added a new touch to the appearance of buildings and created new styles in the city at this stage of the development.

19 -Al-Hathloul, Saleh. (2002). Riyadh Architecture in one Hundred Years. An essay on a public lecture at Dar Al-Funun, Amman, Jordan. Published for the Center Study of the Built Environment. (CSBE).

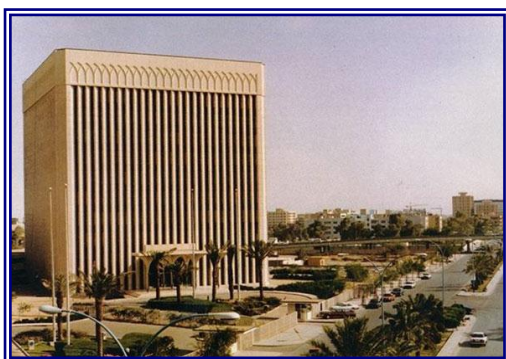
The following shows examples of these projects, which changed the face of the city:²⁰



1



2



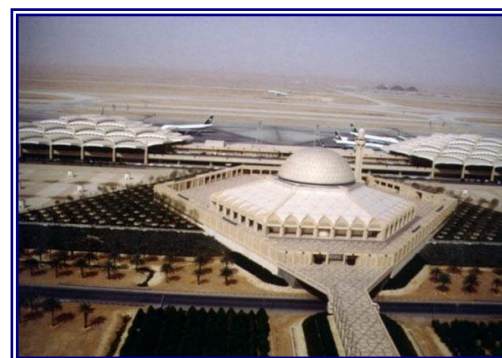
3



4



5



6

Figure no. (5.19)

source: Al-Hathloul, 2002)

20 - In the period which lies between 1970s and 1980s and resulting to the economic rising that caused by biggest construction boom. This projects were polarized many famous architects to participate in the design of it such as:

1- The general organization for social insurance buildings, designed by the Saudi consulting office Omrania & Associates. 2- The Saudi Fund for Development building designed by Urbahn and Coile International and constructed. 3-The Saudi Arabian Monetary Agency building, designed by American Architect Minoru Yamasaki (1912- 1986). 4- The institute of Public Administration Building designed by The American Architects Collaborative (TAK). 5- Complex of King Faisal Foundation, designed by the leading Japanese architect Kenzo Tange. 6- King Khalid International Airport, Designed by the American firm Hellmuth, Obata + Kassabaum (HOK).

5.3.4- Population Development:

Between 1862 and the early 21st century, the population of Riyadh grew from about 27,000 to more than 4,500,000, a dramatic increase rooted in high birth rates coupled with the rapid economic growth of the 1970s and 1980s.

During these years Riyadh also experienced an influx of immigrants, including foreign laborers. Their arrival contributed to a continuing, pervasive societal dependence on expatriate labor by the beginning of the 21st century,

Saudis accounted for only about two-fifths of Riyadh's workforce. In addition to foreign laborers, a large number of Saudis from elsewhere within the country moved to Riyadh during the 1970s and 80s, many of them from rural areas. This trend reflected the general migration of Saudis from rural areas to urban locations within the country that contributed in part to a massive reversal of the urban-to-rural ratio.

While throughout Saudi Arabia in the early 1970s there existed one urban dweller for every three rural dwellers, by 1990 it was nearly the opposite, and the populations of urban areas such as Riyadh swelled dramatically.²¹

At the beginning of the 21st century, tens of thousands of Saudis continued to move from rural areas to the city of Riyadh each year. Saudi nationals represent about two-thirds of the city's population among the non-Saudi population.

A demographic study carried out by the high authority of Riyadh development in 2004 that covered the period between 1987 and 2004 revealed the following:²²

- Demographic growth reflected the three basic factors birth rate, death rate and the impact of immigration from both within and without Saudi Arabia
- Demographic growth during the period 1987-1997 reached 8.1 % while growth during the period 1997-2004 reached 4.2%
- Saudis comprise 66% of the population, while non- Saudis make up 34%.
- A great percentage of the population of Riyadh is young: more than 34% of citizens are under the age of 15.

21 - High Commission for the Development Of Riyadh' (2000). The King Abdullaziz Historical Centre. (p.68)

22 - High Commission for the Development Of Riyadh' (2004). Administration of research and studies. (p. 8 – 19)

- The interior immigration to Riyadh from another part of the kingdom was 438,000 inhabitants during the period 1991-1997, while the number was 260,000 in the period of 1997-2004.
- The average age of Riyadh's inhabitants is 22. The average age of Saudi inhabitants is 18, and the average age of non-Saudis is 30.

Year	1987	1991	1997	2004
Total population	1,389,500	2,083,400	3,116,800	4,260,192
Change ratio	-	639,900	1,033,400	١,١٤٣,٣٩٢
Change percentage %	-	50	50	34

Table no. (5.1) The change in Riyadh’s population between 1987 and 2004

Source: High Commission for the Development of Riyadh, administration of research and studies

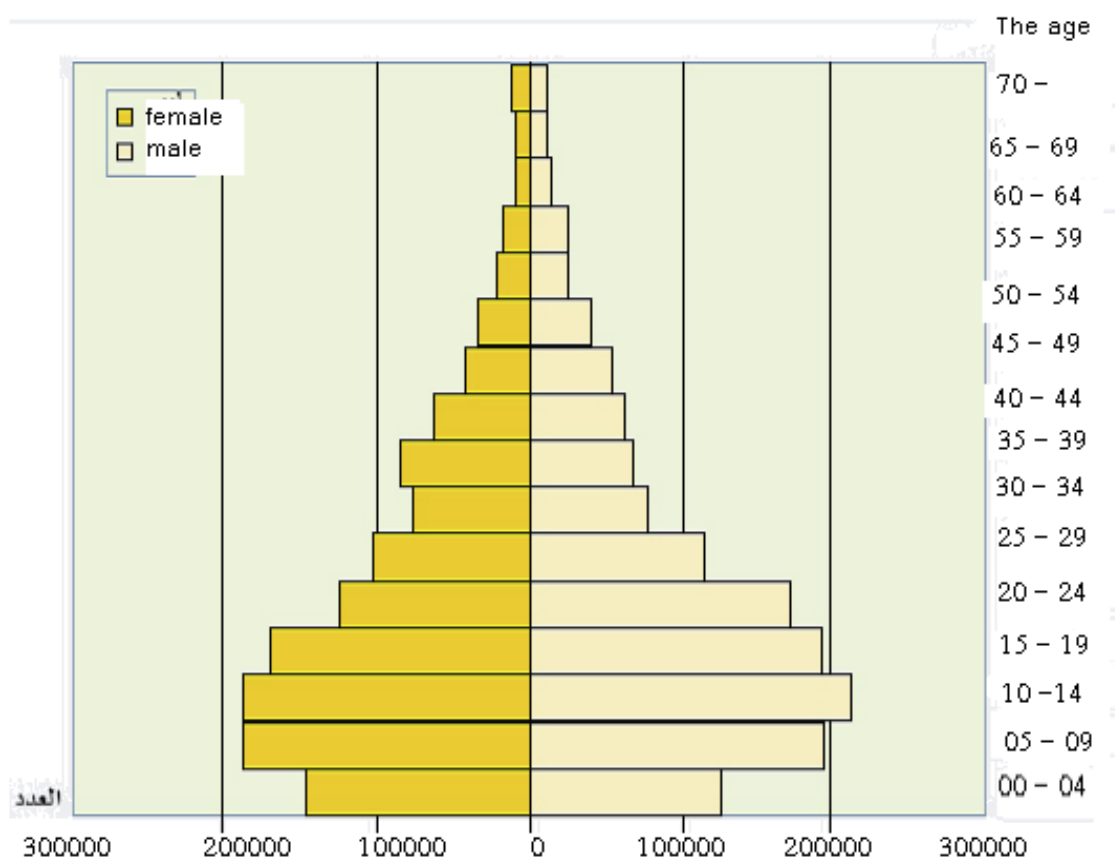


Figure no. (5.20) Riyadh Population Pyramid

Source: High Commission for the Development of Riyadh, administration of research and studies.

5. 4- Riyadh Today

Riyadh today is a world capital that has undergone fast development and growth. The population has multiplied and areas have expanded, in addition to economic services and utilities growth. This in turn has enabled Riyadh to shoulder its responsibilities as a political, administrative and financial center of the kingdom in addition to being an economic, medical, industrial and service center in the region.

Riyadh occupies a special position among the kingdom's cities because it has two administrations responsible for supervising the managing and planning of municipal activities. These authorities are the High Commission for the Development of Riyadh and Riyadh municipality. The following will focus on the function of each authority:



Figure no. (5. 21) view of the new urban structure of Riyadh

Source: <http://www.ada.gov.sa/ar/Photos/modernRiya/allPhotos.aspx?CurClass=Odd> (2-4-2010)

The above figure illustrates the new urban structure of Riyadh city. It also depicts the new construction styles and materials used in the new building structure.



Figure no. (5. 22) view of the new urban structure of Riyadh

Source: <http://www.ada.gov.sa/ar/Photos/modernRiya/Photo.aspx?PI=9> (2-4-2010)

The above figure illustrates the modern urban composition. Also, it shows the commercial center of Riyadh city and its intersection with the main transportation network.



Figure no. (5. 23) view of modern construction and old building styles in Riyadh

Source: <http://www.ada.gov.sa/ar/Photos/Kingdom/Photo.aspx?f=/ar/Photos/Kingdom/Khalidia.jpg&t>

The above figure illustrates the combination of modern construction and old building styles which are considered a part of old Riyadh city. This building is considered the oldest high rise building in Riyadh city which was constructed in 1980 as a commercial and residential center.

5.4.1-A- High Commission for the Development of Riyadh:

Due to the high importance of Riyadh as the political and historical capital of the Kingdom of Saudi Arabia, a High Planning Commission has been established for developing the city in all economic, social, cultural, architectural and environmental aspects. The commission is also responsible for drawing policies and procedures aiming at raising the efficiency of services and facilities connected with raising citizens' standard of living and welfare.

The High Commission for the Development of Riyadh and its executive branch, the Riyadh Development Authority, were established by virtue of the resolution of the Council of Ministers in 1394H (1974).²³

A-1- Urban Obligations:²⁴

The High Commission for the Development of Riyadh was delegated a number of tasks for planning and development, which can be identified as follows:

- Preparation of plans and schemes for the overall development of the city.
- Modified plans and comprehensive plans as needed, including examining and approving land use change and making adjustments to building regulations and planning.
- Preparation of studies, including studies of the urban scopes and follow-up applications.
- Supervising the preparation of plans for private and public use of land.

A-2-The High Commission's Strategy:²⁵

The High Commission for the Development of Riyadh considers people as the basic focus for development; hence, it groups human needs according to the studies of field analysts and includes within all development strategies aspects of worship, commerce and

²³ - The High Commission for the Development of Riyadh – see web site (<http://www.ada.gov.sa/ar/ada/index.aspx>), 20/3/2010.

²⁴ - Previous reference (22)

²⁵ - Previous reference (22)

entertainment with respect to different ages to provide an environment appropriate to people's various psychological, social and physical needs.

The High Commission is also committed to preserving local culture and promoting knowledge. Therefore, it plays an important role in development processes.

The Commission seeks to support the continuity of culture in two complementary ways, based first on the physical dimensions in the local culture, which belong to the surrounding environment with a focus on the spirit of architecture in general. The second strategy concentrates on the dimension of the intangible in the local culture, which is reflected in values, norms and behavior and manifestations of social life and worship.

In addition, one of the main priorities set by the High Commission as a guide for its development programs is concern for the natural environment in terms of protection and conservation. Furthermore, the Commission works to improve the physical environment and minimize the negative consequences of various developments by maintaining air quality and human, animal and plant life, and various elements of nature in general.

In addition to the above obligations, the High Commission is responsible for supervising the development of major roads in the city centre and the diplomatic quarter.

5.4.2- B- Riyadh Municipality:

Like the Saudi government system, the municipality is responsible for the civic aspects of the municipal administration and for supervising all plans and strategies tied to urban development.

Riyadh municipality is divided into fifteen districts. Each district has the responsibility to manage and follow the main municipal strategies and duties.

Its functions and duties for the city are:²⁶

- Organizing and coordinating the city according to approved plans from the relevant authorities.
- Licensing all construction and building, as well as all public and private extensions.
- Maintaining the appearance and cleanliness of the city and establishing parks, public plazas and tourist attractions. Also, it administers and monitors municipal activities both directly and indirectly.

²⁶ - Riyadh municipality, web site:

<http://www.alriyadh.gov.sa/amanat/web/pages/Page.aspx?Type=8&pageobjectid=1163> (30.3.2010)

- Protecting environmental health inside the city by filling up pools and swamps, preventing floods and planting trees around the city as a fence to protect Riyadh from sand.
- Monitoring food safety and supervising the supply of groceries. Monitoring prices and public service fees in addition to monitoring weights and measures in cooperation with the competent authorities.
- Establishing slaughterhouses and ensuring their cleanliness.
- Creating markets and identifying points of sale.
- Authorizing people to work in various trades and professions, and issuing public business licenses. Also, the monitoring health and technical aspects.
- Maintaining the safety and comfort of citizens and taking the necessary action to prevent and fight fires; demolishing ramshackle buildings and establishing public shelters.
- Determining positions for street vendors, wagons and vehicles.
- Organizing domestic transportation facilities and determining fares in agreement with the competent authorities.
- Expropriation of property for public benefit.
- Determining municipal fines and penalties for violation of the regulations.
- Supervising elections and nomination of the heads of trades and professions, also monitoring their business procedures and resolving the conflicts that may occur between them.
- Protection of historic buildings in cooperation with the competent authorities.
- Encouraging and promoting cultural, sporting and social activities.
- Cooperation with the competent authorities to prevent begging and homelessness, the construction of shelters for orphans, the disabled, and the mentally ill.
- The establishment of cemeteries and institutions which prepare the dead for burial; overseeing burial and tending graves.
- Preventing cruelty to animals and tending to stray or wild animals.
- Prevention and removal of encroachments on both private and public property.

The municipal branches have the same obligations and duties as the main municipality but each one has authority to manage the municipal services in its respective region in addition to the practicing of general administration, regulations and strategies.

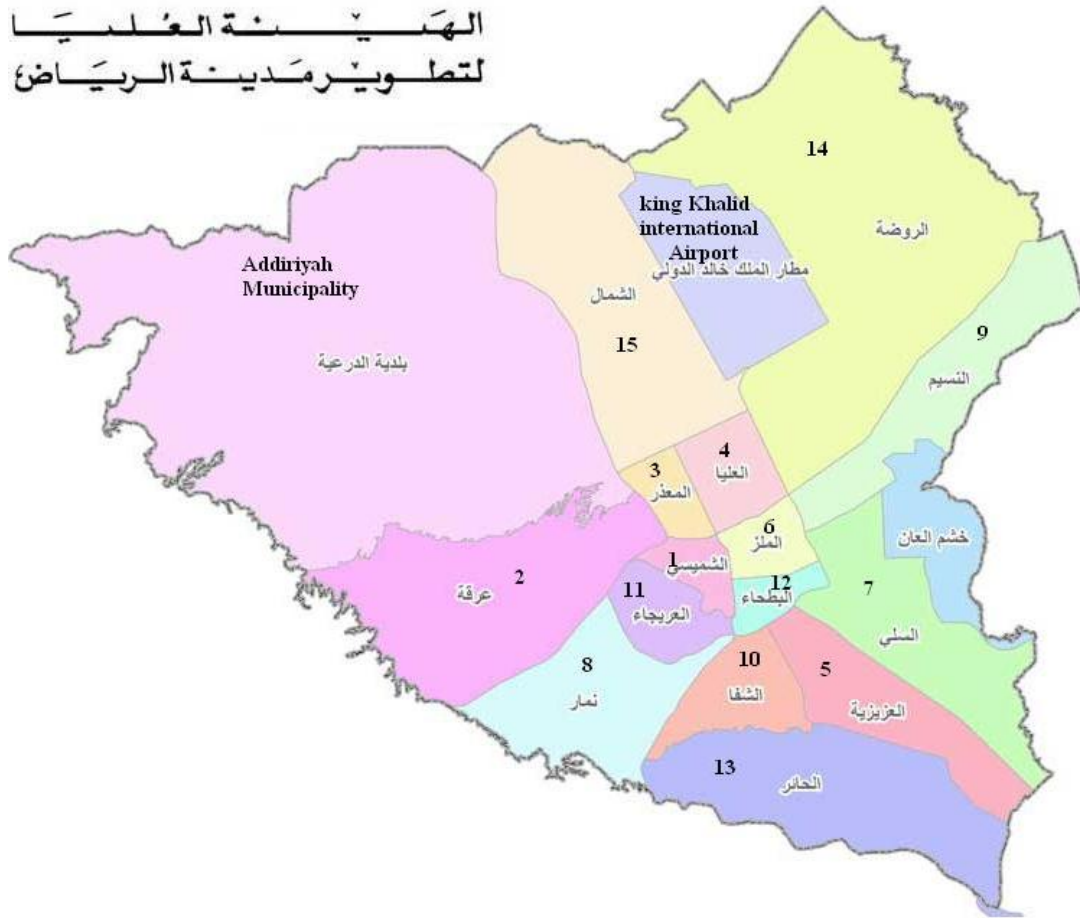


Figure no.(5.24) Riyadh Municipal branches

Source: Riyadh municipality, website:

http://www.arriyadh.com/ar/cgi-bin/maps/NewSub_Municipalities.htm, (31.3.2010)

Riyadh Municipal Branches:

- | | |
|--------------------------------|--------------------------------|
| 1- Alshumaisi Municipal Branch | 11- Alulaia Municipal branch. |
| 2- Arqah Municipal Branch | 12- Albatha Municipal branch. |
| 3- Almathar Municipal branch. | 13- Alhayer Municipal branch. |
| 4- Alulaia Municipal branch. | 14- Alrudhah Municipal branch. |
| 5- Alaziziah Municipal branch. | 15- Alshamal Municipal branch. |
| 6- Almalaz Municipal branch. | |
| 7- Alsulay Municipal branch. | |
| 8- Nemar Municipal branch. | |
| 9- Alnasaim Municipal branch. | |
| 10- Alshafa Municipal branch. | |

B.1- Riyadh organizational structure:

The following figure illustrates Riyadh's municipal organization structure, which explains the pyramid-shaped structure of the main administrations and the relationships among them.

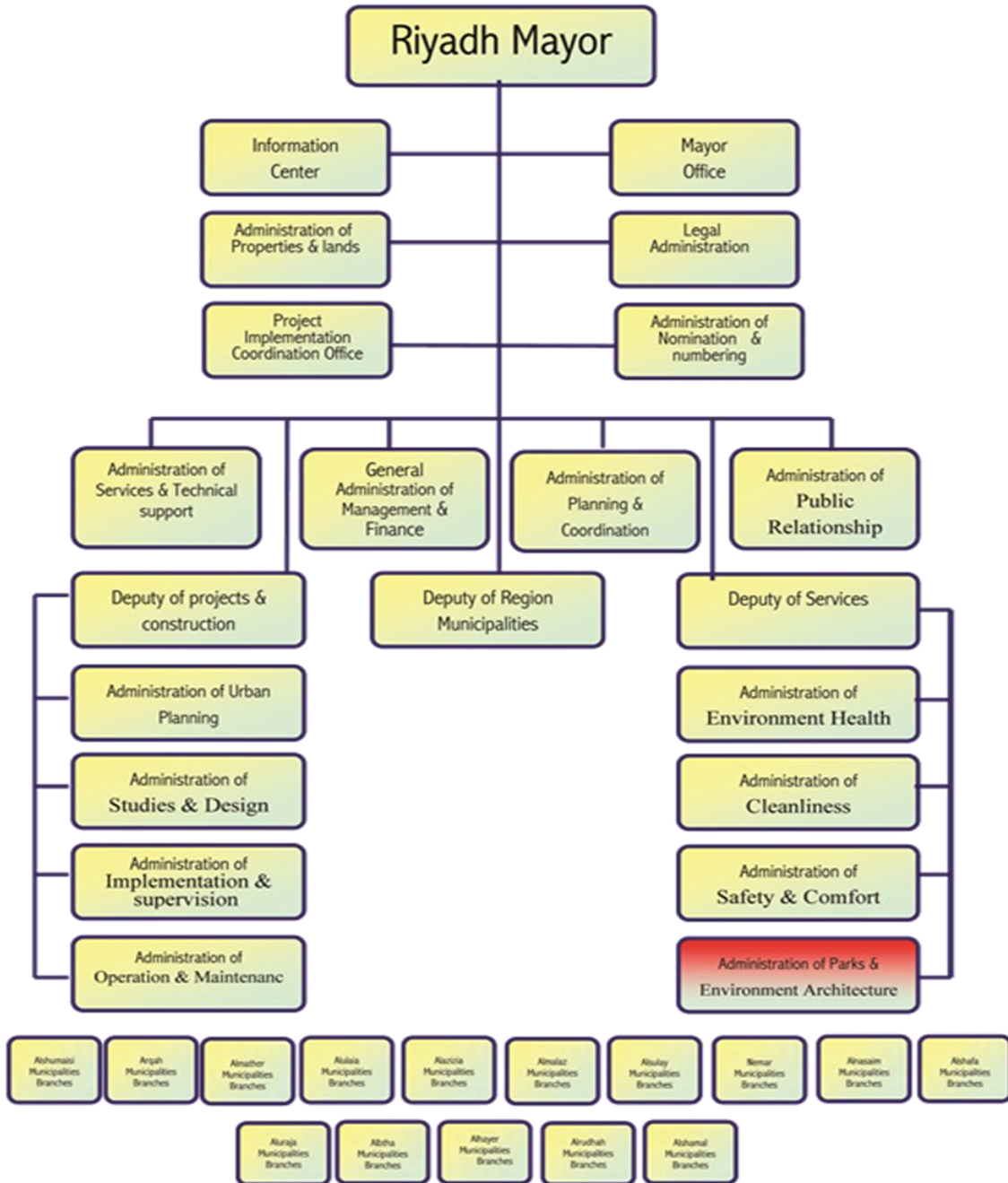


Figure no. (5. 25) Riyadh's municipal organization structure

Source: Riyadh municipality, 2009

B.2- Riyadh municipal deputies' obligations:

B.2.1- Deputy of Regional Municipalities:²⁷

This deputy has the supervisory and follow-up responsibility to the municipalities located in the Riyadh region and not covered by the scope of the municipal branches. There are 37 municipalities, at various levels, which currently come under the deputies' supervision. The deputies' obligations include:

A-Technical work:

- 1- **Roads:** laying and asphaltting the region's roads; preparing project studies and supervising the implementation stages according to the regulations, standards and design in addition to handing over these projects upon completion.
- 2- **Building:** implementing municipal building and parks projects with respect to all regulations issued by the municipal deputy.
- 3- **Public utilities:** these cover the drinking water networks, sewage water networks and flood drainage, involving all these projects' requirements such as studies, supervision and hand-over according to the municipal regulations.

B- Planning works for cities and villages of the region:

In this field, the deputy's obligations cover preparing the general guide plans as well as preparing organization plans for the government and private sectors. In addition, the deputies are responsible for confirming structural plans for these cities and villages. Deputies must participate with the competent authorities to allocate the urban scope of these cities and villages and issue the required decisions of property expropriation for the public interest.

C- Lands and land-related issues:

Municipal deputies must check and complete all the necessary procedures for land grants in these cities and villages and supervise the sale and rent of government lands according to municipal regulations. Furthermore, deputies have the authority to represent the municipalities before the courts in cases regarding the land and land-related issues.

²⁷ - Riyadh Municipality, Riyadh region municipalities deputy, website:

<http://www.gmra.gov.sa/> (6- 4 – 2010)

D- Financial affairs and tenders:

Deputies must implement all bidding procedures for projects, advertising and opening of bids submitted. Subsequently, they check the presentations and prepare contracts and letters of award and all the related financial procedures between the contractors and the municipality according to the existing regulations. In addition, they complete the various business regarding rent and offers for municipal utilities.

E- Employee affairs:

The deputy in this field is concerned with the procedures of recruitment, promotion and the transfer of the municipalities under his authority. In addition, this deputy looks after employee affairs.

F- The budget:

The deputy is responsible for concluding all projects for the preparation of budgets regarding the municipalities of the cities and villages which come under his supervision. Furthermore, this deputy has the authority to discuss the budget with the relevant people in the Ministry of Municipal and Rural Affairs and the Ministry of Finance. These discussions are then followed up with the implementation of the budget terms as agreed.

G- Reports and studies:

The deputy has the duty to prepare background reports on the guidelines for cities and villages in the region. These reports concern both the current situation and forecasts based on natural, social and economic data gathered by specialists in these fields.

Once the reports have been discussed, the deputy must work towards preparing the actual planning of the cities and villages of the region, in addition to preparing the required statistics for this purpose.

H- Surveying works:

This deputy is responsible for concluding all the work on urban planning such as surveying empty and residential lands, the application of the approved plans on the ground and preparing a checklist of expropriations for the municipalities of cities and villages in the region. Moreover, the deputy is a member of the committees which oversee modifications to plans and express their opinion about the problems of the existing plans to both the committee and the relevant authorities.

B.2.2- Deputy of Projects & Construction Obligations:

This deputy is concerned with all aspects involved in organizing construction and projects throughout the city. The deputy must supervise and follow up on the regulations which carry out the plans for the development of the city and its urban design.

This deputy's office includes four main administrations:

1- Administration of Urban Planning:²⁸

The administration has the following obligations:

- Design the architecture and urban strategies and policies.
- Follow-up and application for building regulations for all activities and use.
- Developing the regulations and planning criteria for land divisions.
- Carrying out survey work for lands and plans for various areas and purposes.
- Issuing building permits for all activities and uses.
- Developing and supporting urban planning programs which contribute to the consolidation and simplification of the procedures for citizens and increase the level of performance and function-based approach.

2- Administration of Studies and Design:²⁹

The administration concerns itself with integrated studies which satisfy the basic requirements and quality of the urban foundation of Riyadh municipality. It satisfies this vision by:

- Preparing studies, engineering designs, technical design, and detailed specifications for the implementation of projects to be implemented in the annual municipal budget.
- Suggesting new projects and carrying the necessary studies to implement them.
- Conducting integrated studies for the roads network to satisfy the basic requirements including flood drainage, traffic safety and increased network efficiency. In addition, the administration must work towards achieving the approved specifications.

²⁸ - Riyadh Municipality, Administration of Urban Planning. Website:

<http://urbplandep.alriyadh.gov.sa/ARA/section.asp?id=34> (7 – 4- 2010)

²⁹ - Riyadh Municipality, Administration of Studies and Design. Website:

<http://sd.alriyadh.gov.sa/pages/topmenu/goals.aspx> (7 – 4 - 2010)

- Carrying out the required studies to provide the necessary facilities to serve the city residents.

3- Administration of implementation and supervising:³⁰

The administration cooperates with other municipal administrations by turning the municipality efforts and activities into tangible reality and existing achievements. It fulfills its duties via programs and the projects such as:

- Following up on the implementation of main development projects that are involved in the five-year strategic plans. These plans are based on the priorities of scheduling and requirements for development.

These programs include: tunnels and bridges, improvement of roads and main traffic hubs and channels and major networks of floodwater drainage.

- Following up on the needs of existing populated quarters and evaluating the urban growth of new regions and quarters. The administration also works to respond to these needs according to ongoing changes and continuing development. This involves monitoring population growth and other natural changes and planning expansions to infrastructure accordingly.

The projects including: rock cutting, asphaltting roads, pavement, lighting, lines of floodwater drainage, utilities and other municipal facilities.

4- Administration of operation and maintenance:³¹

The administration has duties involving the maintenance of road elements and other municipal utilities such as lighting networks, flood drainages networks, tunnels for vehicles and pedestrian bridges in addition to heavy equipment and municipal vehicles. Furthermore, it participates in seasonal activities such as public and statutory celebrations. It achieves its duties by:

- Maintaining the road network, floodwater drainage networks, bridges, tunnels, lighting systems and municipal utilities in good operational status. This provides a high level of service to those facilities.

³⁰ - Riyadh Municipality, administration of implementation and supervising. Website:
<http://es.alriyadh.gov.sa/goals.html> (7 – 4 – 2010)

³¹ - Riyadh Municipality, administration of operation and maintenance. Website:
<http://gdom.alriyadh.gov.sa/tasksus.aspx> (7 – 4 – 2010)

- Preparing the plans and active programs for the management, maintenance and operation of these facilities.
- Developing technical and administrative performance.
- Developing mechanisms, management and follow-up systems for the project operation and maintenance.
- Rationalization the expenditure and make the best use of maintenance budgets.
- Confirm the principles of quality in all maintenance and operation works.

B.2.3- Deputy Municipality of services:

The deputy is concerned directly with the people of the region because they are considered the focus of material and moral needs. Through this deputy, Riyadh municipality seeks to communicate with people to achieve a deep understanding of their needs, and work to put all available resources towards introducing the best services with its administrations:

1- Administration of environmental health:³²

This administration is committed to the preservation of environmental health and safety through public cleanliness, control of foods and carrying out health protection processes and all supporting measures by:

- Developing health protection processes.
- Supplying water and food to the citizens in the best ways and controlling any source of pollution.
- Controlling pollution from possible sources of contamination around the city.
- Promoting health and a safe environment.

2-Administration of cleanliness:³³

The cleanliness administration is concerning with hygiene in Riyadh and the surrounding area. Duties include:

- Supervising and controlling.
- Improving the qualification and performance of workers in the field.
- Studying the mechanisms which develop the level of cleanliness in the city.
- Raising citizens' awareness of the importance of cleanliness by using the media.

³² - Riyadh Municipality, administration of environmental health. Website:

<http://seha.alriyadh.gov.sa/en/contents.aspx?aid=2905> (8 – 4- 2010)

³³ - Riyadh Municipality , Administration of hygiene. Website:

<http://clean.alriyadh.gov.sa/section.asp?sec=aboutus> (8- 4 – 2010)

- Putting development schemes and programs for the present and future into effect.
- Preparing contracts for cleanliness projects.

3- Administration of Markets, Safety and Comfort:³⁴

The administration is working to the cooperating and coordinating with another municipality administrative units and relevant authorities in the region to serve the purposes of comfort and safety to participate in the process of raising awareness of a citizen of the city to ensure understanding and implementation of policies, which designed to achieve comfort and public safety.

It achieves its duties by its following administration throughout:

- Follow up on all activities related to practicing the profession of selling and its commitment to all rules, regulations and conditions issued from the Ministry of Municipal and Rural Affairs and its pursued in its primary role in an efficient manner to provide the best services to all consumers.
- Addressing the negative phenomena that effect on the public markets and work to eliminate them, such as employment.
- Working on development for all public market facilities in an effort to serve investors and traders through the provision of a range of services, which make them suitable activities to serve the consumer.
- Follow-up and control irregularities that are monitored by observers within the scope of markets.
- Receive complaints and suggestions regarding the public market and find solutions according to the instructions.
- Receive the notifications of nuisance in the city and working to remove it, with the cooperation and coordination with other complement authorities.
- Study and organizing of business activities in coordination with competent authorities and to provide the implementers of those regulations.
- Ensure the public safety of the city citizens and take the necessary process to avoid the dangers.

5- Administration of Parks and environmental Architecture:

Please read all the detailed information in part (5.5.2.2) page (403)

³⁴ - Riyadh Municipality, Administration of Markets, safety and comfort. Website:

<http://safe.alriyadh.gov.sa/cmspage.aspx?id=1> (8 -4 – 2010)

5.4.3- Urban Development in Riyadh:

Riyadh is the capital of Saudi Arabia and one of the fastest-growing cities in the world with a population of about 5 million inhabitants. Population growth has exceeded 8% annually. Projections indicate that the population could reach nearly 17 million inhabitants by 2022 if it continues its current growth rate. The expectations of the strategic plan are based on a population of 10.5 million people in 1442 AH (the year in the Muslim calendar which corresponds to 2022 AD). Here it is assumed that the growth rate will decrease each year until it reaches the rate of natural growth by the end of the projected period. This will come as a result of a decreasing the rate of internal migration. A drop in migration numbers will depend on the success of national plans for the development of other areas and a reduction in migration to large cities and, in particular, the city of Riyadh.

The size of the city forecast in the proposal is 2,130 square kilometers by about 2022. This reflects the significant expansion to the city on its way to becoming one of the three largest urban areas in the Kingdom. This growth calls for an overall strategic plan accompanied by rapid growth to meet the needs of the city, and is the umbrella for major studies, plans, ideas and perceptions on Riyadh's development in the future.

Accordingly, the High Commission for the Development of Riyadh works towards a comprehensive strategic plan for the city of Riyadh in order to address the future development of the urban area falling within the scope of their responsibilities and areas within the limits of the protection from development.³⁵

The period 1975-1990 saw relatively low population growth in Riyadh. This means that population growth cannot be seen as the single determining factor in urban expansion. Rising oil prices and the ensuing economic boom led to high increases in governmental expenditures and the rate of urban development reached unprecedented levels at that time. City planning came to include large areas outside the municipal boundaries.

Population pressure has led to urban expansion along the east-west axis as well as the originally planned north-south axis. However, the network planning area of 2 km × 2 km

³⁵ - High Commission for the Development of Riyadh, the comprehensive strategic plan, 2003, the introduction, (p 1)

has been replicated outside the areas identified by the first and second master plans and has been applied in the new expansion areas as well.

The High Commission for the Development of Riyadh was established to study and address the problems of rapid urban growth.

5.4.3.1- The main features of the structural scheme of the city

Can be summarized as follows:

- improving the city's image and identity as the capital of the Kingdom of Saudi Arabia.
- The creation of a multi-center city rather than the current single-center, and the development of employment centers and new services in the areas of new development.
- The systematic development of areas of new growth for multiple use.
- Land use with a view to the renewal of old areas.
- linking residential areas with commercial districts to reduce commuting distance and time.
- expanding the capacity of the road network with the main focus on designing residential streets.
- creating a general structure for land use and transportation to support the public transport system in the future.
- Establishing a network of new open areas and linking them with Wadi Hanifah.
- adopting a new approach in the management of urban development, thus creating two new neighborhoods along the main growth axes north and east.

According to the comprehensive strategy and the structural scheme, the High Commission for the Development of Riyadh has selected its urban scope policy to control the rapid growth of the city. This strategy has divided the development scope of a Riyadh with 10.5 million inhabitants in 2022 into the following stages:

- **The first stage of urban growth:**

This stage depends on the second master plan limits prepared by SCET for urban scope ending in 1995 in order to reduce vacant land throughout the city and control the distribution of urban growth.

- **The second stage:**

The urban scope which was allocated at this stage was a radius of 50 kilometers, or an area of 1,949 square kilometers. This area was used as the urban scope until 2005.

- **The third stage (boundaries of Riyadh):**

In this stage, the urban scope was pinpointed as a radius of 75 kilometers, which equals an area of 4,419 square kilometers. This will cover all the Greater Riyadh Area by 2022.

The structural plan depends on approval from the High Commission for the Development of Riyadh to face the huge extension of the city in both area and population. The plan suggests five branch centers as the urban extension points which will support the current center and participate in the distribution of economic facilities throughout the city.

The branch centers are an essential element of the scheme. Each center will serve one sector in the north, south, east and west of the city, and each center is the focus of activities and basic services for citizens of each sector.

The branch centers are known as the urban areas of activity and offer a variety of services. They range in size from 2 to 2,5 km²; each one serves approximately 600 thousand to one million inhabitants within a radius of about 20 km and provides them with comprehensive civil services.

These centers are characterized by a number of benefits for the remaining parts of the city, they are considered as special development areas. Each center offers integrated services and sets no limit on permitted building heights, unlike the surrounding area, where high-rise buildings are not allowed. This means that each building can accommodate a great number of employees and can be used for a variety of activities and services at the city level.

The private sector will develop these centers and invest in all services as a great opportunity in the city. This will contribute to raising the level of economic performance and strengthen the mechanisms for cooperation between the public and private sectors.

On the other hand, the centers are connected by highway roads and the public transport network to create a safe and attractive environment for residential needs, commerce and entertainment.³⁶

³⁶- High Commission for the Development of Riyadh, (2008) center branches of Riyadh city, (p1-21)

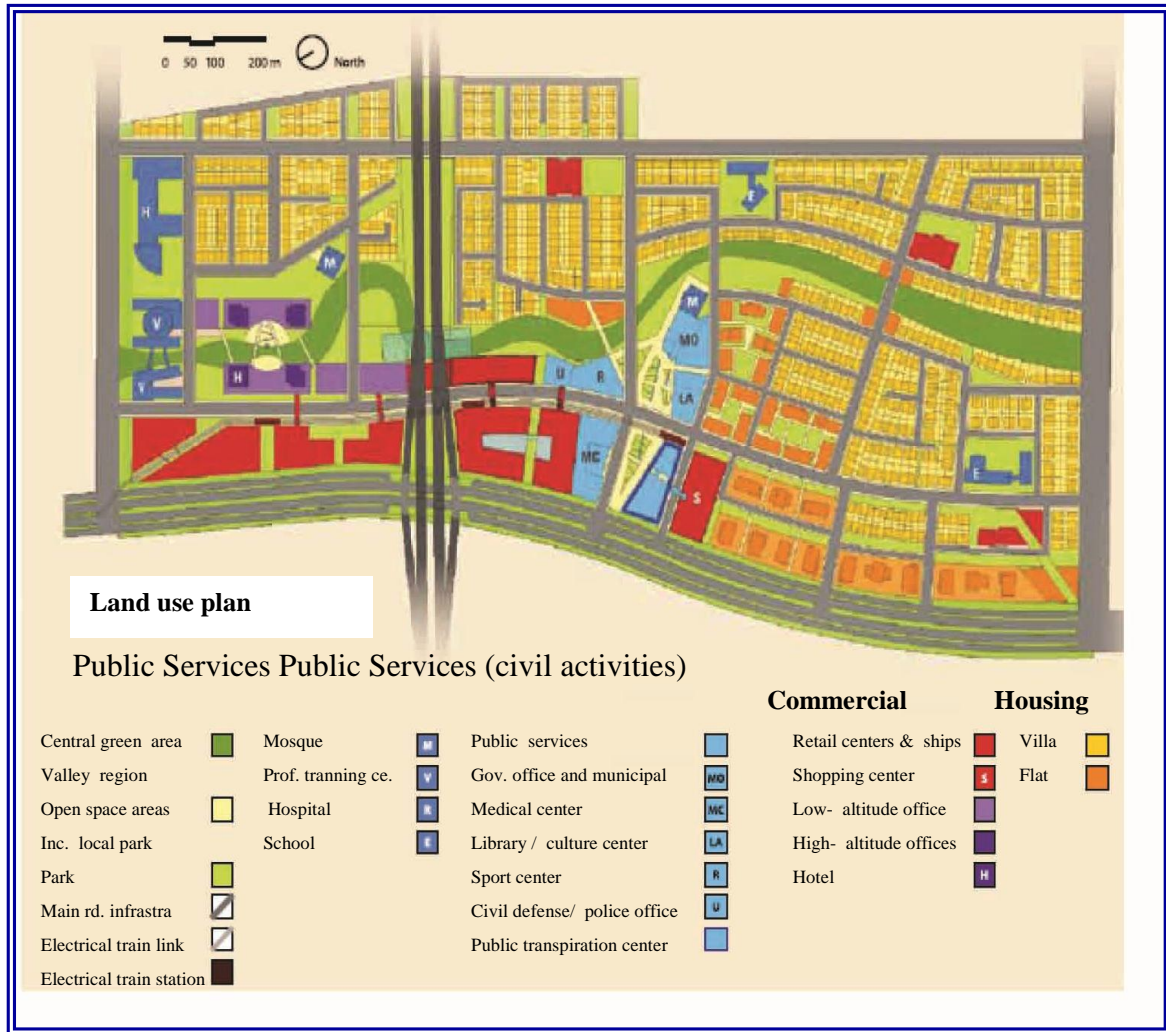


Figure no. (5.26)

The above figure illustrates the proposed image of the central branch in the southwest of the city. It also shows the main components of the center.

Stages of urban growing in Riyadh city since year 1910

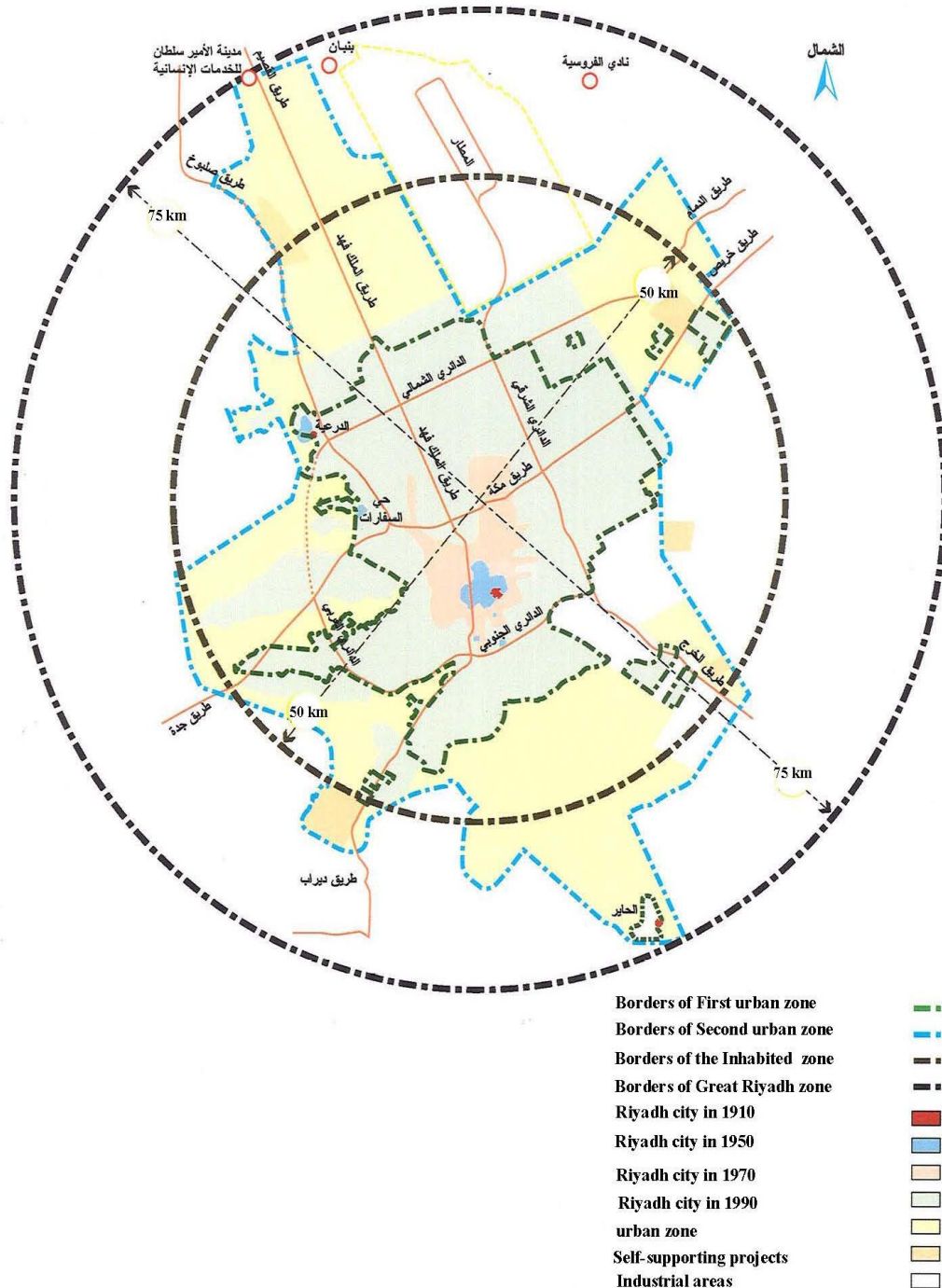


Figure no. (5. 27)

The above figure illustrates the phases of the urban development of Riyadh city through time.

5.4.4- Riyadh City Components:

By studying the master plan and the comprehensive strategic plan of Riyadh which covers urban land use for the main sector that lies in the urban plan scope until 1442H (2022 AD). The estimated area at this time is about 1949 square kilometers.

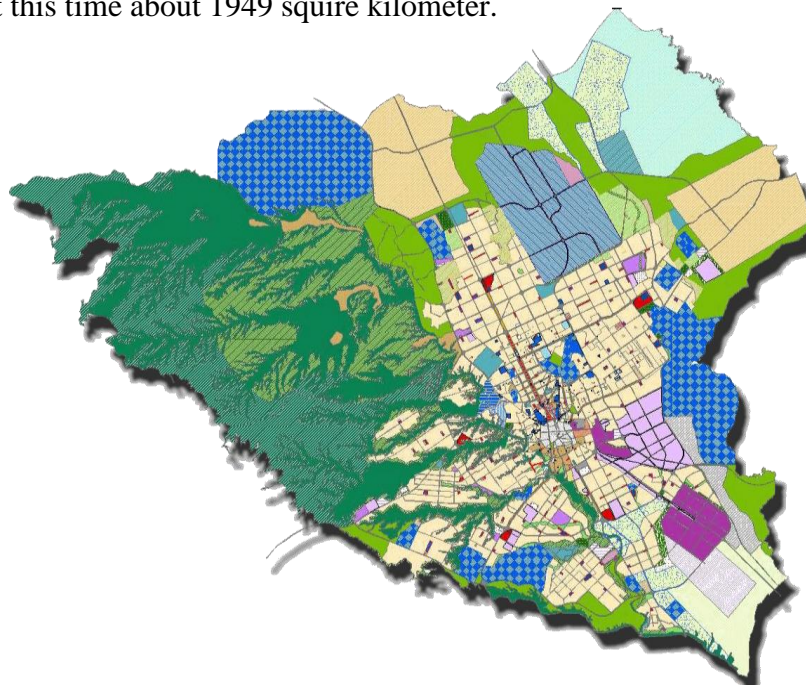


Figure no. (5.28)

Comprehensive strategic plan of Riyadh

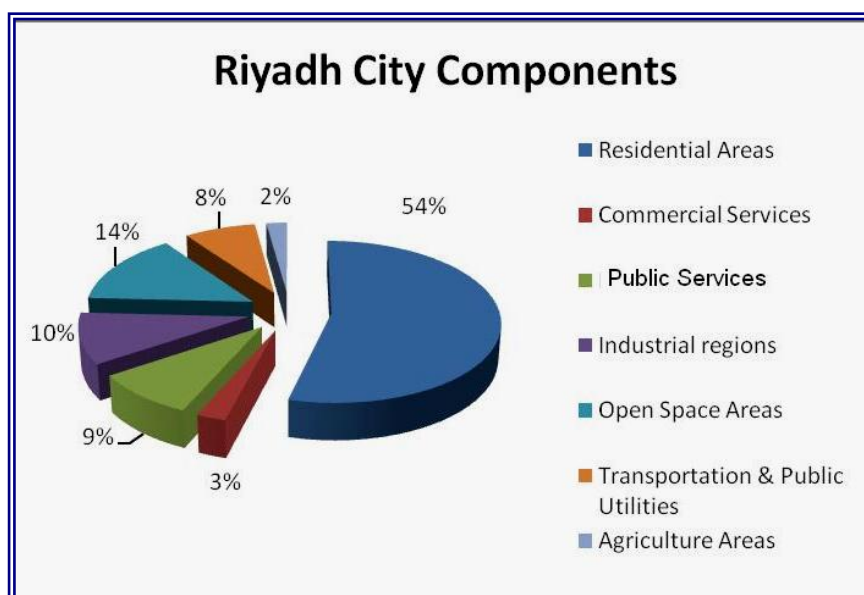


Figure no. (5.29)

Source: High Commission for the Development of Riyadh, the comprehensive strategic plan of Riyadh, land use plan, final report, 2003

The above figure demonstrates the percentage of the area taken up by urban components according to the master plan which guides the comprehensive strategic plan of Riyadh. It

illustrates that residential areas cover 54.1% of the city's area. These areas include permanent, semi-permanent and temporary housing for singles and families. Also, it involves all types of residence such as villas, Arabic houses, apartment's buildings, rural houses and cottages. In addition, group accommodation, mosque imam (leader) residences and hotels are included here.

The figure illustrates public services, which are 9% of the city's area. These areas include government buildings, education services, and medical services, religious and administrative services. Commercial services equal 2.5% of the city's area. This area involves land used for the sale and trade of products including space for customers, employees, goods handling and car parking.

The figure shows the industrial services areas, which cover 10.2% of the city's area. It involves all types of land used for manufacturing, assembly, and refining products. These include food, fabric, timber, petrol, stone and metal products. In addition, these areas include the allocated areas for industrial and commercial storage. On the other hand, transportation and public utilities equal 7.7% of the city's area. This includes all types of roads and the spaces used for the transportation of people and goods. It also includes municipal utilities' services such as public car parking.

Agriculture and material production takes up 2.2% of the city's area. These areas are allocated for use in agriculture, forestry, mining and other activities involving natural resources. On the other hand, the open space areas cover 14.3% of the city's area. They are divided into three main levels. The first level includes open urban regions, which serve as residential quarters. The second level comprises the linear regions which serve as the boundary between the urban regions and the valleys' edges and city water drainage regions. The third level includes the public parks (these average about 100,000 square meters) which are located in the quarter centre and used for leisure-time activities such as picnics and camping.

5.5- Parks and open spaces areas in Riyadh

As it is known, planting has many functions which contribute to satisfying the urban goals that make life more pleasant and comfortable. The importance of planting in a desert environment involves:

- Participating in reducing the influence of environmental pollution in all aspects: air, land and noise.
- Providing suitable places of entertainment for citizens and visitors to spend their spare time and vacations.
- Providing oxygen and reducing harmful gases.
- Reducing the influence of dust and toxic particulates such as lead by absorption through the leaves of plants.
- Reducing the level of water in some regions by plant leaves' natural functions.
- Plants and flowers contribute positively to feelings of happiness and joy. They also provide a pleasant barrier to urban concrete.

The management of parks and open space areas in Riyadh has been affected by many changes across time. Now it is managed by the General Administration of Parks and Environmental Architecture, which comes under both the municipal government and the projects planning center, which follows the High Commission for the Development of Riyadh. Management and development are described in detail in the following section:

5.5.1- The emergence and development of parks in Riyadh:³⁷

A- Beginning of planting:

The first park appeared in Riyadh in conjunction with the establishment of the first building of Riyadh municipality in 1940. It was named Al-Baladiyah Park and is considered the first park constructed in Riyadh.

Al-Baladiyah Park was an outlet for people from all walks of life to sit in over long periods of time and perform the Maghreb and Isha prayers as it is close to the commercial market

³⁷ - Riyadh Municipality, (2002). Planting and Beautification Achievement. Issued by the Administration of Parks and Beautification.

- Alhemeddi, H. A., (1991), Design Consideration of Riyadh Quarter Parks According to Environmental, Social and Urban Background. Master's degree submitted to the Department of Architecture and Building Science. College of Architecture and Planning, King Saud University.

- Arab, E., (2006). Garden & public parks study. Produced by Dr, Asem Arab and Consultation Center for Economics & Administration

- Interview with the administration director and some officials of the administration.

in the city center. This first park led the way for the emergence of other public parks when the Municipality of Riyadh created the gardens of Malaz and Footah, which are considered two of the oldest parks in the city.

Riyadh has witnessed various stages of growth, beginning gradually and reaching the summit at the present time. The beginning of real growth in Riyadh is considered to be the period from 1955 until 1968, when the city began its expansion and the creation of modern buildings for its ministries and government departments. Accordingly, the expanded activities and concerns of Riyadh's municipality meant increased interest in the work of planting and parks construction. The municipal government delegated these functions to the various departments responsible. Both project management and the Department of Agriculture were involved in the implementation of parks projects.

Project administration was specialized in construction in the establishment of parks, while the Department of Agriculture dealt with the agricultural side of things. The two agencies worked in cooperation at that time to develop public parks throughout the city.

In the period from 1976 to the present time, the city of Riyadh has seen a huge expansion and astonishingly rapid growth in all directions and at all levels, with dramatic spikes appearing from time to time.

The tremendous growth and importance of public parks and quarter parks for the population means that such facilities are now widespread throughout the city. Responsibility for these areas is no longer exclusively limited to Riyadh Municipality, but there is more than one governmental entity with an interest in the establishment of parks and gardens.

B) Stages of the establishment of public parks in Riyadh:

The construction of public parks in the city can be divided into the following stages:

First stage: Old parks, starting from the first park about 70 years ago until the beginning of the actual growth phase in 1955. The establishment of parks in that period was limited to Municipality of Riyadh alone.

Second stage: Parks of the first growth period of the town, in the period from 1955 until 1968. This was when the establishment of parks started to take on a more important

role than before. The task of establishing public parks was still governed exclusively by the Municipality of Riyadh.

Third stage: Parks from the period of rapid growth (many call it a period of economic boom) starting from 1976 and continuing until the 1990s. At this stage, the task of establishing of parks was no longer limited to the Municipality of Riyadh alone, but more than one government authority became interested (one way or another) in the establishment of parks in the city.

Park name	site	Total Area (m ²)	Date of establishment	notes
Al-Baladiyah park	Al-Bathaa Street (next to the old municipality building)	6,600	70 years ago (about 1940)	Considered the first park in the city
Al-Footah park	North of Imam Faisal bin Turki bin Abdullah Street	40,000	Coincided with the beginning of the actual growth of the city of Riyadh (about 1956)	The city's second public park
Prince Fahad al-Faisal Al-Farhan Park (Al-Malaz park)	Al-Malaz quarter, eastern Salah Aldeen Al-Ayobi	40,000		Its area is reaches about 27.000 m ² .

Table no. (5.2)

Source: Municipality of Riyadh. Planting and Beautification of Riyadh City. Issued by the Municipality of Riyadh in 1990 by special arrangement by Alhemiddi, H.

The above table illustrates the early parks which were constructed in Riyadh.

Table (5.3) shows public parks from the second stage (the first growth stage) established by the Municipality of Riyadh represented by the administrations responsible for agriculture and projects

Park name	Site	Total area m²	Date of establishment
Al-Farazdaq Park	The end of Al-Farazdaq Street	4,400	1980
Al-Jadwal Park	Alshumaisi quarter	5,000	1980
Omar bin Al-Kattab Park	(workers' quarter) west of Omar bin Alkhattab Street	13,200	1981
Gabal Abu Makhrouk Park	West of Salah Aldeen Al-ayobi Street	40,000	1982
Alrawdha Park	Alrawdha Al-Aula	10,200	1983
Al-Yamama Park	Al-Yamama quarter west of Riyadh	20,000	1983

Table no. (5.3)

Source: 1- Municipality of Riyadh. Planting and Beautification of Riyadh City. Issued by the Municipality of Riyadh in 1990

The third-phase parks emerged with the expansion and rapid growth that has occurred in the city. Establishment of public parks in the city is not limited only to the Municipality of Riyadh. Rather, there are now many government authorities which have an interest in the establishment of gardens in the city. Given the multiplicity of those government agencies and the extent of their interest, this will be discussed in the second part of this study. It will deal with the current conditions of establishing gardens in the neighborhoods in Riyadh.

C - Operation and maintenance:

From the beginning of planting in Riyadh, green space areas have been managed by the municipality, as described above. The operation and maintenance of green space areas was operated either by the municipality or by contractors working under the full supervision of the municipality.

Increasing the number of parks, children's playgrounds and open space areas in the city has led those responsible to consider reducing the cost of operation and maintenance of these contracts because they are continuous and expensive in the long-term.

Since 1989, the Administration of Parks and Beautification has tried to involve the private sector in managing and operating green areas. This cooperation with the private sector is vital to parks operation with regard to the following points:

1. Reducing the responsibilities of the municipalities and limiting the number of employees where possible.
2. Reducing municipal expenditures.
3. Finding new sources of income.
4. Opening the fields of training for operation and maintenance of public facilities to the private sector and thereby creating new job opportunities.

On the other hand, the high cost of parks construction, operation and maintenance in a desert country, and the importance of providing recreation to citizens, mean that Riyadh municipality have increased planting by:

1. Renting some municipal land for long periods with a symbolic rent to promote the construction of parks and recreation facilities.
2. Making it possible for the private sector to manage, operate, maintain and invest in parks to ensure efficiency and reduce public expenditures.

After ten years of following this method (it was introduced in about 2000), the task has been evaluated again and has shown the following achievements:

1. An increase of parks and children's playgrounds by 152%.
2. An increase of the areas of trees and green space by 148%.
3. the total cost for these contracts has not increased beyond 3%

A few years later, a general evaluation of the method led the administration to cancel all

private-sector investment contracts in spite of the increase to green area for the following reasons:

1. The contractors dealt with the parks by commercial methods which did not preserve the environment.
2. The contractors were not qualified to preserve the surrounding environment.
3. The cost of rehabilitation was more than the return on investment (in some cases, ten times more).
4. admission fees reduced the benefits of these utilities for citizens

Instead of signing full investment contracts, Riyadh municipality now tends to rent facilities such as kiosks, play areas and snack bars as partial investments. Each service or facility is managed by a single contract under the direct supervision of the municipality.

5.5.2- Riyadh parks' situation today:

The green area in Riyadh has developed with time to look like another urban aspect which reflects the rapidly its growth and development. The green areas in Riyadh city are managed by two administrations. The first comes under the High Commission for the Development of Riyadh; the second is responsible to the municipality.

5.5.2.1- The High Commission for the Development of Riyadh:

The High Commission for the Development of Riyadh has the duty of constructing, supervising, operating and maintaining the green areas which lie in the city centre along the main axial and Wadi Hanifah (Hanifah Valley).

The aim of providing the open space areas is to protect and develop these areas on the level of quarter, city, region, linear public parks and buffer zones to create a connection between the natural, historical and commercial regions found in the city and to provide natural open areas and balance their distribution throughout the city.

A - The policies of the High Commission in open space areas are:

- Providing entrainment facilities and the necessary utilities and services inside the open space areas.
- Preparing the master plans and detailed plans for city open space areas depending on the structural plan while determining the responsibility for coordinating and monitoring the open spaces.
- Increasing public awareness of the importance of natural open space areas.
- Finding mechanisms for financing and developing open space areas.
- Considering Wadi Hanifah the main element for the suggested open space areas network.
- Allocating areas for open spaces within new city plans.
- Taking advantage of the natural elements in the city (mountains, valleys) and using them for recreational purposes when planning new land.
- Maintaining the agricultural areas within the urban areas and not allowing urban development here.
- Increasing planting in the city.
- Establishing specific criteria for selection, agriculture and care to create planting needs.

- Using sewage water and ground water to irrigate open space areas.
- Developing and improving quarters' plazas and squares as landmarks reflecting the nature and lifestyle in the region.

B- The important projects of the High Commission:

1- Salam Park:³⁸

Salam Park lies in the heart of Riyadh, which is considered the historical and cultural center of the city. It opened in 2004 as part of the Qasr Alhokm development (Rule Palace, office of Riyadh's governor). Its location is parallel to the Rule Palace to the south, bordering King Fahad Road to the west and Tariq bin Ziad Road to the north, Salam Road to the east and Aseer Road to the south.

The total area of the park is 312,000 square meters. This park was established on the well-known Salam Farm, whose ownership was taken over by the municipal government. This farm was famous for its quality date palms. It was originally privately owned and accommodated a residential palace, various service buildings and a mosque which is more than 70 years old. The increase in population density in this area led those responsible to convert it into a public park which serves citizens.

The main concept of the project is to provide a family entertainment park with multiple environments in order to entertain visitors with pleasure and fun by furnishing the park with green areas, facilities, and children's playgrounds. The park is also expected to serve the environment through the increase of green areas and the provision of foliage scenery to break up the building density and jammed traffic in the region.

The design takes into account the advantages of the existing elements. The date palm farm has been saved and more trees have been added to it. The initial conception and planning were made to benefit from the existing buildings in the park through built-in modern styles, but many of the older buildings have been preserved with their unique designs and high potential to be converted into a cultural centre.

The park's design, which is dominated by green areas, has taken into consideration the idea that it should be possible to expand green areas and bodies of water to provide relief from the desert nature of Riyadh.

³⁸ - High Commission for the Development of Riyadh, website.

http://www.ada.gov.sa/ar/ADA/Content/Projects/DevProject1/getdocument.aspx?f=/openshare/ar/ADA/Content/Projects/DevProject1/Salam-Park.doc_cvt.htm

1.1- Components of the park:

The park consists of many different environments:

The farm: The farm lies in the northern part of the park and includes the old palm trees in addition to new date palm trees that number more than one thousand.

This part of the park presents an example of the traditional farm where visitors may enjoy and benefit from the shade of the palm trees. People can select places to sit without having special constructions assigned for families. This gives visitors both a simulation of actual life and freedom of choice.

The lake: The Lake covers an area of 33,000 square meters of various depths. The maximum depth does not exceed five meters.

The lake is divided into two zones; one of them is assigned for boating. The other represents natural life and is expected to attract local and migrating birds. The lake is surrounded by a 10-meter wide pedestrian path one km in length which overlooks most of the park's zones.

Highlands: These lie at the center of the southeastern area of the park. Their aim is to provide a simulation of a natural environment for selected species of animals and birds living in the region. Visitors enter this area guided by appointed specialists who serve visitors and introduce them to the components of the natural habitat.

In addition to the main three environments, the park has other facilities which are convenient and interesting to visitors, such as:

- Prayer places
- Ticket kiosks
- Snack kiosks
- Public toilets
- Car parking (there are about 350 parking spaces).
- Surrounding the park, there is a wide, safe path for walking and jogging.

The required supply and irrigation water is provided through pipes leading from the collection water network of King Fahad Road after it has been purified and then pumped to the lake or to the irrigation network.



Figure no. (5.30) an aerial view of Salam park

Source: High Commission for the Development of Riyadh, picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/King-Abdul/allPhotos.aspx?CurClass=Odd>

(1. 5. 2010)

The above figure illustrates the aerial view of Salam Park and also shows the boundary of the park in addition to the park's various components.



Figure no. (5.31) View of the lake and surrounding activity in Salam park

Source: High commission for the Development of Riyadh, picture library

The above figure shows the lake area and its surrounding activities.



Figure no. (5.32) view of palm- tree farm

Source: High Commission for the Development of Riyadh, picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/King-Abdul/allPhotos.aspx?CurClass=Odd>

The above figure shows the palm-tree farm. The figure below shows another view of the park and the walking path through the park.



Figure no. (5.33) another view of the park and walking path



Figure no. (5.34) View of facilities and services in Salam park

Source: High Commission for the Development of Riyadh, picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/King-Abdul/allPhotos.aspx?CurClass=Odd>

These figures show the highland areas in the park, in addition to other facilities and services.



Figure no. (5.35) view of highland area in Salam park

2-King Abdullaziz Historical Center:³⁹

In 1999, the High Commission for the Development of Riyadh constructed the King Abdullaziz Historical Center to be a landmark for the city throughout the kingdom. The centre opened on the occasion of the one hundredth anniversary of King Abdullaziz reopening the city of Riyadh and unifying the various regions of Saudi Arabia. It is also meant to reflect the history of the Arabian Peninsula, the immortal message of Islam and the solid ground on which Saudi Arabia was founded.

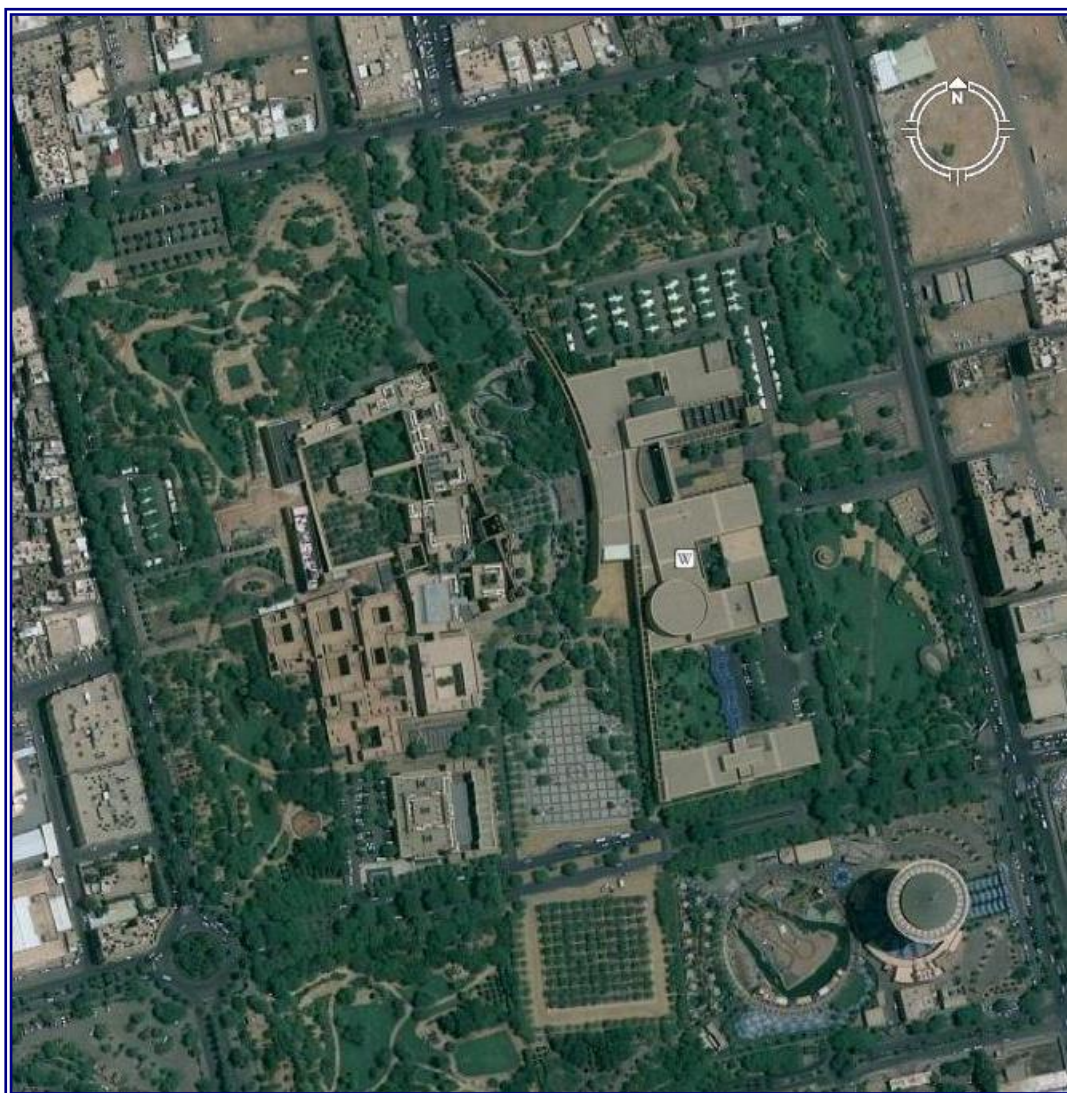


Figure no. (5.36) aerial view of the center.

Source: Google Earth program. 1. 5. 2010

³⁹ - High Commission for the Development of Riyadh, (1999). King Abdullaziz Historical Center. Published by King Fahad National Library.

The center consists of:

- Public Park
- National Museum
- Antiquities and Museum Agency
- Al-Murabba' Palace
- Traditional Building
- Darat Al-Malik Abdullaziz
- King Abdullaziz Mosque
- King Abdullaziz Auditorium
- Water Tower

According to my thesis subject, the study will focus only on the details of the park.

2.1- Public Park:⁴⁰

Parks and green areas mark the main features of the Center with its numerous social and cultural structures, adding a natural environmental image and availing a green area in the center of the city. Five main parks surround the center building; in addition to a sixth open park, a main plaza, an oasis of palm trees and a stream flowing from an old water well.

The plaza occupies an open area of 20,000 square meters. It is located in the middle of King Abdullaziz Historical Center. It is intended to be used for social and cultural celebrations, special occasions and Eids.

The parks occupy an area of 30,000 square meters and form the major part of the Center's area. The other facilities of the Center resemble natural islands surrounded by the green areas.

The palm tree is a symbol of patience and gratitude; therefore, palm trees were used to expressively exemplify the years of struggle in the Kingdom. A palm oasis of 100 palm trees, indicating the passing of 100 years, overlooks the plaza from relatively high ground. In the northern part of the plaza, old water well has been reconstructed. Water is pumped from the old well in a stream running across the central plaza and terminating in an artificial lake and a fountain.

⁴⁰ - High Commission for the Development of Riyadh, website:

http://www.arriyadh.com/Eng/ADA/Left/DevProj/getdocument.aspx?f=/Eng/ADA/Left/DevProj/KAHCE5.doc_cvt.htm , 3.5.2010



Figure no. (5.37) oasis of a hundred trees

Source : High Commission for the Development of Riyadh. Picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/KingAbdula/allPhotos.aspx?CurClass=Even>

The above figure shows a part of the hundred-tree oasis and a view of the old water tower. The figure below shows the various environments in the parks, in addition to the walking path.



Figure no. (5.38) view of various environments in the park



Figure no. (5.39) view of the central plaza for the center

Source : High Commission for the Development of Riyadh. Picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/KingAbdulA/allPhotos.aspx?CurClass=Even>

The above figure shows the central plaza, which serves multiple purposes for special occasions. The below figure shows the furniture available in the center's parks.



Figure no. (5.40) view of available furniture in the center's park

3- Diplomatic Quarter⁴¹

The diplomatic quarter is considered an urban extension of the city and lies in the northwest of Riyadh. Its total area covers about 8 square kilometers. It is bordered by Hanifah Valley to the west and south.

In 1978, construction was started on the quarter. It was meant to make room for utilities and activities to serve approximately 22,000 inhabitants and more than one hundred and twenty diplomatic missions as well as regional and international organizations which had been transferred from Jeddah to Riyadh.

According to the quarter master plan, about 14% of the total area is used by diplomatic missions and ambassadors' residences, while 10.6% of the area is given over to public services, including mosques and educational, cultural, sporting and social facilities. 22.2% of the quarter's area is taken up by the residential zone. This area is divided into five groups distributed throughout the quarter. Basic utilities networks equal 16.6% of the quarter's area, including the roads, drinking water network, irrigation network and flood drainage system as well as electricity, telephone, communications and necessary controlling systems. The commercial area equals 5.7% of the quarter's area, whereas the parks and entertainment areas equal 30.9% of the area.



Figure no. (5.41)

A site layout plan for the Diplomatic Quarter project, urban plan by Albert Speer & Partner.

⁴¹ - High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication,

The German firm Albert Speer & Partner (AS & P) was the urban planner for this project. The Beech Group Consultants undertook the urban design for the central area of the project, and the Saudi architect Farahat Tashkandi was in charge of the redesign of the project's residential area and also was responsible for setting up building regulations and ordinances for the area.

Figure number (5.41) shows the site layout for the project, which comprises a main spine of two boulevards between which the commercial area, offices, some governmental services, and the Friday mosque are located. The basic facilities and embassy buildings as well as ambassadors' residences (shown in brown) are located along the main spine. Away from the spine are the residential clusters (shown in yellow). The quarter includes central facilities (shown in red) and public facilities (shown in blue), including kindergartens, mosques, schools, shopping centers, and medical centers⁴².

The Diplomatic Quarter includes a number of distinguished projects, such as the previously mentioned Aga Khan Award winners, the Tuwaiq Palace and al-Kindi Plaza, the Embassy of Japan, designed by Kenzo Tange, and the Embassy of Tunisia, designed by architects Mimita, bin Mahmoud, and Faraj. The project's landscaping, designed by the German landscape architects Bödeker⁴³, Boyer, and Wagenfeld, also received the Aga Khan Award for Architecture. The internationally acclaimed landscaping of the Diplomatic Quarter was designed to incorporate Hardscape elements from the natural

⁴² Abdullatif AlShaikh, Zahir Othman, and George Ward, "The Diplomatic Quarter and Ministry of Foreign Affairs Staff Housing Project, Riyadh," in Margaret Bentley Sevckenko, (ed.), *Large Housing Projects: Design, Technology, and Logistics*. (Cambridge, MA: The Aga Khan Program for Islamic Architecture, 1985). The article can be downloaded at <http://archnet.org/library/downloader/document/3738/DPC0395.pdf>.

⁴³ - **Richard Bödeker** was born in 1934 in Lehrte (near Hannover, Germany). He studied landscape architecture at the university in Geisenheim. In the late of 1950s, he started his career as an architectural landscaper with significant projects in Germany and southern Europe. In 1960s, he worked on projects in various Mediterranean countries and on the canary Island. When he started working in Saudi Arabia in the 1970s, he understood that Islamic culture was quite different from what he knew and realized that his projects would have to take people's religious beliefs into account. In order to learn more about traditional Islamic garden design, he travelled to Spain to visit historic garden of Andalusia. He focused his research on Persian, Indian and Moroccan gardens in order to form an image about garden design in culture influenced by Islam. Bödeker has contributed to many landscape projects throughout Saudi Arabia in Riyadh and Eastern Province. The most important Architectural landscape projects which he has realized are:
Housing area for staff of the Foreign Ministry – Diplomatic Quarter – King Abdullaziz Historical Center
- Environmental rehabilitation of Wadi Hanifah. (Source: reference no 45)

environment, and also used drought-tolerant plants that can withstand both the scarcity of water and the extremely hot climatic conditions of the area⁴⁴.

3.1- Green and open spaces areas:

When the diplomatic quarter was designed by the Richard Bodeker Company, the planner took into account the dominant environmental factors of the desert site. The designers allocated about 114 hectares (#1.14 million m²) to be the green space of the quarter. Green space areas were divided into three types. The first is roadside, residential courts and culs-de-sac. Second is heavy landscape which includes parks, walking paths and public parks. The third type of green area is the desert area landscape, which includes the surrounding quarter regions which lie parallel to Hanifah Valley and highway roads.⁴⁵

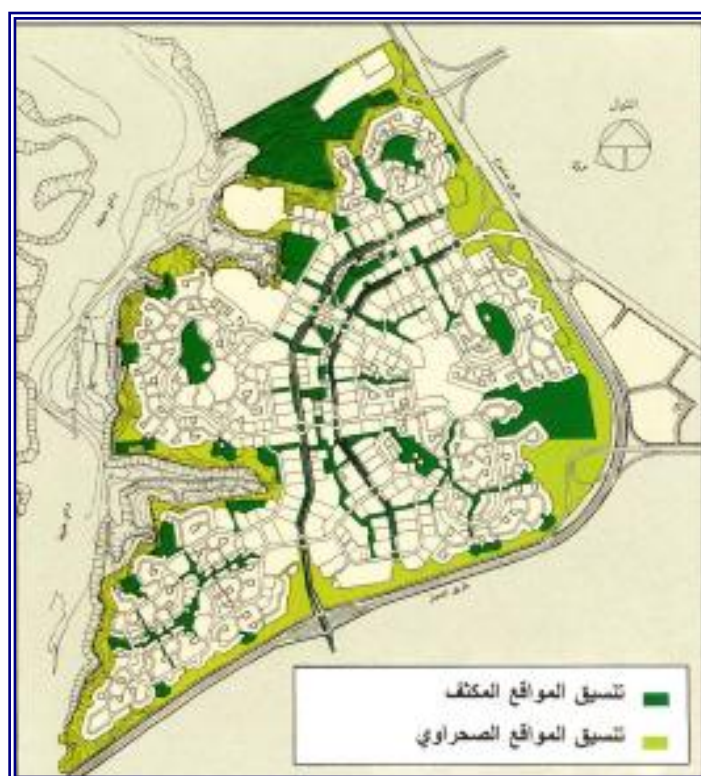


Figure no. (5.42)

Source: Diplomatic quarter publication, issued by the High Commission for the Development of Riyadh, projects and planning center. 1989

The above figure illustrates the location of parks and other green space areas allocated throughout the quarter.

⁴⁴ -Selma al-Radi, "Hayy Assafarat –(Diplomatic Quarter)Landscaping," in James Steele (ed.), *Architecture for Islamic Societies Today*. The article can be downloaded at

<http://archnet.org/library/downloader/document/6114/DPT0074.pdf>.

45 - Geilker, Dominik. (2005). Saudi Arabia landscape Architecture since the 1970s, exemplified by works of Richard Bodeker. Issued by Center of garden art and landscape architecture (CGL). (p.13 – 24)

In the early days of construction, the High Commission created a planting nursery with an area of about 57,000 m² to provide all the required types of plants, shrubs and flowers appropriate to the city's climate. These plants are used in the diplomatic quarter and for other projects supervised by the High Commission, such as King Abdullaziz Historical Center.

3.1.1- Heavy landscape:

The diplomatic quarter has 16 quarter parks spread throughout the residential areas and on the edges of desert regions. In total, the park area covers 257,000 square meters. The area of the individual parks ranges from 400 to 46,000 square meters. The quarter's public park has an area of about 240,000 square meters.

With respect to the surrounding environment and social conditions, the main components of these parks are trees, shrubs, flowers, shaded areas, children's playgrounds, public toilets and fountains.

The diplomatic quarter has walking paths reaching a length of about 3,367 meters, with an area estimated at about 166,000 square meters. These paths are designed to connect the residential areas with the center of the quarter and main services, and also to encourage pavement traffic. The paths have trees, plants, lighting, benches, shade elements and fountains in addition to other aesthetic effects to provide a suitable environment for walking in desert conditions.

By the same token, the diplomatic quarter has 10 squares whose total area is approximately 53,500 square meters. These squares have palm trees, ground plants, fountains and aesthetic effects which break up the monotony of the quarter's roads.

Furthermore, there are two gathering plazas with an estimated total area of about 10,000 square meters. These plazas were created as meeting points for the quarter's residents and to give a face to commercial and office buildings.

No.	Name	Area (m ²)
1.	Alathel	410
3.	Heger	2,530
5.	Alrehan	600
7.	Alseder	1,100
9.	Alseba	1,100
11.	Altaleh	950
13.	Alaredh	3,400
15.	Alyamamah	4,620
17.	Public park	24,000

No.	Name	Area(m ²)
2.	Alaqhwan	2,400
4.	Alkhuzama	69,000
6.	Alsarrh	640
8.	Alsheeh	1,100
10.	Tweeq	3,600
12.	Alarar	900
14.	Alghadha	1,220
16.	Alnafel	900

Table no. (5.4)

Source: High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication, projects and planning center.

The above table illustrates the number and names of parks allocated in the quarter.

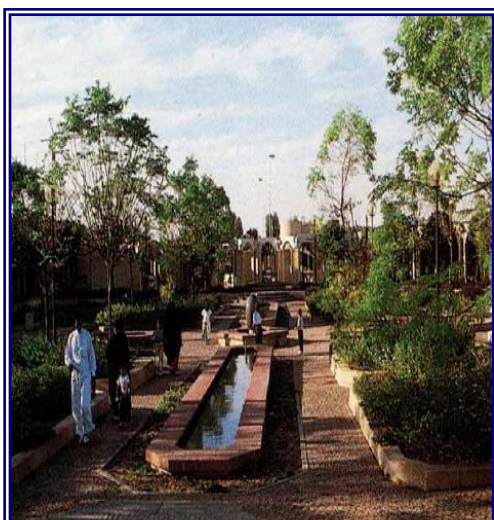


Figure no. (5.43)



Figure no. (5.44)

Source: High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication, projects and planning center.

-High Commission for the Development of Riyadh. Picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/KingAbdulA/allPhotos.aspx?CurClass=Even>

(5.5.2010)

These figures show some of the parks constructed in the diplomatic quarter under the project for heavy landscape.



Figure no. (5.45) Tweek park

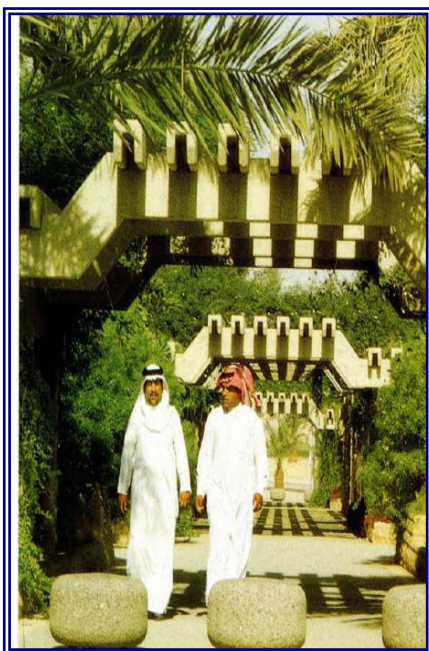


figure no.(5.47) Example of walking paths

Figure no. (5.46) Example of walking paths

Source: High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication, projects and planning center.

-High Commission for the Development of Riyadh. Picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/KingAbdulA/allPhotos.aspx?CurClass=Even> (5.5.2010)

The above figures show examples of the walking paths which have been constructed in the quarter, while the below figure shows Alkendi Plaza



Figure no. (5.48)

Alkendi Plaza

3.1.2 Deserts sites landscape:⁴⁶

This type of landscape covers about 900,000 square meters of the area of the diplomatic quarter. The aim of this landscape type is to protect the quarter's boundaries which lie adjacent to the highways from noise and to create safe places for open entertainment. A fifty-meter wide line running parallel to Hanifah Valley has been allocated as the boundary between the valley and the construction region.

These areas have been developed as desert parks and feature paths for walking, jogging and cycling as well as terraces where people can sit and look over the valley. Rest areas have seats carved from rock and barbecue spots for picnickers.

⁴⁶ - High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication, projects and planning center.

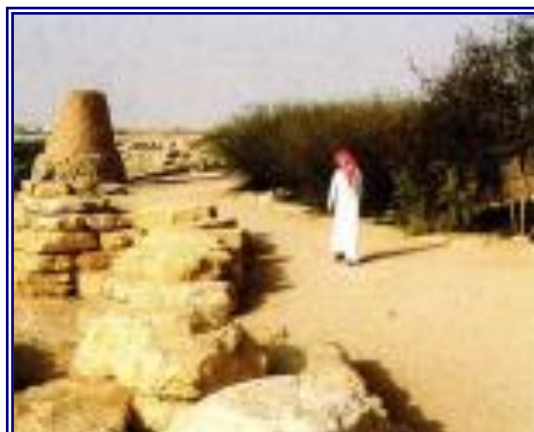


Figure no. (5.49) view of walking, Jogging and cycling paths Figure no. (5.50)

Source: High Commission for the Development of Riyadh, (1989). Diplomatic quarter publication, projects and planning center.

The above figures show the walking, jogging and cycling paths. The figures also show the method of desert landscaping.

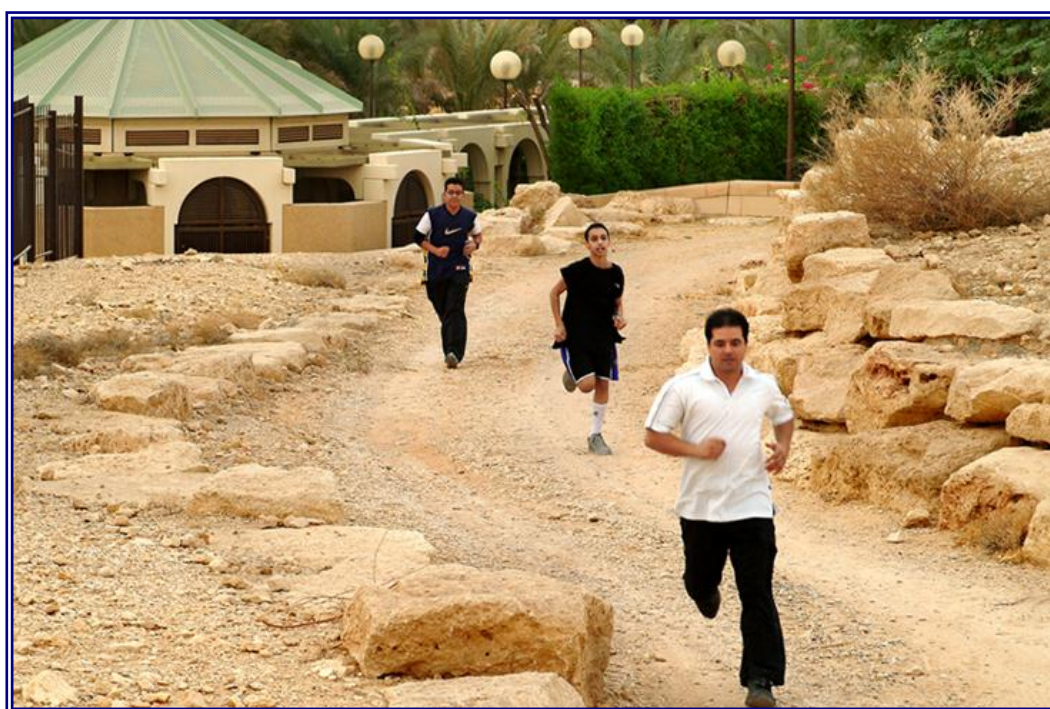


Figure no. (5.51) view of the jogging paths surrounding the diplomatic quarter.

Source: High Commission for the Development of Riyadh. Picture library, website:

<http://www.ada.gov.sa/ar/Photos/SakanAlkha/KingAbdula/allPhotos.aspx?CurClass=Even>

(5.5.2010)

3.2- Green space areas irrigation:

Irrigation is vital in a desert environment and has been applied successfully here using waste water. An irrigation network has been established in order to benefit from the treated sewage water for the irrigation of green space areas. A tower for irrigation water has also been built. The irrigation network covers all planted areas in the quarter.

In order to optimize efficiency, a control system has been installed to manage irrigation by means of a computer program designed to provide and organize the required water.

4- The environmental rehabilitation of Wadi Hanifah⁴⁷

Wadi Hanifah is one of the main natural attractions in the city. It contains most of the remaining traditional environment features in the region, namely in the villages, orchards and farms found there. It is characterized by agricultural land, but it is also rich in plant life and algae. Furthermore, it features many types of heritage and recreational activities.

Wadi Hanifah is a natural sink for floodwater: more than 4,000 square kilometers of flood water have accumulated in the valley. The dry conditions in the region mean that the amount of rainfall varies. Also, the south of the valley receives treated sewage water from the purification station in Manfohah Quarter, as well as water discharged from the program to control groundwater levels. The average volume of this water is about 600,000 cubic meters / day.



Figure no. (5.52)



figure no. (5.53)

The above figures illustrate the old situation of floodwater and treated sewage as a permanent water accumulation in the south of Wadi Hanifah.

In recent decades, the valley has become the site of a number of industrial activities, especially in the field of construction materials. When construction boomed in the city, the need for materials spread to large parts of the valley without taking into account the natural environment or special requirements for construction in these places. The most important implication in this aspect was soil erosion, which created a great imbalance in the function of the valleys. Large pits were formed, which this led to the formation of wetlands and resulted in industrial pollution. Ultimately, construction changed the topography of the valley.

⁴⁷- High Commission for the Development of Riyadh. (1993). Program of Wadi Hanifah development (first phase from the executive program – workflow),

- High Commission for the Development of Riyadh. (1995).The strategy of Wadi Hanifah development.



Figure no. (5.54)

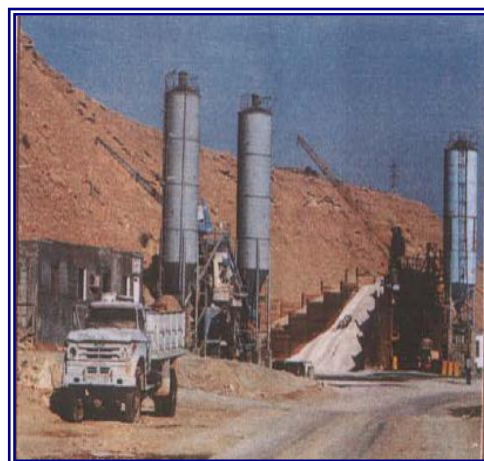


figure no. (5.55)

The above figures illustrate the soil erosion and industrial work which had a detrimental effect on the topography of the valley.

The valley is important as an area with natural features and other, potentially recreational components. It stretches 120 kilometers from north to south; part of it runs through Riyadh as a natural division between the two sides of the city. In the absence of a plan to protect the valley's environment, the High Commission for the Development of Riyadh commissioned a study of the current status of valley. This study included physical characteristics, human activities and their impact, land use, property, monuments, heritage sites, the road network, traffic and the general appearance of the entire valley and its tributaries.

Resulting from the study, the High Commission adopted a comprehensive strategic plan with policies and controls to develop the valley:

- The incorporation of most of the valley within the overall methodology of the outline, considered as within the protection of development for the city of Riyadh.
- The valley as a key element in the system of an open space area devoted to hiking and recreation in the city.
- The adoption of procedures to halt activities affecting the ecological balance of the valley.

Wadi Hanifah Development Program:

The development program builds on the Wadi Hanifah Restoration Project and then continues with strategic public and private sector projects to more fully develop the

environmental, cultural, and recreational and water resources of Wadi Hanifah by:

1. Providing open spaces and parklands along the Wadi and extending them into surrounding residential areas.
2. Developing the magnificent cultural resources of Wadi Hanifah, particularly at Addiriyyah, Hay Al Masani, the Old Dam and Old Al Hair.
3. Re-establishing the natural landscape in the desert tablelands and rangelands of the desert catchment area above the Wadi bed, including construction of check dams.
4. Providing private-sector investments to renew the Seyah mixed-use development area.
5. Providing private-sector investment opportunities for recreational and leisure facilities.
6. Providing private-sector investment opportunities for tourism development.
7. Providing private-sector investment for innovative agricultural development.
8. Constructing the impoundment downstream of Al Hair, to meet future reserve capacity needs for water recycling in Riyadh.
9. Constructing water recycling and treatment facilities to meet future water recycling needs in Riyadh.

According to the comprehensive plan and development program, the environmental rehabilitation of the valley will involve the establishment of five open parks:

- **Alelap Dam Park**, featuring 5.5 km of walking paths and 93 seating areas for visitors, roadside parking to accommodate 200 cars, as well as pavement for pedestrians along 2 km equipped with lighting and landscaping.

Wadi Hanifah Dam Park, providing 27 seating areas and a 5.6-km pedestrian path.

Rock Dam Park, which has a lake covering an area of approximately 10 thousand square meters and a depth up to two meters. The circumference of the dam has been paved as a 4.5-km walking path. Seating areas for visitors have also been installed around the lake.

Almasanea Lake Park, which provides 4 kilometers of pedestrian paths in addition to 22 seating areas. The lake covers an area of 40,000 square meters and has a depth of up to 10 meters.

Aljazah Lake Park, which has 5.5 km of walking paths 37 seating areas for the park's visitors. The total area of the lake is 35,000 square meters; its depth is up to three meters.



figure no.(5.56) General view of the project

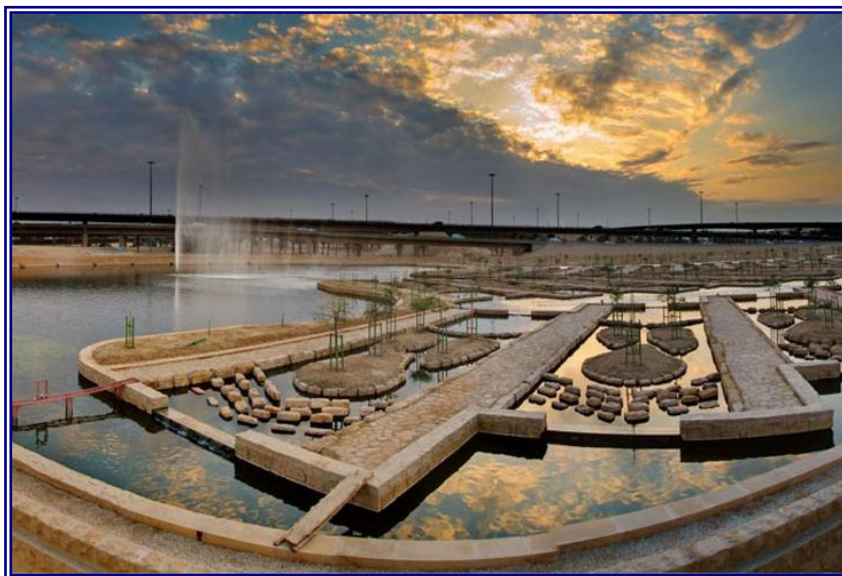


Figure no. (5.57) Vital treatment station

The vital treatment station has an area more than 100,000 square meters. Its aim is to increase the length of the flow of water, to provide this water with air to increase the proportion of oxygen in order to contribute to the growth of organisms that can eliminate water pollutants.



Figure no. (5.58)



Figure no. (5.59)

The above figures show Rock Dam Park. They illustrate the lake, seating areas and car parking.



Figure no. (5.60) Wadi Hanifah Park



Figure no. (5.61) Alelap Dam Park



Figure no. (5.62) Almasanea Lake Park



Figure no. (5.63) Aljazah Lake

The above figures show views of the parks and some of the components included in the environmental rehabilitation of Wadi Hanifah.

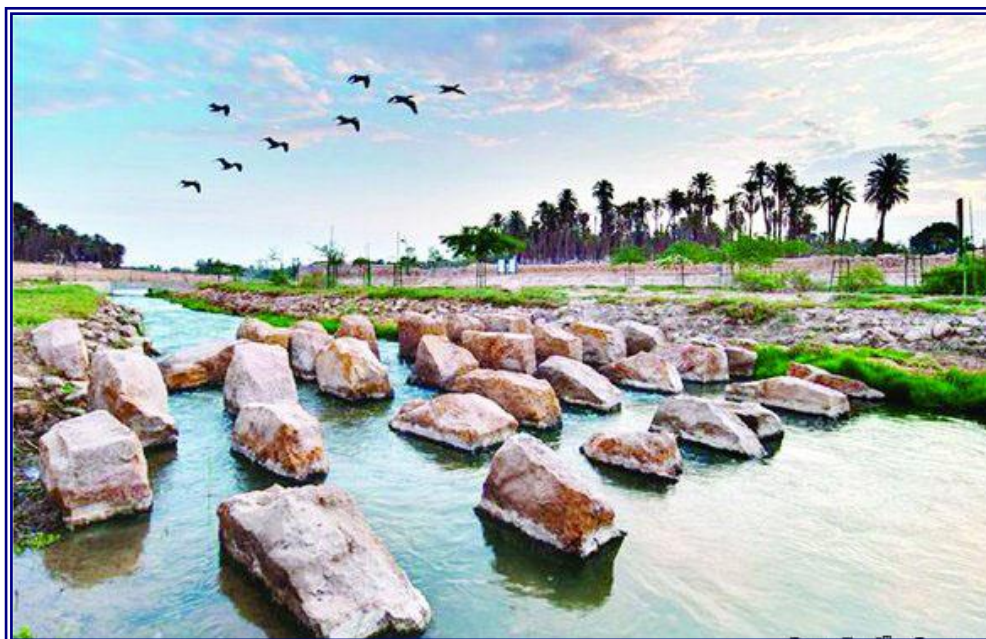


Figure no. (5.64) permanent running water channel

For the environmental rehabilitation of the valley, there are three different levels of water discharge currents. For instance, a constant flow of feed networks helps reduce groundwater in the city. In addition, to address drainage and flooding, an open channel of constantly flowing water has been constructed. This channel has specially-prepared rock formations and "weirs" to help control the flow of water.

The second level of current is designed to control water from Riyadh's seasonal floods. The third level will control the levels of floods which occur approximately every 50 years.

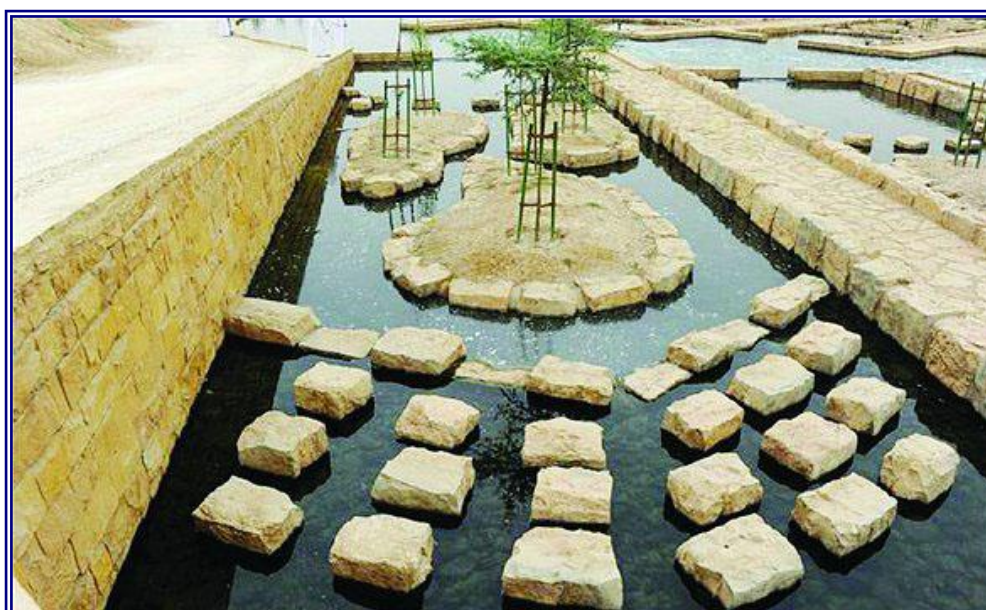


Figure no.(5.65) permanently running water channel

5.5.2.2- Riyadh municipality:

Riyadh municipality is responsible for introducing all municipal services which citizens need. The concern for parks and green space areas has led to the preservation, development and exploitation of the natural environment, which reflects positively on human life and improves the surrounding environment.

According to the organization structure of Riyadh municipality, the general administration of parks and environmental architecture has the duty of operating and implementing parks and green regions in the city, working to enhance the city's appearance and creating the required plans for increasing green areas through the city.

The administration is responsible for the confirmed projects in the field of parks and planting which have a special form such as the zoo, the plant and flower parks and children's playgrounds.

Also, it has the responsibility of operating and maintaining these projects after their completion. It is also in charge of study, technical supervision and specifications for project implementation. In addition, the municipality must oversee any repairs to equipment required for construction, maintenance and planting, such as drilling wells, implementing irrigation network, and construction and soil preparation.

Furthermore, the administration plays an active role in providing technical assistance and advice to government agencies that ask for help in planting and beautification, in addition to raising awareness among residents regarding care of the green regions.

1- Administration of parks and environmental architecture staff:

The staff which works in the administration comprises about 486 employees. The following table number (5.5) explains the number of people in each area, their special tasks and the sub-administration.

There are about 25 engineers. Five of these have the duty of the main administrations in addition to general directors, while the rest work as head of support services teams in the various branches of the municipal administration. The administration employees have the mission to organize the duties of the administration. The technician's number 71 in total: they are involved in technical support jobs as inspectors, draftsmen, surveyors and agricultural technicians. The 430 laborers are responsible for implementing the administration's vision for the parks and green space areas.

Administration Name	Administrators		Technical	Laborers
	Directors	Employees		
General Director's Office	3	4	3	9
Service & Technical Support	4	13	6	108
Site Implementation & Supervision	1	3	7	6
Site Implementation & Studies	1	8	3	5
Operation & Site Landscaping	16	36	52	302
Total administration staff = 486 Employees				

Table no. (5.5) Number and specialized employees of administration of parks and environmental architecture staff.

Source: Riyadh Municipality, general administration of parks and environmental architecture. 2009

2- Organization structure of the administration of parks and Environmental architecture:

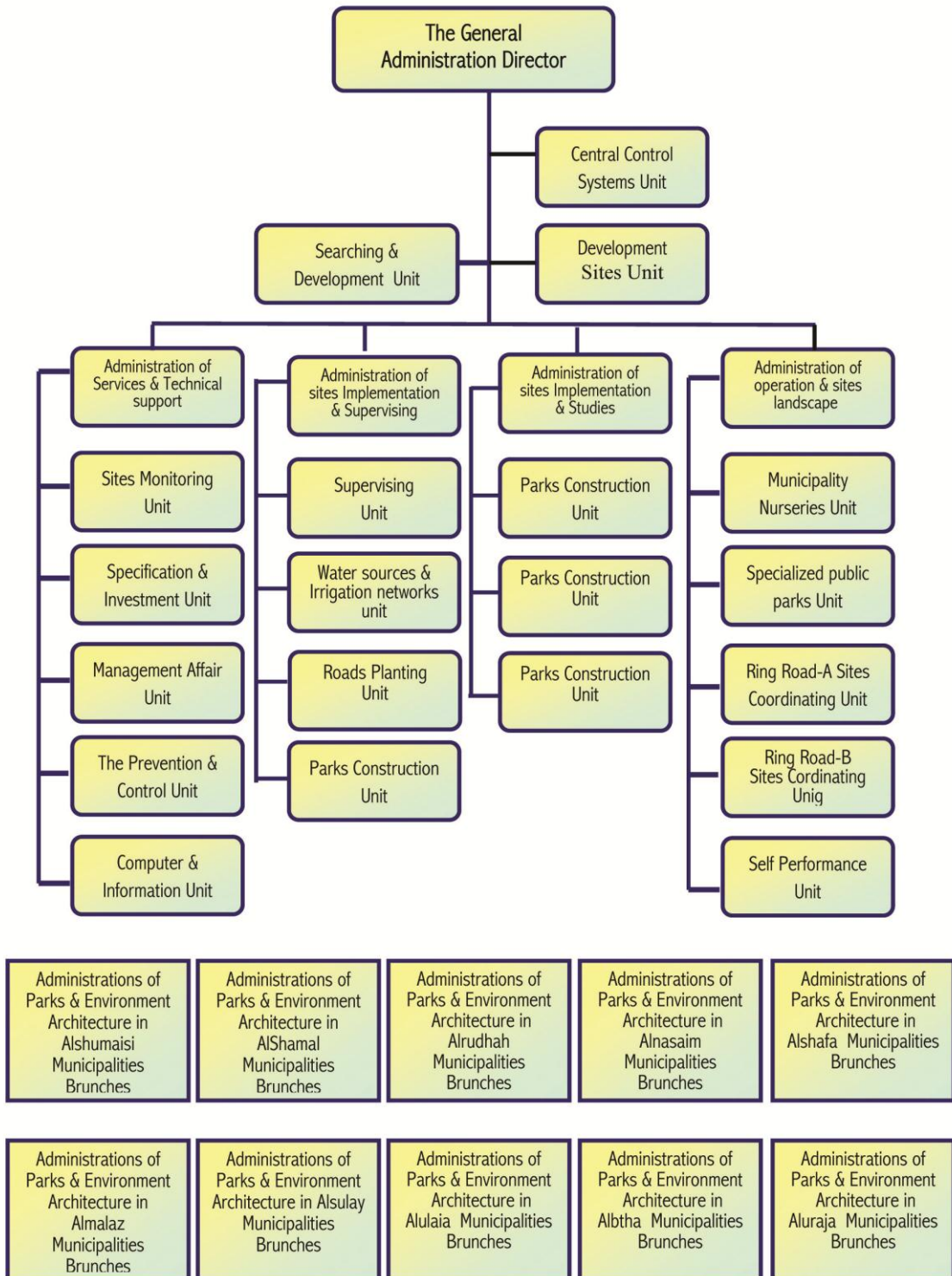


figure no. (5.66)

Source: Riyadh Municipality, Administration of parks and environment architecture. 2009

3- The administration departments' functions:

According to the organization structure which illustrates the administrations which consist of the administration of parks and environment architecture.

The following will explain the obligations of each administration:⁴⁸

A- Administration of Services and Technical Support:

This administration involves five units which are concerned with management affairs and technical support throughout its units as the following:

1- Computer and information unit:

- Configure a database and information about the functions and achievements of the general administration of environmental architecture.
- Preparing reports of all kinds.
- Direct supervision of the photo library updating it and configuring upon request.
- Direct supervision of the preparation of the annual report of the general administration of parks and environmental architecture.
- Direct supervision of the administration's website and updating its information.

2-Specification and investment unit:

- Prepare, present and discuss the allocations contained in the budget.
- Launches newly approved projects and prepare the specifications for the new projects.
- Supervision of notices of invitations to tender, follow-up and analysis of the competition after opening the envelopes to award the contracts.
- Complete supervision of monthly follow-up reports through the follow-up and exchange monitoring in the unit.
- Responding to requests for investment from the Department of Investment development Administration in Riyadh Municipality.
- Supervising the investment parks and following up on the investors' work.
- Coordination with the projects' supervising administrations for the purpose of the continuous updating of specifications.

⁴⁸ - Riyadh Municipality, administration of parks and environment architecture. 2009

3- Sites monitoring unit:

- Supervising the monitoring of parks which come under the administration of parks and environmental architecture, especially large public parks and municipal plazas.
- Maintaining visitor security; complying with the specified instructions from Riyadh municipality for large public parks and municipal plazas.
- Participating in events and activities organized by the administration of parks and environmental architecture.

4- Management affairs unit:

- The responsibility for recruitment and development of Administration employees.
- Preparation of new working orders for new employees and those returning from holidays.
- Furthering the development of administration employees by nominating those to be considered for training courses and preparing the required documents.
- Preparing assigned data for overtime hours and official holidays.
- Following up on foreign employees in terms of their vacations, resignations and residency permits.
- Following up on the transactions, letters and circulars issued or sent to the Administration and preserving these documents in the archives.

5- Prevention and control unit:

This unit has the duty to protect parks and roadside plants from diseases and environmental influences as well as to combat all potential negative impact on plants and users.

Prevention and control is also responsible for suggesting schemes and programs which provide periodic preventions across the city.

B- Administration of operation and sites landscapes:**1- Municipal nursery unit:**

- Cover the current requirement for trees, shrubs, flowers and soil in the various administration projects.
- Implementation of the plant diversity program and searching for types of plants suitable to Riyadh's environment.

- External contributions to satisfy the principles of cooperation between Riyadh municipality and other sectors; participation in events and occasions.

2- Administration of parks and environmental architecture in the municipal branches:

- Supervising the operation and maintenance of sites and evaluating the level of contracted work required in the maintenance of sites.
- Following the works of updating and renovating sites as required.
- Preparing monthly statements and ensuring the workflow and calculation of fines for any delay in work.
- Setting a schedule for the routine maintenance of parks and green space areas and preserving the general appearance of the city.
- Measuring the size and amount of green areas by periodic updates to the unit's data.

3-Self performance unit:

- The implementation of emergency work for the administration.
- Support for other units in urgent tasks.
- Maintenance of planting in the administration buildings.
- Palm trees group must transfer and re-farm in the administration sites.
- Palm trees group must maintain the municipal nursery.
- Maintenance and operation of wells run by the administration.
- Movement group is responsible for work related to vehicles and equipment; they must also follow up on accidents, insurance and licenses for drivers.
- Preparation of some sites to be ready for contractors.

4- Ring road sites coordination:

- Supervising operation and maintenance work and evaluating the required amount of contractors for projects involving Riyadh's ring road.
- Following the works of updating and renovating sites.
- Preparing monthly statement, ensuring workflow and calculating fines for any delay in work.
- Setting a schedule for the routine maintenance of parks and green space areas and preserving the general appearance of the city.

- Measuring the size and amount of green areas by periodic updates to the unit's data.

5- Specialized parks unit:

- Supervising the implementation of specialized parks.
- Supervising the operation and maintenance of Riyadh's municipal zoo.

C- Administration of sites implementation and supervising:

1- Water sources and irrigation network unit:

- Supervising and following up on projects of old irrigation network replacement.
- Supervising well excavation and test site selection and productivity of the wells.
- Coordinating the linking of the sites with the central irrigation station.
- Coordinating the design.
- Coordinating between the relevant authorities to resolve any difficulties regarding the issuance of permits.

2- Road and streets planting unit:

- Participating in the identification of roads and streets required for planting.
- Participating in the coordination of designs for road and street planting.
- Testing sites of irrigation reservoirs, tanks, pump rooms and other equipment.
- Determining the source of irrigation, if any, or requesting wells around the sites of reservoir tanks.
- Testing water samples for approval for use in projects.

3- Parks construction unit:

- Preparing letters for the branch municipalities describing sites that need to be surveyed.
- Coordinating site selection.
- Coordinating and cooperating with design administration; preparing the design for all business work.
- Direct supervision of all work, accounting for the number of workers and checking the financial statements.
- supervising the implementation of approved projects in the city in parks field.

4- Supervising unit:

- Follow-up and supervision of all administration projects.
- Continuous coordination with project supervisors.

- Participation in the removal of barriers and difficulties from the supervisory team
- Visiting the relevant authorities to coordinate efforts to resolve the difficulties.

D – Administration of site design and studies:

1- Sites Design unit:

- Preparation of studies and projects design in public parks, zoo and children's playgrounds.
- Preparation of studies and designing projects for the planting and beautification field.
- Preparation of studies and designing projects for fountains and aesthetic features.
- Coordination and cooperation with the municipal administration units and government agencies in the field of planning and parks, planting and beautification.
- Providing periodic reports about the administration's achievement, employee performance and suggestions to improve performance.

2- Projects unit:

- Proposing programs and plans to increase the green area in the city.
- Preparing plans and programs aimed at spreading awareness among the public regarding the care of green regions, trees and urban beautification.
- Selecting sites and determining their suitability for implementation according to prescribed criteria.
- Preparing priority implementation programs and identifying the needs of individual quarters for public utilities in the field of parks and planting.
- Following up and supervising environmental project construction for new schemes.

3- Technical support unit

- Participating in technical support for approved urban projects in the field of parks, planting and beautification; entrusting implementation to other units.
- Providing technical advice to government agencies requiring assistance in the field of agricultural and aesthetic work.
- Accounting and estimating quantities and costs for the elements required by any given project.
- Coordinating and cooperating with other administration units in the field of design and technical support.
- Preparing surveying work.

4- Parks and open space areas strategies and policies:

The mission of this strategy is the development of greening works – parks and environment architecture- to increase the green spaces and improve the city’s environment and appearance. Ultimately, these projects should introduce better service in this field for Riyadh’s citizens in terms of both quality and quantity.

A- The targets:

- Dedicated work to increase the green space area of the city, increasing the allocated per-capita green area.
- Working on the expansion of parks construction of all types.
- Initiatives in constructing entertainment centers for the disabled.
- Increasing the planting of streets, roads and squares.
- Initiatives in constructing entertainment sites aimed at urban youth (60% of the city’s population is under 25). Improvement of Riyadh’s landscape.
- Increasing the qualification of work performance by applying supervisory programs.
- Enhancing the role played by the media, e.g. documentation and publication.
- Promoting scientific research and development in cooperation with Saudi universities and research centers.
- Exploiting treatment drainage water for plant irrigation.
- Re-qualifying the parks with respect to the entertainment requirements of the city’s residents.
- Understanding the limitations of the landscape and, where possible, increasing plants, green space and flowers suitable to the local environment.

B- The strategy:

The strategy consists of several comprehensive schemes to explain the method of targets and missions.

- Scheme to maintain achievement in the planting projects and raise the performance level in the operation and maintenance field.
- Scheme to raise landscape quality and apply the landscape limitation.
- Scheme to increase the plans for various green spaces and flowers.

- Scheme to increase all type of parks construction and set priorities through cooperation with the municipal branches.
- Scheme to re-qualify some important sites to increase their environmental and aesthetic qualities.
- Scheme to re-qualify and develop the nursery to provide the city with suitable plants.
- Scheme to continue implementing street, road and square planting.
- Scheme to update irrigation water administration and the automatic control of the networks and their renewal.
- Scheme to use treatment drainage water.
- Scheme to expand the base of part-investment in parks and open space areas with free admission.
- Scheme to develop management techniques and work towards environmental improvement.

C-Policy for parks:

This policy is derived from the strategy covering guidelines for decision making:

- Follow the principle of full partnership with the contractor and the investor, also preserving the right of the parties and satisfying the maximum benefit for the public.
- Apply the principle of maintaining and developing existing green spaces, and then create new spaces where possible.
- Innovation and renewal in every business, big or small.
- Apply the principle of ‘shock and dazzle’ when implementing certain works.
- Initiate the implementation of some non-traditional projects.
- Full discipline in all work.
- Rigor in the preservation of public money.

5- The current situation of parks and open space areas in Riyadh:

The parks are considered a lounge for all family members, especially youth and children. When they are equipped with the required tools and elements, and the appropriate entertainment, young people can spend their free time here, right into the late evening.

According to the strategy of green areas in Riyadh city, it is important to provide satisfactory sites to fulfill the needs of citizens as much as possible. This means implementing plazas, open space areas, residential parks, public parks and children's playgrounds in addition to the expansion of planting along streets and in squares in order to increase the average amount of green space per citizen. According to Riyadh municipality, the total green space area under its supervision is estimated at about 18 million square meters, which leads us to assume that each person has 3.6 square meters. In order to create more green space for citizens, Riyadh municipality appropriated seven farms, with a total area of about half a million square meters distributed through the city, and transformed them into public parks⁴⁹. The classification and nomenclature systems for these parks and other open space areas so not come under the same regulations outlined by the Ministry of Municipal and Rural Affairs (see chapter 3).

On the other hand, the municipality has two nurseries which provide trees, shrubs and flowers to cover the need for:

- Parks and planted streets to replace dead or damaged plants.
- Parks and streets whose plants are tended by the municipality.
- Preparing plants for the city's annual planting week.
- Supplying citizens with plants for the easements in front of their houses.
- Supplying government agencies with plants required for green areas.

The average number of plants handled every year is about one million.

The first nursery lies in Alnaseriah quarter, in an area covering about 30,000 square meters. This nursery is responsible for producing plants which are most suitable for Riyadh's climate. It has four protected houses: three are made of glass and have automatic control systems for temperature and irrigation. The fourth house is made of timber in order to provide the correct amount of shade, heat and humidity for growing shade-loving plants and flowers which are generally unavailable in normal nursery beds.

⁴⁹ - Riyadh municipality, planting and beautification achievement publication issued by municipality deputy of services, Administration of Parks and Beautification, 2002.(pp.13)

The second nursery lies in Alureaja quarter in the west of the city; its area measures about 132,000 square meters. It has same duties as the Alnaseriah nursery and is also responsible for building greenhouses and other planting structures for the general administration of parks and environmental architecture. It has 6 protected glass houses as well as dedicated areas to protect shade plants.

The following table explains the types of green space areas found in the city:

No.	Green space area type	Number	Area (m ²)
1	Parks (Muntazah)	15	1,800,000
2	Public parks	27	1,566,555
3.1	Residential parks	233	1,074,764
3.2	Children's playgrounds	99	
4	Municipal plazas	33	325,200
5	Traditional courtyards	7	28000
6	Squares	28	2,080,000
7	Walking paths	35	1,128,484
8	Recreation centers for special needs	1	14,435

Table no. (5.6)

Source: Riyadh Municipality, general administration of parks and environment architecture. 2009

- Riyadh Municipality, planting and beautification achievement publication issued by municipality deputy of services, Administration of Parks and Beautification, 2002.
- Special ordination by the researcher.

The following will explain in detail all types of green space areas:

1- Parks (Muntazah)

Called “muntazah” in Arabic, these parks usually have a massive area, include many special activities such as a play courtyard and cultural institutions such as libraries, museums, swimming pool and specialized facilities such as restaurants. The muntazah’s main function is to provide entertainment and cultural services for visitors in addition to aesthetic aspects which complete the city urban fabric, mitigate the fierce climate and help prevent pollution. Its areas range between 37,000 and 400,000 square meters. Riyadh has about 15 parks (muntazah):

No.	Muntazah name	Opening date	The quarter	Area (m ²)
1-	Gabal Abu Makhrouk	1980	Aldubbad	40,000
2-	Desert Park	1983	Alnoor	400,000
3-	Alsewaidi	1984	Alsewaidi	102,000
4-	Mohammed bin Alqasem	1985	Alrawabi	75,515
5-	Alulaia	1986	Alulaia	37,000
6-	Alead	1987	King Abdullaziz	395,000
7-	Alhezam	1987	Alrafeah	42,000
8-	King Abdullaziz Manakh	1988	Almanakh	240,000
9-	Alwadi	1988	Albadeah	52,000
10-	Aulaeshah	1988	Aulaeshah	37,014
11-	Almansourah	1989	Almansourah	69,000
12	Aldouh	1989	Tewaeq	57,000
13-	Alroudah	1992	Alroudah	81,331
14-	Alwahah	2004	Alwahah	70,000
15-	Telal AlRiyadh	2004	Telal AlRiyadh	100,000
Total area = 1,757,864 square meters				

Table no. (5. 7)

Source: Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009

1.1 - Gabal Abu Makhrouk Park:

This park (muntazah) lies in Aldubbad quarter in the middle of Riyadh as a part of Abu Makhrouk. This mountain is formed of ancient sedimentary rock accumulations on graded levels. A natural gap found at the peak give rise to reflection on the creativity of the creator. It is of some historical importance, for King Abdullaziz – (the union of the kingdom) - was taken here for rest and relaxation surrounded by nature. The natural progressive rock formations of the mountain give it a rather special character in terms of architectural design.

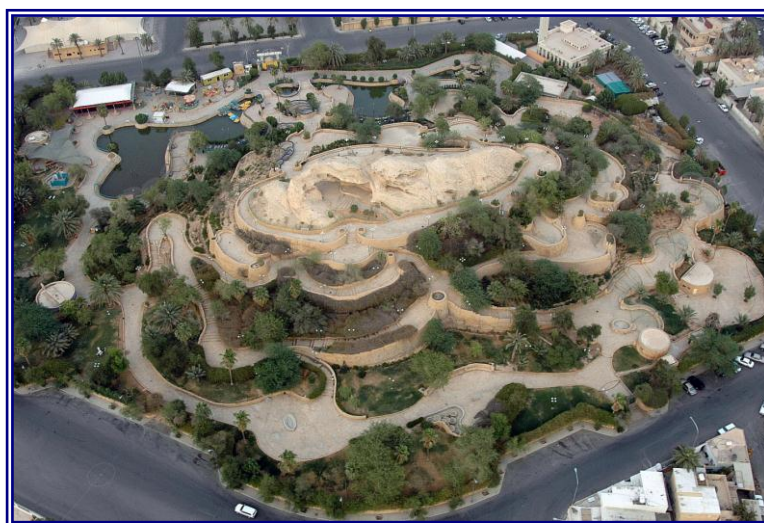


Figure no. (5. 67) Gabal Abu Makhrouk Park (Aldubbad Quarter)

Source: Riyadh Municipality, Administration of Parks and Environment Architecture. 2009

The above figure show general perspective of the park.

The park design has taken into account the natural irregular configurations consistent with the different levels of the mountain while preserving the gap at the peak and thus producing a distinct monument.

Gabal Abu Makhrouk Park features several bodies of water. The pond in the east has an area of about 3,000 square meters. Inside, two connected fountains face the entrance and pour water into the pond in the form of a waterfall. Another waterfall on the western side consists of overlapping units, and there is yet another fountain on the south side and two more on the western side.

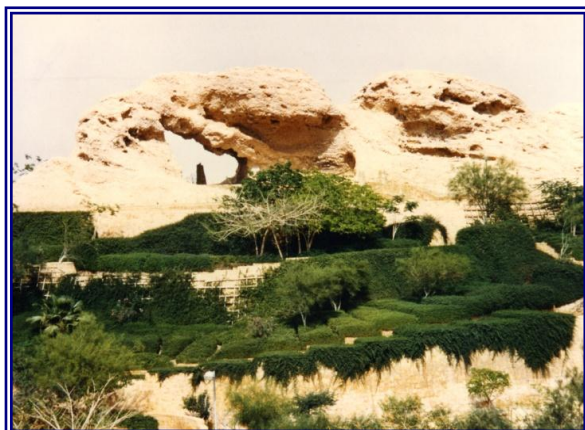


Figure no. (5.68)



Figure no. (5.69)

The above figures show the terraced planting style and a view of the artificial pond found in the park.

1.2- Alsewaidi Park⁵⁰

The park lies in the southern sector of the city; it has an area estimated at 102,000 square meters. It was opened to the public in 1984. The site was originally a private farm; it has been converted by the municipality to a park to provide a recreational outlet for Alsewaidi quarter and the surrounding quarters.

The design concept depends on the use of palm-tree forest conservation and the exploitation of topographical features to provide an interesting and comfortable environment where people can enjoy their leisure time.

The design is based on an aesthetic element which uses tents to create an Arabic style and provide shade so the park can be used both in the daytime and at night. In addition, the park features environmentally suitable plants and aesthetic touches such as a fountain, waterfall and watercourses.

The park is divided into two parts: the first part is allocated for families, while the second is allocated for youth (singles). The family area occupies about 60% of the total area of the park and also lies at the highest level of the site. It has three main areas: a seating area, which involves circular areas shaded by tents and surrounded by trees, shrubs and flowers. There is also a recreational region with a football courtyard and shaded areas used as playgrounds for children of all ages. The public services region has a prayer hall, restaurant, main fountain, walking paths, car park and toilet facilities.

50 - Riyadh municipality, (1990) Planting and Beautification in Riyadh City.

The singles' area lies at the lowest level of the site and occupies about 30% of the park. This features the terraced style inspired by the natural topography of the site. It has three regions and is similar to the family part except for the recreational area, which has two football courtyards.

The administrative area occupies the rest of the park. This includes administration and maintenance buildings, a water desalination station, tanks for irrigation water, tanks for drinking water and buildings for electricity support and safety equipment.



Figure no. (5.70)

Alsewaidi park

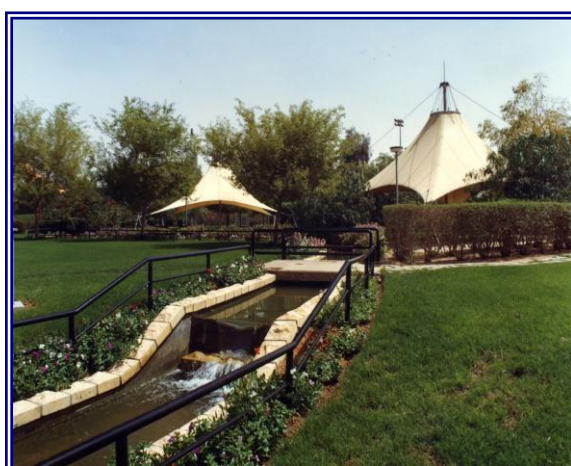


Figure no. (5.71)

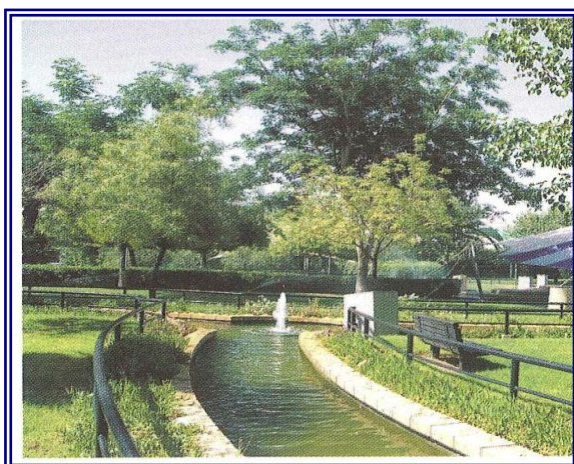


Figure no. (5.72)

Alsewaidi park

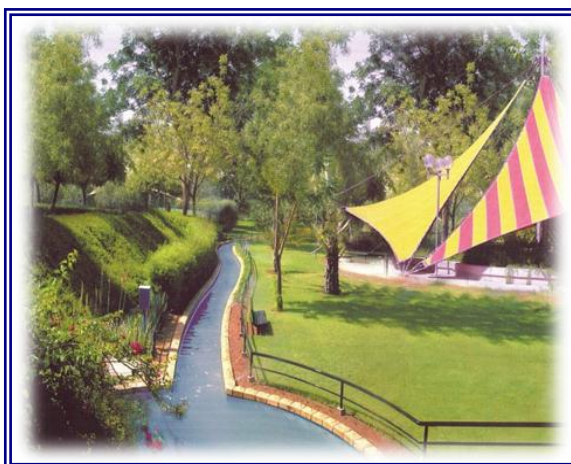


Figure no.(5.73)

Source: Riyadh municipality, Administration Parks and Environmental Architecture, 2009

The above figures illustrate the planting style and watercourses found in the parks, in addition to the shaded seating areas, which use tents in the traditional Arabic style.

Public parks:

Public parks are characterized by their area and are generally quite large. They differ from the muntazah parks in that they do not usually offer such facilities as restaurants or cultural institutions. These parks have the usual park components, in addition to heavy planting and vegetation.

Riyadh has 27 public parks distributed through the city as follows:

No.	Park Name	Opening date	Quarter	Area (m ²)
1.	Prince Fahad Alfaisal (Almalaz)	1956	Almalaz	40,000
2.	Alfotah	1956	Alfotah	40,000
3.	Alyamamah	1983	Alyamamah	20,790
4.	Alroudah	1983	Alroudah	10,321
5.	Omer bin Alkhattab	1984	Alamal	13,365
6.	Manfohah	1986	Manfohah	11,305
7.	Alkhaleej	1986	Alrabwah	25,000
8.	Alshahamah	1987	Alrabwah	10,500
9.	Zoo park	1987	Almalaz	161,000
10.	Alkhuzam	1987	Alrafeah	42,000
11.	Alkanadeel	1987	Alrabwah	12,440
12.	Aloud	1988	Aloud	13,000
13.	Bin Zaidoun	1988	Thouleem	14,300
14.	Alshaeab	1989	Nemar	13,000
15.	Albadeah	1989	Dahrat Albadeah	16,000
16.	King Fahad Library	1990	Alulaia	32,000
17.	Petromin	1990	Alwazarat	13,500
18.	Alghurfah Altejareah	1991	King Abdullaziz	25,000
19.	Alareej	1991	Alsalam	36,744
20.	Alsanabel	1992	Alazizeah	11,466

No.	Park Name	Opening date	Quarter	Area (m ²)
21.	Alrjaa	1993	Alrabwah	12,900
22.	Alnahdhah Road	1994	Alrabwah	400,000
23.	Aldhuha	1994	Alwroud	12,208
24.	Alrahabah	1995	Aldubbad	10,380
25.	Alkhaledeah	1995	Alkhaledeah	62,000
26.	Alrabwah	1995	Alrabwah	17,000
27.	Alwahah	2004	Alwahah	70,000
Total Public Park Area = 1,566,555 square meters				

Table no. (5.8) table of Riyadh's Public parks

Source: Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009

2.1- Alshaeab park

This park lies in the Nemar quarter in the southwestern sector of the city; its area is about 13,000 square meters. It opened in 1989. The design consists of two main entrances leading visitors to the central plaza, which has a fountain at its center. Seating areas and children's playgrounds are distributed in groupings, each of which is surrounded by shrubs and trees. The seating areas are shaded by trees or light structures.

The main components of this park are: the central plaza, green space area, trees, fountain, seating areas, car parking, kiosk and toilets.



Figure no.(5.74) Alshaeab park



Figure no.(5.75) Alshaeab Park

Figure no. (5.82) shows a general perspective of the park, while figure no. (5.83) gives a view of the park's components.

2.2- King Fahad Library Park

King Fahad Library Park lies in the Alulaia quarter, in the northern sector of the city; its area is about 32,000 square meters. It opened to the public in 1990. The aim of this park construction was to provide a green area for library visitors and the region's citizens. The design concept is a combination of huge numbers of palm trees, plants and flowers, a rockery and waterfalls flowing into an artificial lake. The main components of the park are:

- Green space areas, which exceed 17,000 square meters.
- The rockery, which contains groupings of desert plants.
- The waterfall and artificial lake, which has three fountains and a surrounding seating area.
- Four playground areas.
- Walking paths finished with sandstone bricks.
- Family seating areas surrounded by shrubs and finished with sandstone bricks.
- The full-service restaurant.
- The services building and utilities such as administration building, toilets, lighting and car parking. In addition, there is an irrigation system which provides the trees and plants with water.



Figure no. (5.76) King Fahad library park



figure no.(5.77) King Fahad library park



Figure no. (5.78)

The above figures show a general perspective of the park in addition to some main elements such as planting, rockery and walking paths.

2.3- Prince Fahad Alfaisal Park (Almalaz):⁵¹

Prince Fahad Alfaisal Park is considered the oldest park in the city. It lies in the Almalaz quarter in the center of the city and its area is about 40,000 square meters. It opened to the public in 1956.

The dominant design concept is characterized by the flow of movement and easy access to various sites, as well as an expansive green space area and numerous seating places under the shade of large and diverse trees. The shrubs have been distributed around the green space areas to create an independent form and provide a suitable and comfortable environment. The park also features the required public services such as toilets, kiosks and parking.

51 - Riyadh municipality. (2002).The Achievement of Planting and Beautification in Riyadh City.
- Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009



Figure no. (5.79) View of prince Fahad Alfaisal Park (Almalaz) Figure no. (5.80)



Figure no. (5.81) A general perspective of the park show the components and design concept of the park.

2- Residential quarter parks & playgrounds in Riyadh:

The essential target of the residential parks is to serve the entertainment needs of all ages in the quarter, especially children who go to elementary school. It is important to be concerned with children's education and development in intellectual, physical and behavioral aspects. In addition, the residential park plays a role in environmental improvement and beautification. It is usually located in the center of the quarter, easily accessible on foot from all parts of the quarter and along pedestrian-safe pathways.

The following table depicts the number of parks and playgrounds and their distribution throughout Riyadh's municipal branches:

No.	Municipal Branch Scope	No. of Parks	No. of Playgrounds	Total area (m ²)
1-	Alshamal- Almathar- Erqah	24	12	202,680
2-	Alureaja – Nemar	25	8	91,498
3-	Alulaia	51	20	207,826
4-	Albathaa	13	6	96,319
5-	Alnaseem	20	16	66,875
6-	Alshumassi	19	5	52,000
7-	Almalaz	43	10	173,861
8-	Alazizeah- Alhaer- Alshafa	16	11	85,490
9-	Alsullai	4	0	8,371
10-	Alroudah	18	11	89,844
	Total	233	99	1,074,764

Table no. (5.9)

Source: Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009

3.1- Residential parks

- **Almaseef Park** lies in Almaseef quarter in the north sector of the city; its area is about 6,100 square meters. It opened in 1987. The design concept uses circles and arcs. The prominent feature of the park is the suspension bridges which connect the different levels of the parks and the park corners. The main components of the park are a green space area which contains palms and other trees, naturally occurring and planted shrubs, seating areas, a children's playground and toilets. In addition, the park offers public services such as restaurants and parking.

- **Alsharafeah Park** lies in Alsharafeah quarter in the northwest sector of the city; its area is about 6,800 square meters. It opened to the public in 1989. The park's design features a fountain and waterfall at the highest point in the park. The water runs from this point through a tunnel to a small lake, which has a fountain and is surrounded by the visitors' seating area. Services such as the kiosk and snack bar have been placed near the seating area. The walking path is surrounded by green space areas and leads visitors past the waterfall and all the other components in the park. The seating areas are distributed around the edges of the park, with borders of rocks and plants to provide a natural view in addition to a certain amount of privacy.



Figure no. (5.82) Almaseef park

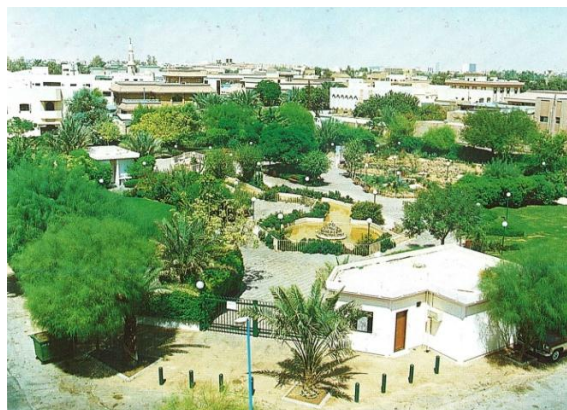


Figure no. (5.83) Alsharafeah park

The above figures show views of the parks Almaseef and Alsharafeah

- **Alkaramah Park** lies in Jareair Quarter in the center of the city; its area is about 5,000 square meters. It opened in 1983. The design of the park is characterized by its simplicity. The designer used decorative shapes to create combinations of forms in the walking paths; these interesting forms add to the park's beauty. The park has more than one thousand trees and shrubs in addition to a children's playground and other necessary equipment.
- **Ghubirah Park** lies in Ghubirah Quarter in the southern sector of the city. Its area covers about 7,200 square meters and it was opened to the public in 1987. The design concept of the park takes into account the natural topography of the site, which is characterized by a high rocky plain, so that a terracing system for plant distribution has given the park a unique look.

A circular area has been chosen as the site for a children's playground and the associated equipment. The ground here is covered in clean red sand to make the playground safe for children.



Figure no. (5.84) Alkaramah Park



Figure no. (5.85) Ghubirah Park

3.2- Children's playgrounds:

The target of the playground projects construction is to provide a suitable and safe environment for children to practice their hobbies and spend their free time. Riyadh has about 99 children's playgrounds distributed citywide.

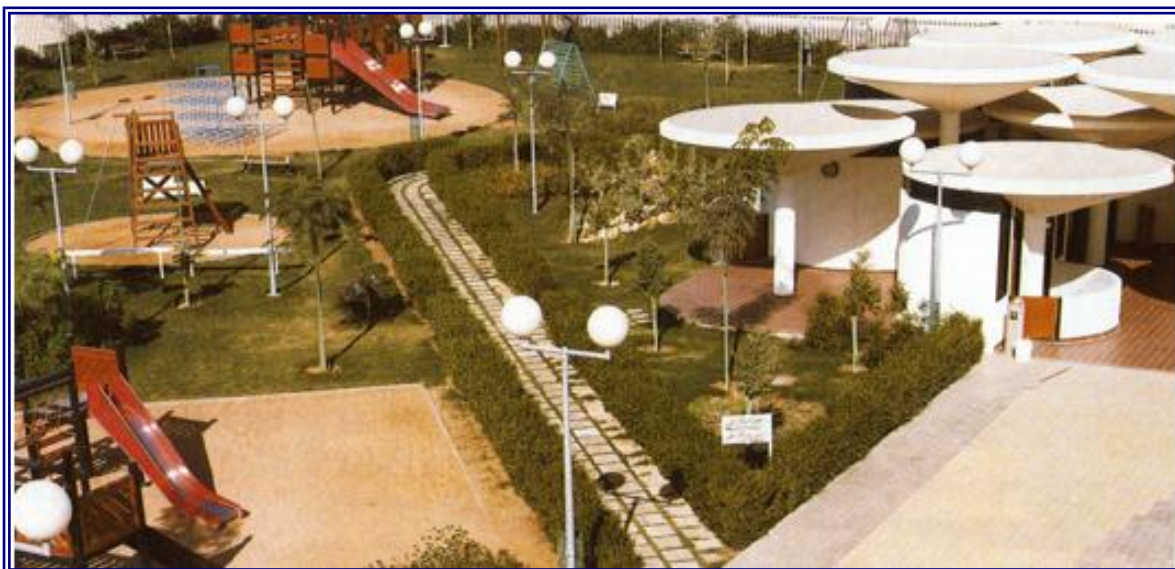


Figure no. (5.86) View of children's playground

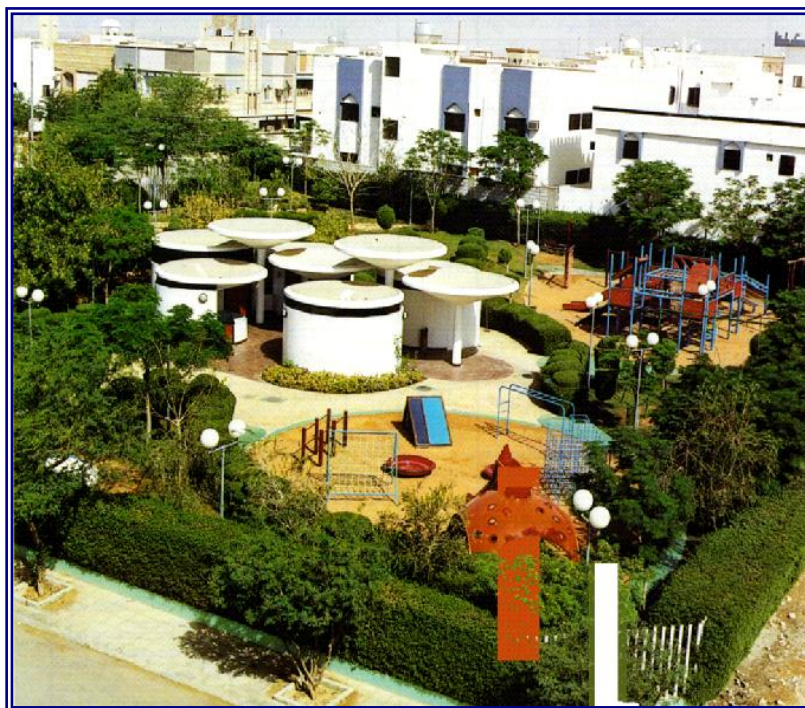


Figure no. (5.87) View of children's playground

The above and below figures show some of the children's playgrounds distributed throughout Riyadh. Also, the figures illustrate the simplicity of design which helps the children move among the play equipment. Tall hedges have been planted to provide safety for the users.

3- Municipal plazas:⁵²

Children and youth are the future generation and the basis of society. The concept of municipality plazas is the creation of recreational sites for children and youth with a view to allow them to develop them physically and interactively within the residential quarter. In addition, the plaza is a sort of outdoor lounge for the quarter residents where they can spend their leisure time.

Riyadh municipality is seeking to establish a hundred municipal plazas in the various districts of the city. This type of open space does not require complex infrastructure, so it can be established in a very short time and at a reasonable cost.

The municipality plazas contain:

- Walking paths.
- Track for warm-up exercises, inline skating and scooters.
- A multi-purpose field/court for football, handball, volleyball and basketball.
- Green space areas attractively landscaped with trees, shrubs and flowers.
- Playground areas for children with seating areas.
- Necessary requirements such as public toilets, lighting and car parking.

So far, 33 plazas have been established throughout various city quarters. Their total area is estimated at about 325,200 square meters.



Figure no. (5.88) the aerial view of the municipal plazas Figure no. (5.89)

The above and below figures illustrate the aerial view of the municipal plazas. Also, they show the playing fields in addition to the walking and jogging paths.

⁵² - Riyadh Municipality, general administration of parks and Environment architecture publications, 2009

- Interview with the administration director.



Figure no. (5.90)



Figure no (5.91)

The figures show some of the facilities for youth and children (play courtyards, playground) found in the municipality plazas which are distributed throughout the city.



Figure no. (5.92)



Figure no. (5.93)

The above figures show some municipal plaza components such as walking paths, shaded seating areas and service buildings (toilets and snack kiosks) in addition to other necessary support requirements such as lighting, green spaces and planting.

4- Squares:

Beautiful and interesting squares are considered an index and landmark of civilization all over the world, for they are vital and active places.

Riyadh has many important and lively squares. The municipality is actively involved in the rehabilitation of squares by studying aspects of traffic safety and things that have a negative effect on visibility for drivers, particularly large trees or advertising placards. In addition, the municipal government must ensure that the entrance and axis roads are appropriately connected with surrounding streets.

There are about 28 squares distributed throughout the city; their total area measures 2,080,346 square meters.

The main components of these squares are green space areas, shrubs, trees, flowers, lighting elements, fountains and decorative touches.

No	Square Name	Area (m ²)	No	Square Name	Area(m ²)
1-	Alrebat	131,000	2-	Abu Dhabi	25,304
3-	Cairo	95,000	4-	Troublous	48,540
5-	Amman	352,000	6-	Damascus	150,000
7-	Cross Makkah Road / King Khalid Road	78,820	8-	Alemam University	60,000
9-	Alamal	40,000	10-	Newakshout	36,500
11-	Alkhartoom	30,000	12-	Beirut	5,000
13-	Kuwait	26,000	14-	Tunis	5,000
15	Almanamah	10,000	16-	Masqat	70,000
17-	Al- Doha	232,000	18-	Royal Bureau	106,676
19-	Aerospace	258,000	20-	Alnakhlah	63,000
21-	Baghdad	36,465	22-	King Saud	77,897
23-	Cross Makkah Rd./Jeddah	686,000	24-	Abdullah Alsahmi St.	8,765
25-	Omar Aldhamri St.	10,518	26-	Alnaseriah`	5,685
27-	Alorubah	38,500	28-	Alorubah Triangle	11,076
Total Square Area = 2,080,346 square meters					

Table no.(5.10)

The above table shows the names of the squares which found in Riyadh, in addition to its area.



Figure no. (5.94)

Cairo Square. Figure no. (5.95)

The above figures show Cairo Square, which lies in the center of Riyadh (Alulaia quarter) and connects the most important streets in the city: King Fahad Road, which runs from north to the south, and Makkah Road, which runs from west to east. The square also it serves to organize the flow of traffic in the most crowded part of the city. Its design is relatively simple; this has created a beautiful appearance without adverse effects on motorists.

The below figures show Alamal Square, which lies in the southern part of the city at the intersection of Omer bin Alkhattab Street and Aldhahran Road. This square is characterized by the different levels which have been employed to support the function of the square. The level areas have been used for green space, while palm trees emphasize the city's identity.

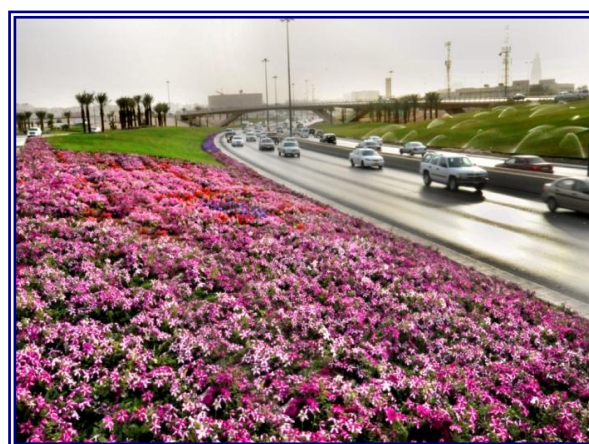


Figure no. (5.96)

Alamal Square

Figure no. (5.97)

Source: Riyadh Municipality, general administration of parks and Environment architecture publications, 2009

Municipal courtyard (Barahat)⁵³

The concept of the municipal courtyard (Barahat) is based on the idea of the natural way of life as experienced by Saudi citizens and on recreating the major environmental components in this life such as palm trees, rocks and other design features, these components are combined to resemble the natural environment as much as possible. However, modern courtyard design must also be easy and inexpensive to maintain and must include elements such as pedestrian paths, seating areas and children's playground as well as open space areas (plazas) to serve the neighborhood residences in a variety of different ways.

Targets of the project:

- To provide a neighborhood meeting place this enhances the human dimension of the city.
- To revitalize neighborhood open space areas according to the old architectural style of Riyadh.
- To create recreation sites for children, youth and adults alike.
- To provide walking paths which satisfy and reflect people's health and social needs.

Elements of the municipal courtyard:

- Palm oasis.
- Multipurpose plaza (open space area).
- Traditional children's play area.
- Children's playground (for group and individual activities)
- Paths for walking and jogging.
- Seating.

⁵³ - Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009
- Interview with the General Director.



Figure no.(5.98)

The figures above and below illustrate the site plan of the municipality courtyard. They also show the design and the main components.



Figure no.(5.99)

5- Walking paths:

Riyadh's municipality has laid walking paths of some main streets of the city and developed them as paths for pedestrians in order to improve traffic safety to the shoppers who go on foot. In addition, these paths are meant to raise awareness of the importance of walking and its benefits on health, psychological well-being and social life. The implementation of this program is the result of specialized study of the environmental and urban aspects that should encourage citizens to walk in Riyadh's weather.

Riyadh has 35 separate walking paths distributed throughout its quarters. Their estimated area measures about 1,128,484 square meters. In addition to walking paths, some projects include features of municipal plazas such as trees.



Figure no.(5.100)

example of walking path



Figure no. (5.101)

These figures illustrate some of walking paths found in Riyadh. They also show the main components of the paths, which provide safety for the users. Figure (5.108) shows the water spray which creates a suitable climate for users in the dominant arid weather.



Figure no. (5.102)

Source: - Riyadh Municipality, general administration of parks and Environment architecture publications, 2009

6- Recreation centers for special needs

The municipality aimed, when establishing these centers, to find recreational sport sites for people with special needs (motor impairments) that contribute to these people's physical and mental development. The ultimate goal was to facilitate interactive sport and recreational activities within the center as appropriate to the needs and circumstances of handicapped people. It was necessary to find an appropriate location for these visitors to meet and communicate with other special-needs people.

This center lies in Almarwah quarter, which is located in the southern sector of Riyadh. The area of the center covers about 14,435 square meters.

The center has equipment adapted to special needs such as a reception hall, library corner, internet corner, prayer hall and buffet. In addition, certain elements are directed at people with special needs, such as the basketball courtyard, walking path, specialized toilets and closed lounge for exercise and entertainment. The lounge contains

- 1- Two wave-shaped bridges for the training of the upper body and promotion of courage and self-confidence.
- 2- An overhead training circuit for the training of the upper body and promotion of mind-body harmony.



Figure no.(5.103)

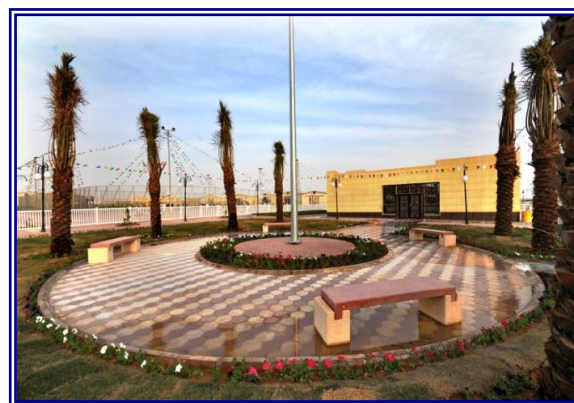


figure no.(5.104)

The above figures show a general perspective of the exterior areas of the recreation center for people with special needs.

Source: Riyadh Municipality, general administration of parks and Environment architecture publications, 2009



Figure no.(5.105)



figure no.(5.106)

The above figure no. (5.105) illustrates the stationary arm-driven bikes used for fitness and endurance as well as mental training. Figure no. (5.106) shows the double wavy bridge which helps in training up-and-down movement for fun and to promote courage and confidence. Along with the overhead circuit, it trains the upper body and helps create harmony between the muscular and nervous systems. In addition, this equipment can increase the degree of fun by adding an element of competition.



Figure no. (5.107)

Source: Riyadh Municipality, general administration of parks and Environment architecture publications, 2009

The above figure no. (5.107) shows the reception hall of the center with its internet corner in addition to the meeting area, reading tables and a view of the sport hall.

5.6 - Green space area operation and maintenance:⁵⁴

The park projects and other green areas which are implemented by Riyadh municipality are operated and maintained by contractors. The target of the operation and maintenance projects is to tend parks, squares, playground, decorative features and fountains. The contractors' teams also work on maintenance and irrigation as well as preserving, monitoring and replacing all structural, civil, agricultural, electrical, mechanical equipment as needed. Teams are expected to work as efficiently and effectively as possible in order to keep sites consistently attractive for the citizens and other visitors.

5.6.1- Riyadh operation and maintenance regions:

Riyadh is divided into ten sectors for operation and maintenance purposes. Each sector covers one or many municipal branches, as shown in the next table (number 5.11).

Each region is managed by the Administration of Parks and Environmental Architecture in the branch municipality of the regional center. This branch comes under the responsibility of the Administration of Operation and Sites Landscape, which oversees the work of park administration in the individual branches via a communication officer, who reports to the general Administration of Parks and Environmental Architecture.

The evaluation and cost estimates of the contractors' work depend on the level of the contractors' performance, the quality of plants and building and the degree to which the administration's vision has been realized.

The below table (5.11) shows the distribution of operation and maintenance contracts which cover all Riyadh's city areas. Each contract outlines the duties for operation and maintenance of all green areas which include massive parks(Muntazah), public parks, residential parks, children's playgrounds, roads, squares, walking paths and municipal plazas as well as irrigation. Every contract allows for approximately 220 employees (see table no 5.12) in addition to any machinery and equipment required to carry out maintenance tasks.

⁵⁴ - Researcher's analysis of some contract projects for operation and maintenance of parks and planting, issued by Riyadh municipality, general Administration of Parks and Environmental Architecture.

- Interview with the General Director of the Administration of Parks and Environmental Architecture.

No.	Contract name	Municipal Branch
1	Alshumassi sector	Alshumassi
2	Almalaz sector	Almalaz
3	Alroudah sector	Alroudah
4	Alnaseem sector	Alnaseem
5	Alsullai sector	Alsullai
6	Alulaia sector	Alulaia
7	Albathaa sector	Albathaa
8	Alureaja sector	Alureaja, Nemar
9	Alshamal sector	Alshamal, Erqah And Almathar
10	Alshafa sector	Alshafa, Alazizieah and Alhaer

Table no. (5.11) location on operation and maintenance contracts

5.6.2- Contractors' obligations:

A contract for operation and maintenance is formed as a performance contract to reduce the cost of project operation and to give the contractor the freedom to use suitable methods to manage and satisfy the required specifications at a reasonable cost and to the highest possible quality.

It is important to consider the wide diversity of parks and open spaces projects. A high degree of sensitivity is required for most of the required work in terms of frequency of irrigation and the maintenance and preservation of plants. The administration is obliged to hire a minimum number of workers for each project. These workers must have suitable qualifications, as outlined in the following table:

No.	Position	Number	Qualification
1-	Project manager	1	University certificate in: environmental architecture, agricultural science, architecture, urban planning, civil engineering
2-	Assistant to project manager	1	University certificate in engineering
3-	Project secretary	1	Secondary school, experience in pc operation
4-	Agricultural engineer for botanical work	4	University certificate in agricultural botany
5-	Agriculture engineer for protection	1	University certificate in agricultural protection
6-	Landscape engineering	2	University certificate in the field
7-	Agricultural technician	3	Agricultural diploma
8-	Electrical technician	2	Electrical diploma
9-	Surveyor	1	Surveying diploma
10-	AutoCAD Draft	1	Drafting diploma
11-	Irrigation system technician	1	Technical diploma
12-	Laborers	200	-

Table no. (5.12)

The above table illustrates the minimum required staff required to carry out the mission of operation and maintenance in each maintenance region.

5.6.3- Criteria for maintenance work quality:

Riyadh Municipality has introduced certain criteria as a guide whereby contractors can satisfy the vision of the municipality for all types of green space areas, as follows:

- Parks and open space areas must be kept clean.
- Public toilets must be clean, tidy and well maintained.
- Children's playground equipment must be kept in good condition without any damage.
- Planted areas must be kept free of grass and weeds. These areas require frequent landscaping, fertilizing and cutting.
- In the vicinity of entrances and exits, and around signs, plants must be trimmed so as not to block access or visibility.

- Landscaping with annual flowers must use available flowers types as stipulated in the contract or as provided by the municipal nursery. The soil must be prepared before the flowers are planted. This work must be done in a timely and efficient manner.
- Plants, especially flowers, must be diverse and interesting in appearance.
- Technical aspects and the philosophy of plant use must be clear according to the format of the given park.
- Playgrounds, playing fields and courts, basketball nets and goalposts must be kept in good repair.
- Attention must be given to plant health by means of irrigation, fertilization and fighting diseases and weeds.
- Pruning and shaping must show diversity and innovation in shapes and methods.
- The irrigation network and corresponding equipment must work with high efficiency.
- Maintenance of mechanical, electrical and other civil works must be completed without delay.
- Opening and closing times for parks and children's playgrounds must be adhered to. The times set for electric lighting in open space areas must be followed accurately.

5.6.3.1- Basis of accounting:

The basis of accounting depends on:

- 1- In the original, the accounting of costs for operation and maintenance projects depends on the total amount of work implemented by the contractor and on the quantity of items found in the cost list, regardless of the nature of implementation (unless otherwise specified).
- 2- The cost of spare parts and maintenance work which are not listed as specific items in the cost statement may be added to the cost of other, similar items.
- 3- Items contained in the statement of cost which are attached as specifications explain the nature and volume of work contained in the project and represent the total value of the price of these items in the value of the contract.

5.6.3.2- Cost accounting:

The cost of project works accounting depends on the items contained in the cost statement as follows:

- Cost of required staff.
- Cost of operation and maintenance works, including:
 - o Irrigation water supply
 - o Maintenance of agricultural works and irrigation wages
- Cost of operation and maintenance of the parks and children's playgrounds, including;
 - o Irrigation water supply
 - o Maintenance of agricultural works and irrigation wages
 - o Operation and maintenance of mechanical, electrical, civil and architectural works.
 - o Cost of maintenance and repairs.

5.6.4 -Operation by investment contractors.

The operation of part investment depends on renting some park components to the private sector against the cost of operation and development.

In this type of operation system, Riyadh municipality assigns long-term operation contracts ranging from 15 to 20 years. During this time, the investor is to manage the activity which he rents such as a restaurant, kiosk or entertainment facility, to meet the needs of parks visitors and introduce the required services in a way which satisfies the vision of the municipal government.

5.6.5- Green space areas expenditures:

Riyadh municipality has introduced various programs to improve its work mechanism to spread green space through the city according to increasing population numbers and overall expansion of the city's area. In the period from 2003 to 2007, the municipality paid about 1,075,000,000 Saudi riyals (1euro = 5 riyals # 215 million euro). These payments were made to the following:

No.	Program name	Project Name	Cost (riyals)
1	Parks	Construction of parks and other green areas with supervision	200,000,000
2	Water	Establish new modern irrigation networks and renew existing networks	100,000,000
3	Water	Drill new wells	5,000,000
4	Operation & maintenance	Planting maintenance	395,086,000
5	Operation & maintenance	Zoo operation & maintenance	25,000,000
6	Drainage & floods	Use drainage water for plant irrigation	350,000,000

Table no. (5.13) Green space areas expenditures table

Source: Riyadh Municipality, planting and beautification achievement publication issued by municipal deputy of services, Administration of parks and beautification, 2002.

(P.96-101)

After 2007, the average expenditure in this field has remained at the same level which was previously estimated: 200 million Saudi riyals annually, divided between operation and maintenance and new parks construction. This amount equals about 8% of the total annual budget of Riyadh municipality.⁵⁵

5.7- Irrigation

The development of irrigation water resources provides support for desert cities in the field of landscaping as an excellent way of dealing with the surrounding environmental factors. The great shortage of water is a great difficulty facing green space areas projects. Therefore, irrigation is vital for preserving plant life.

Most green area irrigation depends on well water. There are about 247 wells which have been dug throughout the city; the water is pumped into tanks built in some of the parks. This provides about 90% of the required irrigation water. The remaining 10% is provided by sewage treatment water from three treatment stations and filtered ablution water, which is collected from the city's mosques.

55 - Interview with the general director of the administration of parks and environmental architecture. 2010

The water needed to irrigate the green areas of Riyadh reaches about 300,000 m³. The system used to irrigate the green areas is a network connected to storage tanks. This network covers about 95% of the total green space area, while the rest is irrigated by a manual system which depends on tanker trucks (these areas lie on edge of the city and in uninhabited areas).

It is of paramount importance that the water administration system of irrigation networks provides the optimal distribution of irrigation water throughout the city. In addition, technical workers must continually monitor the system for leaks and other defects.

Riyadh municipality has started installing an automatic control system for the irrigation network which allows the administration to monitor and control the entire city irrigation network from one control room. Now, the system covers about 20% of the city's area. Eventually, the system will cover the whole city.

5.8- Efforts of the municipality to promote social activity:

Riyadh municipality has introduced many activities to increase communication within society. These events often take place in attractive green space areas and feature facilities which raise citizens' awareness of the cultural and entertainment which are available for people of all ages. These activities are:

5.8.1- Flower festival (Rabea AlRiyadh)⁵⁶

This festival involves a huge flower exhibition, ornamental plants, landscaping, shade plants and interior design equipment. These activities are directed at all family members. The aim is to educate and instill a love of flowers, plants, environmental architecture and their preservation in the soul of society, especially youth and children.

This festival is considered a city institution which supports tourism and creates new entertainment elements for families and children through the multiple activities which can be enjoyed there. The festival brings together groups from specialized companies and establishments in the flower and plant field, relevant government agencies, universities and other educational facilities.

Accompanying the festival, there are many entertainment and cultural activities for family members, such as a corner for people interested in the environment. This corner explains the importance of environmental preservation in general and of plants in particular.

The festival offers special activities to encourage children to attend increase their knowledge and benefit from the flowers, plants and the preservation of the environment.

This festival is an annual occasion inaugurated in 2005.



Figure no. (5.108) flowers carpets



Figure no. (5.109)

⁵⁶ - Riyadh Municipality, Administration of Parks and Environmental Architecture, 2009

- Publications about the flower festival, 2005, 2006.

- Interview with the administration director and other responsible employees.

The above and below figures illustrate the carpet of flowers which is considered one of the main features of the festival. This carpet shows the variety of plants and flowers and attracts the visitors with the creativity of the carpet’s design.



Figure no. (5.110)

accompany festival activities

Figure no.(5.111)

These figures show some of the activities that accompany the flower festival:
 Figure (5.110) shows the children’s corner, which aims to increase children’s awareness of the importance of flowers and plants to our life and to the surrounding environment. Children can participate in drawing and coloring the competitions which focus on the types of flowers and plants. Figures (5.111), (5.112) and (5.113) give a view of the flower festival where various companies and establishments show visitors the huge diversity of flowers and plants. They also provide information on preservation and care of plants.



Figure no. (5.112)

accompany festival activities

Figure no. (5.113)

5.8.2- Durrat Alhadadaeq (Pearls of Parks)⁵⁷

Manakh King Abdullaziz is considered the historical landmark of the city because it reminds all generations of the importance of this location when king Abdullaziz won back Riyadh and established his new state. This location was the gathering point for his men and was the beginning of the country's unification. Therefore, Riyadh municipality has transformed the location of the Manakh into a special feature in the city – the park lies in the south of the city and has an area of 240,000 square meters. The concept of the park is divided into three recreational regions connected by three circles of three different diameters. The first region has seating areas, terraced flower beds and a shaded historical exhibition by the timber tent. All these features overlook the huge pond which collects inside it the water for the waterfalls. The second and third regions have two courtyards, and the timber tent has many dining tables in addition to the flower beds, children's toys and essential services. The advantages of the location are that it has three hills which rise about 20 meters above the level of the park. Three terraces have been built here; visitors can see the connection between the first and second hills: a 45-meter long bridge. Furthermore, the park has two courtyards for football, volleyball, basketball and the necessary services.

The park festival is a combination of entertainment and education and makes a popular addition to shopping, for it works to meet the needs of both families and schools.

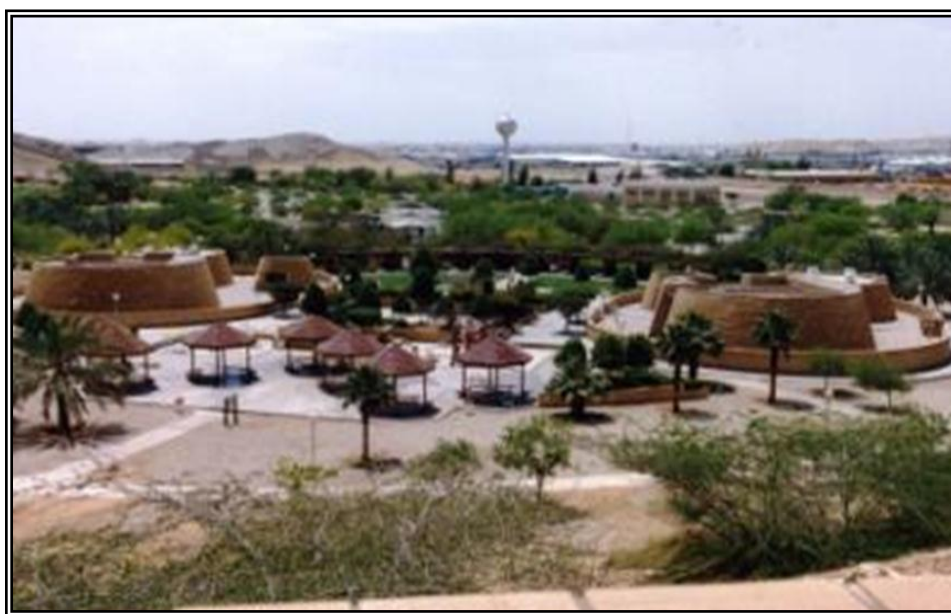


Figure no.(5.114) Top view of Durrat Alhadadaeq park (King Abdullaziz Manakh)

57 - Riyadh Municipality, Administration of Parks and Environmental Architecture publications, 2009
- Interview with the administration director and other responsible employees.



Figure no. (5.115)



figure no. (5.116)

The above figure (5.114) shows a view of the park with its main components.

While the figures (5.115) and (5.116) show some of the activities which take

5.8.3- Planting Campaign (Tree Friends) ⁵⁸

The concept of this program involves planting one million trees in Riyadh city over the next five years. It is based on the culture of positive support and aims to increase the cultural level of the participants with respect to tree care in particular and green areas in general. Members participate in agriculture and its continuing preservation.

The target of the campaign:

- Highlighting the importance of maintaining trees in an interesting manner.
- Spreading a culture of tree conservation among the participants.
- Spreading awareness and education in this field for the largest segment of the community during this campaign.

The mission of the Tree Friends:

- Active participation among families and friends and encouragement regarding the maintenance of trees, plants and green areas; leading by example in the individual quarters and public utilities to create a better environment in the city.
- Raising awareness and providing guidance for the care of vegetation.
- Emphasizing the benefits that come from increased green areas.
- Encouragement to care for healthy plants and maintain them after planting.

⁵⁸ - Previous reference.

To achieve the aims of this campaign, Riyadh Municipality has established cooperative projects with the city's schools in order to involve children in tree planting. Tree Planting Week was established 20 years ago and takes place during the occasion of the flower festival. Various government agencies are involved, as well as the private sector.



Figure no.(5.117)



figure no.(5.118)



Figure no.(5.119)



figure no.(5.120)

The above figures show the participation of schoolchildren and some of the municipal employees responsible for the occasion in the annual Tree Planting Week.

5.9- Riyadh Municipality and cooperation with the private sector⁵⁹

Riyadh municipality wants to involve the private sector and interested people in city planting in an autonomous program for parks construction. This program focuses on finding and meeting with future participants to sponsor proposed park initiatives depending on the role and conditions of the municipality. Contributors may choose the location for the park and the type of park it should be. Funds are to be kept in a special account for this program. Accordingly, the park will be named after the donors.

The municipality has divided the park groups and costs into the following categories:

- 1- Park area between 17,000 m² and 50,000 m²; the estimated cost is 200 Saudi riyals\square meter (approximately 40 Euros).
- 2- Park area between 7,000 m² and 16,900 m²; estimated cost is 300 Saudi riyals\square meter.
- 3- Park area between 4,000 m² and 6,900 m²; estimated cost is 400 Saudi riyals\square meter.

These costs include studies, design, construction and supervision in addition to the maintenance and water provision for the first three years after implementation. After this period, the municipality will add the park to its maintenance program.

⁵⁹ - Riyadh Municipality, (1999).

Brochure: Invitation from Riyadh city to participate in city beautification.

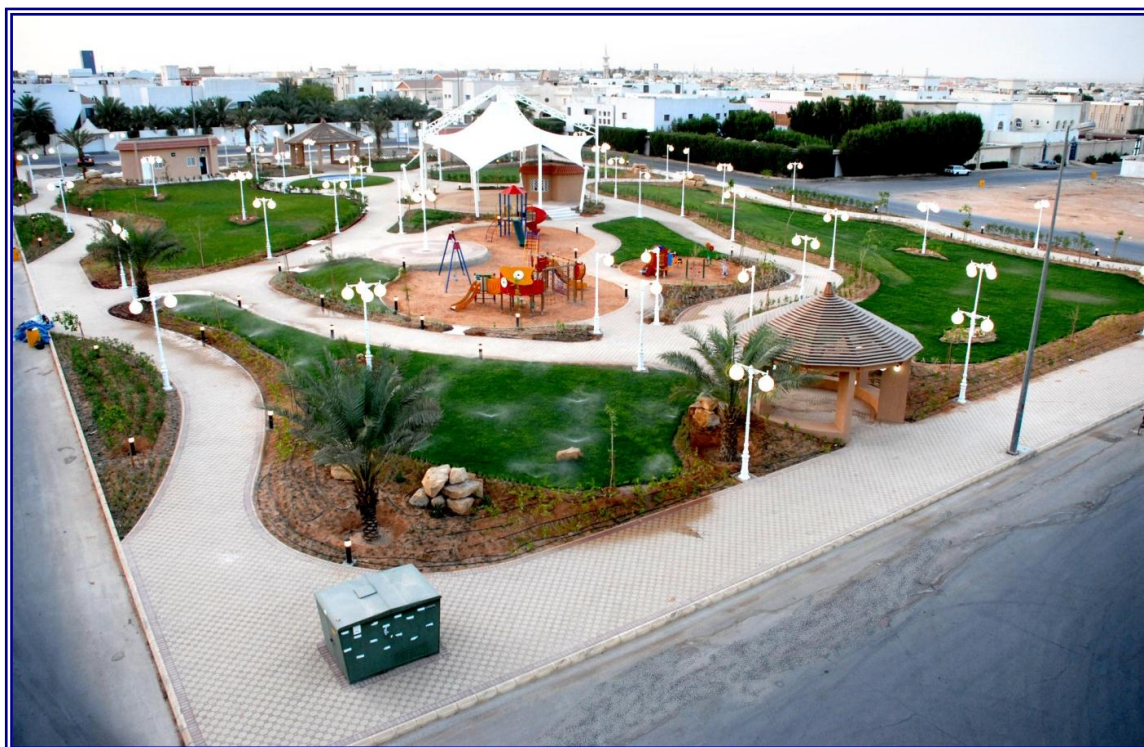
Abdullmuhsen Aldreas park:

Figure no. (5.121)

Source: Riyadh Municipality, Administration of Parks and Environmental Architecture. 2009

This park constructed by the program of cooperation with the private sector. It was sponsored by the businessman **Abdullmuhsen Aldreas**. It lies in Alrayan quarter in the eastern sector of the city. Its area is estimated at 9,163 square meters. Its design concept depends on the open style (without barriers), which strengthens the relationship between the park and the surrounding neighbors and environment while simultaneously confirming the safety and privacy of park visitors. The design follows the modern style, which takes into account the distance from the simplicity and monotony of engineering systems and introduces lines that emulate lines of nature. The paths lead to a central region which considered the main hub and interest point for the visitors. The main components of the park are the central tent, the fountain, playground area, seating areas and planting, in addition to the service building and car parking.

5.10- Government agencies involved in Riyadh planting⁶⁰

The principle of cooperation between government agencies means that some agencies participate in planting the city by means of their projects in the city. The aim of this participation is to provide service to their employees or users in addition to increasing the green space area in the city.

The Ministry of Transportation is responsible for the city's ring roads and main axial road construction in addition to their operation and maintenance. The ministry has authority over planting along these roads and maintaining planted roadside areas.

1- King Saud University:

The university campus lies in the north-central area of the city. Its area covers 9 million square meters. The campus contains the main administration buildings, educational buildings, accommodation for university employees and students in addition to support and services buildings.

The university has an administration office involved in planting. This office was established in 1979 to carry out the required studies and design as well as to provide the university with plants from the campus nursery. This office is also responsible for the care and maintenance of planted areas.

The green area of the university comprises about one-quarter of the total campus area. This area, which equals **2.5 million square meters**, includes planted green areas, trees or palm trees, shrubs, ground cover plants and flowers. On the other hand, the university campus has a Main Park with an area of 150,000 square meters. It is made up of 6 medium-sized parks. Furthermore, the campus features has two main children's playgrounds in addition to 8 other playgrounds distributed throughout the housing area.

2- Alemam Mohammed bin Saud Islamic University:

This university campus lies in the north-eastern part of the city. It has an area of 3.8 million square meters. The campus contains the main administration buildings, educational buildings, student accommodation and the services building.

⁶⁰ - Riyadh municipality, (1990). Planting and Beautification in Riyadh City.

The green area of the university covers about one-quarter of its total area. This area, which equals **170,000 square meters**, includes planted green areas, trees or palm trees, shrubs, ground cover plants and flowers.

3- King Khalid International Airport:

King Khalid International Airport is located in the northern part of the city. Its area covers 225 square kilometers. It is considered the aerial gate for the capital city of the kingdom. It is a green oasis, for its green space measures more than 65 hectares (650,000 square meters).

It has its own nursery, which lies in the southeastern area of the airport's land. It has an area of about 160,000 square meters. It contains three main regions for different types of plants: protected glass houses, semi-shaded areas and open spaces. Annually, it provides about 30,000 plants of more than 200 species.

The total length of planted streets on the airport grounds is about 35,000 linear meters. The area of green space is about **670,000 square meters**, including trees, palm trees, shrubs, ground cover plants and flowers. There are four planted children's playgrounds. There are no public parks, two rest areas are available.

The water needed to irrigate the green areas of Riyadh is about 3,000 m³. The irrigation water is provided from drainage treatment stations and, to a certain extent, well water. Irrigation water is pumped through a network controlled by a sophisticated computer system.

4- Ministry of Foreign Affairs

The residential campus of the Ministry of Foreign Affairs lies in the north of the city. Its area covers about 390,000 square meters.

Green areas and recreational centers have been created in groups with irregular areas, landscape and functions, but these are connected to create a chain linking all the recreational regions of the campus. The public park located in the middle of the campus has an area of about **29,000 square meters**, including five children's playgrounds. The park features many types of desert plants which are suitable to the surrounding environment.

5-National Guard

The National Guard is a branch of the Saudi army. It works to participate in city planting through various projects throughout the city. They are involved in planting and beautification efforts, such as:

5.1 - Khashem Alaan Housing:

- Parks and green areas equal about 320,000 square meters.
- 145 children's playgrounds.

5.2- King Abdullaziz Medical City:

- Parks and green areas with an area of about 90,000 square meters.
- 10 children's playgrounds with a total area of about 23,596 square meters.

5.3- Deyrab Housing:

- Green space with an area of about 25,000 square meters.
- 55 children's playgrounds.

5.4- Housing of King Khalid Military College:

- Green spaces with an area of 10,000 square meters.
- 28 children's playgrounds.

The irrigation water for the plants is supplied by a drainage treatment station and then distributed automatically through the irrigation network after filtering and chemical treatment to enable its use in irrigation.

5.11- The future vision of Riyadh municipality⁶¹

Riyadh, as the capital city of the kingdom, has quickly expanded in terms of both population and area. There are specific municipal strategies and policies responsible for green spaces in the city. Employees involved in these strategies must strive to satisfy their vision of Riyadh as a “**garden city**” characterized by parks and other green areas.

The municipality aims to play a vital role in the service of society and to create a city which will provide opportunities for enjoyment, relaxation, creativity and diversity for residents and visitors, as well as the chance for environmental education, protection and development.

In order to fulfill their strategies, policies and vision, the municipality is continuing to complete ongoing projects. These can be summarized as the following:

- 1- Complete the implementation of municipal plazas to satisfy the planned number of 100 plazas throughout the city's quarters over the next two year.
- 2- Complete the implementation of the Prince Salman Science Oasis according to plan.
- 3- Complete the municipal courtyard implementation to cover all 132 city quarters.
- 4- Continue the implementation of green space areas citywide.

The following will focus on the important projects whose implementation have already begun or will be implemented over the next few months.

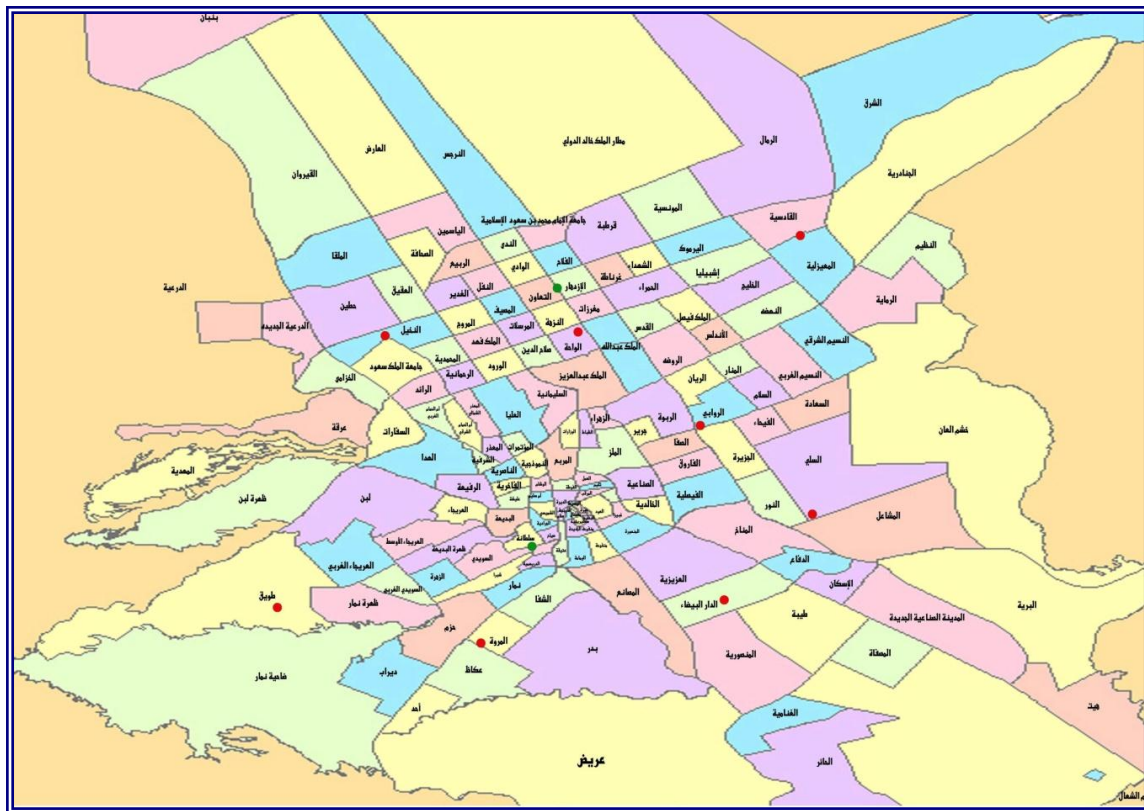
⁶¹ - Riyadh Municipality, General Administration of Environmental Architecture, 2009

- Interview with Administrative Director and other employees.

5.11.1- Prince Salman Oasis for Science

The aim of this project is to motivate all sectors of society, especially children and youth, to develop an interest in science and technology through programs and interesting interactive exhibits. The project is located in Riyadh’s main oasis, which lies in the northwest of the city and covers an area of 200,000 square meters. It is actually quite a dazzling attraction. This is where the project’s programs are formulated and then distributed to the network of facilities which have been set up in the local oases found in the city quarters: altogether, there are 10 sites.

Each quarter oasis is home to a special science library belonging to the project, an open-air theater and several scientific entertainment corners. The suggested cost of the project exceeds 400 million Saudi riyals. Sponsorship and other forms of private-sector donations are encouraged.



● Suggested sites

● sites under construction

Figure no. (5.122) Distribution of quarter oases through the city



Figure no. (5.123) the site plan of the center

The above figure shows the site plan of the oasis and illustrates the components of the oasis as well as the layout of the surrounding area.

The figures below show the elevation of the project and an aerial view respectively.



Figure no. (5.24) Elevation view



figure no. (5.125) Aerial perspective

Source: Riyadh Municipality, General Administration of Environmental Architecture, 2009

5.11.2- King Abdullah Park in Almalaz

King Abdullah Park lies in Almalaz quarter, on a former equestrian field. It will soon be implemented as a true landmark of entertainment in Riyadh. The project's area is 318,000 square meters and has the capacity to accommodate up 24,000 visitors.

The park contains a main plaza for public entertainment, a large lake, fountain, terraces, an extensive VIP area, green space, and a hill. This hill is 15 meters high and overlooks the lake. A scenic waterfall flows from the hill to the lake below. In addition, a seating area with a group of restaurants offers meals to visitors. There is also a children's playground and a rest area for families, sport areas and a walking path.



figure no. (5.126) Site plan of the park.



1. View along main entrance



2. View along north entrance



3. View along performance area



4. View along play area & Science oasis

Figure no. (5.127) These plans illustrate some of the park's components.

Source: Riyadh Municipality, General Administration of Environmental Architecture, 2009

5.11.3- King Abdullah international parks⁶²

King Abdullah parks project was a gift to the king from Riyadh's citizens on the occasion of Allegiance. It is located on the Jeddah road in the southwest of the city; the site, an area of two million square meters (2,000,000 m²), has been provided by the municipality of Riyadh. The project will be based on the patterns of international parks. The main element will be a botanical park divided into two sections. The first section will house controlled environments. It will consist of two large, crescent-shaped parks with an area exceeding 10,000 square meters. The construction will rise up about 40 meters above ground level.

There will be accurately regulated control of both temperature and humidity inside this block in order to create a suitable environment for the growth of plants. The project will cover the natural history of the Arabian Peninsula for the past 400 million years and will educate visitors concerning the changes undergone by plants starting thousands of years ago as the arid peninsula experienced dramatic climate changes throughout the ages. Visitors will travel through time to view the changes in the evolution and adaptation of plants which led to the existence of algae, ferns, seaweed, trees and flowering plants in the world of today. Visitors will cross back to the Carboniferous period with its Jurassic Park consisting of a light forest of trees, and move on to the Coniferous Age, when the first flowers appeared. Visitors will then experience the Alzonzoni Age, when the first grasses appeared, and then the Pliocene era, which saw the emergence of river basins and light woodland.

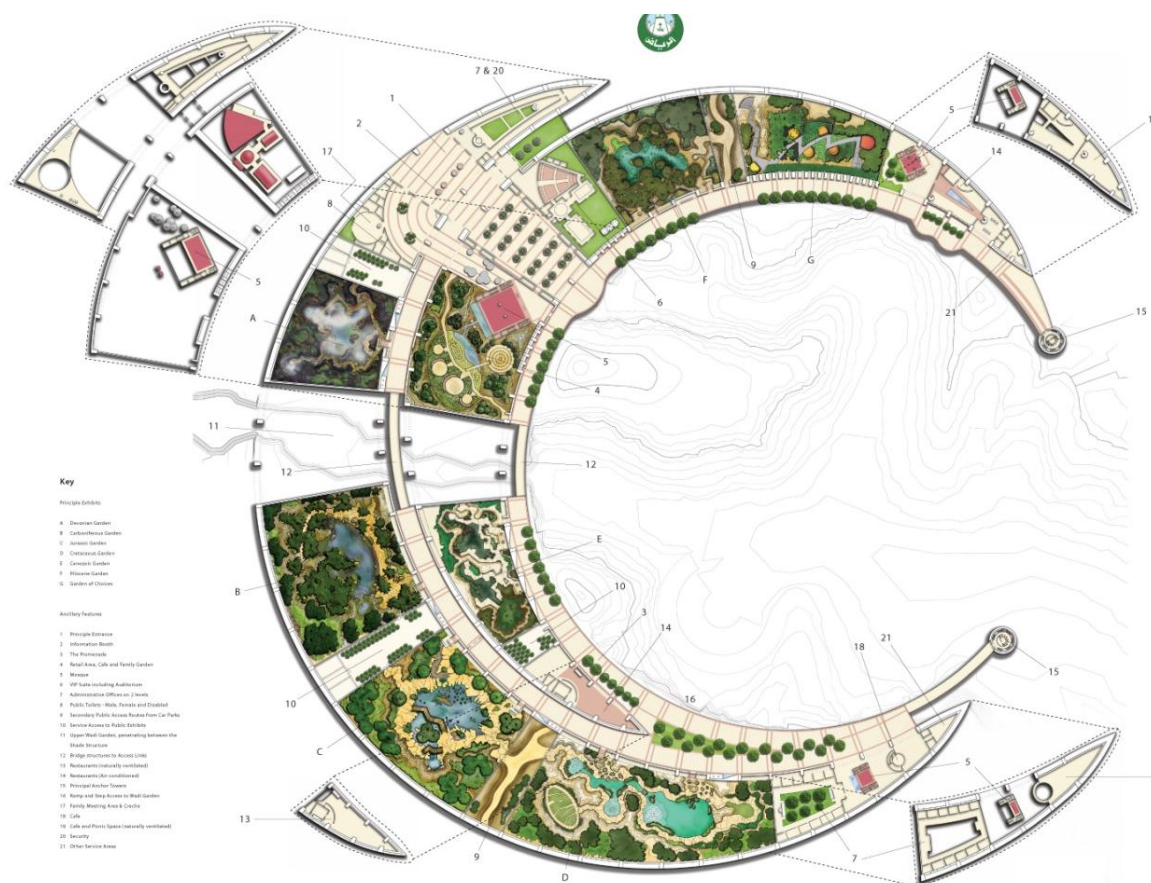
The development will also be allocated to other parts of the establishment of parks with different environments are similar to those environments of the world. The last section is choice park that visitors will see how it can be the end of our planet. Will be the end fire or cool and moist, depending on how our responses to the challenge of climate change after the will of God.

The second part of the botanical park will be open-air and will contain various plants from the local environment and similar environments elsewhere. The Botanic Park includes a museum of plants, seed bank, a rock park and a desert park. The International Park Corner comprises various areas to create different styles of park design reflecting the culture of each continent: the American park, European park, Australian park, Asian park and parks devoted to Africa.

62 - Riyadh Municipality. (2007). King Abdullah international gardens," A gift a city to a king, from a king to a nation and from a nation to mankind" .

The water parks corner contains a park of ice, a water park, a fish park and a waterfall park. The children's park corner consists of the surprise park, Discovery Park and children's playground. The science park includes a flower park, Physical Park, geological park, aviary park, Butterfly Park, light and Sound Park and a maze.

The project also includes integrated central services such as a gift market, amphitheater, restaurants, and cafes, walking paths, a plaza for presentations, seating areas, camping areas, rest areas and a variety of other services.



Paleobotanic Gardens - Ground Floor Plan

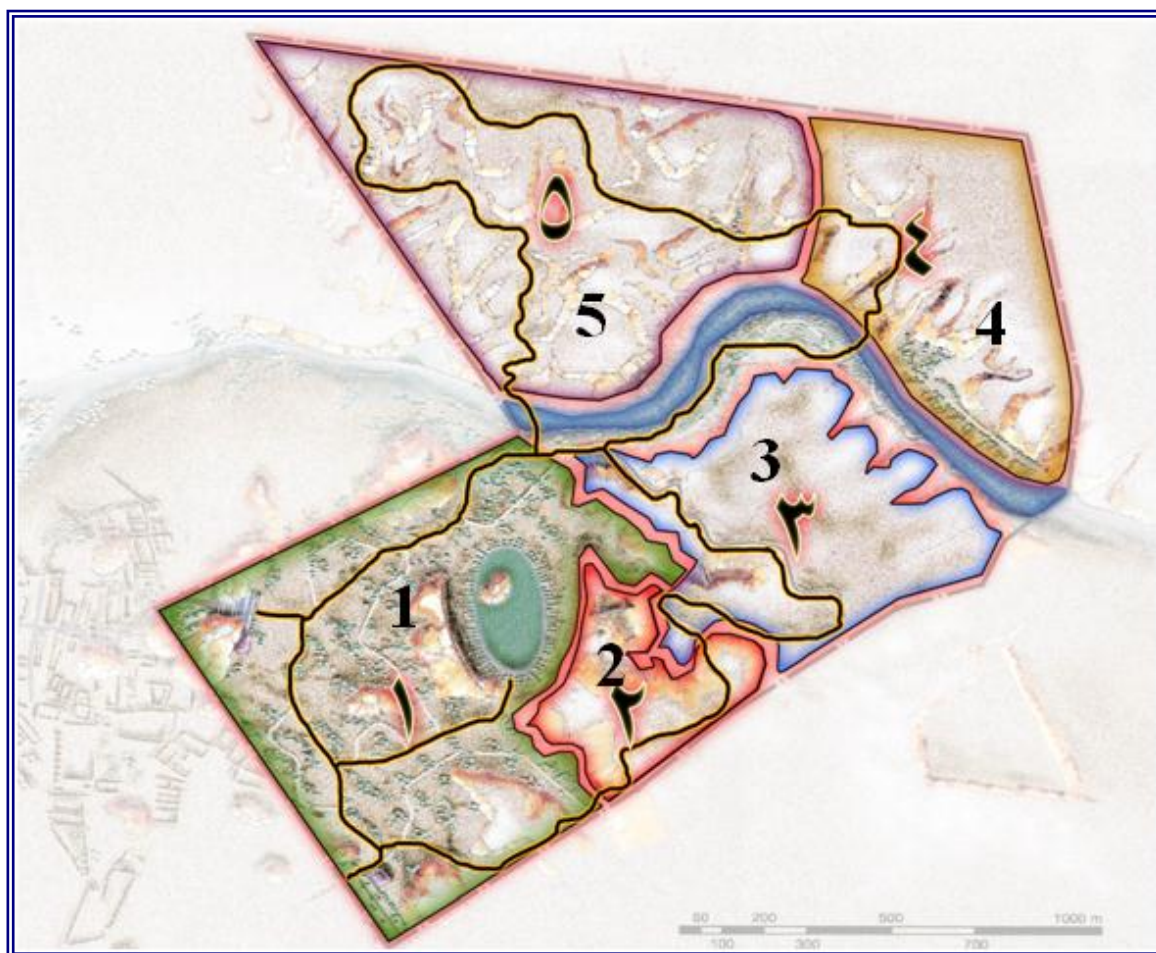
figure no.(5.128)

The entire project is based on renewable energy and using a minimum of water. It is characterized by the largest block of Teflon in the world; Teflon is known for its resistance to the elements. Renewable energy resources include solar energy in particular but also wind energy, while water will be stored in underground tanks beneath the two crescents. The estimated cost for the parks construction will reach approximately 1,860 million Saudi riyals (about 372 million euro). 80% of the project cost will be sponsored by the government and the rest will come in the form of contributions from businessmen and those interested in parks construction.

5.11.4-Prince Salman Park in Benpan

Prince Salman Park project in Benpan is located north of Riyadh, northwest of King Khalid International Airport. Riyadh Municipality is currently completing the establishment of the park, which is divided into five different areas: a natural park, safari park, camping for bachelors and families, the chalet region as well as the recreation area. The park is located on a total area of 3,400,000 square meters. This area equals approximately one-third of the area of the diplomatic quarter. The site is now desert land characterized by the King Abdullaziz archaeological cave as well as a valley containing trees and wild plants which form part of a beautiful environment.

Riyadh municipality has developed a preliminary design for the park, consisting of the following elements: division of the site into two parts: the north and south, separated by a valley. The southern part will contain the areas for picnics, seating, play and celebrations. The northern part of the park will be surrounded by a fence allowing access, at specific points, to services charging admission. Areas adjacent to the valley will be converted to natural green places offering seating, and ring roads will be built around the park's various elements. Sand hills will be created on the southern edge of the park and will feature plants and other trees as decorative, shade-giving elements.



- 1- Natural Park
- 2- Recreational City
- 3- Chalet Region
- 4- Camping Area
- 5- Safari Park
- Benpan Valley

Figure no. (5.129) Site plan of Benpan Park

In addition to the above projects, locations have been chosen for many other projects as well. These will be implemented at some point in the future:

- Two parks along King Fahad Road in the north of the city, with a total area of about 2,000,000 square meters.
- Alhayer Park in the Alhayer quarter in the south of the city, with an area of about 3,800,000 square meters.
- A park on Dammam Road in the east of the city, with an area of about 2,619,000 square meters.

- Old Airport Park in King Abdullaziz quarter in the middle of the city, which will have an area of about 4,317,000 square meters.
- Alremal Park in Alremal quarter in the northeast of the city, with an area of about 1,500,000 square meters.

Furthermore, there is Althomamah Wilderness Park, which will lie in the east of the city in an area characterized by sand dunes. This park will have an area of about 375,000,000 square meters.

The target of these developments is to create facilities which provide a suitable atmosphere for rest and recreation in addition to preserving the environment and natural characteristics of the desert. The park will contain a camping area which uses special materials and design to make visitors familiar with the natural landscape, climate and social conditions.

Water resources are an important point for development in desert cities, particularly in the field of landscape. The use of drainage and surface water has reduced the pressure on the irrigation system, which has already lost up to 89% of its water. Therefore, the municipality plans to create a practical and permanent solution to this problem by using treatment drainage water to provide for the needs of plants. In addition, the municipal government will implement a permanent strategy for green space and expanding the spread of parks and vegetation. These plans and strategies will help in the struggle against desertification.

As part of the same strategy, the municipality is currently working on a project to centralize the control of the irrigation networks to cover all parts of the city. The centralized irrigation system will be monitored from a single control room.

5.12 - Examples of parks distribution throughout Riyadh:

The last study of the current situation focuses on the green area types and their distribution throughout Riyadh. Also, it explains the administrative system which is used.

Riyadh's green area distribution is divided into ten branches of the municipalities, and each municipality is responsible for supervising and managing many quarters of the city. However, the municipal branches are responsible for parks affairs, but the parks distribution comes under each municipality's scope.

In this aspect, I have selected several quarters for my study. My choice depends on many criteria such as location, green area, population and the average space per capita. Also, I have chosen some quarters which lie in the old city, while the other quarters are located in the new city. The study will investigate all the necessary information about park areas in each chosen quarter in addition to the main relationship between parks, population and service distance.

The following will describe several quarters:

5.12.1- Example – 1- Alshumassi Quarter:

The below figure illustrates the green areas found in one of Riyadh's quarters. Alshumassi quarter lies in the heart of the city and has an area of about 1.5 million square meters⁶³. This quarter has high density; its population is estimated at 34,000 inhabitants⁶⁴. In addition, the people who live in the quarter are middle class or lower. The average density of each square hectare (10,000 square meters) is 132 people⁶⁵. Also, the percentage of quarter development has reached about 92%⁶⁶ and the residential takes up 49%⁶⁷ of the total area of the quarter. This quarter is considered one of the older quarters in the city. Most of the urban network is semi-random.

The green area is estimated at 20,753 square meters⁶⁸. This tells us that the average space for each person in the quarter is about 0.6 square meters.

The distribution of green area in the quarter is not fair, because it is found only on the eastern edge of the quarter and parallel to King Fahad Roads. This means that the parks and recreation facilities benefit the people who live around the parks, while the other people, who living farther away, are neglected. Also, these green areas do not take into account the organizational standards of parks distribution issued by the Ministry of Municipal and Rural Affairs.

⁶³ - High Commission for the Development of Riyadh, (2005). Land Use Atlas of Riyadh, issued by the, administration of research and studies.

⁶⁴ - the previous reference (62)

⁶⁵ - the previous reference (62)

⁶⁶ - the previous reference (62)

⁶⁷ - the previous reference (62)

⁶⁸ - the previous reference (62)



 Parks

Figure no. (5.130) Land use map of Alshumassi quarter.

Resource: Land Use Atlas of Riyadh, issued by the High Commission for the Development of Riyadh, administration of research and studies. 2005

5.12.2- Example – 2-Aloud Quarter:

The below figure illustrates the green areas found in Aloud quarter. This quarter lies in the heart of the city and has an area covering about 2.08 million square meters. With a population estimated at 36,621 inhabitants, Aloud has a high population density. In general, the people who live here are middle class or lower. The average density of each square hectare (10,000 square meters) is 190 people. Quarter development has reached about 89% and the residential area occupies 39.3% of the total area of the quarter. Like Alshumassi, Aloud quarter is one of the older quarters in Riyadh. Most of the urban network is based on random planning.

The green area is estimated at 13,680 square meters. This tells us that the average space for each person in the quarter is about 0.37 square meters, or 0.7% of the total area of the quarter.

The distribution of green space in Aloud is not equitable, because there are only two parks. One, located in the northwest of the quarter, has an area about 12,670 square meters; the other is located in the eastern area of the quarter. This means that the parks and recreation facilities benefit the people who live near the two parks, while other citizens see little benefit. Also, Aloud quarter has not been designed according to the organizational standard of parks distribution issued by the Ministry of Municipal and Rural Affairs.

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5.12.3- Example – 3- Alrabwah Quarter:

The below figure illustrates the green areas found in Alrabwah quarter. Alrabwah is located in the east of the city. Its area measures about 11.35 million square meters. Alrabwah is very densely populated; its population is estimated at 65,000 inhabitants. Most of the people who live here belong to the middle class. The average density of each square hectare (10,000 square meters) is 58 people, mainly because the predominant housing type in the quarter is the villa. The extent of quarter development is currently at about 82 %, and the residential area covers 47.5% of the total area of the quarter. This quarter is not particularly old, nor is it particularly new. The urban network is based on relatively modern planning styles.

The green space and recreational areas are estimated at 159,735 square meters. Therefore, the average per capita space is about 2.46 square meters. This equals 1.4% of Alrabwah's total area.

Alrabwah quarter has about 18 quarter parks of various sizes in addition to a number of children's playgrounds and private recreational facilities. The distribution of green area in the quarter can be considered well-organized, because the location of parks has been specifically planned to be accessible at short distances to as many people as possible. Planners have worked with the standards outlined by the Ministry of Municipal and Rural Affairs. However, there is a shortage in the provision of green space areas in some parts of the quarter, specifically on the north side.

5.12.4- Example – 4- Alnasaim (West) Quarter:

The below figure illustrates the green areas found in Alnaseem (west) quarter. This quarter lies in the east of the city and has an area of about 12.7 million square meters. Its population is estimated at 158,594 inhabitants, which is remarkably dense. Citizens from Alnaseem are middle class or lower. The average density of each square hectare (10,000 square meters) is 125 people. As in Alrabwah, the main type of housing is the villas. However, families are bigger than in Alrabwah: the average family numbers 7 people. Development has reached about 87 % here, and the residential area takes up 54.5% of the total area. This quarter is neither particularly old nor particularly new. The urban network is, to a large extent, based on modern planning styles.

Green space and recreational areas are estimated at 108,681 square meters. In other words, the average green space for each person in the quarter is about 0.7 square meters, which equals 0.86% of the total area of the quarter.

Alnaseem has about 15 quarter parks, several children's playgrounds and both public and private recreational facilities. The distribution of green area in the quarter has been organized using a model which pinpoints the location of parks to cover the majority of quarter area and make the park accessible from an acceptable distance. The urban style has divided the quarter into multiple rectangles. Parks and playgrounds are located either at the center of a rectangle or between two rectangles.

However, when one compares the area of Alnaseem and its population, a great shortage of green space areas becomes apparent. On the other hand, planners have worked to the organizational standards of parks distribution provided by the Ministry of Municipal and Rural Affairs.



Park

Figure no. (5.133) Land use map of Alnaseem (west) quarter.

Resource: Land Use Atlas of Riyadh, issued by the High Commission for the Development of Riyadh, administration of research and studies. 2005

5.12.5- Example – 5- Alnakheel Quarter:

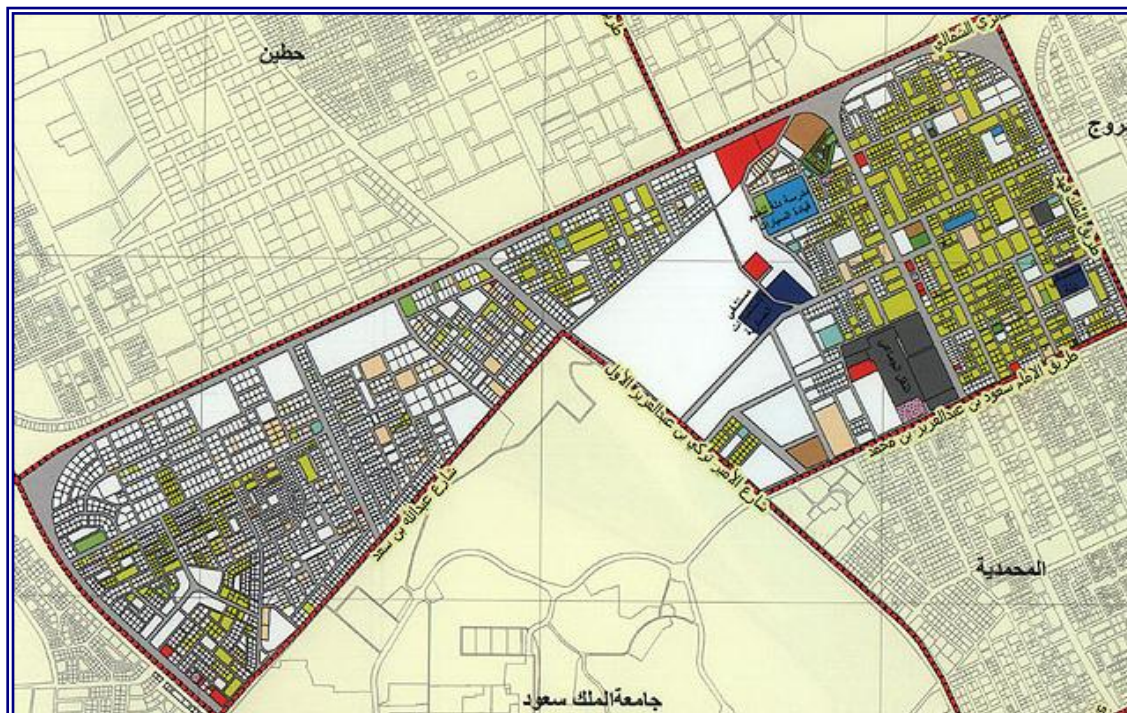
The below figure illustrates the green areas found in Alnakheel quarters. The quarter lies in the north of the city and has an area of approximately 9.9 million square meters. This quarter is not densely populated; its population is estimated at 12,485 inhabitants. Alnakheel is known as an upper-class quarter. The average per capita density of each square hectare (10,000 meters) was 13, mainly because the predominant type of housing type is large villas or palaces. The average family has 5 people. The percentage of quarter development has reached about 57% and the residential area covers 56.3% of the total area of the quarter, but 76% of the residential area is actually empty. This quarter is considered one of the newer quarters in the city. The urban network is based on modern planning styles.

The green area and recreational activities are estimated at 64,919 square meters. This tells us that the average space for each person in the quarter is about 5.2 square meters, or 0.66% of the total area of the quarter.

The urban design of the north section of the quarter depends on the overlap of squares which creates location points for public utilities such as parks, mosques and children's playgrounds. The south sector is based on intersecting linear blocks. The points of intersection are used for utilities.

The quarter has about 6 quarter parks of various sizes, as well as a number of children's playgrounds and both public and private recreational facilities. The distribution of green area in the quarter is organized in some parts of the quarter and not in others because the huge areas of residential land affect the system of parks distribution. In addition, most large villas and palaces have their own parks.

Planners have, to some extent, taken into the account the organizational standard for parks distribution as issued by the Ministry of Municipal and Rural Affairs.



 Parks

Figure no. (5.134) Land use map of Alnakheel quarter.

Resource: Land Use Atlas of Riyadh, issued by the High Commission for the Development of Riyadh, administration of research and studies. 2005

5.13 - The evaluation of the parks situation in Riyadh

In this section, the study will explore the opinions of the employees who work in the General Administration of Parks & Environmental Architecture about the situation of parks and the municipality's performance. I conducted this questionnaire in order to evaluate employees' opinions and the situation of parks throughout the city.

Twenty-two employees participated in the questionnaire. They have various qualifications such as post-graduate, university, secondary school and technical institute. In addition, they hold various positions such as manager, supervisor, engineer, technician and administrator.

In this part, the evaluation will focus on three parts of the questionnaire which regard the park situation, the municipality's performance and suggestions for future development.

5.13.1-Part – 1 - Evaluation of Riyadh's parks

41% of the participants think the design of parks in the city is acceptable, 32% think it is very good and 14% say the design is excellent. 36% consider the size of parks to be acceptable and 36% think it is very good. However, 18% think it is excellent. There was some disagreement on the situation of parks distribution throughout the city because 18% of the participants think it is excellent and 23% it is very good while 27% think it is acceptable and 32% believe it is bad. The majority find that the parks' cleanliness is very good and 23% of the respondents think it is acceptable, while 23% think it is bad. Regarding maintenance procedures, 45% think it is very good and 18% of the participants find it is acceptable. 37% think it is bad.

Respondents were asked for their opinion on basic park equipment such as playground tools, planting, seating areas, walking paths, lighting, benches and grilling places. 54% of the participants think the level of seating areas is very good whereas 23% of them believe it is fair and 23% think it is bad. 59% believe the walking paths are excellent while 32% find that they are acceptable and 9% think they are bad. 32% of the employees think the park benches are bad, while 27% think they are acceptable and 41% think they are very good. On the other hand, 72% of participants believe the grilling places are very bad.

When it comes to the provision of playground tools: 59% think it is very good, while 23% think it is acceptable and 18% find it bad. 23% of the participants think the planting level is acceptable, whereas 9% think it is bad and 68% believe it is very good. However, 55% of respondents believe the park lighting is very good, 27% find that it is acceptable and 18% think it is bad.

The situation of public service utilities such as snack kiosks, toilets, parking and prayer places in Riyadh's parks: 59% of the participants believe the snack kiosk situation is bad while 23% believe it is acceptable. 41% of the participants said the situation of the toilets is very good and 27% think it is acceptable while 32% believe it is bad. There was some disagreement on the allocated areas for prayer because 27% of the participants think these are excellent and 23% find them very good. On the other hand, 18% think they are acceptable and 32% think they are bad. 64% believe the amount of parking is very good; 18% think it is reasonable and 18% think it is inadequate.

5.13.2- Part -2- Parks administration evaluation

This part of the evaluation will focus on management performance regarding the parks' administration situation and Riyadh municipality's performance:

About the question which regards **the amount of parks**, 32% of participants think the number of parks is excellent, 18% think it is reasonable and 9% believe it is very good.. However, 41% find it is less than sufficient. Responding to my question about **decentralization of park management**, 41% believe there is decentralization in parks management but 36% think the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 45% think urban design is satisfactory, while 32% think it is reasonable. 23% consider it to be unsatisfactory. On the other hand, there was a contrast among the participants in their response to the question **Does urban design help to create parks which satisfy society's requirements?** 23% think it is excellent and 27% believe it is bad, 18% think it is very good, and 32% consider it reasonable.

Responding to **Does the municipality manages the city parks with professionalism?** 41% of the participants find the city's management professional while 55% of the respondents think the management is fair. 55% of the participants gave positive responses to the question **Does the municipality manage the city parks with satisfactory level?** and 41% believe the management is reasonable.

5.13.3- Suggestions and difficulties:

According to the questionnaire content and the questions which explore the opinions of the administration, employees were asked to suggest some concepts to improve the development of parks administration. Furthermore, employees mentioned some difficulties that affect negatively on the parks' performance.

5.13.3.1-Suggestions to develop the parks administration:

- increase the support of specialists and professional employees.
- increase special training courses to enhance the qualifications of employees.
- increase the artistic sense of the workers in the field.
- Keep up efforts at self-maintenance and the formation of an integrated team good at management, operation and maintenance belonging to the park administration to take over in the case of an emergency and continue operation and maintenance on behalf of the contractors, also to continue the maintenance sense of the administration workers.
- organizing visits to unique parks inside and outside the kingdom.
- raise awareness in the community about the importance of parks for the environment.

5.13.3.2- Difficulties which have a negative affect on parks and their performance:

- Shortage of jobs for agricultural specialists.
- Lack of qualified companies with enough experience to operate and maintain the city's parks.
- Lack of awareness in the community of the importance of parks and how to look after equipment.
- Lack of training programs to increase the qualifications of workers in the field.

5.14- Summary:

Riyadh municipality is responsible for implementing municipal services which make life pleasant and comfortable for residents. Besides the municipality, the High Commission for the Development of Riyadh is directly involved in the city's future in social, education, commercial, urban and economic aspects. In addition, the High Commission focuses on the development and operation of Riyadh's diplomatic quarter, the main axial of the city and the city centre.

The administration of parks and environmental architecture is responsible for green space areas that come under municipal supervision. It has specific policies and strategies to organize its work, to focus on planning and administrative targets and how to satisfy these targets.

Riyadh municipality has divided the city into 15 municipal branches which are in charge of introducing the duties of main municipality in each region. The individual municipal branches are also responsible for the supervision and follow-up work involved with planting.

The municipality is working to increase the green areas by buying up private farms and transforming them into public parks. The green area which comes under municipal supervision is estimated at about 18 million square meters. This includes roadside planting; the actual green area aside from roadside planting extends to more than 8 million square meters.

The green area which is under the supervision of the High Commission is estimated at 4.63 million square meters. Green areas allocated by other government agencies measure about 4 million square meters. Taken all together, the total green area (without roadside planting) equals 16.63 million square meters. This means 3.33 square meters of green area per person and equals 0.85% of the total area of the city, which covers 1,949 square kilometres.

New projects currently under construction or planned for implementation cover an area of about 21.2 million square meters, which will increase Riyadh's total green area to about 38 million square meters, or 2% of the total area of the city. These projects, when complete, will increase the per capita green area to 7.6 square meters (not including roadside planting), in addition to Althomamah wilderness park, which has an area of about 375 million square meters, which will increase the area dramatically.

The operation and maintenance of green areas which lie under municipal jurisdiction use a performance contracts system which costs about 100 million Saudi riyals per year. Through 10 contracts was allocated to practically supervising and follows the contractor's performance. The green areas of the High Commission for the Development of Riyadh are operated and maintained by special contracts monitored by the High Commission itself. Green areas under the supervision of other government agencies are managed by these individual agencies.

Chapter - 6

Saudi Park Management Questionnaire

The aim of this research is the investigation of the management system for parks and open space areas used in Saudi Arabia's cities. In order to explore the nature of these policies and their impact on the existing regulations, I surveyed the opinions of the employees who work in this field. This questionnaire was distributed to these employees to gather their opinions with respect to many questions concerning the parks and their situation and management.

This chapter will analyze the results of the questionnaire. The questionnaire covers 15 cities distributed through six administrative regions. The researcher distributed about 300 questionnaires, but received only 125 responses, as shown in the following:

6.1- The questionnaire methods:

To satisfy the target of the questionnaire, certain important aspects had to be considered in the methodology. These can be summarized as:

- The introduction to the questionnaire gives the participants a summary of the nature of the questionnaire and the essential aims of its preparation. It also stresses the importance of accuracy and honesty in completing the questionnaire.
- Logical frequency in the questions.
- Simplicity and clarity in the questions.
- A 5-point measurement scale to provide more accurate responses.

6.2- Questionnaire Design Concept:

The questionnaire consists of 8 parts and has 36 questions. The first part focuses on statistical information including name, city, municipality, qualification, academic specialist, municipal rank, etc. The second part of the questionnaire focuses on the employees' evaluation of the parks in their cities depending on criteria such as design, size, cleanliness and maintenance. The third part looks at the parks urban planning and parks administrations in the city. The fourth part discusses parks administration in the Kingdom of Saudi Arabia. The fifth part explains the types of maintenance contracts and the acceptance level of the municipal parks employees. The sixth part gathers employees' opinions about the governmental agencies that participate in Saudi parks construction and development. Finally, the seventh and eighth parts

explore suggestions for parks development and the difficulties that face and affect parks development.

6.3- The questionnaire questions

The following questionnaire was distributed to the participating employees of selected municipalities throughout 15 cities countrywide.

Dear participant:

I enclose herewith the questionnaire which forms an essential component of my research study for a doctoral thesis which I am preparing at Hannover University's Faculty of Architecture and Landscape – Institute of Architectural Landscape (center of garden and architectural landscape) entitled *Parks and Open Space Areas Management in Saudi Cities*.

Note that this questionnaire is a cornerstone of the study because it explores the opinions of specialists such as engineers and other workers in the field of parks and park management in the municipalities of Saudi cities. As participants, you will evaluate the situation of parks in the given cities and pay attention to administrative and organizational aspects and the methods of operation and maintenance. Furthermore, you will make suggestions regarding park development and the difficulties which impede this development.

I would like to extend my thanks and appreciation for your initiative and for giving me these moments of your valuable time to express your attitudes and opinions. Also, I assure you that all information will be handled in full confidentiality. Your responses will be used only for purposes of scientific research and statistics.

In conclusion, I express to you sincere thanks and appreciation for your gracious and seriousness that you have shown in agreeing to complete the attached questionnaire.

Researcher

Mohammed M. Alsolaiman

A	Demographic information
A11	<p>To whom is the reference of the park administration :</p> <ul style="list-style-type: none"><li>(1)- The Mayor or Head of the municipality<li>(2)- Municipality deputy of service<li>(3)- Municipality deputy of projects and construction<li>(4)- Technical affair Administration<li>(5)- Environment Health Administration<li>(6)- Technical Department<li>(7)- Agriculture Department

B	What is your evaluation of the parks in your city according to these elements	Please state your evaluation:				
		1= very bad			5= excellent	
B1	Design	1	2	3	4	5
B2	Size	1	2	3	4	5
B3	Distribution in the city	1	2	3	4	5
B4	Cleanliness	1	2	3	4	5
B5	Maintenance	1	2	3	4	5
B6	Seating areas	1	2	3	4	5
B7	Kiosks	1	2	3	4	5
B8	Footpaths	1	2	3	4	5
B9	Benches	1	2	3	4	5
B10	Lighting	1	2	3	4	5
B11	Plants	1	2	3	4	5
B12	Play Equipment	1	2	3	4	5
B13	Prayer Areas	1	2	3	4	5
B14	Grilling Areas	1	2	3	4	5
B15	Public Toilets	1	2	3	4	5
B16	Car Parking	1	2	3	4	5

C	What is your evaluation of the parks situation in your city according to these elements?	Please State Your Evaluation: 1= Strongly disagree 5 = Strongly agree				
		C1	There is sufficient number of parks	1	2	3
C2	decentralization of parks management	1	2	3	4	5
C3	Saudi urban design helps to create parks which satisfy municipal regulations	1	2	3	4	5
C4	Saudi urban design helps to create parks which satisfy society's requirements	1	2	3	4	5
C5	In general, the municipality manages the city's parks with professionalism	1	2	3	4	5
C6	In general, the municipality manage the city's parks at a satisfactory level	1	2	3	4	5

D	Regarding the following, what is your opinion about parks management in the kingdom?	Please state your opinion: 1 = Strongly disagree, 5 = Strongly agree				
D1	Parks responsibility which is under just one administration in the organization structure will have a positive effect on parks development.	1	2	3	4	5
D2	Unifying the organization structure of whole municipalities in the Kingdom relating to parks management reflects positively on its performance.	1	2	3	4	5
D3	The decision to centralize parks constriction by the ministry of municipality has had a negative effect on the parks performance and development.	1	2	3	4	5
D4	No unified strategy for the Kingdom in the field of parks granted the municipality the chance to choose suitable policies according to the situation of the city.	1	2	3	4	5

F	According to your experience in the parks field, state your acceptance level for the following operation systems:	Please state your acceptance level for each system: 1 =strongly disagree 5= strongly agree				
F1	Self-operation and maintenance,	1	2	3	4	5
F2	Performance operation contracts,	1	2	3	4	5
F3	Maintenance contracts only	1	2	3	4	5
F4	Operation contracts only	1	2	3	4	5
F5	Maintenance contracts as needed	1	2	3	4	5
F6	Operation contracts as needed	1	2	3	4	5

G	How often do these agencies participate in parks development?	Please state the level of participation: 1= weak 5= strong				
G1	Ministry of agriculture	1	2	3	4	5
G2	Ministry of education	1	2	3	4	5
G3	Ministry of Islamic affair	1	2	3	4	5
G4	presidency of Youth welfare	1	2	3	4	5
G5	National commission for wildlife Preservation	1	2	3	4	5

F- State any ideas or suggestions for the development of parks administration

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-

H - State the difficulties which face you and which have an impact on the development of parks administration

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6.4 – Analysis of part one (statistical information)

The following is an analysis of the personal information provided by participating employees:

	City	Frequency	Percent	Valid Percent	Cumulative Percent
1	Riyadh	22	17.6	17.6	17.6
2	Jeddah	19	15.2	15.2	32.8
3	Medina	9	7.2	7.2	40.0
4	Tabuk	4	3.2	3.2	43.2
5	Eastern	20	16.0	16.0	59.2
6	Yanbu	6	4.8	4.8	64.0
7	Alula	7	5.6	5.6	69.6
8	Jazan	1	.8	.8	70.4
9	Taif	21	16.8	16.8	87.2
10	Haqil	1	.8	.8	88.0
11	Aumluj	2	1.6	1.6	89.6
12	Alardhah	1	.8	.8	90.4
13	Samitah	2	1.6	1.6	92.0
14	Abuarish	5	4.0	4.0	96.0
15	Sabia	5	4.0	4.0	100.0
Total		125	100.0	100.0	

The above table shows the cities which participated in the questionnaire, as well as the number of respondents, in addition to the percentage of each city from the total ratio of the participants. **17.6%** of the respondents are from Riyadh, the capital. The Eastern province comes second, then Jeddah. This distribution is satisfying as it represents all the municipalities based on their staff numbers.

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Technical school	37	29.6	29.6	29.6
2	Secondary school	11	8.8	8.8	38.4
3	Bachelor's degree	70	56.0	56.0	94.4
4	Post-graduate	7	5.6	5.6	100.0
Total		125	100.0	100.0	

The above table shows that **56%** of the staff who participated in the study holds a bachelor's degree. Most of these respondents are engineers.

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Manager	21	16.8	17.1	17.1
2	Supervisor	25	20.0	20.3	37.4
3	Engineer	40	32.0	32.5	69.9
4	Technician	33	26.4	26.8	96.7
5	Administrative employee	4	3.2	3.3	100.0
Total		123	98.4	100.0	
Missing		2	1.6		
Total		125	100.0		

The data in the above table explain the percentage of employees at each position who participated in the questionnaire. Engineers form the biggest respondent group, followed by technicians.

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Architecture	13	10.4	10.7	10.7
2	Landscape	5	4.0	4.1	14.8
3	Urban planning	10	8.0	8.2	23.0
4	Civil Engineering	6	4.8	4.9	27.9
5	Agriculture	63	50.4	51.6	79.5
6	Other	25	20.0	20.5	100.0
Total		122	97.6	100.0	
Missing		3	2.4		
Total		125	100.0		

As the study deals with parks, those specialized in agriculture are the dominant group, as shown in table 4.

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Region municipality	96	76.8	76.8	76.8
2	A	6	4.8	4.8	81.6
3	B	12	9.6	9.6	91.2
4	C	10	8.0	8.0	99.2
5	D	1	.8	.8	100.0
Total		125	100.0	100.0	

The above table shows the ranks of the municipalities and number of participants with each rank. The table illustrates that the majority of the participants work at the higher levels of the municipalities, which equals 76.8%. That is considered a good indicator of the answer level.

	Years	Frequency	Percent	Valid Percent	Cumulative Percent
1	1-5	45	36.0	36.9	36.9
2	6-10	34	27.2	27.9	64.8
3	11-15	11	8.8	9.0	73.8
4	16-20	15	12.0	12.3	86.1
5	21-25	11	8.8	9.0	95.1
6	26-30	4	3.2	3.3	98.4
7	31-35	2	1.6	1.6	100.0
Total		122	97.6	100.0	
Missing		3	2.4		
Total		125	100.0		
Minimum		1		Maximum	34

The above table illustrates the respondents' years of experience. It shows that 45 participants have less than five years' experience, which equals 36% of the total number of respondents, while 34 of them have between six and ten years' experience, equaling 27.2%. Eleven employees have 11-15 years' experience, and the same number have between 21 and 25 years of experience, which means 8.8% for each group. 15 employees, or 12% of the total, have 16-20 years of experience. Consequently, 4 employees have between 26 and 30 years of experience, equaling 3.2%, while 2 employees have between 31 and 35 years' experience, which equals 1.6%.

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Head of the municipality	21	16.8	16.8	16.8
2	Municipal deputy of service	72	57.6	57.6	74.4
3	Municipal deputy of projects and construction	18	14.4	14.4	88.8
4	Agriculture Department	14	11.2	11.2	100.0
Total		125	100.0	100.0	

The above table illustrates the reference of the parks administrations of the participating employees. The majority of the administration, which represents 57.6% of the total number of respondents, work for the municipal deputy of service, while 14.4% are involved in municipal projects and construction. On the other hand, 16.8% comes under the head of the municipality while 11.2% of these administrations work in the Agriculture Department.

6.5- Questionnaire Result Analysis

The following will examine the responses from the selected Saudi municipalities' employees which were 15 cities municipalities. The analysis will also explore the responses from cities with high participant numbers. These are Riyadh, Taif¹, Eastern Region (Dammam)² and Jeddah, which equal about 65.6% of the total number of participants (see table 6.1).

6.5.1- Evaluation of the Parks Situation

In this section, the study will explore the opinions of the employees who work in the chosen municipalities about the situation of parks. I conducted this questionnaire in order to evaluate employees' opinions and the situation of parks throughout their cities.

On average, 46 % of the participants think the design of parks in the city is acceptable, 21.8 % think it is very good and 4.8 % say the design is excellent, while 27.4 % think the design is bad. *In Riyadh*, 41% of the participants think the design is acceptable and 32% consider it very good. *In Jeddah*, 53% think the design of parks in the city is acceptable and 32% of the participants think it is bad. *In Taif*, 52% of the participants think the design of parks in the city was acceptable and 29% think its designs are bad, while 19% said the design is very good. *In Dammam*, 55% of participants think the design is acceptable and 30% think the design of city parks is very good.

On average, 43.9% consider the size of parks to be acceptable and 24.4% think it is very good. However, 7.3% think it is excellent and 24.4% think the size of parks in their cities is bad. *In Riyadh*, 36% of participants consider the size of the parks is acceptable, and 36% think its size is very good. However, 18% think it is excellent. *In Jeddah*, 47% they think it is acceptable and 32% claim it is bad, while 21% think it is very good. *In Taif*, 38% of participants think the park size is acceptable and the same percentage think it is very good while the rest think it is bad. *In Dammam*, 60% of the participants think the park size is acceptable and 35% believe the size is very good.

There is some disagreement on the situation of parks distribution throughout the cities, because 15.2% of the participants think it is excellent and 24% believe it is very good, while

1- Taif lies in the southwest of the Kingdom. Its estimated area is about 1,036 km² and its population is about one million inhabitants.

2- Dammam lies on the eastern coast of Saudi Arabia (Arabian Gulf); It is the capital of the Eastern Region. Its estimated area is about 800 km² and its population is approximately 1.3 million inhabitants.

25.6% think it is acceptable and 20.2% believe it is bad and 14.5% think it is very bad. **In Riyadh**, there was some disagreement because 18% of participants think it is excellent and 23% think it is very good, while 27% think it is acceptable and 32% believe it is bad. The same disagreement occurred **in Jeddah** in that 16% of the participants think it is very good while 42% of participants think it is acceptable and 37% think it is bad. **In Taif**, 57% of the participants think the distribution of parks is very good while 24% think it is acceptable and 19% believe it is bad. **In Dammam**, 50% of the participants think the distribution of parks through the city is very good and 25% think it is acceptable, while 25% claim it is bad.

On average, the majority find that the parks' cleanliness is bad and 28.8% of the respondents think it is very good, while 32% think it is acceptable. **In Riyadh**, the majority (54%) of the participants believe the parks' cleanliness is very good and 23% think it is acceptable, while 23% of them claim it is bad. **In Jeddah**, 53% of the participants think the city parks' cleanliness is bad, while 37% of them think it is acceptable and 10% think it is very good. **In Taif**, 48% of the participants think the cleanliness of city parks is acceptable and 33% think it is bad while 19% think it is very good. **In Dammam**, 38% of the participants think the cleanliness of city parks is bad and 29% of them think it is acceptable, while 33% think it is very good.

Regarding maintenance procedures, on average 41.1% think they are bad and 27.4% of the participants find that they are very good, while 24% think they are acceptable. **In Riyadh**, 41.1% of the participants think the parks maintenance is bad and 24% think it is acceptable, while 27.4 of the respondents think it is very good. **In Jeddah**, 58% of respondents think it is bad and 37% of them think it is acceptable. **In Taif**, 38% of the respondents think the city parks maintenance is acceptable and 29% of them think it is bad. However, 33% of them think it is very good. **In Dammam**, 55% of the participants think the maintenance of city parks is bad and 15% think it is acceptable while 30% think it is very good.

Respondents were asked for their opinion on basic park equipment such as playground tools, planting, seating areas, walking paths, lighting, benches and grilling places. In average 32.8% of the participants think the level of seating areas is fair, whereas 24.8% of them believe it is very good and 38.4% think it is bad. 33% believe the walking paths are acceptable, while 30.4% find that they are bad. 23.2% think they are very good and 12.8% they think they are excellent. 47.2% of the employees think the park benches are bad, while 28.8% think they are

acceptable and 16.8% think they are very good. On the other hand, 84.5% of participants believe the grilling places are very bad.

When it comes to the provision of playground tools: 29.6% think it is very good, while 28% think it is acceptable and 24.8% find it bad, while 17.6 find it excellent. 31.2% of the participants think the planting level is acceptable, whereas 16% think it is bad and 32% believe it is very good. However, 35.5% of respondents believe the park lighting is bad, 27.4% find that it is acceptable and 25.8% think it is very good. *In Riyadh*, 54% of the participants think the level of seating areas is very good, whereas 23% of them believe it is fair and 23% think it is bad. 59% believe the walking paths are excellent while 32% find that they are acceptable and 9% think they are bad. 32% of the employees think the park benches are bad, while 27% think they are acceptable and 41% think they are very good. On the other hand, 72% of participants believe the grilling places are very bad.

When it comes to the provision of playground tools: 59% think it is very good, while 23% think it is acceptable and 18% find it bad. 23% of the participants think the planting level is acceptable, whereas 9% think it is bad and 68% believe it is very good. However, 55% of respondents believe the park lighting is very good, 27% find that it is acceptable and 18% think it is bad. *In Jeddah*, 42% of the participants think the level of seating areas is fair, whereas 47% of them think it is bad. 53% think the walking paths are bad while 37% think they are acceptable and 10% think they are very good. 63% of the employees think the benches are bad, while 16% think they are acceptable and 21% think they are very good. On the other hand, 95% of participants think the grilling places are very bad.

Concerning the provision of playground tools, 32% think it is very good, while 32% think it is acceptable and 37% find it bad. 37% of the participants think the planting level is acceptable, whereas 42% think it is bad and 16% believe it is very good. But 53% of them believe the park lighting is acceptable and 42% think it is bad. *In Taif*, 43% of the participants think the level of seating areas is very good while 33% of them think it is acceptable and 24% of them think it is bad. 43% think the walking paths are acceptable and 38% think they are bad, whereas 19% think it is very good. 43% of the participants think the benches are bad and 33% think they are acceptable, while 24% of them think they are very good. On the other hand, 90% of the participants think the grilling places are very bad.

Providing the playground tools, 38% think they are acceptable and 43% think they are very good, while 19% of them think they are very bad. 62% of the participants think the level of planting in the park city is very good, while 27% think it is acceptable. Regarding park

lighting, 33% think it is acceptable and 29% think it is very good, whereas 38% think it is bad.

In Dammam, 40% of the participants think the level of seating areas is acceptable and 35% think it is bad, while 25% think it is very good. 55% think the walking paths are very good and 35% of them think they are acceptable. 50% of the participants think the benches are acceptable and 25% of them think they are very good, while 25% of them think they are bad. On the other hand, 70% of the participants think the grilling places are very bad. 55% of the participants think the provision of playground tools is very good and 35% of them think it is fair. 55% of the participants think the level of planting in the city parking is very good and 40% of them think it is acceptable. 40% of the respondents think park lighting is very good and 20% of them think it is fair, while 40% think it is very bad.

When answering questions about the situation of public service utilities such as snack kiosks, toilets, parking and prayer places in the chosen cities' parks: on average, 76% of the participants believe the snack kiosk situation is bad, while 16% believe it is acceptable. 65.6% of the participants think the situation of the toilets is bad and 17.6% think it is acceptable. The majority of the participants - 60.8% - think the allocated areas for prayer are unsuitable and 16.8% find them acceptable. On the other hand, 11.2% think they are excellent and 11.2% think they are very good. 37.6% believe the amount of parking is inadequate, 28% think it is reasonable and 20.8% think it is very good. **In Riyadh**, 59% of the participants believe the snack kiosk situation is bad, while 23% believe it is acceptable. 41% of the participants said the situation of the toilets is very good and 27% think it is acceptable, while 32% believe it is bad. There was some disagreement on the allocated areas for prayer because 27% of the participants think these are excellent and 23% find them very good. On the other hand, 18% think they are acceptable and 32% think they are bad. 64% believe the amount of parking is very good; 18% think it is reasonable and 18% think it is inadequate. **In Jeddah**, 89% of the participants think the snack kiosk situation are bad and 95% of the participants said the situation of the toilets is very bad, while 79% of them think the allocated areas for prayers are bad. 37% believe the amount of car parking is reasonable and 58% of them think it is not enough. **In Taif**, 71% of the participants think the snack kiosk situation is very bad and 19% of them think it is acceptable. 57% of the participants think the allocated areas for prayer are very bad and 23% though reasonable. 71% of the participants said the situation of the toilets is bad. 71% believe the amount of the car parks is not enough. **In Dammam**, 70% of the participants think the snack kiosk situation is very bad and 50% of the participants think the

situation of toilets is bad, while 30% think it is reasonable and 20% of respondents think it is very good. 65% of the participants think the allocated areas for prayers are unsuitable and 20% think it is reasonable. 45% of the participants believe the amount of car parking is more than enough and 45% of them think the amount is sufficient.

6.5.2- Evaluation of Parks Administration

This part of the evaluation will focus on management performance regarding the parks' administration situation and the performance of the selected cities' municipalities:

On average:

Concerning the question which addresses **the amount of parks**, 41.6% of participants think the number of parks is less than sufficient, 18.6% think it is reasonable and 22.4% believe it is very good. However, 17.6% find it is excellent. Responding to my question about **decentralization of park management**, 29.3% believe there is decentralization in parks management, but 43.9% think the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 37.9% think urban design is satisfactory, while 31.5% think it is reasonable. 30.6% consider it to be unsatisfactory.

On the other hand, there was a contrast among the participants in their response to the question **Does urban design help to create parks which satisfy society's requirements?** 16.9% think it is excellent and 38.7% believe it is bad, 20.2% think it is very good, and 24.2% consider it reasonable.

Responding to **do the municipalities manage the city parks with professionalism?** There was some disagreement here: 31.5% of the participants find the city's management professional while 32.3% of the respondents think the management is fair and 36.2 think the management is not professional. 38.2% of the participants gave positive responses to the question **Does the municipality manage the city parks to a satisfactory level?** 37.4% believe the management is reasonable, while the rest do not think so.

In Riyadh:

*About the question which regards **the amount of parks**, 32% of participants think the number of parks is excellent, 18% think it is reasonable and 9% believe it is very good. However, 41% find it is less than sufficient. Responding to my question about **decentralization of park***

management, 41% believe there is decentralization in parks management but 36% think the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 45% think urban design is satisfactory, while 32% think it is reasonable. 23% consider it to be unsatisfactory. On the other hand, there was some disagreement among the participants in their responses to the question ***Does urban design help to create parks which satisfy society's requirements?*** 23% think urban park design is excellent and 27% believe it is bad, 18% think it is very good, and 32% consider it reasonable.

Responding to ***Does the municipality manage the city parks with professionalism?*** 41% of the participants find the city's management professional, while 55% of the respondents think the management is fair. 55% of the participants gave positive responses to the question ***Does the municipality manage the city parks to a satisfactory level?*** and 41% believe the management is reasonable.

In Jeddah:

About the question which regards ***the amount of parks***, 32% of participants think the number of parks is reasonable, while 58% of them think it is insufficient and 10% think it is very good. Responding to my question about ***decentralization of park management***, 21% think there is decentralization in parks management, but 47% believe the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 16% think urban design is satisfactory, while 32% think it is reasonable. 52% consider it to be unsatisfactory. On the other hand, there was a contrast among the participants in their response to the question ***does urban design help to create parks which satisfy society's requirements?*** 10% think urban design is excellent and 59% believe it is bad. 10% think it is very good, and 21% consider it reasonable.

Responding to ***does the municipality manage the city parks with professionalism?*** 53% of the respondents do not think that, while 16% of the participants find the city's management professional. 31% of the respondents think the management is fair. 26% of the participants agreed, while 32% do not, and 42% think it is reasonable. These are the responses to the question ***does the municipality manage the city parks to a satisfactory level?***

In Taif:

About the question which regards ***the amount of parks***, 43% of participants think the number of parks is excellent and 48% believe it is very good. Responding to my question about ***decentralization of park management***, 33% believe there is decentralization in parks

management, but 38% think the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 5% think urban design is satisfactory, while 52% think it is reasonable. 43% consider it to be unsatisfactory. On the other hand, there was a contrast among the participants in their response to the question **Does urban design help to create parks which satisfy society's requirements?** 28% think it is very good, 43% believe it is bad and 29% consider it reasonable.

Responding to **Does the municipality manages the city parks with professionalism?** 43% of the participants find the city's management professional and 38% think it is unprofessional, while 19% of the respondents think the management is fair. 38% of the participants gave positive responses to the question **Does the municipality manage the city parks to a satisfactory level?** Another 38% believe the management is reasonable, while the remaining responds do not think so.

In Dammam:

About the question which regards **the amount of parks**, 20% of participants think the number of parks is excellent and 45% believe it is very good, whereas 25% think it is reasonable. Responding to my question about **decentralization of park management**, 20% believe there is decentralization in parks management, but 45% think the opposite. The remaining respondents fall between both opinions.

Does urban design help to create parks which satisfy municipal regulations? 25% think urban design is satisfactory, while 45% think it is reasonable. 30% consider it to be unsatisfactory. On the other hand, there was a contrast among the participants in their response to the question **Does urban design help to create parks which satisfy society's requirements?** 30% think it is very good, 45% believe it is bad and 30% consider it reasonable.

Responding to **Does the municipality manage the city parks with professionalism?** 25% of the participants find the city's management professional and 35% think it is unprofessional, while 40% of the respondents think the management is fair. 30% of the participants gave positive responses to the question **Does the municipality manage the city parks to a satisfactory level?** 55% believe the management is reasonable, while the other respondents do not think so.

6.5.3- Parks Management in the Kingdom

This part focuses on the opinion of municipal employees working in the chosen cities concerning parks management:

Responding to my question about **whether putting parks responsibility under an administration in the organization structure will have a positive effect on parks development**, on average 64% of the respondents agree, while 20% do not think it will have any effect and 16% disagree. *In Riyadh*, 77% of the respondents agree and 18% do not think it will have any effect. *In Jeddah*, 53% of the respondents agree and 31% do not think it will effect parks development, while 16% disagree. *In Taif*, 67% of the respondents agree and 24% do not think it will have any effect. *In Dammam*, 70% agree and 20% think this will not have any effect on parks development.

Concerning the statement **Unifying the organization structure of whole municipalities in the Kingdom which relate to parks management reflects positively on its performance**, on average, 67% of the participants agree with that and 17.7% think it has not had any effect, while 15.4% disagree. *In Riyadh*, 64% of the participants agree with that and 27% think it has not had any effect. *In Jeddah*, 42% of the participants agree, while 32% think it has not had any effect, while 26% of the participants disagree. *In Taif*, 62% of the participants agree with this and 19% think it has not had any effect, while 19% of them disagree. *In Dammam*, 80% of the participants agree with this and 15% think it has not had any effect.

On average, 44% of the participants think **the decision to centralize parks construction by the Ministry of Municipality has had a negative effect on the parks performance and development**. In contrast, 30.4% think centralization is required. *In Riyadh*, 50% of the participants agree with this and 27% think it has not had any effect, while 23% think it is required. *In Jeddah*, 32% of the participants agree with this and 21% think it has had no effect, while 47% think it is required. *In Taif*, 57% of the participants agree with this, while 29% of them think centralization is required. *In Dammam*, 50% of the participants agree with this and 35% think it has had no effect.

On average, the majority of the participants (48.4%) believe that **No unified strategy for the Kingdom in the field of parks has granted the municipality the chance to choose suitable**

policies according to the situation of the city. 13.6% do not agree. **In Riyadh**, 59% of the participants believe that and 27% of them think it has not had any effect, while 14% do not agree. **In Jeddah**, 47% of the participants believe this and 37% of them think it has no effect. 16% do not agree. **In Taif**, 71% of the participants agree with that and 29% of them think it has no effect. **In Dammam**, 45% of the participants believe that and 35% of them think it has had no effect, while 20% do not agree.

6.5.4- Operation and maintenance:

This section surveys the opinions of the participants about the styles of operation and maintenance that are preferred and applied in their departments.

On average, the participants' answers show that 48.7% prefer the performance operation contracts system and 41.1% the maintenance-contracts-only system while the other systems have percentages less than 28%. On the other hand, 49.2% of the respondents disagree with the contracts-as-needed system, while 46.4% disagree with both the maintenance-as-needed and the self-operation systems. *In Riyadh*, the participants' answers show that 64% prefer the performance operation contracts system and 41% the self-operation and maintenance, while 32% agree with maintenance contract only, the maintenance-as-needed contracts and the operation-as-needed contracts. On the other hand, 50% of the respondents disagree with the operation-as-needed contracts, followed by 45% who disagree with maintenance-as-needed contracts. Another 45% disagree with the other systems, except the performance system, which won the most approval. *In Jeddah*, there was disagreement in which system the respondents prefer: 37% prefer the performance operation system, while the remaining systems were approved of by less than 21%. On the other hand, large proportions of respondents disagree with the following systems: 63% disapprove of maintenance-as-needed contracts and 53% disapprove of operation-as-needed contracts and the operation contracts only, while contracts of the operation performance and the maintenance won the approval of 42% and self-operation and maintenance systems were approved of by 47%. This leads us to say that in Jeddah, we cannot decide which system is preferred due to wide-scale disapproval of most systems. *In Taif*, the participants' answers show that 48% prefer the performance operation contracts system and 33% are for both the maintenance-contracts-only system and the operation-as-needed contracts, while the other systems have percentages less than 29%. On the other hand, 67% of the respondents disagree with self-operation and maintenance, while 52% disagree with the maintenance-as-needed and 43% with both the operation only

contracts systems and the operation contracts-as-needed system. *In Dammam*, the participants' answers show that 60% prefer the performance operation contracts system and 45% the self-operation and maintenance while 35% approve of the operation contract system only, the maintenance-as-need contracts and the operation-as-need contracts. On the other hand, 50% of the respondents disagree with the operation-as-needed contracts, followed by 45% who disapprove of the maintenance-as-needed contracts.

6.5.5- Other Government Agencies

On the whole, the responses show that the cooperation of other government agencies in the field of construction and development of parks is weak.

On average, the participants who believe there is good cooperation with government agencies in this field range between 4% and 9.6%. On the other hand, between 84% and 89% also think that not enough government agencies are involved in cooperation. *In Riyadh*, the participants who believe there is good cooperation with government agencies in this field range between 5% and 18%. In contrast, between 70% and 91% also think that not enough government agencies are involved in cooperation. *In Jeddah*, the participants who believe there is good cooperation with government agencies in this field range between 5% and 21%. However, between 74% and 89% also think that not enough government agencies are involved in cooperation. *In Taif*, the participants who believe there is good cooperation with government agencies in this field range around 5%. Between 95% and 100% think that not enough government agencies are involved in cooperation. *In Dammam*, the participants who believe there is good cooperation with government agencies in this field range between 5% and 20%. On the other hand, between 70% and 80% also think that not enough government agencies are involved in cooperation.

6.5.6 - Suggestions and Difficulties:

According to the questionnaire content and the questions which explore the opinions of the administration, employees were asked to suggest some concepts to improve the development of parks administration. Furthermore, employees mentioned some difficulties that affect negatively on the parks' performance.

1-Suggestions to develop parks administration:

- increase the support of specialists and professional employees.
- increase special training courses to enhance employees' qualifications.
- increase the artistic sense of the workers in the field.
- keep up efforts at self-maintenance and the formation of an integrated team good at management, operation and maintenance belonging to the park administration to take over in the case of an emergency and continue operation and maintenance on behalf of the contractors, also to continue the maintenance sense of the administration workers.
- organize visits to unique parks and distinct parks inside and outside the Kingdom.
- raise awareness in the community about the importance of parks for the environment.
- pinpoint incentives for employees who participate in parks development.
- use innovative methods in parks planting which improve the parks' appearance and encourage citizens to use parks carefully and keep them in good condition.
- support the administration with people who have qualifications and experience in the parks field.
- encourage creative people to participate in parks management.
- support the administration by using modern programs, equipment and tools which improve the level of parks performance.
- use an investment system for parks development (but there must be some revenue).
- investigate the potential use of parks for national occasions in order to encourage the public to visit these parks on festivals and holidays.
- create a separate administration system responsible for parks. This administration should be directly connected to the mayoral office and not only to a deputy.
- create a special system for more efficient private commercial management.
- use schoolyards and sports facilities as public parks when not otherwise needed.
- involve citizens in park management and administration by encouraging them to contribute with volunteer work.

2- Difficulties which have a negative effect on parks and their performance:

- Lack of financial resources. (Except Riyadh municipality)
 - Shortage of jobs for agricultural specialists.

- Lack of qualified companies with enough experience to operate and maintain the city's parks.
- Lack of awareness in the community of the importance of parks and how to look after equipment.
- Lack of training programs to increase the qualifications of workers in the field.
- No clear strategy in parks management.
- Chronic shortage of irrigation water.
- Lack of support from other government agencies and civil community agencies in parks development field.
- Lack of awareness of parks and how to maintain equipment.
- No systematic organization of technical work depending on specialists in the required field.
- Weak maintenance contracts which may result in poor-quality work.
- Investors do not have the ability to develop or operate parks or to provide productive, attractive facilities to the public.
- The potential for good design in some quarters is limited by the administrators' own ambitions.

Chapter Seven

Urban Green Space Area in Hannover

This chapter will concentrate on Hannover, which I have chosen as a typical example of German cities. I have decided to compare Hannover with the Saudi cities described in this paper. I have chosen Hannover because I have been studying and living here for several years. Furthermore, the municipal administration system is the same as in other German cities, and it has not been difficult to find information regarding green space areas. In addition, Hannover is characterized by the amount and variation in its types of green space areas.

The study will explain the governmental system which is used in Germany. It will focus on the administration that is responsible for green space areas in the city and its mission, function and organizational structure in addition to the functions of the various departments. Also, this chapter will illustrate the different types of green space areas, their classification, operation and maintenance and the financial expenditure required to support and maintain them. On the other hand, the study will explain the stages of emergence and development of the administration and the volunteers participating in the green space situation.

7.1- Organization of Hannover's Municipal Government

Because Germany is a federation of states, each state enjoys a great amount of autonomy when it comes to administration. After the Second World War, there was a movement to simplify government throughout Germany. This movement led to the current administration system, which differs little from state to state. In city government, each municipal department has been assigned a number. These numbers are the same throughout the country. Hannover's municipal government comes under the leadership of the mayor, who supervises the activities of six departments.

In Saudi Arabia, the administration system is completely different because the system is highly centralized. Each administration is supervised by the ministries as part of their duties to government branches throughout the country. In other words, Saudi municipalities have less autonomy than their German counterparts.

According to the organizational structure of Hannover city, the municipal government consists of six departments: The first department, called Dezernat I, is the mayoral office. This department is responsible for auditing, human resources, the fire department and the

division of sports and event management. Dezernat II is in charge of finance, law and order and supplementary benefits. Dezernat III is the Department of Youth and Social Services. Senior citizens' matters also come under Dezernat III. Dezernat IV is responsible for education and culture, including schools, libraries and museums. The fifth department is in charge of economics and the environment. Finally, Dezernat VI oversees the construction of new buildings, urban planning and civil engineering.¹

It is the fifth department, Dezernat V, which concerns the topic of this study. It is somewhat unusual for economics and the environment to come under one area of responsibility, but in Hannover's case the department is arranged in this way because the man in charge of this department is qualified in both areas. Therefore, it was both practical and cost-effective to merge these areas.²

7.2- Hannover: Overview

Hannover lies in the north of Germany. It is the capital of the state of Lower Saxony (German: Niedersachsen). The town centre lies at the meeting point of longitude 9° 44' 22" east and latitude 52° 22' 32" north. Its area is estimated at 204 km² and its population at about 525,000 inhabitants. Hannover is the European Union's fifty-first biggest city by population within city limits.³

Hannover was established at the beginning of the twelfth century. It grew rapidly in both size and shape from a simple fishing village to the state capital. Today, Hannover has developed into a significant location for a number of trade exhibitions such as CeBIT (a technology fair) and the Hannover Industry Fair at the city's **fairground**, which is considered the biggest of its kind in the world. In addition, Hannover is home to manufacturers of cars, tires and automobile parts as well as to the head offices of many commercial offices and insurance companies. The city is also home to the famous Royal Gardens of Herrenhausen, which date back to 1666. The English-style gardens are linked to the Hanoverian dynasty, who ruled England from Germany until 1866.

The city of Hannover itself features a number of hills, such as the Lindener Berg and Heister Berg (German *Berg* = hill or mountain). The Leine flows into the city from the south and turns to the west while still within the city limits. In the Middle Ages, the naturally occurring

1 - Landeshauptstadt Hannover, Dezernatsverteilung (as of 1 January 2010).

2 - Personal interview with Karin van Schwartzenberg, leader of the Division of the Environment and Urban Green Space, 5 November 2010.

3 - http://en.wikipedia.org/wiki/Largest_cities_of_the_European_Union_by_population_within_city_limits

dunes which formed along the riverbanks created the ideal location for a marketplace. It is said that it was these high banks (*Hohes Ufer* or *Hohen Ufer*) that gave Hannover its name. Like most of northwestern Europe, the Hannover area experiences an oceanic climate characterized by relatively cool summers and warm winters. Hannover's weather is changeable at times; any day can be rainy or sunny, warm or cold, gusty or calm – or any combination of these conditions. The annual range in temperature is lower than in other climate zones. Precipitation is frequent throughout the year.⁴

The Hannover region lies in the transition zone between the low mountain range known as the Mittelgebirge, which is found to the south of the city, and the loamy Calenberg hills to the north. This area is characterized primarily by agriculture (grain, vegetables and sugar beets). The Mittellandkanal (English: midland canal) marks the border to the boglands surrounding the Wedemark region and the Burgdorf Moraine. In this area, the landscape consists of forests, grasslands and some fields, where potatoes, asparagus and other vegetables are grown. The highest point in the Hannover region is the Bröhn Mountain in the Deister hills; it is 405 meters high.⁵

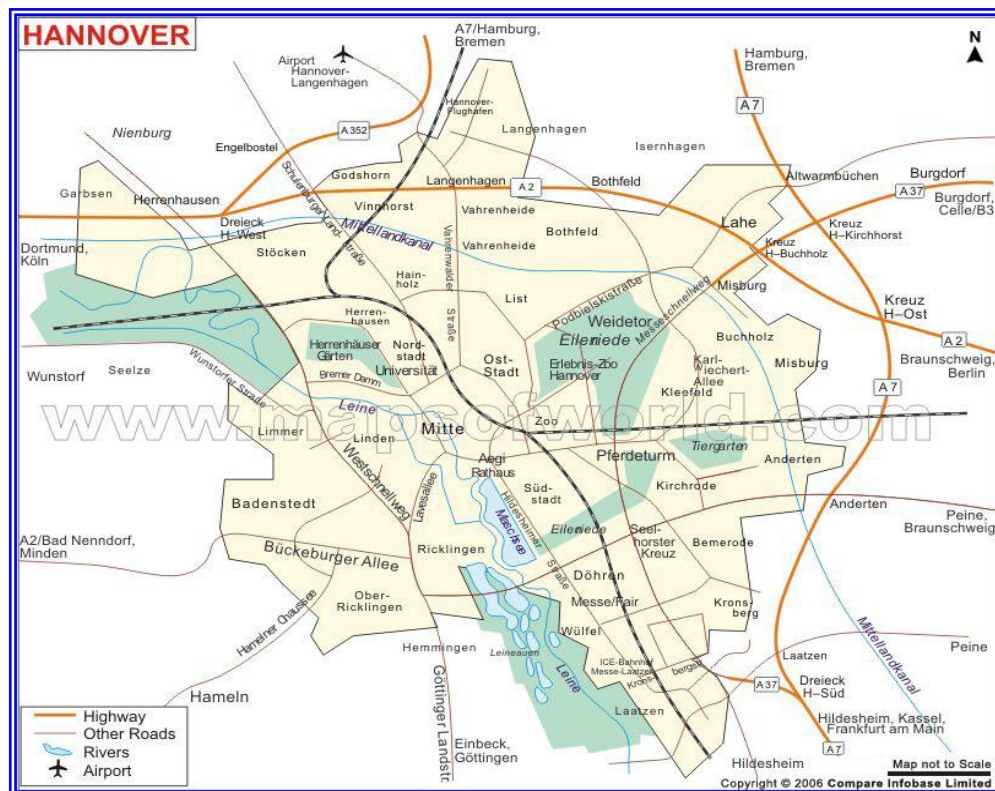


Figure no. (7.1) Hannover city map

4 - <http://www.Hannover.world-guides.com>. 20- 10 2010

5 - Landeshauptstadt, Statistischer Vierteljahrsbericht Hannover, (2005). 104. Jahrgang (Oktober bis Dezember 2005) pp. 4 and 32

7.3- Hannover's Parks

Hannover's municipal garden administration system was established in 1890. Since 1995, the Fachbereich Umwelt und Stadtgrün (Department of Environment and Urban Green Space) has operated under the Department of Business and the Environment. Important tasks of the Dept. of the Environment and Urban Green Space are:

- protecting natural resources
- protecting people from hazardous environmental influences
- planning, building tending and administering municipal green areas
- promoting garden culture in Hannover
- organizing tours of public and private gardens

Hannover's parks administration system currently has about 750 employees and 100 seasonal workers.

7.3.1- Parks policy

The policy of parks in Hannover city focuses on maintenance and improvements to the existing green space areas in the city.

New policies or strategies are announced in advance and registered with the Finanzdezernat (Department of Finance). The Administration of the Environment and Urban Green Space must negotiate with the Department of Finance to receive the funding they need. This is the case for both investments (e.g. new equipment) and maintenance costs. The Administration of the Environment and Urban Green Space receives funding only for parks. Building projects come under the administration of Building Management.

New green areas which are currently underway include Marienwerder Wissenschaftspark, which borders onto a wooded area. This park is found near a new business park on the outskirts of the city. Another new project is the floodplain along the Ihme. This has been controversial as creating the floodplain and removing an old gas plant have meant removing trees from the area along the river. However, once the floodplain is complete, the administration of the Environment and Urban Green Space plans to landscape the area and make it a pleasant area for walking and cycling.

Hannover's forested areas and nature preservation areas can be used as a source of wood. For example, any deadfall is removed and the wood is made available for sale, e.g. as firewood.

This is also the case with trees that block paths or are dangerous to the public. Any profit generated is credited to the Administration of the Environment and Urban Green Space.

It is unusual, but not impossible, for citizens to donate money for green space projects in Hannover. For certain special events, big companies step in as sponsors. One example is the half-marathon that takes place in the Eilenriede, which is sponsored by a health insurance company. The Administration of the Environment and Urban Green Space also receives some funding from the EU in the case of specific projects.

Since 1990, the Administration of Green Space has been known as the Administration of the Environment and Urban Green Space. As a cost-saving measure, Nature Protection was brought under the administration of the Environment. Although mechanization has made the work more efficient (fewer people are needed), there is also more work for the people who are employed in this area. The city is divided into 8 maintenance areas plus one work yard. Workers include master gardeners, who are responsible for gardeners, garden assistants, convoy leaders and drivers. Additional seasonal workers are taken on in the summertime. The master gardeners take orders from the Office of Green Area Care, which belongs to the Urban Green Space department in the municipal administration. Engineers decide which equipment takes priority for maintenance. Larger projects are shifted to the Office of Urban Planning.⁶

7.3.2- Emergence and Development of the Administration of the Environment and Urban Green Space

1890, when Julius Trip took over responsibility for parks and gardens in Hannover, was the beginning of a more or less autonomous green space administration. The period from 1890 to 1907 represented an economic boom for the city, and there were concurrently many changes to the organizational structure of garden administration and the free space situation. As the area of responsibility expanded, so did the workforce. New green areas were created and added to the charm of the city's "harmonious and attractive" character (p. 23). Urban beautification projects led to the redesign, creation and maintenance of pleasant green spaces. Trip emphasized the need for green space for the poor and was dedicated to planning class-specific free spaces for various uses.

In the municipal administration, individual offices generally come under various departments. This organizational structure is important for an office's prestige and for such matters as future opportunities for development or the ability to implement plans or projects. In a similar

6 - Karin van Schwartzberg, personal interview, leader of the Division of the Environment and Urban Green Space, 5 November 2010.

way, a department head's education, qualification and experience can affect an office's standing. Most green space offices in the Federal Republic of Germany now come under the administrative area responsible for urban planning. This is also the case in Hannover (as of 1990), but it wasn't always so.

When gardening administration was established in 1890, politicians recognized the importance of green space and urban beautification. The responsibility for parks and gardens shifted from urban planning to the newly formed Committee for Urban Parks in the Royal Capital and Residence City of Hannover (*Ausschuss für die städtischen Anlagen der Königlichen Haupt- und Residenzstadt Hannover*). Trip saw this as a good opportunity to continue improving the city's parks.

Garden administration took a further step towards independence in 1912, after Trip had died. Tramm, who was the city director (Stadtdirektor), wanted to grant more autonomy to garden administration. For the remaining years of the German Empire and throughout the Weimar period, garden and cemetery matters were merged and did indeed enjoy certain autonomy in the municipal administration.

After the First World War, community garden plots came under the direction of the Green Space Office. Hitherto this office had only been responsible for public areas. Now garden plots, which were leased to individuals for private use, were also included in the mandate.

In the 1930s, the Nazi regime reaffirmed that the cemetery and garden office came under the Department of Urban Planning and thus prevented any more development in the direction of autonomy. In fact, garden and cemetery affairs maintained this position for the next forty years. It was not until the mid-1980s that discussion regarding the correct classification for the Green Space Office was again taken up.

From the end of the Second World War until 1986, the office was known as the Garden and Cemetery Office (*Garten- und Friedhofsamt*). Starting in 1950, this office was assigned the federal administration number 66 as one office of the Department of Urban Planning. In 1971, the Garden and Cemetery Office were renamed as the Green Space Department (*Grünflächenabteilung*). In 1985, the Administration Department was expanded to include a post for operating costs. The municipal government wanted to suit the different interests of the various segments of the population: they hoped to reach a wide array of people by planning and implementing bodies of water, sports fields, green areas around hospitals, etc. It

was in the 1980s that nature conservation came under the responsibility of the Planning and Building Department. Later, in 1988, the Office for Environmental Protection was created.⁷

7.3.3- Organizational Structure:

The organizational structure is considered the framework within which the administration practices its functions. In Germany, all cities which are responsible for green space areas are assigned the number 67.

In general, the structure of this department is the same from city to city. In a very few cases, there is some difference. Hannover is one of these cases because it has special parks such as the Herrenhäuser Gärten, Großer Garten and Berggarten, which are supervised by the Administration of Culture and Education because they are considered part of the city's heritage and therefore have special activities involved in management and supervision, which come under a specially allocated association. (Figure no.7.2)

1- The function and mission of the departments belonging to parks administration.⁸

The following will explain the main duty of the major department of the Administration of the Environment and Urban Green Space as the following:

- (67.0) - Central Departmental Matters (*Zentrale Fachbereichsangelegenheiten*)

This area is in charge of personnel, organization, financial issues and data processing. The field of reference for advice and communication answers citizens' questions and supports schools in environmental education for children.

- (67.1) - The Division of Environmental Protection (*Umweltschutz*)

This division deals with questions regarding air quality, mobile telecommunications, water quality, ecological planning and building, environmental sustainability tests and eco-tests. Their projects concerning saving energy, economical use of energy and the use of renewable energy resources contribute to lowering CO2 emissions. This division also produces reports

7 - Gröning, Gert und Wolschke-Bulmahn, Joachim, 1990. *Von der Stadtgärtnerei zum Grünflächenamt: 100 Jahre kommunale Freiflächenverwaltung und Gartenkultur in Hannover*. Hannover: Patzer Verlag, (pp 23-39)

8- Der Fachberich Umwelt und Stadtgrün in Hannover (Administration of the Environment and Urban Green Space in Hannover, website :

http://www.hannover.de/data/download/umwelt_bauen/umw_gruen_LHH/Fachbereich_Umwelt_und_Stadtgr_n.pdf (29-6-2010). (page 2)

on the natural condition of soil and groundwater. Groundwater monitoring and soil management techniques support preventive measures to protect soil and groundwater. All data are routinely analyzed and published in sustainability reports.

- **(67.2) - The Division of Urban Planning (*Planung und Bau*)**

Urban Planning concentrates on the planning and construction of public green areas, playgrounds and sports fields as well as free-space landscape design around schools, nursery schools, youth centers, traffic facilities and subsidized housing. This division works in conjunction with the Department of Urban Planning in realizing these projects.

- **(67.3) - The Division of Green Space (*Grünflächen*)**

This division is responsible for the care and maintenance of all public green spaces, roadside trees and playgrounds in the built-up areas of the City of Hannover. This division is also in charge of looking after community garden matters and renting green areas to third parties. Citizens' questions regarding green areas are addressed here. With respect to private garden culture, this division introduces new initiatives that all citizens may take advantage of.

- **(67.4) - The Division of Municipal Cemeteries (*Städtische Friedhöfe*)**

This division maintains the 20 municipal cemeteries found in Hannover. Aside from the 15 neighborhood cemeteries (of which 7 are no longer in operation), these are primarily the large cemeteries which are under historical preservation protection: Stöcken, Engesohde, Seelhorst, Ricklingen and Lahe. These cemeteries incorporate many park-like elements and thus form an important part of the city's overall green area. Operative tasks of this division include planning funeral ceremonies, maintaining and developing the cemeteries as well as tending the grounds and graves. The office can advise about choosing a grave site, the appearance of the gravestone and tending the grave itself.

- **(67.7) - The Division of Forests, Landscape Areas and Nature Protection (*Forsten, Landschaftsräume und Naturschutz*)**

This office is responsible for the care and development of the city's forests and open landscape areas which lie primarily on the edge of the city. About 1,300 ha of municipal forest (Eilenriede, Seelhorst etc.) and approximately 675 ha of municipal open landscape areas (Kronsberg, Leineau, etc.) are administered and tended. This includes the care and development of approx. 200 km of walking, cycling and riding paths such as the Green Ring.

The popular Children's Forest (*Kinderwald*) and Eilenriede Forest Station (*Waldstation Eilenriede*) are also managed by this division.

The following chart illustrates the organization structure:

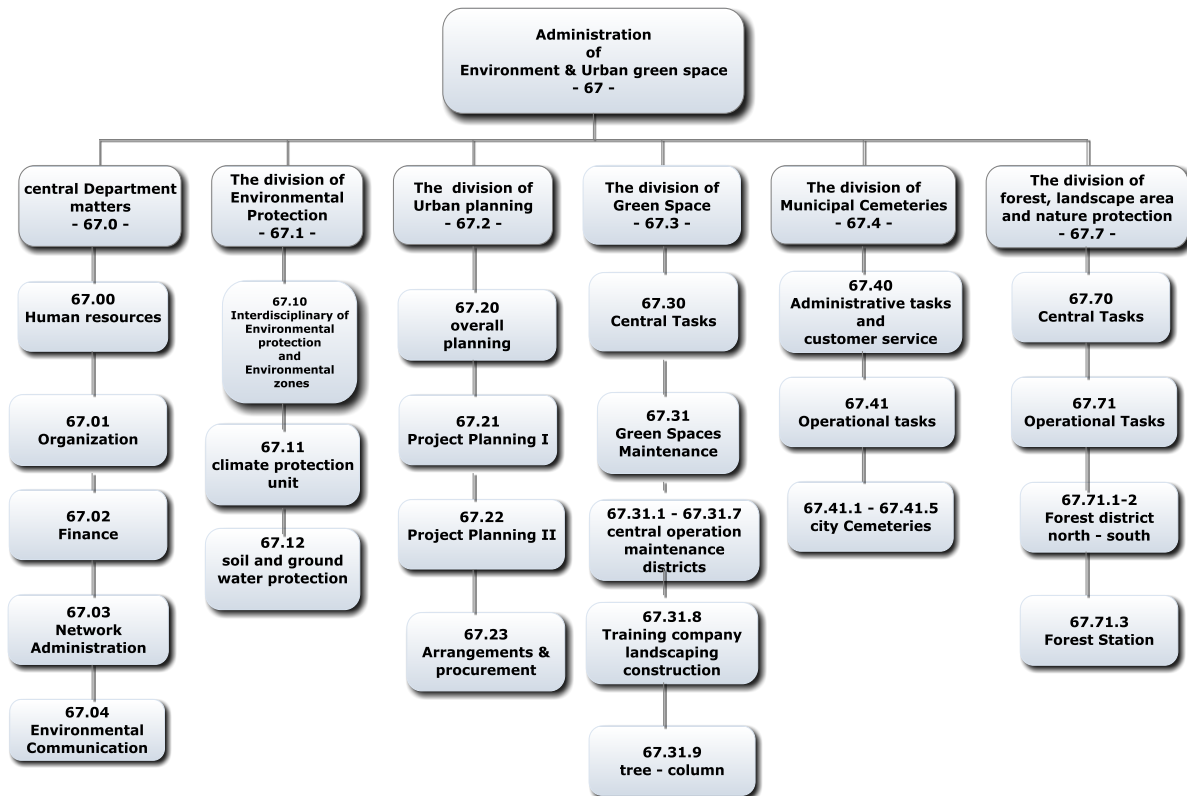


Figure no. (7.2) Organizational structure of Administration of Environment and urban green space.

Source: Administration of the Environment and Urban Green Space, Hannover. 2010

7.3.4- Hannover's Current Green Space Areas Situation:

Because approximately half of the city's area is taken up with parks and other green areas, Hannover is known as a Green City or Garden City (German: *Gartenstadt Hannover*). As of 1 January 2009, the total area of the city is 20,414 hectares (204.14km²). Of this total, about 7.5 thousand ha (36.5%) consist of built-up areas, and about 3.3 thousand ha (16%) are taken up by streets, squares and walking paths. Green spaces cover approximately 2.9 thousand ha, or 14.0% of the total area. Agriculture and gardening cover another 2.9 thousand ha (14.1%), forests and other wooded areas take up about 2.4 thousand ha or 11.7% and bodies of water have an area of 720 ha (3.5%).

7.3.4.1- City Components:

The following table illustrates the components found in Hannover, including their area.

Type of Use	Area (ha)	Area (km ²)	% total City area
Built-Up Areas	7,512 ha	75.12	36.8%
Traffic Areas (roads)	3,242 ha	32.42	15.9%
Agriculture	2,951 ha	29.51	14.5%
Green Space	2,911 ha	29.11	14.3%
Forest	2,283 ha	22.83	11.2%
Bodies of Water	707 ha	7.07	3.5%
Other	795 ha	7.95	3.9%
Total city area	20,401 ha	100 % (# 204 km²)	

Table no. (7.1)

Source: Administration of the Environment and Urban Green Space in Hannover. (Der Fachberich Umwelt und Stadtgrün in Hannover). website :

http://www.hannover.de/data/download/umwelt_bauen/umw_gruen_LHH/Fachbereich_Umwelt_und_Stadtgruen.pdf (29-6-2010) (pp 1)

The above table illustrates the main components of Hannover city. The table explains the range of green space areas, forest and bodies of water, which equal 29% of the total city area. This equals 5.941 hectare, or approximately 59.41 km²

Important parks and open space areas in Hannover city

Name	Area (hectare)
Eilenriede	641
Royal Gardens of Herrenhausen	117
Zoo	113
Maschsee	78

Table no. (7.2)

The table illustrate that the **Eilenriede**, which is a large forest inside the city limits, covers 641 ha, or 3.1% of the city's total area. The **zoo** has an area of 113 ha or 0.6% of Hannover's area, and the **Royal Gardens of Herrenhausen** and their associated parks cover 117 ha or 0.6% of the city's area. The **Maschsee**, which is a large artificial lake in the southern part of the city, covers 78 ha, or 0.4% of the city's total area.⁹



Figure no. (7.3)

Eilenriede forest

Source : Johaentges, Karl. *Himmel über Hannover*

9- http://www.hannover.de/de/buerger/wahlen/zahlen_daten/zahlenlh/Stadtgebiet.html

The picture shows an aerial view of the Eilenriede forest, which has an area of 641 hectares or 3.1% of total area of the city.



Figure no. (7.4)

Source: Johaentges, Karl. *Himmel über Hannover*

The above picture shows how the Ihme River flows through Hannover. The Maschsee Lake appears at the top of the picture; it covers about 0.4% of the city's area.

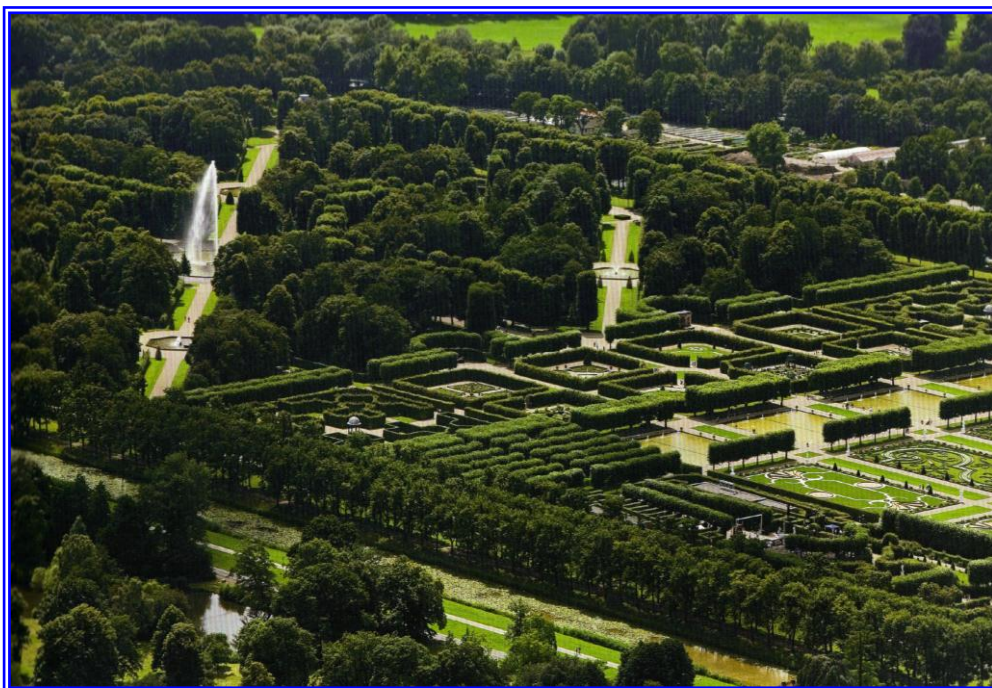


Figure no. (7.5)

The Picture shows a view of Royal Gardens of Herrenhausen, which have an area of 117 hectares or 0.6% of the total area of the city.

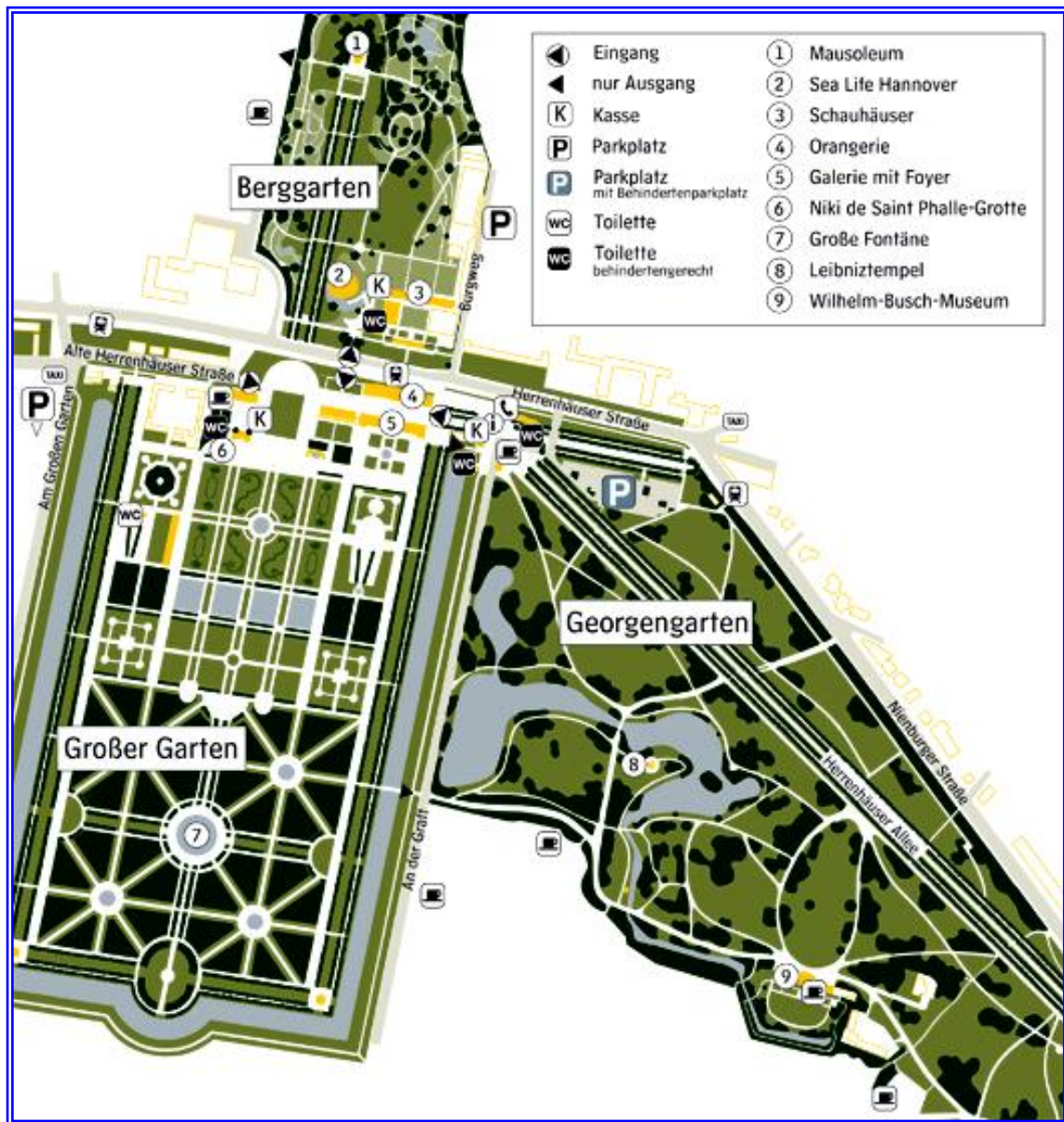


Figure (7.6) A Map of Royal Gardens of Herrenhausen

Source: http://www.hannover.de/herrenhausen_en/plan/index.html

7.3.4.2- Other types of parks and open space areas:

1- **Cemeteries** form an important part of Hannover's green areas. There are twenty cemeteries, which take up a combined area of approximately 276 hectares. The largest cemetery is in the Seelhorst district; it measures about 63 hectares.

This type of green space is not found in Saudi Arabia and does not come under the administrations of parks. In general, the cemeteries in Saudi Arabia are found on reserved empty land with the same function in Hannover: to bury the dead.



Figure no.(7. 7) Seelhorst cemetery

Source: www.ww2museums.com/article/German-War-Gr... (5-12-2010)



Figure no. (7. 8) Hannover war cemetery

Source: <http://anoxa.de/blog/?p=519> (5-12-2010)

The above figures show some of the cemeteries found in Hannover City.

2- **Children's play areas** are divided into three main types: playground (Spielplatz), supervised parks offering children activities such as sports or arts and crafts (Spielpark) and kickabout areas (Bolzplatz) where people can enjoy ball sports without worrying about damaging property or injuring others. Hannover has 396 playgrounds, which cover a total area of 72.1 hectares, ten supervised parks measuring 8.5 hectares altogether, and 143 kickabout areas, which take up 13 hectares. The main components of children's playgrounds are the green space, playground equipment and benches. The supervised parks are often associated with community centers or other institutions which offer public toilets, arts and crafts studios, etc.

Playground types:

Category	Number	Area (hectare)
Playground	396	72.1
Supervised park	10	8.5
Kickabout area	143	13

Table no. (7.3)

Source: (Administration of the Environment and Urban Green Space in Hannover - (Der Fachberich Umwelt und Stadtgrün in Hannover. Website:

http://www.hannover.de/data/download/umwelt_bauen/umw_gruen_LHH/Fachbereich_Umwelt_und_Stadtgr_n.pdf (29-6-2010) (p 1)

The above table illustrates the types of children's playgrounds which are found in Hannover. Their total area equals 93.6 hectares, or # 0.936 km², which is 0.46 % of the total area of the city.



Figure no. (7.9) playground



figure no. (7.10) playground

Source: Spielplatz in Hannover 2010

The above and below figures illustrate some types of children's playground in Hannover. It shows the variation in playground equipment. Also, the pictures show the main components of children's playgrounds such as play tools, green space areas, lighting and benches.



Figure no. (7.11) playground



Figure no. (7.12) playground

Source: Spielplatz in Hannover¹⁰, 2010



Figure no. (7.13) kickabout area (Bolzplatz)

Source: Administration of the Environment and Urban Green Space in Hannover, 2010



Figure no. (7.14) kickabout area (Bolzplatz)

Source: <http://www.linden-entdecken.de/kinder/spielpark-linden.htm> (1-11-2010)

In spite of the similarity of names of these types of open space areas found in both Saudi Arabia and Hannover, Saudi parks feature some additional components not found in Hannover's children's playgrounds, such as kiosks for drinks and food and public toilets.

Hannover has three types of children's playground, while Saudi cities have one type only for children. The other types commonly found in Hannover are attached to other Saudi open space areas, such as municipal plazas.

10 - http://www.hannover.de/data/download/lhh/umw_bau/SpielplaetzeinHannover.pdf 1-11-2010

3-Community garden plots are intrinsic elements of Hannover’s landscape. These are small plots of land which individuals can lease for use as garden and recreation areas. These garden colonies are usually run by gardening associations; more than half of Hannover’s community gardens are owned by the city. In all, there are 20,403 community garden plots (1,009 hectare), of which 14,482 are owned by the municipality. One hundred and twenty different garden associations manage the affairs of the approximately 270 colonies found in Hannover. The municipal government is responsible for infrastructure, such as water supply and electricity, in the community gardens. Otherwise, it is the garden associations which tend the public areas and pathways, and the individual gardeners themselves who look after their own plots. Two or three times a year, special events are organized when all gardeners come together to tidy up the public areas, weed pathways, etc. Responsibility for tending vacant plots is shared among the gardening association and the neighboring gardeners.

Community Gardens:

	Number	Area (hectare)
Garden plots	20,403	1,009
City-owned plots	14,482	740
Garden associations	120	
Colonies	ca. 270	

Table no. (7.4)

Source: same source as previous table.



Figure no. (7.15)

Community Garden Plots

This type of garden is not found in Saudi Arabia, because all parks and open space areas are considered public utilities and are owned by the government, which manages, develops, supervises and sponsors them.

4-Finally, there are three **nature preservation areas** in Hannover, with a combined area of 216 hectares, and 17 **landscape preservation areas**, with a combined area of 4,015 hectares. The main components in these areas are benches and picnic areas. Barbecues are discouraged as they represent a fire hazard and people tend to leave their garbage on the ground. Some preservation areas have parking lots, but access via public transit is quite good. There are relatively few public toilets or snack bars in these areas, though there may be cafés or restaurants nearby.

In Saudi Arabia, this type of nature preservation is not found inside the cities or included in the planning criteria guide for recreational areas issued by the Ministry of Municipal and Rural Affairs. However, they can be found in specific places such as the western region of the country (Asir), which is characterized by high land. It does not come under the parks administrations. Either the Ministry of Agriculture or the National Commission for Wildlife Preservation is responsible for the management, supervision and maintenance of these reserved areas, according to the type of preservation required.

7.3.4.3 - Operation and Maintenance of Parks and Open Green Space Areas in Hannover:

Parks and gardens must be planned and designed to meet citizens' needs. The design and implementation of a particular green area is often a one-time assignment, but the space must be cared for and maintained over decades or even centuries. The term 'care' involves looking after gardens throughout the year, while 'maintenance' refers to repairs to benches, fences and play equipment. Overall, green areas must be equipped with planters, and flowerbeds must be provided with plants, seeds, soil enhancers and fertilizers. Furthermore, there are the important tasks of organizing schedules for workers, machines and tools, assigning tasks, data processing, mowing, fertilizing, watering and planting, maintaining paths, squares, play equipment and so on. Required maintenance work must be taken into account even at the planning stage. Care and maintenance of green spaces is expensive.

Hannover's garden administration was first established to combat the poor condition of the city's green spaces. Over time, urban growth created the need for more green space. In fact,

Hannover's green space has increased steadily since 1920, partly because new green spaces have been created, and partly because outlying communities (e.g. Linden) have been incorporated into Hannover proper. From 1978 until 1988, the maintenance area grew by nearly 60%, from 955 to 1,514 hectares.

Traditionally, Hannover's green spaces were divided into maintenance areas. These divisions have changed as the city has grown. Under the Weimar Republic, the city was divided into three zones: North, South and West. In the 1930s, the Herrenhäuser Gärten, Großer Garten and Berggarten formed a new zone split off from the former West zone. At the time, the administration felt that these historical gardens had special needs that set them apart from other maintenance zones. Each zone was further subdivided into maintenance areas.

In 1951, there were three main maintenance zones, which were subdivided into 10 smaller areas. At the end of the 1960s, these zones were reorganized to keep maintenance in hand in the face of a huge expansion to the urban green space. At that time there were 11 maintenance areas, each with a master gardener in charge. An engineer was put in charge of a central office for care and maintenance. Each area was allocated its master gardener, 11 gardeners and 15 workers. The average size of a maintenance area was 50-60 hectares.

At the beginning of the 1980s, maintenance zoning was again changed to correspond with the city limits. Thirteen areas were created. This new system made it easier for regional councils to address problems with the city council.

It is important to remember the gardeners' increasing reliance on motorized tools and machines. This movement goes back to the turn of the century and continues to this day in the form of tractor mowers and other motorized equipment.

In the late 1980s, when people became more environmentally conscious, there was a movement to promote parks that were 'closer to nature'. Where people had once complained about too little maintenance work in parks, they now complained about too much. In particular, any plans to cut down trees were met with hostility and protest.¹¹

¹¹ - previous reference no. 7, (p 54- 59)

Currently, Hannover's parks are divided into nine maintenance zones (eight maintenance zones + one machine yard). The workers are responsible for garden work such as mowing, trimming and pruning as well as for maintenance of equipment such as playground components and benches. Any building maintenance work is delegated to the Division of Building Management. Parks which also count as cultural heritage sites, such as the Herrenhausen Garden and the Berggarten, used to come under the responsibility of the Division of the Environment and Urban Green Space but as of 2005, they have been part of their own separate division under the Department of Education and Culture. Unlike other public parks in Hannover, visitors can enjoy not only the beautiful landscape but also special events such as the International Fireworks Competition in the Herrenhausen Garden. Because these parks are a combination of park and museum, admission is charged.¹²

As mentioned above, Hannover uses its own operation and maintenance staff for its urban green spaces. In Saudi Arabia, however, maintenance depends on contractors. There is some variation in the operation and maintenance systems used. Performance operation and maintenance is the best-known type; It is used in Riyadh and Jeddah. In contrast, Medina and Tabuk use maintenance contracts. These contracts take up a significant percentage of the allocated amounts of the annual administrations budgets. On the other hand, there is the investment operation and maintenance system, which exists in two forms. The first is full investment, which involves leasing the parks to investors for specific periods. The investor takes on the responsibility for works of operation and maintenance. The second type is the part investment, which involves renting some park facilities such as kiosks, restaurants and children's playground equipment.

Both these types of maintenance systems are popular around the world (please see chapter 2, 5.2.1- Methods for assigning maintenance work p.43). Each method has advantages and disadvantages, but it is better when the administration has a qualified and trained team because the administration has control of the employees' job descriptions and can save money.

12 - Karin van Schwarzenberg, personal interview, leader of the Administration of the Environment and Urban Green Space, 5 November 2010.

7.3.4.4- Irrigation¹³

In general, parks in Hannover are irrigated according to the types of plants found there. For example, in some parks newly planted trees are watered until they have been standing for four years. Otherwise flowerbeds, lawns and rhododendrons require more watering. Most of the water for these parks is taken from the Maschsee. This keeps watering costs down. Community gardens are connected to the (non-potable) municipal water supply.

The dominant climate and high level of rainfall in addition to the many water bodies make the irrigation of green space areas in Hannover easy as compared with Saudi cities. It is commonly known that Saudi Arabia has a desert climate characterized by high temperatures through the year in addition to a dearth of rainfall. This means that Saudi parks managers must depend on substitute resources such as wells, sewage treatment water and flood waters. This water is collected and stored using networks, tanks and dams. The provision of necessary irrigation water is considered one of the greatest challenges which face the green space sector.

7.3.4.5- Annual Budget of Parks Administration

After the establishment of the Federal Republic of Germany, expenditures remained stable until the end of the 1980s. At the end of the 1940s, parks administration used 3.6% of the total municipal budget: in the 1950s, it was 3.8%. From the end of the 1950s until 1973, there was a slight increase to 4.1%, and from 1974 until 1987, parks administration used 3.3% of the total budget. This was less than large cities such as Hamburg or Berlin but more than other cities similar in size to Hannover. The most important budgeting areas are garden administration, cemeteries and community gardens.¹⁴ In 2009, the total municipal budget for Hannover was 1,860,554,000 euros and the budget of the Administration of the Environment and Urban Green Space (no.67) was about 3% of the city's budget, which equaled 55,321,800 Euros, while the green space areas maintenance budget was about 0.11% of the total city budget or 3.7% of the administration budget, which was equal to 2,057,458 Euros.

In 2010, about 150,000 Euros were added to the parks maintenance budget.¹⁵

13 - The previous reference. No. 12

14 - the previous reference no. 7 (pp 49)

15 - Administration of the Environment and Urban Green Space, 2010.

7.4 - Volunteer groups

Citizen action can make a constructive difference in municipal green space administration. Furthermore, it is an important part of the democratic process as it can help close the supposed gap between the demand from the people and the solutions supplied by the administration. Volunteers do valuable work on committees, commissions and advisory boards. They work in design, planning and administration, and encourage dialogue within communities. Nonetheless, their contributions are often undervalued.

Volunteers have been involved in Hannover's parks administration since the late nineteenth century. In 1892, the Eilenriede Commission was established to help determine which trees should be cut down and which could be left standing. In 1919, a Committee for the Promotion of Garden Plots worked to encourage people to lease plots in community gardens. During the National Socialist period, any democratic cooperation between citizens and government was suspended. Existing committees were dissolved and replaced with unelected leaders as outlined in the tenets of the *Führerprinzip*. These undemocratic forms of leadership often proved less effective than the previous system of mutual agreement and compromise.

After the Second World War, Hannover's citizens had to find their way back to the old committee system. This took some time as many of the prewar methods and systems had been forgotten. One of the first tasks for the new committees was to organize people who could help solve the problem of food shortages. Since many green areas had already been turned over to food production during the war, vegetables continued to replace lawns and flowers until 1949.

In 1961, the Green Space Committee was re-established and its mandate expanded to include urban forests. In 1968, this group was fused with the Urban Planning Committee. 1972 saw the introduction of the Committee for Environmental Protection and Green Space. This committee's tasks included participating in matters concerning the preservation and improvement of the environment, especially with respect to air and water quality, noise pollution and garbage removal. In addition, this committee took on the original tasks of the

Green Space Committee, including all green and recreation areas such as bodies of water, sports fields, playgrounds, forests, cemeteries and community garden plots.¹⁶

In Hannover, volunteers are not organized in any formal way by the municipality. However, it is possible for civic minded people to get involved by volunteering as playground supervisors who ensure playing children are safe and report any equipment in need of repair. It is also possible for citizens to take over responsibility for a particular tree or flowerbed; this is a good opportunity for those who enjoy gardening but who live in small apartments with no access to garden space. Occasionally, outdoor associations may take over projects from the municipality. Representatives from the associations meet with representatives from the Administration of the Environment and Urban Green Space twice a year to discuss upcoming projects.¹⁷

Saudi cities do not have the same system which is found in Hannover. Saudi cities do not have permanent associations to organize this type of group work and their missions and relationships with local municipalities because parks are public utilities and are thus managed, monitored and maintained by the government. There are some annual events or campaigns to promote tree farming by which the municipalities try to increase the number of trees and raise awareness of the importance of trees and green space areas for our environment. In Riyadh, there is a program called Tree Friends, which works to promote a culture of growing, preservation and care of trees and green space areas throughout society. On the other hand, the parks administrations occasionally invite interested people to participate in sponsoring parks projects in order to create a harmonic relationship reflecting cooperation between the government and the community.

7.5- Summary:

- The government administrative system which is used in Germany is a federal system. This means each state manages itself. Every city's municipal government comes under the leadership of the mayor, who supervises the activity of the six departments which manage the city's affairs. Under this system, each department is responsible for managing and developing its tasks, which depend on individual departmental policies and financial administration.

16 - previous reference no. 7, (pp 92-106)

17 - Karin van Schwartzberg, personal interview.

In Saudi Arabia, administration is completely different because the system is highly centralized. Each administration is supervised by the ministries as part of their duties to government branches throughout the country. In other words, Saudi municipalities have less autonomy than their German counterparts.

- The parks policy in Hannover is focused on maintenance and improvement to the existing green space areas in the city and satisfying its important tasks. Furthermore, it works to negotiate financial resources with the city's finance department and to meet its financial needs, at least in part, through donations and investment of the green space area products such as wood from the forests.

The new projects policy comes under the projects which ensure safety for residents and improve the environmental situation.

- Hannover's green space area currently covers 29% of the total area of Hannover. This consists of green areas, forests and water bodies. That works out to 112 m²/ person. If we add the percentage of city agriculture area, which covers 14.5% of the total city area, that increases the percentage of green space in the city to 43.5%. Consequently, this increases the per capita area to 168.6 m², which is considered high compared to other cities internationally.
 - All green space areas in the city are supervised by the Administration of the Environment and Urban Green Space except the three parks Royal Herrenhäuser Gardens, Grosser Garten and Berggarten, which are managed by the Administration of Culture and Education as these parks form an important part of the city's heritage.
 - The classification of green space areas in Hannover consists of Parks, forests, cemeteries, children's play areas, community garden plots and natural preservation areas. This is very different from Saudi Arabia. Although there is some similarity in the children's play areas, Hannover's playgrounds show more variation, while Saudi cities have only one type. Furthermore, some other types of green space area (e.g. forests, cemeteries and community garden) do not come under Saudi Arabia's parks system.
 - The components of green space area in Hannover consist of green area, lighting and benches. Only a few have facilities such as kiosks and toilets, while Saudi green space features more components such as kiosks and toilets in addition to facilities such as restaurants, car parking, prayer halls and sporting facilities, This depends on the type and size of park.
-

- The Administration of the Environment and Urban Green Space operates and maintains its green space areas autonomously. It has 750 permanent employees and 100 temporary employees as seasonal workers. The operation and maintenance team is divided into 9 teams - (eight maintenance zones + one machine yard) – each team is responsible for one maintenance zone, while the ninth has the duty of machine maintenance.

This system of operation and maintenance is different from that used in Saudi cities, which uses private contractors to implement the municipality's vision for the operation and maintenance of a particular city's parks.

- The irrigation of green space areas is not considered a problem in Hannover because the high rate of rainfall and the use of water bodies to provide the needed water in addition to the public water network, which supports the irrigation of green space areas in the city. On the other hand, Saudi cities suffer from a dramatic shortage of irrigation water, which has a negative effect on the green space area situation.
- The 2009 annual expenditure budget for the maintenance of green space areas in Hannover was about 2,057,458 Euros, Compared with the expenditures of Saudi cities, we can conclude that there is a significant difference in budgeting between Saudi cities and Hannover. This difference may arise from the limited number of projects, autonomous operation and maintenance system, satisfying the requirements for planting and sufficient green space areas in Hannover. In contrast, Saudi cities require much more money even to provide the basic requirements for green areas.¹⁸
- Finally, it is very difficult to compare Saudi cities with Hannover because there are many factors affecting the situation in the two cities. For example, the surrounding environment, climatic and other conditions, administration methods and the operation and maintenance system used are so different as to make comparison virtually impossible. However, this does not mean that it is not a useful experiment to work towards improving Saudi green space areas administration and operation methods.

18 - The allocated budget for Saudi cities varies. In Riyadh, the average allocated budget for the maintenance of green space areas in last five years was 100 million Saudi riyals (20 million euros) which equals 4% of the total budget of Riyadh municipality. In Jeddah, the average allocated maintenance budget for the last five years was 40 million Saudi riyals (about 8 million euros), which equals 4% of the total municipal budget. In Medina, the average budget for green space maintenance in the period between 2004 and 2007 was 20.55 million Saudi riyals (about 4.11 million euros), or 3.5% of the total municipal budget. In Tabuk, the average budget for green space maintenance in the period between 2000 and 2007 was 1.1 million Saudi riyals (about 0.22 million euros), which equals 1.65% of the total municipal budget

Chapter Eight

Summary and Recommendations

The aim of this research is to investigate and analyze the policies and management of the Saudi departments which are responsible for the parks and open space areas in Saudi Arabia. The study focuses on Riyadh, but in order to satisfy the aim, an examination of the situation of parks in the field which regards the research in Medina, Jeddah and Tabuk is also necessary.

This research reviews the stages of change which has occurred in the selected Saudi cities in terms of the urban and demographic situation resulting from the 1970s economic boom, which led to dramatic population growth as more people moved to the bigger Saudi cities.

The increase in urban populations created more concern regarding parks and open space areas. More effort was made to increase the allocated areas and protect them from urban expansion and promote their use as recreation facilities.

In the preceding chapters, this study has analysed the situation of parks and open space areas in Riyadh, Jeddah, Medina and Tabuk in terms of the policies, regulations which organize the parks situation, administration methods, parks classification, and operation and maintenance methods. On the other hand, I have chosen the German city of Hannover as an example which demonstrates the German governmental system, green space area types in the city, the function and organizational structure, and operation and maintenance methods.

This chapter will carry out a comparison between the Saudi cities shown in chapter four with Riyadh. The study will explain the difference between these cities in all aspects regarding green areas management and will summarize the situation of parks affairs in Saudi Arabia. Furthermore, this chapter will recommend solutions to the problems which exist in Saudi cities.

8.1- Summary

This section will discuss the situation of Riyadh as it compares with the other Saudi cities studied in the previous chapters:

8.1.1- Policies and strategies discussion:

In general, Jeddah, Medina and Tabuk do not have clear policies guiding the operation of parks and planted open space. The strategy of the government and the annual budget both have a significant effect on the policies used for green area implementation. However, every city has special guidelines affecting its methods of green area management. On the other hand, Riyadh is considered a special case because it has targets, policies and strategies along which work is organized. Its target concentrates on increasing green space area. The strategy consists of several comprehensive schemes to explain the method for setting targets and missions. The policy is derived from the strategy covering guidelines for decision making.

8.1.2 - Administrative discussion:

From the previous study on administrative affairs concerning parks and open spaces in the selected cities, the following can be seen:

- In Riyadh, Medina and Tabuk, the administrations which manage the parks come under the municipal deputy for services, while Jeddah's park administration comes under the municipal deputy of projects and construction. This tells us that parks management is not coordinated between these cities.
- Medina and Tabuk have the same parks administration distribution and names for the various departments. On the other hand, Jeddah and Riyadh differ in the names and numbers of departments which come under parks and open spaces affairs.
- Jeddah has two administrations responsible for parks and open spaces; each administration has the special duty to integrate green area operation and field missions.
- Medina's municipality is divided into 7 municipal branches. These branches help in parks management by operating and looking after all the parks' needs. While Tabuk municipality does not have any branch municipalities, it has central management. On the other hand, Jeddah municipality has 10 branch municipalities, but it does not have authority in park management. Because park operation depends on special divisions, it contains five offices. Each office supervises a limited area which comes under the control of the general administration.

- In Riyadh, parks and green space areas are managed by two administrations. The first is the High Commission for the Development of Riyadh, which supervises green space areas in the diplomatic quarter and the centre of the city (Qasr alhokm). It operates and maintains these areas by contractors under the supervision of the administration of maintenance in the High Commission. The second is Riyadh municipality, which is divided into 15 municipal branches. But for parks and green space areas, operation and maintenance have been divided into 10 contracts. Each contract covers one or more municipal branches. These contracts are managed by a branch of the administration of parks and environmental architecture which is allocated in some municipal branches.

8.1.3- Green space area discussion

This part of the discussion will examine the green space area situation on various levels:

A- The master plan:

According to the master plans of the selected cities, we can see the variation of allocated green area in the urban plans of these cities. In Riyadh 14.3% of the total area of the city is allocated to park and recreation facilities. This percentage equals about 278.71 km², which means about 55.7 m² for each person. In Jeddah, 2.2% of the total area of the city is allocated to parks and recreation facilities. This percentage equals about 33 km², which means about 11.8 m² for each person. In Medina, the allocated green area is 12% of the total city area. This equals about 70.7 km² or 71.3 m² for each person. In Tabuk the green area is equal to 1.5% of the total city area. This equals 7.5 km² or 16.7 m² for each person.

B - Current situation:

A look at the real situation shows us the actual level of green area in each city. In Jeddah the total area is estimated at 8.6 km², which equals only 1.15% of the total city area, while each person has 3.1 m² including roadside planting. In Medina the total area is estimated at 8 km² or 1.45% of the total city area, which equals 8.7 m² for each person. The existing green area in Tabuk is estimated at 0.3 km², which equals 0.1% of the total city area and means 0.61 m² for each person.

In Riyadh the total green space area is estimated at 16.63 km², which equals 0.85% of the total area of the city. Each person has 3.33 m², not including roadside planting.

C - Future vision:

The above section outlines the situation of green areas in each city. In Medina, development has concentrated on extending the number of playgrounds and establishing new open space

areas, while Jeddah has a development strategy for the next fifty years and Tabuk is going to implement new parks as additional green space in the city.

In Riyadh, the future vision involves continuing with the strategy practice, which plans to complete the target number of municipal plazas in addition to covering all city quarters with municipal courtyards in addition to the constriction of many parks that will increase the area of green space. Also they are working on the city's Humanity Program by organizing and involving citizens in public and national occasions.

8.1.4 - Parks classification and components:

In Medina, Jeddah and Tabuk, the parks are similar; the traditional design has combined many components. The main components of parks are children's play equipment, benches, public toilets, car parking, kiosks and walking paths, in addition to the planted areas.

In Riyadh, the components of parks are related to the types of parks. Riyadh city has its own classification system: sometimes it is parallel with the system used by the Ministry of Municipal and Rural Affairs. Its park classification has parks (Muntazah), which are characterized by area above 37,000 square meters. This type of park usually has, aside from the usual components, specialized facilities such as restaurants, museums, swimming pools and libraries. Public parks resemble the Muntazah in their large area but do not have the associated specialized facilities. The other types of Riyadh parks are residential parks and playgrounds. These contain the basic components such as green areas, trees, seating, lighting, kiosks, toilets and, occasionally, fountains.

In addition to the known types of parks, there are new types of open space areas found in Riyadh such as, municipal plazas. These plazas serve the youth and children of the quarters; The main components are walking paths, play courtyards for sports, children's playground equipment and green space areas.

Municipal courtyards (Barahat) are another type of open space. Their main components are palm tree oases, shaded multipurpose plazas, walking paths, traditional children's play areas and seating.

Recreation centers for special needs have been created for the disabled in order to promote their physical and mental development. Their main components are a library corner, internet corner, prayer hall, buffet and halls for physical training in addition to necessary equipment for disabled people. Furthermore, there are the squares which bring an aesthetic touch to crossroads and walking paths.

8.1.5- Parks operations:

As we have seen, the operation of the selected Saudi cities shows some variation in park operation methods; every city has an individual system which is used in parks and green area operation.

The operation of green space areas in Riyadh city is divided between the High Commission for the Development of Riyadh which supervises the diplomatic quarter, the centre of the city (Qasr Alhokm area) and the axial roads. It is operated and maintained by performance contracts for operation and maintenance under the supervision of the administration of maintenance in the High Commission.

On the other hand, Riyadh Municipality has the responsibility of operating and maintaining the remaining green space areas in the city. The administration of parks and architectural environment divides the city into 10 maintenance regions. Each region is managed by the administration branches which are found in the municipal branches under the general administration. The contracts use the performance system, which implements the municipal vision by means of contractors.

8.1.6- Operation staff:

In the Saudi cities discussed here, the number of employees who work under the supervision of parks administration ranges between 52 and 134 employees, while the number of contract employees ranges between 135 and 1,347 employees.

In Riyadh there are 486 employees who manage the administration and parks affairs. 3.3% of the administration's employees, or 16 people, supervise the departments and works sites, while 7.4% of the total number employees (36 people) work as assistant administrators. Technicians make up 10.7% of the employees, or 52 people. Labourers comprise 62% of the total manpower; This equals 302 people.

Depending on the operation method used in the green space area which lies under Riyadh municipality, the city is divided into ten operation and maintenance areas. Each area is managed by performance contracts. Each contract consists of 220 employees, whose main functions are agriculture engineering, landscaping, agriculture and electrical work as well as surveying and irrigation work.

According to the above information, we can estimate that the number of employees is 1.4 workers / km² for the entire city area, while the rate of actual green area is 149 workers / km².

8.1.7- The green area financial budget:

In Medina, Jeddah and Tabuk the average budget allocated for the financial affairs regarding parks and green areas ranges between 3.6%, 2.2% and 1.9% respectively of the total average of each city's municipal budget.

In Riyadh, the average annual budget for green area maintenance, operation and projects is 400 million Saudi riyals, which equals 8% of the total municipal budget.

8.1.8- The integration of natural and artificial landscaping:

Each one of the chosen Saudi cities has different surrounding environments. This has led to different types of green areas according to what is suitable to each environment. Medina has mountains covering about 20% of the total city area, and Jeddah has a long beach on its western border.

Wadi Hanifah runs through Riyadh from north to south. It is used as site for a number of industrial activities, particularly the extraction of construction materials. This has a negative effect on the city's appearance and environment and creates a great imbalance in the main function of the valley.

In order to solve this problem, the High Commission for the Development of Riyadh has adopted a comprehensive plan to develop the valley and improve its environment. This plan will implement:

- Five open parks.
- Seating areas.
- Pavement for pedestrians.
- Lakes.
- Vital treatment station for water.
- Walking paths.
- Car parking.
- Permanent running water channels.

8.1.9 - Parks and Activity Management:

The dominant function of parks and open space areas in the Saudi cities is to create a place for people to spend their free time and enjoy recreation facilities. However, there is no direct relationship between the park and the community's need for these places.

One exception is Annual Tree Week, which has been running in the Kingdom for the past 20 years. In Riyadh, in addition to the above functions and activities, the municipality has many activities oriented to urban society.

The municipality has organized many events to improve the relationship with society; there is the annual flower festival which concentrates on the types of flowers, ornamental plants, landscape, shade plants and farming equipments to increase the level of awareness of the importance of plants. On National Day, the municipality organizes event in Durrat alhadaeq (pearls of parks), where King Abdullaziz gathered with his soldiers when he opened Riyadh a hundred years ago. This park was dedicated as a combination of entertainment and education. Furthermore, the municipality prepares parks and walking paths to involve the city's residents in public occasions such as Eid al Fitr (conclusion of the fasting month), Eid al Adha (Festival of Sacrifice) and the summer festival.

8.1.10- Urban planning

Urban planning in the selected Saudi cities depends on the location, population and urban planning situation. This study has calculated the percentage of green space in each quarter and the average amount of space available to each person in these quarters as examples of the distribution of green space throughout these quarters.

This study analyzes the population and social and economic class of each quarter. It also shows how the system of green space area is used and its distribution throughout the quarter and the degree to which the regulations established by the Ministry of Municipal and Rural Affairs are actually put into practice.

In Jeddah, Media and Tabuk there are variations in the quarters' urban design. These cities also differ in terms of allocated green space areas and the method of distribution.

In Riyadh, the dominant urban plan is the grid system, with some quarters following a random system. Some of these quarters are quite old, which accounts for the different planning styles in green space area distribution between the quarters.

In the older quarters, the green space is found on the edges of quarters which lie on the main roads, which means the available green space areas in these quarters are few. On the other hand, there is a system in the distribution of parks and open space areas to cover the quarters and comply with the regulations and criteria of the Ministry of Municipal and Rural Affairs.

We can conclude:

- There is dissimilarity in the names of the administrations which manage the parks and open space areas in Saudi cities.

- There are differences in the organizational structure of these administrations, in addition to the various names and functions of the departments that comprise the administrations.
- The majority of the selected Saudi cities follow the services deputy municipality, except Jeddah, which follows the projects and construction deputy municipality.
- The majority of the selected Saudi cities carry out their duties by one administration, while Jeddah works via two administrations.
- Most parks in these cities have a traditional design, which is a combination of parks and children's playgrounds and features typical components such as trees, green space areas, seating areas, kiosks, playground tools and public toilets. One exception is Riyadh, whose classification is close to that issued by the Ministry of Municipal and Rural Affairs, with some variety in the components of each park. **This leads us to an important question: why does only one city conform to the criteria of the ministry, while the other cities do not?**
- Other open space areas, such as municipal plazas, are found only in Riyadh and Medina, while squares are found in all cities. However, the other types of space, such as neighborhood plazas and leftover areas, are found only in Jeddah. On the other hand, atypical spaces, such as traditional courtyards and recreation centers for the disabled, are found in Riyadh.
- The per capita area of green space in the selected Saudi cities ranges between 0.61 and 8.7 m².
- The regulations of the Ministry of Municipal and Rural Affairs have not been observed in the chosen Saudi cities, except Riyadh, which has followed some of the regulations.
- The majority of irrigation water in the Saudi cities comes from sewage treatment water. The rest is supplied by well water. Medina is particularly progressive in using chemical products to provide plants with the water they need.

- Jeddah and Medina do not have enough laborers, which means they must supplement their staff with contract laborers. Riyadh and Tabuk have some municipal laborers, but they generally use the contract laborers except in the case of certain necessary duties.
- The operation and maintenance systems in use differ among the chosen municipalities.
- The annual expenditures for the administration of green space areas in the Saudi cities are 8, 3.6, 2.2 and 1.9 per cent for Riyadh, Medina, Jeddah and Tabuk respectively.
- The urban planning design system of the selected Saudi cities affects the distribution of green space area through the cities' quarters.
- The municipal construction regulations do not take into account the importance of creating green spaces, especially in densely populated areas which have many high-rise buildings.
- The allocation of green space areas in the selected Saudi cities does not exceed 8.7 m² per person in Medina while Riyadh, Jeddah and Tabuk have 3.33, 3.1 and 0.61 m² respectively.

8.2- Recommendations:

This section will suggest some recommendations to improve the development of parks and open space areas and increase the area of green space in order to enhance the surrounding environment and make life more pleasant for local residents. My vision for development concentrates on three points: administration, urban planning and increasing green space areas.

8.2.1- Administration Recommendations:

It is important for management to understand the function of the organization and employ the skills of the employees to satisfy its needs and aspirations by suggesting strategy, policies and regulations which will provide good service and monitor both the final outcome and the level of community acceptance. To this end, I suggest the following.

- The study of the situation of green space areas in Saudi Arabia and the four selected cities has not revealed any general strategy to guide construction, operation and maintenance and planting. Therefore, in my opinion the Saudi parks administrations should work towards preparing general strategy schemes to organize the green space area affairs in the Kingdom and establish guidelines which satisfy the vision of the Ministry of Municipal and Rural Affairs. However, the guidelines should respect the individual flair of each region or city.
- The study shows a certain variation in the names of the responsible administrations for parks and open space areas. These names should be systemized throughout the country with respect to the size of each city, its population and the number of administrative employees and their qualifications.
- The study reveals the difference in the majority of organizational structures selected here. Differences occur in the number of departments, functions and responsibility of these administrations. Therefore, the organizational structure of the administrations should be unified. This will make the Saudi system more systematic and clear in the mission and functions of these administrations.
- Nowadays, green space areas have great importance for cities because the human environment must be integrated with the surrounding environment, which makes life more pleasant. In Saudi Arabia, the interested administrations face a huge challenge relating to the dominant topography and surrounding environment, in addition to the administration situation, which comes under another administration responsible for other aspects.

In my opinion, the creation of new, separate administrations or agencies with the duties of parks works and the environment. These administrations should be directly connected with the head of the organization in order to facilitate the work and use the budget more economically and independently.

- There is variation in the operation and maintenance systems used in the selected Saudi cities. This is a good method, but operation and maintenance systems should be monitored and evaluated according to their suitability for each city's situation.
- According to my interviews with those responsible for parks and open spaces administration, the majority of these administrations suffer from a shortage of financial resources, which has a negative effect on the opportunity to implement their visions and plans. Sufficient funding should be provided to support the development of projects in these cities.
- Projects involving parks and open space areas need scheduled maintenance to preserve the required appearance. The required financial resources must be provided to support the running of operation and maintenance, especially for new projects, to maintain the standard of achievement.
- From the questionnaire which I conducted, and from my interviews with some parks administrators, I found there is some confusion in the exact job description and mission of each employee in addition to the director's role in the successful realization of his administration and cooperation among administrative employees. Administrators must know the importance of understanding the parks management's obligations, mission and specifications.¹
- The operation and maintenance of parks and open space areas is an important factor in preserving the achievement and keeping up a good appearance for open spaces. Every responsible administration should introduce specific maintenance plans to guide the operational provision of urban green space management.

1 - Review chapter 2 on management (Section 2.4, p. 28).

This section concentrates on the quality and specifications of the leader in addition to the skills which a good leader should have. It also reviews the criteria of the employees in leisure and recreation services. Furthermore, this section discusses the required information, motivation and promotion for the position and job. Clear expectations will increase performance level.

- It is no secret that Saudi Arabia suffers from a shortage of irrigation water resulting from the lack of rainfall and water bodies. This means that the country is required to use electronic technical systems of irrigation to help save water; measure water needs accurately and prevent leaks.
- The absence of a database at both the municipal and the regional level detracts significantly from the possibility to provide information about achievements, available areas for green space and the history of specific plants and trees. I believe a comprehensive database for the parks and green space areas could help decision-makers to determine suitable development schemes.

8.2.2- Urban planning recommendations:

- The grid system is currently the dominant style in planning most Saudi cities. This affects the suitable distribution of space and residential blocks. It also reduces the chance of creating open space area types and limits the planners' visions in terms of design. Therefore, the urban planning system used in Saudi cities should be re-examined and adapted as needed.
- According to the dominant planning style of the majority of Saudi cities, the residential zones consist of square or rectangular blocks. Residential zones should be created between the residential blocks around the perimeter of residential parks, with space for children's playgrounds in the center. This layout provides safety for children and is convenient to the surrounding buildings. In addition, it creates a sense of privacy and is aesthetically pleasing.
- In Saudi cities, cars are the dominant form of transportation. In my opinion, separate pedestrian axial walking paths should be created which feature the required facilities and are suitable to the surrounding environment. This will help reduce the dominance of the car and its negative impact on the city's environment. These paths should be connected between the district centers to encourage walking in an attractive and suitable environment, which will reflect positively on citizens' health.
- Integration urban spaces and the planting systems used there. Open space areas within the quarters should be exploited as much as possible by reducing paved areas and increasing the use of plants to create more green space areas and meet residents' requirements.

- Coordinate with the owners of multi-story buildings and the municipality in order to reduce built-up areas to create green space areas between buildings which can be used by the residents of these buildings. These spaces could be irrigated by collecting the used soft water from these buildings after its treatment.
- Reexamine the urban design of regions allocated to be high-rise buildings to create open space areas which form a gathering point for residents and reduce crowding, improve the skyline and protect the local environment.
- Understand the importance of using a classification system for parks which is parallel in its local, regional and national criteria.
- Understand the importance of using geographic information system technology (e.g. GIS and Map_{Info}.) in studying and analyzing the distribution of parks and open space areas.
- Increase water bodies to help decrease high temperatures and absorb some environmental effects such as dust. In addition, water is an important element in urban aesthetics.

8.2.3- Recommendations for increasing green space areas

The allocation of green space areas in the selected Saudi cities does not exceed 8.7 m² per person in Medina while Riyadh, Jeddah and Tabuk have 3.33, 3.1 and 0.61 m² respectively. The international average lies between 21 and 42 m²/ person² although there are some cities, such as Malmo in Sweden, which have reached 300 m² per person.³ It is urgently necessary to increase green space areas in Saudi Arabia because of the effects of the dominant weather and the surrounding conditions.

- In Saudi cities, the mosque is considered a central gathering point because the urban plan usually places it in the center of the quarter as Muslims have five prayers a day and should pray in the mosques whenever possible. By cooperating with the Ministry of Islamic Affairs, landscaping the spaces surrounding mosques would create more green space instead of hard landscape such as asphalt, which is commonly used. An added benefit would be the improved appearance of the

2 - According to a study prepared by the team of the Ministry of Municipal and Rural Affairs / Deputy Ministry of Technical Affairs. 1994. Residential parks, p6.

3 - <http://ec.europa.eu/environment/europeangreencapital/docs/cities/2012-2013/malmoe-application.pdf> (pp 24) 15-12-2010.

mosques and their grounds. Furthermore, this would reduce expenditures, which should be shared between the municipality and the ministry.

- Crowded quarters which do not have allocated green spaces should use the courtyards of schools and public services buildings to create green spaces or municipal plazas to be used by the services in question during the day and opened to the public after school or working hours.⁴
- Saudi Arabia could greatly benefit from the solutions used in Japan to increase the area of green space in Tokyo.

The goal of the Japanese concept is to increase green space areas and decrease rising temperatures to make the city more attractive to tourists in addition to increasing recreational spaces and facilities. To this end, the Japanese government has issued regulations to involve both the private sector and local communities in caring for urban green spaces.

The result was the increase of green space by:

- Transforming underused space into small parks (e.g. rooftops)
- Temporary use of vacant land as parks for limited periods.⁵
- Nowadays, many high-rise buildings are put up as a solid mass without allowing for green landscape areas to beautify the area and increase the allocated green areas in the city. The private sector should be encouraged to leave suitable areas around their projects as green space, especially space lying along main streets and ring roads, in order to increase the green space area and improve the aesthetic appearance of the cities.

8.2.4- Suggestions to improve the Saudi cities' green space administration

In the last chapters, the research reviewed the situation of green space areas in selected Saudi cities, and examined the situation of green space area in Hannover, Germany in order to compare its administrative system the systems in place in Saudi Arabia.

4 - An experiment from the USA involving the relationship of schools and their role in providing parks and recreation facilities. (chapter -2)

5 - CABE Space, 2003. Is the Grass Greener...? Learning from international innovations in urban green space management.

It also discussed important factors that can help improve administrative procedures. The research chose the development of municipal parks in USA as an example of the development of parks because most of these ideas were adapted from European experiments. In addition, I review some of the case studies which deal with urban green space management.

- Take the benefit of the lessons from the experiment of other countries such as those mentioned in the report *Is the Grass Greener...? Learning from International Innovations in Urban Green Space Management*, which was issued by **CABE** Space. There may be differences in the conditions of the environment and social customs, but diagnosing and understanding problems will lead to solutions to many problems. In addition, Saudi Arabia can learn from the processes in place in these cities in order to solve problems.
- Establish exchanges and other programs between Saudi Arabia and other countries to gain experience in the field.
- Improve the administrative procedures which affect negatively on the development process.
- Increase employee qualifications in green space administration depending on the recruitment mechanisms concerning criteria such as specialization, experience and profession.
- Transmit experience between local municipalities.
- Establish twinning programs to exchange experience between Saudi cities and international cities with good ideas and experiences in the field.
- Increase ongoing training programs to increase the qualifications of green space administration employees.
- Encouraging creative people to participate in green space design and administration.
- Motivate the private sector to participate in field administration and the implementation of new plans.

To conclude this thesis, I hope that the information I have presented will prove useful. Furthermore, I would like this study to be applied as a diagnostic tool in analyzing the situation of parks and open space areas and their management in the selected Saudi cities. Finally, I hope my recommendations will assist in the development of parks and open space areas in my home country.

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