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DISSERTATION

Engineering Stewardship in Spatial Planning and Sustainable Communities in Oman.

Analysis, Guidance and a Case Study Connected to Tourism

ausgeführt zum Zwecke der Erlangung des akademischen Grades eines
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Univ. Prof. Dipl.-Ing. Sibylla Zech

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Begutachtung durch

Em. O. Univ.Prof. Mag.rer.nat. Dr.phil.

Jens S. Dangschat

Associate Prof. Dr. Yassine Charabi

Sultan Qaboos University

eingereicht an der Technischen Universität Wien Fakultät für Architektur und
Raumplanung

von

Rashid Saleh Muftah Al-Hinai

Matrikelnummer: 01229439

Newaldgasse 3/51, 1090 Wien, Österreich

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Zusammenfassung (German Abstract)

Einführung

Die vorliegende Dissertation stellt den Leserinnen und Lesern das Omanische Raumplanungssystem möglichst prägnant und umfassend vor, aufgrund des Mangels an wissenschaftlichen Arbeiten zur Raumplanung (spatial planning) im Oman eine bislang einzigartige Initiative. Sie reflektiert die wichtigsten planungsrelevanten Aspekte wie das Governance-System, Planungsbehörden, Pläne und Strategien und die Raumplanungspraxis sowie die dazugehörige soziale, ökonomische und ökologische Dimension. Obgleich die Dissertation verschiedene Seiten und Richtungen der Nachhaltigkeit in Bezug auf die räumliche Entwicklung wie die soziale, ökonomische und ökologische Dimension diskutiert, konzentriert sie sich stärker auf die Raumplanung und Raumordnung (physical planning) und die zugehörigen Governance-Elemente.

Struktur

Die Dissertation beginnt mit einer Untersuchung der allgemeinen Charakteristika und des historischen Hintergrunds des Untersuchungsgebiets Oman, um das Wissen über diesen Raum zu erweitern und mögliche Einflüsse, die das bisherige Planungssystem des Landes beeinflusst haben könnten, zu ermitteln. Danach werden mehrere Seiten und Aspekte in Bezug auf die Raumplanung präsentiert und diskutiert, um einen Überblick über die aktuelle Situation des Planungssystems zu geben. Anschließend geht die Dissertation zu einer fachlichen Analyse über, um die Raumplanung im Oman im Detail zu studieren und zu bewerten, dies anhand der Nachhaltigkeitsdimensionen als Wegweiser für die Analyse. Diese Bearbeitung erfolgte, um zu verstehen und zu ermitteln, bis zu welchem Grad die Planungsprozesse und die Planungspraxis mit Nachhaltigkeit verbunden sind. Basierend auf dieser Analyse und ausgewählten Faktoren und Variablen stellt die Dissertation drei Szenarioansätze für die künftige Entwicklung des Raumplanungssystems vor: einen Basisansatz (basic), einen Ansatz des Überganges (transition) und einen Ansatz zur Nachhaltigkeit (sustainability). Zum Abschluss bietet die vorliegende Arbeit eine tourismusorientierte, räumliche Fallstudie, um die Beziehung zwischen Raumplanung und anderen Planungssektoren anhand eines Beispiels (Tourismus) zu zeigen. Obwohl alle drei Hauptplanungsebenen (national, regional und kommunal) für die Raumplanung wesentlich sind, verdeutlicht die Fallstudie die Bedeutung von örtlicher Raumplanung, um nachhaltige Gemeinwesen in sensiblen Gebieten zu erhalten und zu entwickeln.

Methodik

Um die Aussagekraft dieser Dissertation zu verstärken und eine angemessene Antwort auf die drei Teile der Forschungsfrage *Ist das Raumplanungssystem im Oman nachhaltig? Wie kann es nachhaltig verbessert werden?* und *Was sind die Anforderungen, um nachhaltige Gemeinwesen im Oman zu schaffen?* zu bieten, war es konsequenterweise sehr wichtig, unterschiedliche Forschungsmethoden und -techniken wie quantitative, qualitative, analytische und vergleichende Methoden zu verwenden. Die Technik synchroner Zeitleisten wurde verwendet, um die Realität des Raumplanungssystems einschließlich des institutionellen Rahmens, der rechtlichen Instrumente, Standards, Pläne und Strategien zu untersuchen und einen Überblick zu geben. Diese Technik war sehr hilfreich, um Kernpunkte, Wirkungen und Defizite des Omanischen Raumplanungssystems zu identifizieren und hervorzuheben. Darüber hinaus wurde die Technik der SWOT Analyse verwendet, um die Ergebnisse der Detailanalyse des Omanischen Raumplanungssystems zusammenzufassen. Dies war auch eine wertvolle Orientierungshilfe, um das Verhältnis des Omanischen Planungssystems zur Nachhaltigkeit zu verstehen und Stärken, Schwächen und

mögliche Chancen zur Verbesserung zu ermitteln. Zusätzlich wurden über eine szenariobasierte Arbeitsweise voraussichtliche Zukunftspfade der Raumplanung simuliert und entworfen. Als Fallbeispiel wurde die Stadt Muttrah einbezogen, um den unmittelbaren Zusammenhang zwischen Raumplanung und anders ausgerichteten Planungen - wie die Tourismusplanung - darzustellen und die Bedeutung der Entwicklung nachhaltiger örtlicher Raumpläne (local plans) für tourismussensible Gemeinden zu zeigen.

Ergebnisse

Die Geschichte des Oman zeigt, dass die moderne Entwicklung erst mit dem Jahr 1970 begonnen hat. Davor bestand ein erhebliches Maß an politischer und ökonomischer Instabilität, Analphabetismus und sozialen Konflikten. In der Folge wird der Schluss gezogen, dass die Raumplanung über Jahrzehnte unter unklaren Zukunftsperspektiven und häufigen Änderungen der institutionellen Rahmenbedingungen gelitten hat. Darüber hinaus geben die Detailanalyse und -bewertung einen Überblick über die Omanische Raumplanung und die Themen und Herausforderungen der Raumentwicklung. Demzufolge hat das Land großes Potential, (1) den Grad der Berücksichtigung von Umweltbelangen zu verbessern, (2) die bestehenden Landnutzungskonflikte zu lösen und eine ausgewogenere Siedlungsstruktur zu erhalten, (3) die rechtlichen Raumplanungsinstrumente, Standards und Bestimmungen zu erweitern, (4) die Ineffizienz der Methoden der Landverteilung und des Landmanagements zu verbessern, (5) mehr räumliche Planungen und Studien auf allen Planungsebenen zu entwickeln, (6) die technische Planungskompetenz zu steigern, (7) die Zusammenarbeit zwischen den Planungsbehörden zu verbessern und (8) die Partizipation von lokalen Gemeinden in die Planungsprozesse aufzunehmen.

Die Dissertation schließt mit der Präsentation von zwei Sets von Richtlinien und Empfehlungen. Das erste bezieht sich auf die Verbesserung des gesamten Raumplanungssystems des Oman. Dieses Set von Richtlinien und Anleitungen ist darauf ausgerichtet, das Governance-System aufzuwerten, die Raumplanungshierarchie zu verbessern, das Rechtsinstrumentarium und zugehörige technische Studien zu erweitern, Landverteilungs- und Landmanagementmethoden zu verbessern, ein zentralisiertes GIS System in Betracht zu ziehen, eine effiziente Arbeitsumgebung zu kreieren, die fachlichen Kompetenzen auszubauen, verschiedene Nachhaltigkeitselemente und -maßnahmen zu berücksichtigen und die ökologische Effizienz von Prozessen und Praktiken zu erhöhen. Das zweite Set von Richtlinien und Empfehlungen behandelt die Planung von Gemeinden, die der Tourismusindustrie gegenüber sehr sensibel sind. Dieses Set ist stärker an die Örtliche Raumplanung (local planning) gerichtet und berücksichtigt vier Schwerpunkte: das Governance-System, die Analyse von lokalen Gegebenheiten, die räumliche Nachhaltigkeit und die touristische Nachhaltigkeit.

Insgesamt versucht diese Dissertation die Erfahrung der Raumplanung in einem Gebiet mit rasanter Entwicklung und starkem Stadtwachstum, zu einem Zeitpunkt wo das Raumplanungssystem noch viele Mängel aufweist und unter verschiedenen Schwierigkeiten und Problemen leidet, darzustellen. Die Dissertation versucht auch eine eigenständige Methode der Analyse und Bewertung von Raumplanungssystemen zu bieten und schließt mit realitätsbezogenen Resultaten und entsprechenden Lösungen oder Zugängen zu Lösungen, um den Grad der Effizienz und der Nachhaltigkeit der Raumplanung und der Praxis der räumlichen Entwicklung in Gebieten mit ähnlichen Gegebenheiten zu steigern.

Abstract

Introduction

As a unique initiative and due to the scarcity of academic writings on spatial planning field in Oman, this doctoral thesis introduces Oman spatial planning system to its readers with some concision and comprehensiveness. It sheds light on the main local aspects related to spatial planning and spatial development. It reflects on most of the important dimensions related to this field such the governance system, spatial planning authorities, plans and strategies, physical planning practices, and the related social, economic, and environmental dimensions. Although the thesis discusses the various sides and directions of sustainability in relation to spatial planning such as environmental, economic and social dimensions, it concentrates more on the physical planning direction and the governance related elements.

Structure

The thesis starts with studying the general characteristics and historical background of Oman as a study area in order to provide some knowledge about this area and find out the possible influences affected previous policies relevant to spatial planning system in the country. Then, it presents and discusses the various facets and aspects related to spatial planning to overview the current situation of this planning system. After that, the thesis goes into more technical analysis by studying and assessing Oman spatial planning in detail by taking into consideration the sustainability dimensions as a basic guide for this analysis. This was carried out in order to understand and determine to what extent the planning processes and practices are connected to sustainability. Based on this analysis and some determinants and variables, the thesis also presents three scenario approaches for the future expected path of spatial planning system; a basic approach, a transition approach, and a sustainable approach. At the end, it provides a tourism-oriented spatial case-study to demonstrate the relationships between spatial planning and other planning sectors such as tourism. Although the main three planning levels (national, regional and municipal) are important in spatial planning, this case-study in turn clarifies the significance of local planning for maintaining sustainable communities in sensitive areas.

Methodology

In order to enhance the strength of this doctoral thesis and provide a convening answer for the three parts of the research question '*Is spatial planning system in Oman sustainable? How it can be improved sustainably? And what are the requirements to create sustainable communities in the country?*', it is very important to use several research methods and techniques such as quantitative, qualitative, analytical, and comparison methods. A timeline synchronistic technique was also used to study and overview the reality of spatial planning system including its institutional framework, legal instruments, standards, plans, and strategies. This technique is very useful in identifying and highlighting the main issues, impacts, and area of spatial planning deficiencies in Oman. Moreover, a SWOT analysis technique was used to summarize the results of the detail analysis related to Oman spatial planning system. This is also a useful guiding tool to understand the relation between Oman spatial planning and sustainability,

and determine its strengths, weaknesses and the available opportunities for improvement. In addition, a scenario-based technique was used to simulate and draw some expected paths for spatial planning. As a technical case-study, Mutrah city was also included to overview the direct connection between spatial planning and the other planning directions such as tourism planning and show also the importance of developing sustainable local plans for communities that have tourism sensitivity.

Results

As some of the results, the history of Oman shows that the modern development in the country has only started since 1970. Before then, there was a considerable level of political and economic instability, illiteracy, and social conflicts. In addition, it is concluded that spatial planning has suffered for decades from unclear visions and frequent changes on its institutional framework. Moreover, The detail analysis and assessment overviews some of Oman spatial planning and spatial development issues and challenges, and accordingly the country has high potential to; (1) improve its level of environmental consideration, (2) solve the existing land-use conflicts and maintain more balanced urban structure, (3) enhance its spatial legal instruments, standards and regulations, (4) enhance the inefficiency of its lands distribution and management methods, (5) develop more spatial plans and studies among all levels of planning, (6) raise spatial planning technical skills, (7) improve the collaboration between planning authorities, and (7) include the participation of local communities in the planning processes.

The thesis ends up with presenting two sets of guidelines and recommendations. The first is related to the improvement of the overall spatial planning system in Oman. This set of guidelines and instructions is directed to upgrade the governance system, improve the spatial planning hierarchy, enhance the legal instruments and related technical studies, improve lands distribution and management methods, consider a centralized GIS system, create efficient working environment, upgrade the technical skills, consider the various sustainability elements and measures, and improve the environmental efficiency of processes and practices. The second set of guidelines and instructions deals with planning communities that are highly sensitive to tourism industry. This set is more directed to the local planning level and takes into account four main areas; the governance system, the analyses of local conditions, the spatial sustainability, and the tourism sustainability.

All in all, this thesis tries to present a complete spatial planning experience in an area with accelerated development and high urban growth at the time that its spatial planning system is still having many deficiencies and suffering from a variety of obstacles and difficulties. The thesis tries also to provide a unique style and method for analyzing and assessing spatial planning systems and ends up with more realistic results, and accordingly presenting solutions or solutions' entrances to raise the level of efficiency and sustainability of spatial planning and spatial development practices in areas that have similar conditions.

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I dedicate this work to the spirit of my mother who passed away during my doctoral study Journey, who was the mother, the inspire, the hope, and the motive behind pursuing my doctoral program. May Allah bless her and send her to the paradise.

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Abbreviations

AER	Authority for Electricity Regulation
BRE	British Research Establishment
BREEM	British Research Establishment Method
EIA	Environmental Impact Assessment
EIU	Economist Intelligence Unit
GCC	Gulf Cooperation Council
GDP	Gross Domestic Products
GIS	Geographical Information System
GSCI	Global Sustainable City Index
IEA	International Energy Agency
ISWA	International Solid Waste Association
IUCN	The International Union for Conservation of Nature
MECA	Ministry of Environment and Climate Affairs
MoT	Ministry of Tourism
MOTC	Ministry of Transport and Communications
NCSI	National Centre For Statistics and Information
OECD	Organization for Economic Cooperation and Development
ONSS	Oman National Spatial Strategy
PAEW	Public Authority for Electricity and Water
ROP	Royal Oman Police
SCP	Supreme Council for Planning
SCTP	Supreme Committee for Town Planning
T&T	Travel and Tourism
USGBC	United States Green Building Council
WTTC	World Travel and Tourism Council

1. Introduction

Terrestrial and marine environments (including, lands, natural habitats, and other nature elements) as well as existing built environment are all shared resources which should be wisely utilized by human beings to serve their current needs and preserve the equity of the coming generations as well as the equity of the other living organisms in the globe. High urbanization and population growth, rising living standards, continuous increase of human needs, and the environmental issues caused by human practices derive a force to move much more towards sustainable planning.

As it was noticed from the research, sustainable planning is an approach that aims to guide the development in a sustainable direction and present alternative solutions to the existing and predicted problems resulting from human use of land and natural resources. It works under a clear framework of policies and strategies that take into consideration the implementation periods, the available resources and opportunities, and the current and future constraints associated with human activities, culture, or nature. Planning in general has to be holistic and flexible in order to enable governments and planning authorities to accumulate the relevant issues and challenges. In addition, there should be long-term integrated strategies for developing communities and areas. These strategies enable the governments to take the right direction in providing the services and utilizing the resources in the best manner. There should be also a sort of coordination between the available resources and opportunities in order to achieve long-term goals and objectives.

Sustainable planning, on the one hand, creates visions and road maps for communities to achieve successful development based on pre-prepared aims and implementation procedure. On the other hand, it saves a lot of efforts and costs required to deal with the negative impacts, issues and problems. Within this modern planning orientation, sustainable spatial planning could be considered as one of the physical methods that aims to evaluate urban, regional, municipal or local development and present engineering solutions for the problems related to the built environment including urban and regional land-use issues as well as infrastructure problems. Successful countries and regions work continuously in developing creative methods to provide sustainable modern structures that match their geographic, economic, cultural, and political conditions.

In Oman, due to the rapid growth of population and expansion of business and industries, the demand for natural resources and open spaces is continuously increasing at the time where the whole country suffers some shortage in its resources. Oman is distinguished with its fast social, economic and urban development that is seen in all sectors. Accordingly, the growing aspects related to spatial planning and built environment are noticed to be very wide and diverse. Along with the various types of challenges, difficulties and obstacles (which are going to be clarified in the following chapters), all planning directions other than sustainable spatial planning would not serve the needs of people in Oman, preserve the share of future generations, or conserve the environment and natural habitats. According to Albrecht (2017), the traditional way of planning is a more localized, pragmatic and passive planning which usually controls and steers the spatial development in a direction that have limited visions.

For this reason and due to the scarcity of scientific and academic studies in Oman related to spatial planning, this study is presented as a unique initiative to discuss, and analyze

the spatial planning system of the country, and present guiding solutions to improve spatial planning conditions and create sustainable communities.

1.1. Background of the Research Issues

From personal practical experience in the governmental sector in Oman, we noticed that there is a need for a steward thinking in order to improve the planning practices and keep on track with the existing and upcoming national plans and visions (such as Oman five-year national development plans and the 2020 and 2040 visions).

In addition, although sustainability, as a concept, was noticed to be floating here and there in the official documents and official speeches, the real understanding or implementation of this concept might be not yet realized. The following points represent some of the issues related to this study:

- Narrow vision in utilizing national resources (lands, water, electricity, etc.).
- Land-use conflict and unbalanced urban structure.
- Short-term thinking in developing areas and spaces.
- Built environment and infrastructure planning is not effective to consider surrounding impacts to environment, society and economy.
- The regulations and legal frameworks that support sustainable development could be insufficient and limited.
- The initial expenses play a key role in controlling the wheel of development. Therefore, long-term benefits and impacts might be not effectively considered.
- Inaccurate distribution of planning responsibilities between stakeholders.

All of these issues motivated this research in order to discuss the various aspects related to spatial planning in the country.

1.2. Research Question and Objectives

This study attempts to negotiate, analyze and evaluate spatial planning system in Oman. It is intended to provide a convincing answer for this question; *'Is spatial planning system in Oman sustainable? How can it be improved sustainably? And what are the requirements to create sustainable communities in the country?'*

The following points reflects the main objectives of the study:

- Study the history and the main characteristics of Oman as a research area and overview the related influence on spatial planning.
- Analyze and evaluate the development of the land-use institutions and clarify the institutional development over time.
- Analyze and assess the governance system, the associated legal frameworks, and existing plans and studies.
- Analyze and assess environmental, social, and economic conditions that are directly or indirectly linked to spatial planning.
- Conduct a SWOT analyses to show the strengths, weaknesses, opportunities and threats related to spatial planning field.
- Create scenario approaches for the future path of spatial planning and demonstrate the alternative expectations.
- Develop and provide guidelines and solutions to improve spatial planning.

- Include and discuss a tourism-oriented spatial case study to overview the relation between spatial planning and tourism as an example for economy sector.
- Develop and provide guidelines to improve local planning and create sustainable (tourism- oriented) communities.

1.3. Scope and Limitations

This study aims to investigate spatial planning system in Oman and tries to locate its system in the sustainability map through analyzing and evaluating the various dimensions and elements of spatial planning. It starts with clarifying the current planning system, responsible authorities and working mechanisms and practices. Then, it tries to discuss the relationship between current planning practices and sustainability dimensions. It also extracts the issues and problems related to spatial planning. As a result, the study concludes with some guidelines and instructions to improve spatial planning and create sustainable communities.

Although the study discusses the various sides and directions of sustainability in connection with spatial planning such as environmental, economic and social dimensions, it concentrates more on the governance system and the physical planning practices than other dimensions (analyzing all fields in depth requires several detail studies which are beyond the volume of the doctoral research).

1.4. Methodological Platform

This study is a multidisciplinary comprehensive investigation combining several research techniques and methods such as analytical, empirical and comparison methods. The idea of thinking globally and acting locally is considered as a general technique in the preparation of this work. In addition, for enhancing the quality and credibility of the study, meetings and interviews were conducted with technical people to understand the various aspects related to Oman spatial planning. Briefly, the following points clarify some of the main methods and techniques used in this research:

- Analyzing the political system and the history using a timeline method.
- Discussing the reality of spatial planning system and spatial development using a timeline synchronistic method and studying the laws, technical documents, and plans quantitatively and qualitatively.
- Analyzing and demonstrating statistics and quantitative information using various graphical data display techniques.
- Evaluating and assessing spatial planning system in relation to sustainability using SWOT analysis method.
- Simulates the future path of spatial planning using alternative scenarios method.
- Demonstrating the connection between spatial planning and sectoral planning using a technical case-study method.

1.5. The Structure of the Thesis

This thesis consists of eight main chapters. This first *chapter* is an introduction and sheds light on the nature of the thesis, the research problems, the scope and limitation of the study, the research objectives, as well as its methodology and its structure.

Chapter Two provides relevant definitions and scientific background related to the field of study. It defines spatial and land-use planning and presents a brief account on the related governance and tools. It overviews the widely used environmental terms such as green, resilient and sustainable. It discusses spatial sustainability and sustainable communities. It overviews the global awareness on the efficiency of built environment. As one of the sectors, it elaborates also on tourism industry and the relation between spatial planning and tourism.

Chapter Three discusses the characteristics and the historical dimension of Oman as a study area. It elaborates on the political system, administrative structure, geography, meteorology, and society characteristics. It negotiates also the historical depth of the country and the critical historical periods that the area passed through.

Chapter Four overviews spatial planning and spatial development in Oman. It discusses many topics such as the government structure, land-use authorities, plans and strategies, legal framework, and planning standards.

Chapter Five is a comprehensive analysis of the spatial planning system that takes into account sustainability dimensions. It analyzes and evaluates the system based on several indicators in different areas such as governance, built environment, infrastructure, natural environment and social-economic fields. The results of the analysis are also demonstrated in a SWOT form.

Chapter Six presents three approaches for the path of spatial planning in Oman. The first one is a basic approach, which simulates the condition in case there is no improvement in the planning practices. The second two is the transition approach which predicts some considerable improvement to be occurred in the planning sector. The Third is the sustainable approach, which simulated the condition where the planning system is taking a sustainable direction. This chapter provides a variety of guidelines and suggestions to improve Oman spatial planning system and maintain spatial sustainability.

Chapter Seven is related to local planning and deals with tourism-oriented sustainable communities. This chapter clarifies the relation between spatial planning and other sectors by presenting and analyzing a related case study. It takes into account the case of Mutrah city to demonstrate the importance of sustainable local planning for sensitive areas such as for communities that are sensitive to tourism. The chapter ends up with a set of guidelines and recommendations for preparing sustainable local plans for this type of communities.

Chapter Eight which is the last one the conclusion. It clarifies the answer of the research question and provides relevant recommendations for the future works in the field of study.

2. Definitions and Scientific Background

This chapter aims to provide definitions and information related to the field of study. It gives a background about spatial and land-use planning and the related governance and tools. It overviews ‘*sustainable*’ similar often used terms or concepts and provides a basic understanding on spatial sustainability and sustainable communities. It also sheds a light on the global awareness related to the efficiency of built environment. It concludes with tourism industry, types of tourism, its relation to spatial planning and the sensitivity of communities to tourism.

2.1. Spatial and Land-use Planning

Spatial planning and land-use planning are two widely used scientific terms associated with physical planning and physical development. It is observed from the research that spatial planning, land-use planning, and also urban planning (which could be described as spatial planning for urban areas) are used in an exchangeable manner to describe similar planning methods. This reflects in a way or another the different understandings, aims and purposes of planning authorities and organizations. In this regard, Gurran (2011) say that all of these planning terms are used to refer a formal process for regulating the use of lands and spaces and the development of build environment at the same time.

Spatial planning is the broader and the more integrated term (Larsson, 2006), which includes the other branches such as land-use, urban, regional, infrastructure, and environmental planning. It refers to the strategic orientation of planning (OECD, 2017a), and also to the method used by private and public planning authorities to organize the distribution of people, activities, businesses and services in various spaces and deferent scales. According to Koresawa and Konvitz (2001), the understanding and implementation of spatial planning differs from country to country. In addition, Morphet (2010) added that spatial planning does not have a common definition that has a global agreement on it. However, it has three main common characteristics. First, it provides long or medium-term strategies for land-use and physical development. Second, it operates at various levels; national, regional and municipal levels. Third, it supports the integration of policies and practices including the sectoral planning ones.

On the other hand, land-use planning is the main branch of spatial planning and could be considered as the basis of physical planning practices and processes. Land-use planning is a more direct term and it is restricted and limited in its meaning to the designation, distribution and management of land-use. According to the International Society of City and Regional Planners, land-use planning is defined as the process for promoting and regulating the use of lands and buildings (Gurran, 2011, p. 15).

Spatial planning in its new form is a strategic planning approach which aims to maintain on one side long-term visions, and on the other side short-term actions and practices. It is an interconnected spatial, social and economic process through which cities and regions are shaped and organized (Albrechts, 2017; Andreotta, 2017; Healey, 2006). Due to its strategic orientation, interconnection and inclusiveness, spatial planning could be considered as “*a set of concepts, procedures and tools*” (Albrechts & Balducci, 2017, p.

20). Albrechts (2017) clearly stated that the common objective behind using strategic spatial planning is to:

“construct a challenging, coherent and coordinated vision, to frame an integrated long-term spatial logic (for land-use regulation, for resource protection, for sustainable development, for spatial quality, sustainability, equity, etc.) to enhance action-orientation beyond the idea of planning as control, and to promote a more multi-level type of governance” (p. 5).

In addition, Healey (2006) stated that spatial planning is a collaborative strategic planning approach that leads policy making and implementation to be better-coordinated and more knowledgeable, creative and inclusive where the various planning actors and stakeholders participate directly in the planning process. She showed that spatial planning involves two level of governance. The first one is related to *“the design and operation of the planning systems”* and the second one is related to *“the design and operation of the planning practices”* (p. 72)

In Oman the idea of strategic planning has arisen since the mid of 1990s when *Oman 2020* was announced in 1996 as the first national long-term vision or strategy for the country and defined goals that are desirable to be achieved by the year 2020 (see section 4.5.2 for more information). *Oman 2020* is intended to be a strategic plan to guide the country towards sustainable and more diversified economy. However, in spatial planning, Oman is currently developing its national spatial strategy (*Oman National Spatial Strategy*) which is proposed to guide spatial development in the country to be more systematic and organized (see also section 4.7.1). In addition, the spatial planning processes in Oman are taking more traditional culture of collaboration and coordination. The idea of collaborative strategic planning (where planning actors have direct roles in the planning process) could not be yet implemented.

2.2. Governance of Spatial and Land-use Planning and Its Supporting Tools

A good planning system relies on a good governance system. Governance of planning is essential to maintain a balanced relationship between public and private interests (OECD, 2017a), control the planning processes, and reduce the associated conflicts and impacts. Based on a clear planning hierarchy, the governance system organizes and regulates the planning processes among the various governmental levels from the national level down to the municipal and local levels in a more systematic and integrated vertical relations (both top-down and bottom-up relations). The governance system organizes also the horizontal relations between spatial planning system and the other sectoral planning systems as well as the horizontal coordination with sectoral strategies and policies. Land-use strategies and policies are the general guiding tools in spatial planning. Based on these policies and strategies, the vision of spatial planning is maintained, and the related objectives and goals are defined.

Spatial planning is usually supported with a legal framework that includes a set of laws, regulations and standards. These legal instruments outline the roles and duties of planning authorities in the planning processes and practices (OECD, 2017a). The legal framework supports the governments to shape and control the path of spatial development. However, some flexibility should to be maintained in the regulations and standards in order to respond to the rapid growth of population, the growing demand for

affordable housing, and the various demographic and economic aspects. In addition, and as essential tools, spatial and land-use plans are highly important in this type of planning. The spatial plan is a more general and integrated one and aims to arrange the patterns of human activities within defined spaces and areas which may include or exclude prescribing the land uses. On the other hand, the land-use plan is a more specific one, and it aims to organize and manage land uses within defined locations (OECD, 2017b). Moreover, digital spatial data, cadaster maps, and the implementation of GIS and remote sensing technologies are among the most important supporting tools of spatial planning. According to Larsson (2006), the implementation of GIS systems and the availability of land-use, socio-economic, environmental, and geographical digital data are very important for spatial planning.

The availability of land management methods and mechanisms are also necessary to control spatial development and organize the expansion of cities and regions in a more systematic manner. These usually contain several measures to organize the development of lands and prevent the existence of undeveloped spaces within cities. They also include measures to organize the associated taxes (Ganser & Mattei, 2018), penalties for undeveloped lands, and the expropriation procedure of lands for infrastructure and public services or for other reasons based on the local laws of countries. Land ownership mechanisms are also important tools to manage the property and ownership of lands (Larsson, 2006). In addition, public participation mechanisms are essential tools for spatial governance (OECD, 2017b; Gurrán, 2011). According to OECD organization, stakeholder involvement is implemented in spatial and land-use planning in most of OECD countries, and the results showed that there is a degree of public influence in the planning processes (OECD, 2017b). Thus, all of these tools and mechanisms are among the most helpful instruments that support decision making in spatial planning, define its limits and orientations, and deal with various planning aspects.

2.3. Environmentally Oriented Terms in Planning and Development Field

Nowadays several terms are useful in the environmental field express the environmental efforts in planning and development. Hence, this section sheds a light on the definitions of *green, eco, smart, resilient and sustainable* as often similar environmentally oriented terms or expressions. It also clarifies the motive behind using the term '*sustainable*' as a main term in this research.

Green

This term, is an adjective representing indirectly the human respect to the natural environment. Greening of communities reconnects people with nature (Van der Ryn & Chowan, 1996). The term has been widely used since long time in the field of planning and development to represent in deferent ways the harmony between physical structures, people and natural environment. For instance, Ferry (1999) defined green city as a settlement surrounded by green areas and has limited number of social, cultural and economic activities as well as limited population. Similarly, Charles (2012), defined green settlements as structures created using sustainable construction principles that promote high efficiency resources, healthy environment, and healthy facilities.

Eco

This is another environmental term. It is a prefix derived from the Greek origin word that stands for the term 'house' (Park & Allaby, 2017). In the planning and development field, eco is used as a prefix to other terms such as city, project, and development to represent the friendly relationship between the physical structures, people, and the surrounding environment. For example, David (2008) clarified that eco-cities are sustainable communities planned for the future which have sustainable features such as the conservation of natural resources, the use of renewable energy sources, the reduction of pollution and emissions, and the recycling and reuse of solid waste. In addition, Ecocity Builders (2017) defined eco-city as '*An ecologically healthy human settlement modeled on the self-sustaining resilient structure and function of natural ecosystems*'.

Smart

Smart is an adjective representing an intelligent, bright, clean, and fashionable face of someone or something (Stevenson, 2010). Smart city, for example, is a term used for branding locations and areas that promote quality of life, quality of economy, quality of people, quality of infrastructure, and quality of environment. Smart city, to some extent, is a sort of sustainable development which provides an information exchange of best practices for renewing areas and regions. Donald (2001) stated that this kind of development concentrates on providing social cohesion, quality human services, quality living environment, community safety, public infrastructure, and Affordable housing. In addition, Thite (2011) clearly marked that regions develop competitive advantage based on their ability to mobilize the best people, resources and capabilities required to turn innovations into new business ideas and commercial products. As a good example, and according to Vienna smart city strategy, the meaning of the concept smart city to Vienna is "*modernization, upgrades and technological as well as social innovations in the fields of energy, mobility, infrastructure and buildings*" (City of Vienna, 2014, p.8).

Resilient

This term means the ability of a substance or object to spring back into shape (Stevenson, 2010). In planning and development field, resilience has recently emerged to promote the idea of adaptation and recovery. The concept of resilient planning is a path for the socio-economic revival of areas and communities (Raco & Street, 2012). From an ecological prospective, Folke (2006) defined resilience as the capability of ecosystem to sustain shocks and maintain function. Similarly, Manyena (2006, p. 446) stated that resilience is "*the capacity of a system, community or society predisposed to a shock or stress to adapt and survive by changing its non-essential attributes and rebuilding itself*".

Sustainable

This adjective associated with development is used to describe community growth in terms of meeting the needs of current human life without affecting the needs of future generations (Park & Allaby, 2017). In the area of build environment, Holm (2003) pointed out that structural sustainability has three dimensions; (1) How structures affect the environment at local, regional and global levels, (2) how environment, environmental regulations and utilization of natural resources affecting back structures, and (3) how structures sustain possible impacts of human activities or climate change. Furthermore,

Charles (2012) argued that sustainable development is the most comprehensive way of development that addresses ecological, social and economic issues. In addition, according to the United Nations (1987), sustainable development is defined as “*a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations*” (p. 43).

Although it is not easy to differentiate between *green, eco, smart, resilient and sustainable* as terms that are linked with planning and development, they reflect, to an extent, visions of various types of users, their orientations and their targets required to be achieved. These terms are used in an exchangeable manner between scholars and planners. In short, *Green* is observed as the origin of all terms and is more associated with energy efficiency and wise consumption of natural resources. *Eco* is a similar term, and it is a more scientific expression representing the environmental consideration. *Smart* is a more modern term that has a marketing value and has used to demonstrate the innovation and intelligence of planners, engineers and developers for branding products and locations with high environmental and socio-economic standards. *Resilient* represents the flexibility and mutability of environmental and socio-economic characteristics of communities to sustain shocks and recover back quickly. *Sustainable* is an integrated term and this gives more consideration to ecological, social and economic dimensions. In this thesis, the concept or the term ‘*sustainable*’ is used due to these following reasons:

- First, it is more appropriate term in spatial planning to consider complex issues and give more attention to areas such as urban and regional land-use balance, activities distribution, environmental aspects, socio-economic aspects, and predicted impacts related to human activities, culture, nature, or climate change.
- Second, there is an international concern on sustainable planning and development. The United Nations held since more than two decades a relevant international conference (the Earth Summit) in Rio in 1992 to promote sustainable planning and sustainable development. According to the Agenda 21 (United Nations, 1992), there was an international agreement to consider working in many areas such as improving social, economic and environmental quality of human settlements, promoting sustainable land-use planning and international exchange of experience and information in land management, improving urban environment, and encouraging the participation of communities in planning and development. In addition, in 2015 the United Nations adopts the 2030 Agenda for Sustainable Development which provides 17 new sustainable goals. These goals emphasize for example, insuring the sustainability of cities, human settlements and infrastructure, insuring the protection of natural environment and ecosystems, maintaining sustainable economic growths, and maintaining a sustainable management for energy and water resources (see United Nations, 2015 for more information about the 2030 Agenda for Sustainable Development).
- Third, Oman capability to move towards sustainable planning and sustainable development. From the personal experience and research, the concept (sustainable) was found in the official initiatives and speeches, the recent efforts of authorities, and the official documents and studies including the national strategies and plans.

2.4. Spatial Sustainability and Sustainable Communities

Spatial Sustainability

According to the literature, the three main parameters of sustainability are society, economy, and environment (Arcades, 2016; Amarjit, 2014; Thiele, 2013; Charles 2012; Eales & Sheate, 2011). Bill and Lane (2009) stated that Hamilton and his colleagues defined sustainability in relation to spatial development as “*the process of developing a built environment that meets people’s needs whilst avoiding unacceptable social or environmental impacts*” (p.567). In addition, Nadin (2001) argued that sustainability, from a spatial planning perspective, have several connotations and dimensions such as (1) integration of policies, (2) prevention of urban sprawl, (3) enhancement of built environment quality, (4) reduction of energy and water use, (5) preservation of historical identity, (6) enhancement of mixed-use development and linking activities, (7) enhancement of natural environment and green cover, (8) creation of more open spaces, (9) insurance not to exceed carrying capacities, (10) insurance of self-sufficiency, (11) monitoring and mitigation of negative impacts, (12) enhancement of stakeholder participation, and (13) upgrading of local skills.

Sustainable Communities

The term ‘*community*’ remains complicated and problematic (Muthuri et al., 2012), however, it basically refers to a group of people sharing identified geographical location or space and having social and economic relationships (Muthuri et al., 2012; Delanty, 2009; Gottdiener & Butt, 2005). The group’s physical territory or geographical area is recognized as one of the main pillars of the community (Palmisano, 2001) and this physical territory may include lands, human settlements as well as natural environment.

Furthermore, the concept ‘*Sustainable Community*’ was developed only over the last decade (Bill & Lane, 2009) and the international thinking on sustainable communities has grown very quickly to include many dimensions or areas of adaptation and innovation. For example, Egan wheel below demonstrates the dimensions of sustainable communities.

In addition to the personal research and knowledge about spatial planning, spatial sustainability and sustainable communities, Egan Wheel provides, in a simple form, a level of understanding about the relevant indicators related to the spatial sustainability of communities and areas. All of these were helpful in formulating a platform for analyzing and assessing spatial planning system in Oman which is provided in Chapter Five in this thesis.

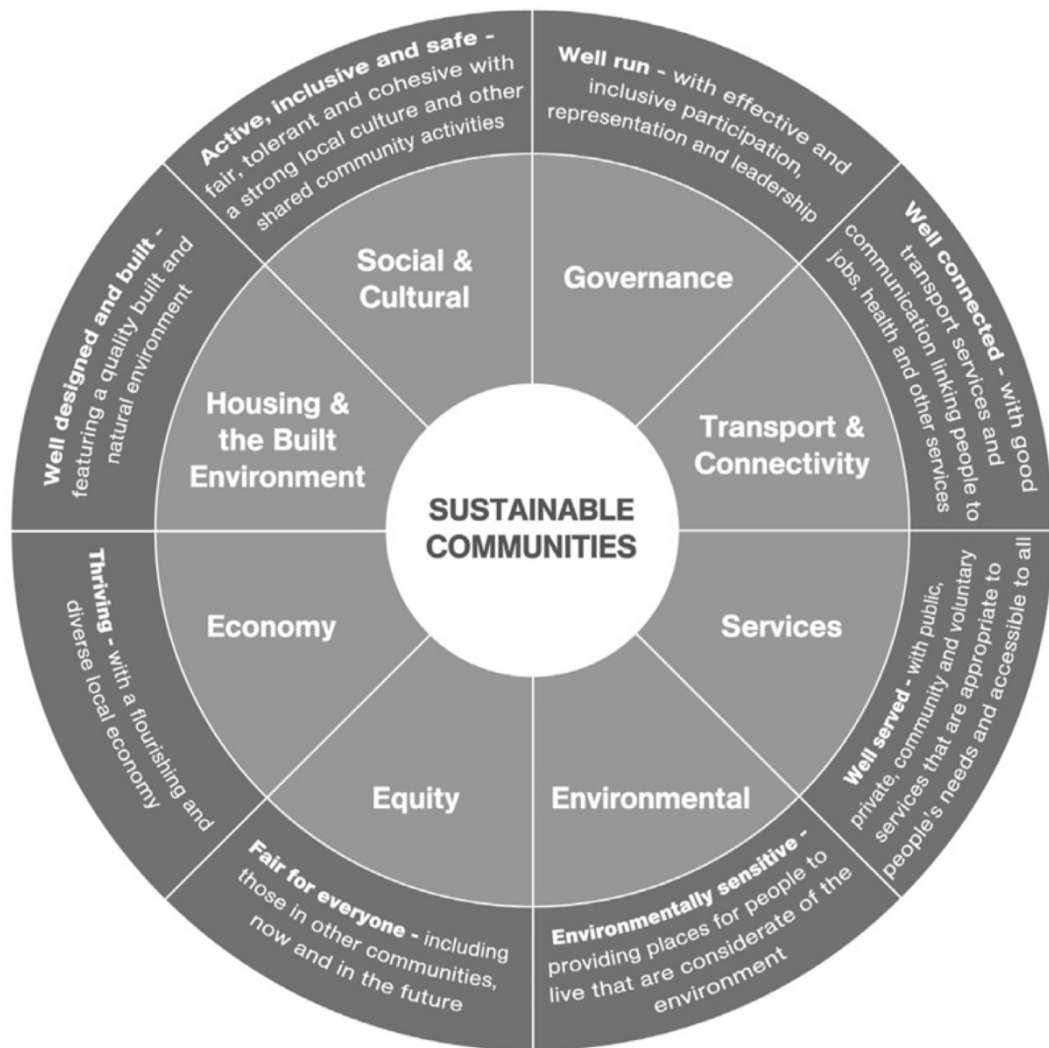


Figure 2.1: Egan wheel for sustainable communities (Bill & Lane, 2009).

2.5. The Global Awareness Related to the Efficiency of Built Environment

Due to the high economic growth, hazards of greenhouse gases, risks of climate change and depletion of natural resources, a lot of countries have already started since decades to move towards an innovative type of development that incorporates energy efficiency, renewable energy practices, waste management, pollution prevention and conservation of natural resources. In addition, many of these countries have also started to consider wise and sustainable practices within their planning systems as well as their strategies and policies in order to direct the development of areas and spaces to be more sustainable and integrated. The various global efforts in this field represent the high concern given to natural lands, resources, and pollution generated from current human activities.

Through looking into the environmental efficiency efforts of countries, it is clear that from the 1980s green initiatives have started to take place in the world. Kruger and Seville (2002) mentioned that one of the first organized energy efficiency programs was Austin Energy’s residential energy efficiency program which was founded in 1985 to promote energy saving. In addition, since 1990 green and sustainable building programs have started to appear in developed and developing countries to enhance the environmental performance of structures and projects such as BREEAM, LEED and green star. Building Research Establishment Environmental Assessment Method BREEAM is the UK method for sustainable building and it is the first established method in this field. It was launched in 1990 to set standards for the best practice of sustainable building design, construction and operation (more information is available in [Building Research Establishment, 2018]). Leadership in Energy and Environmental Design LEED is the second established method. It is a green building certification system developed by US Green Building Council (USGBC) in 2000 as a framework for high performance buildings and green construction (see [USGBC, 2018]). Similarly, Green Star has been guiding sustainable development in Australia since 2002. This was formed to inspire innovative design and construction of structures to the highest standards of sustainability (see [Green Building Council of Australia, 2015]). Although this kind of method or system is originally designed to guide construction and building, the new editions of some methods have extended to the planning field such as LEED v4 edition and the new edition of BREEAM which both have technical standards for planning projects and certifying masterplans.

Nowadays, a lot of countries have established and implemented similar methods on both national and international scales and formed green councils/authorities to guide sustainable development. The figure below shows some of the countries that have developed green assessment methods.

Nation	Label	Nation	Label
 Australia	Nabers / Green Star	 Mexico	LEED Mexico
 Brazil	AQUA / LEED Brasil	 Netherlands	BREEAM Netherlands
 Canada	LEED Canada / Green Globes / Built Green Canada	 New Zealand	Green Star NZ
 Czech Rep	SBToolCZ	 Philippines	BERDE / Philippine Green Building Council
 China	GBAS	 Portugal	Lider A
 Finland	PromisE	 Taiwan	China Green Building Network
 France	HQE	 Singapore	Green Mark
 Germany	DGNB / CEPHEUS	 South Africa	Green Star SA
 Hong Kong	HKBEAM	 South Korea	KGBC
 India	Indian Green Building Council (IGBC) / (GRIHA)	 Spain	VERDE
 Indonesia	Green Building Council Indonesia (GBCI) / Greenship	 Switzerland	Minergie
 Italy	LEED / Italy / Protocollo Itaca / GBCouncil Italia	 United States	LEED / Living Building Challenge / Green Globes
 Japan	CASBEE	 UAE	Estidama
 Jordan	EDAMA	 UK	BREEAM
 Malaysia	GBI Malaysia		

Figure 2.2: Some of the countries that have developed and implemented green systems (Charles, 2012).

2.6. Tourism and Spatial Planning

Because this study elaborates on tourism industry in some of its parts (as an example and a case-study for an economy branch that interacts with spatial planning) especially, it is helpful to give an overview about tourism industry and its relation to spatial planning.

Tourism Industry

The exact meaning of the term ‘*tourism*’ differs between scholars and organizations (Page & Connell, 2006), and according to the Commission of the European Communities, Organization for Economic Co-operation and Development, United Nations and World Tourism Organization (2001), tourism is defined in the Tourism Satellite Account as “*The activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes*” (p.1).

In addition, tourism industry is a complex industry. Page and Connell (2006) clarified that tourism is a multidisciplinary industry and a dynamic economy sector where a set of parts and elements interact and interconnect to each other. They also mentioned that tourism, as a concept, is an integrated approach which have many dimensions such as social, economic, political and geographic dimensions. To review an understanding of tourism and as an example, the government of Catalonia (2014) clarified in its *Strategic Tourism Plan for Catalonia 2013-2016* that tourism sector, from its viewpoint, is not a single sector but a combination of many sectors that involve a wide range of public and private activities. Similarly, Tourism Council of Western Australia (2017), for example, stated that “*Tourism is a complex industry that involves a broad range of businesses, organizations and government agencies*”.

From these definitions and viewpoints, it seems that tourism industry is a collection of wide range of activities, services and experiences that interact with other industries and affects spatial development in any region. Tourism as a complex industry interacts with public and private sectors, hospitality and accommodation services, food and retail services, local economies, transport facilities, attractions and natural values, culture and heritage, and local societies.

Economically, tourism could be considered as one of the most important industries around the world. Thus, there is no doubt that tourism has a major influence on the world Gross Domestic Product (GDP). According to World Travel Tourism Council (WTTC), travel and tourism industry highly contributes to the world GDP as well as to the total global employment. In 2016, the direct and indirect contribution of tourism industry was 10.2% to the world GDP and 9.6% to the total employment (WTTC, 2017a). An example that shows higher contribution rates, Thailand tourism industry is contributed by 20.6% to its national GDP and 15.1% to its total employment (WTTC, 2017b). Tourism industry in Austria, as another example, contributed by 15.6% to the country GDP and 16.9% to its total employment (WTTC, 2017c). In Oman, and according to WTTC (2017d), tourism sector represents directly and indirectly approximately 7.3% of the country GDP and 7.2% of the total employment (see section 7.1 for more information about tourism industry in Oman).

Types of Tourism

Tourism is a broad term and it has several types. Each type of tourism has its characteristics, target groups, and resources. The following table reviews some of the common types of tourism.

Table 2.1: Some of the common types of tourism

Mass tourism	Mass tourism involves huge number of tourists going to the same place at the same time. It is characterized usually with overcapacity and degradation of resources and attractions. Theng and colleagues (2015) argued that mass tourism is not sustainable and represents extreme concentration of tourists in one place. As a result, it causes degradation and losses in the host area and host communities.
Sustainable tourism	This is one of the widely used terms in tourism. Sustainable tourism as a concept is very vogue and it reflects the high environmental concern of tourism. According to (Kask et. al., 2016), sustainable tourism is the tourism which respects local communities, tourists, cultural heritage and natural environment at the same time and goes in line with sustainable development.
Eco-tourism	Ecotourism is a sort of sustainable tourism and it is more linked with natural environment and rural life than urban places. According to weaver (2004), this type of tourism promotes learning experience to the tourists and gives high consideration to the natural environment and socio-cultural constituents of host areas. In general, ecotourism targets small tourist groups and small local businesses and focuses in sustaining the wellbeing of local communities. It also contributes to the to the conservation of natural life and biodiversity and promotes the low consumption of non-renewable energy sources.
Geotourism	Geo-tourism is another sort of sustainable tourism that focuses on the geodiversity of some areas. It overviews their natural processes, formations and evolutions (Kharazian, 2015). Since 2004, there are more than 120 geoparks around the world registered as UNESCO Global Geoparks (UNESCO, 2018) and promoted as distinguished geotourism destinations.
Adventure tourism	Adventure tourism is related to the travel that involves adventure experiences with some degree of risk in places outside the ordinary tourist areas. Adventure tourism is divided into two types; soft and hard adventure. This soft type of this tourism subset includes activities such as cycling, hiking, camping and fishing, whereas the other type includes harder activities such as mountain climbing and rafting.
Cultural tourism	This type of tourism is associated with the travel of people for the purpose of visiting the cultural attractions outside their home areas. Those attractions include the lifestyles and traditions of the people in the host places as well as their historical architecture and historical values.
Sport tourism	According to (Ross, 2001), there are three types of sport tourism; sport event tourism, active sport tourism and nostalgia sport tourism. The first type of sport tourism is more or less linked to the sport events such as Olympic games and football World Cup events. The second one involves the participation of tourists in the sport activities such as winter skiing, skating, golf playing and sea diving. The third type involves visiting the famous sport attractions such as visiting the sport halls and sport museums.

Tourism Destination

One of the terms that are linked to tourism industry is tourism destination. Tourism destination is more or less connected to the area and geographical location where tourism activities take place, and this could be vast as a country or small as a district or project. According to Singh (2008), Bierman defined tourism destination as “*A country, state, region, city or town which is marketed or markets itself as place for tourists to visit*” (p.158). The competitiveness factor of tourism destination relies on three main pillars, good governance, good marketing, and good management (Pechlaner, et al., 2014).

The relation between spatial planning and tourism

It is understood from the definition of spatial planning that it serves and supports the coordination of policies including the policies of other sectors such as tourism sector. In addition, since tourism is a complex industry that interacts with both public and private sectors and has positive and negative influences on the local places and local communities, it is clear that spatial planning and tourism planning are interconnected. According to Dede and Ayten (2012), spatial planning plays a significant role in the development of tourism destinations and tourism activities. Thus, maintaining sustainable development in areas having tourism activities or tourism potential pushes spatial planning to consider the influences of tourism and take into account the size, type, and location of tourism services and facilities to avoid any degradation to local communities. Spatial planning, from one side, creates a framework to plan and develop tourism and allocate lands and sites for touristic use. On the other side, it protects the other land-uses from the negative impacts of tourism and minimizes the associated conflicts.

Sensitivity of communities to tourism

In order to clarify the meaning of sensitivity of communities and areas to tourism, it is helpful to overview the definition of sensitivity in a similar field. From an environmental prospective, sensitivity is defined as the level of change in a system or an area that is subjected to a level of pressure or perturbation (Allaby, 2015). It is also defined as the ability of a system or an area to disturb a resisting force and recover from any kind of disturbance (Park & Allaby, 2017). In spatial planning, although there is no common known definition for sensitivity of communities or places to tourism, it refers in this study to the level of change and disturbance in shape or functions of communities or places due to the pressure of tourists, touristic facilities or any activity associated to tourism. It is more or less about how tourism activities and tourism development influence local communities and how local communities respond to tourism development. Because of the continuous expansion of tourism sector, some communities and areas are more subjected to tourism than others due to their attraction and values such as natural and cultural values or their hospitality characteristics and quality services.

3. The General Characteristics and the Historical Dimension of the Sultanate of Oman

3.1. General Features and Characteristics of the Sultanate of Oman

Before start discussing the historical dimension of Oman, it is very helpful to shed a light on the general characteristics and features of the country such as the political system, the location, and the social and cultural values.

3.1.1. Political System and Administrative Structure

Oman's political system is a monarchy system consisting of a centralized government and the main governmental headquarters are located in Muscat Governorate which is the capital of Oman and the most developed area in the country. The Sultan has the absolute power and represents the head of the government (head of Council of Ministers), the supreme commander of armed forces, and the head of the supreme councils. In addition, the main national advisory councils in the country are the State Council (members are selected by the Sultan including experts) and Al-Shura Council (members are elected by people), and the two assemblies together represent Oman Council. The organic laws and the main orders (Royal Decrees) and are issued directly by the Sultan himself (these are considered as supreme legal instruments) whereas the governmental decisions come from the associated governmental bodies. Moreover, there are quite many specialized councils that guide the government towards more precise decisions such as the Supreme Council for Justice, Supreme Council for Panning, and Defence Council (all are headed by H.M Sultan Qaboos).

Administratively, the area of Oman is divided into several governorates. Each governorate is divided into provinces called (Wilayats) and each province is divided into cities/villages/districts. The current administrative structure of Oman consists of (11) governorates (before 26th of October 2011, there were three governorates and five regions [NCSI, 2016a]). In total, there are 61 wilayats in Oman and the development of these wilayats is usually controlled by the municipality of each area where the municipalities are the main governmental bodies responsible for the local development. Most of the municipalities in Oman are aligned under a ministry called Ministry of Regional Municipalities and Climate Affaires except Muscat, Sohar and Dhofar municipalities which have relatively deferent administrative structure.

3.1.2. Location, Geography and Climatology

Oman occupies the south-eastern part of the Arabian Peninsula with a total Area of 309.5 square km (NCSI, 2016a; SCP, 2012; Al Amri, 2011). In the north and the north-west, it has geographical borders with Saudi Arabia and United Arab Emirates. In the south, it has borders with Yemen. Furthermore, Oman has more than 3000 km of coastline stretched on the Persian Gulf (known as Arabian Gulf as well), Oman Sea (previously called Gulf of Oman) and Arabian Sea. Because of the distinguished location of Oman, it had played an important role throughout history in the routes of sailing trade in the Indian Ocean. Oman's nature is rich in geographical diversity. It consists of plains, mountains, oases, deserts, sand dunes, natural bays and valleys. According to NCSI

(2016a), the plains overlooking the seaside represent 3% of the total area, the mountains represent around 15% and the interior plains, Deserts and sand dunes areas represent more than 82%.

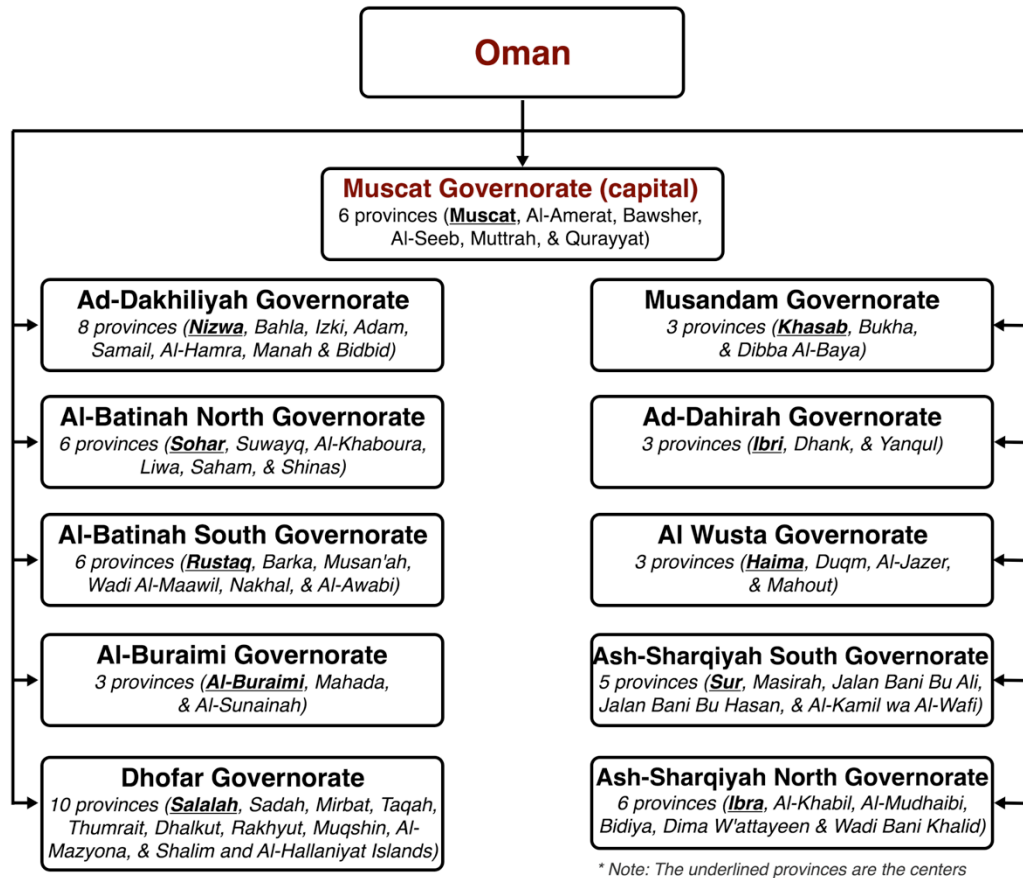


Figure 3.1: Governorates and provinces (Wilayat) in Oman (author's work).

Muscat Governorate is in the north overlooking Oman Sea. Al-Batinah North and Al-Batinah South governorates are similarly in the north, stretched on Oman Sea coastline. They consist of agriculture plains residing between sea of Oman and Al-Hajar mountain ranges. Musandam and Al-Buraymi governorates are on the north-west and have connection and borders with United Arab Emirates. They consist of gravel plains and mountains. Ad-Dhahirah governorate is also in the north-west, it has borders with Saudi Arabia and sheared part of Rub' Al-Khali sandy desert on the west side. Ad-Dakhiliyah and Ash-Sharqiyah South governorates represent the interior of Oman. These areas are rich in natural resources that include Oases, mountain ranges, valleys, sand dunes and gravel plains. Ash-Sharqiyah North governorate is in the north-east overlooking the Arabian Sea. Al-Wusta is in the centre of Oman and consists mainly of deserts and sand dunes and it has a low inhabitancy rate. Dhofar governorate is in the south and consists of agriculture plains and mountains. It has borders with Saudi Arabia and Yemen. The area of Dhofar is rich with natural diversity and part of it has a unique monsoon season in the summer time where the temperature remains between 15°C and 25°C (Salalah city and its surroundings).

Figure 3.2: A map of the sultanate of Oman showing also the governorates location and administrative area (generated and edited by author)



Oman is considered as one of the warm regions (relatively hot in the summer). As an example, the temperature in Muscat ranges from 16°C to 30°C in the winter seasons and from 25°C to 40°C in the summer periods (see Figure 3.3 which indicates the average temperature in Muscat). In addition, the mean temperature in Oman ranges from 21°C to 32°C as noticed from 2012 to 2016 period (see Figure 3.4). Oman is considered also as one of the semi-arid areas where the humidity, in average, ranges from 26% to 44% in the interior regions and from 40% to 70% in the coastal regions (Al-Amri, 2011). In addition, the rainfall precipitation in Oman is very low and the accumulated annual precipitation is usually less than 100 mm in total (see Figure 3.4).

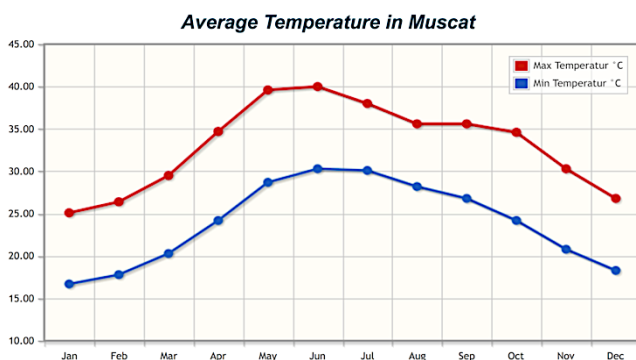


Figure 3.3: Average temperature in Muscat (Directorate General of Meteorology, 2016)

Item	2016	2015	2014	2013	2012	
Mean Temperature (C°)	Max.	31.2	31.4	31.7	31.4	31
	Min.	22.6	22.8	22.3	21.9	21.8
Mean Humidity (%)	Max.	78	75	80	74	74
	Min.	32	29	10	34	31
Mean Rainfall (M.M.)	95.3	69.4	89.5	139.2	75.1	

Figure 3.4: Weather indicators in Oman (NCSI, 2017c)

In relation to natural phenomena, Oman is usually subjected to water flash floods during thunderstorms due to the geographical structure that consists of several mountain ranges especially in the inhabited areas in the north and the south. Moreover, as a natural hazard, the coastal regions are subjected to tropical cyclones and storms because the eastern coastline is widely open to the Indian Ocean. Recently, within the last few years, Oman had subjected to three tropical cases; Cyclone Gonu in 2007, Cyclone Phet in 2010 and Ashoba tropical storm in 2015. It is also subjected to the hazard of Tsunami seismic sea waves.

3.1.3. Society and Culture

Oman is a developing country and has small population (in 2015, the population of Omani nationals was estimated as 2.3 million as discussed in Chapter 5 as well). It is also one of the Islamic countries that have a unique identity. The social life in Oman embraces the principles of ethical, ideological and religious tolerance. This characteristic makes Oman very deferent from other countries in the region. In addition, as a positive feedback from the touristic field, Oman people are categorized as friendly people and offer incomparable hospitality (Baporika, 2012).

The Omani society is somehow conservative in terms of social beliefs, lifestyle, habits, customs and traditions. Oman people respect their customs as well as their privacy and this could be noticed from their lifestyle and their living practices.

Due to the education revolution and in addition to the Arabic language as a mother language, most of young Omani people know agreeable English as a second language¹ and this promote high potential for cultural tourism which enhances cultural interaction with natives.

In relation to clothing, Oman has its unique dresses for both men and women. The official dress of men is called *Dishdasha*, which is a long white dress covering the body and this also has an exclusive head cover called *Musar*. For ladies, the clothes vary according to regions and situations but in general when they are outside their homes, they usually wear a long black cover piece on top of their clothes and this is called *Abaya*.

The tribal structure in Oman is also a unique social characteristic which is hardly to be discovered by expatriates. In parallel to the new modern civil government that implements high level of social regulations, Oman still preserves, to an extent, the tribal structure of communities. The society of Oman consists of several tribes migrated to the country in the past from several origins; Arab as well as non-



Figure 3.5: A map showing people migration in Oman's history (fanack, 2016).

¹ The Main language in Oman is Arabic and according to the current education system in the country, English language is mandatory starting from the first grade. In addition, most of the higher education programs are mainly in English

Arab genetics (see Figure 3.5 for illustration).

Each tribe has its members and leaders. The leader is considered as the official representative of the tribe in front of the government and has his duties and rights which are assured by the government. Administratively, the tribal affairs are managed through a ministry called Ministry of Interior. In general, Omani people enjoy a distinguished social harmony with strong social relations creating a single-nation with one pulse called ‘*Oman*’.

3.2. The Historical Dimension of Oman

Oman is an old country and the historical depth of its civilization and its roots are returning back to the pre-history. In general, to clearly mark and discover the historical impacts and the historical influence of any development, it is very useful to study the related history of the area. This section overviews a short journey through the history of the Sultanate of Oman (as a study area) which is trying to highlight the main historical features of the country.

3.2.1. Historical Names of Oman

The debate on the old prehistoric names of Oman will remain problematic since the literature in the prehistory is not clear. To an extent, there is an agreement that during the presence of Sumerians (3rd/ 2nd millennium BC), the name of Oman was ‘*Magan*’ and within the same period the name with Akkadians was ‘*Makkan*’ (Williams & Gregorika, 2013; Potts, 1986). The names ‘*Magan*’ and ‘*Makkan*’ are noticed to have the same meaning according to that time languages and these two names are defined as ‘land of copper’ which are linked to the former copper industry (Ministry of Information, 2010, Potts, 1986).

‘*Mazon*’ was also an alternative name of Oman with Sasanian state (Ibin Sarai, 2005) especially during Sasanian regime between 100/200 AD and 900 AD. This name is associated to the term ‘*Muzn*’ which means clouds, and this represents the water and nature of Oman area (Ministry of Information, 2010).

‘*Oman*’ as a name has appeared before the year 1 AD (Ibin Sarai, 2005) and traveled throughout the years to the current time. The name ‘*Oman*’ is joined with the immigration of Arabic tribes from Yemen to the region during the second half of 1st millennium BC. It is assumed that the term ‘*Oman*’ was coming from the name *Uman* the son of *Prophet Abraham*. It is assumed also that it is linked with a place in Yemen called *Uman* where some of Oman’s earlier Arabic tribes came from (Ministry of Information, 2010).

3.2.2. Oman History Up to the Early Islamic Period (900 AD)

When talking about the history of Oman, there are so many things to say. Although the old writings about the prehistoric and the early historical periods of Oman are very limited (Ibin Sarai, 2005; Yule, 1999), The historical and archeological findings are very wide and diverse, and the modern archeological researches have addressed a lot in this field. The discovery of human life existence in Oman is dated back to the Stone Age (some several millenniums BC), where some of the archeological findings that were discovered in Muscat city in the north of Oman, in Ras Al-Hamra area in particular dated back the existence of the human life there to the late 7th millennium BC (Al-Jahwari,

2013). Furthermore, other archeological findings that were collected from several locations such as Al Maysar site in Samad Ash-Shan in Ash-Sharqiyah Governorate and Bat UNESCO and Dank sites in Al-Dhahra Governorate dated back the existence of the early human settlements in these areas to the 3^{ed} and 2nd millenniums BC (Williams & Gregorika, 2013; Al-Jahwari, 2013; Ministry of Heritage and Culture, 2012; Yule, 1999).

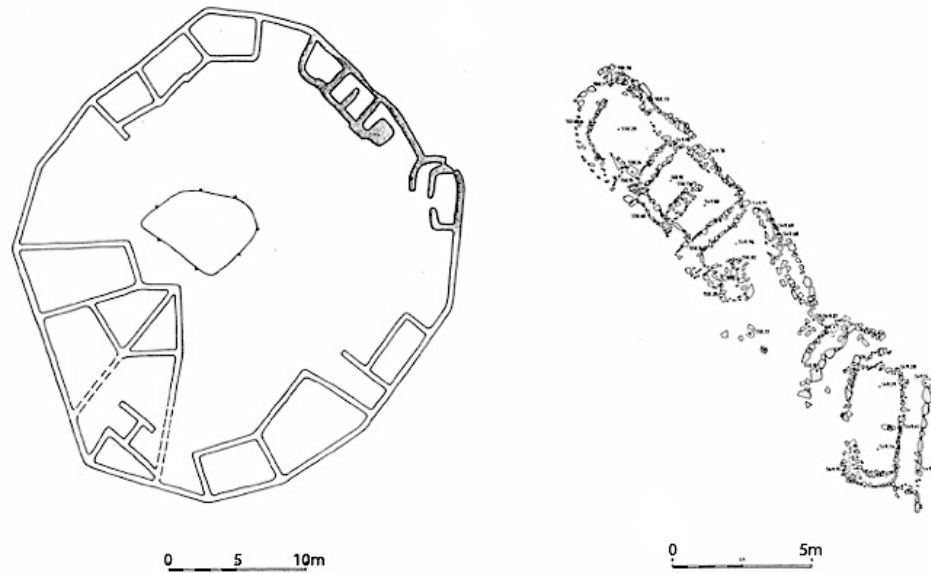


Figure 3.6: Fort and surrounding premises remnants return back to the 3^{ed} millennium BC in Al Maysar site in in Ash-Sharqiya Governorate (Yule, 1999)

Also, since the 3^{ed} millennium BC, Oman region was known in the Arabian Peninsula with its copper mining and smelting industry (Williams & Gregorika, 2013; Potts, 1986).

The human life in Oman from the Stone Age has passed through several periods which were adopted by some of the archeologists who had worked in the area. These periods reflected the living styles and living resources as deduced from the remnants and evidences found in the historical sites that were discovered in deferent areas in Oman Peninsula (Oman Peninsula is currently the area covering Oman and United Arab Emirates).

Table 3.1: Adopted Chronology for Oman Region (Al-Jahwari, 2013)

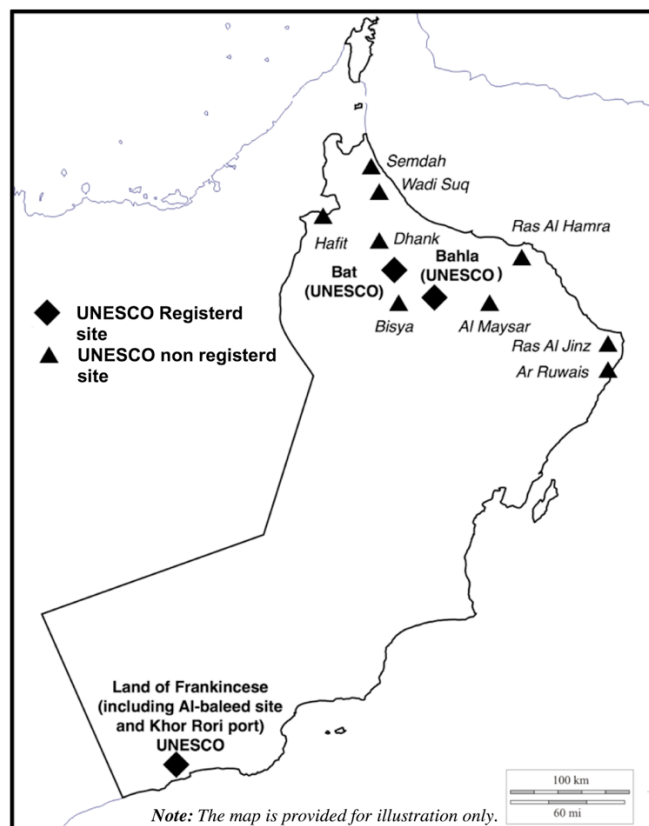
Period	Dating	Sub-periods	Dating
Stone Age	Earlier than 7000 to 3500/3400 BC	Early Stone Age	Earlier than 7000 BC
		Late Stone Age	ca. 7000–3500/3400 BC
Hafit	3500/3400–2500 BC	---	---
Umm an-Nar	2500–2000 BC	---	---
Wadi Suq	2000–1300 BC	---	---
Iron Age	1300–300 BC	Early Iron Age	1300–600 BC
		Late Iron Age	600–300 BC
Hellenistic–Parthian	300 BC– 100/200 AD	---	---
Sasanian–Early Islamic	100/200–900/1000 AD	---	---
Islamic	1000 AD onwards	Middle Islamic	900/1000–1300 AD
		Late Islamic–Recent	1300 AD onwards

According to the above table, *Stone Age* period represents the rudimentary human life in Oman Peninsula. Ras Al-Hamra historical site could be one of the sites that prove the existence of human life within that period. Hafit, Umm An-Nar, and Wadi Suq periods are chronological periods adopted by some archeologists for Oman Peninsula (Al-Jahwari, 2013; Potts, 1990), and the names of those periods refer to the main discovered historical areas and address other areas with similar periodical characteristics. *Iron Age* refers to the period of the usage of iron in Oman and the studies and researches showed that there are quite a large number of Iron Age sites distributed over the area. *Hellenistic-Parthian* period is the period following *Late Iron Age* where the majority of Oman region used iron on a very large scale (Al-Jahwari, 2013; Boucharlat, 1991).

After *Hellenistic-Parthian* period and started from the first two centuries AD, Oman was under Sasanian state and the control of Sasanians remained in some parts of Oman till the end of 9th century AD (Al-Jahwari, 2013; Potts, 1990; Wikinson 1979). Sasanian period ended up with various and large Sasanian settlements which are currently a rich heritage for archeological studies.

Apart from what was mentioned above and based on the resources of each period, archeological researches showed also that the dominating professions of Omani communities from those prehistoric periods were grazing, agriculture, fishing (in the coastal areas), iron/copper industry, ships industry and trade. The early trade communities in the north of Oman was dated back to the 3^{ed} century BC (Ibin Sarai, 2005). Several ports were discovered serving trade purposes between East (Indian continent) and west (other Arabian Peninsula parts). To be more concrete, the discovery of Kor Rori historical port which is currently located in a UNESCO archeological site called '*Land of Frankincense*' in Salalah city in the south of Oman proved that frankincense trade has started earlier, since the 5th century BC (UNESCO, 2000).

Figure 3.7: Some of the archeological sites in Oman area, data source (Al-Jahwari, 2013; UNESCO, 2017)



During the second half of the 1st millennium BC, Arab tribes started to migrate to Oman region. The control system of Arab tribes over Oman was started when *El Azd* tribe migrated to Oman during the first quarter of the 2nd centuries AD and the Arab tribes nominated that time *Malik bin Fahm El Azdi* as a leader for Omani Arab tribes (approximately 120 AD). Although some of the northern parts of Oman were under the political control of Sasanian State within the presence of *El Azd Dynasty*, *El Azd* tribe had continued leading Oman Arab part up to the end of the 6 Century AD. Following their period and during the first quarter of the 7th century AD, all of Oman felt under the political influence of Sasanian state. Shortly, around the year 630, the control of *El Azd* Arab tribe returned back through *Jaifar & A'bd* the sons of *Al Julanda* who took back the lead of Arab Oman. This may indicate that the geographical location and the political/administrative power over Oman region was shared between the Sasanian state and Arab leading tribes (Ibn Sarai, 2005). For an easy illustration of what was mentioned in this section, Figure 3.8 summarizes the main periods that Oman went through up to the 10th century.

3.2.3. Oman from the Early Islamic Period until End of 19th Century

Oman from the rise of Islam (7th century) until the end of 13th century

From the rise of Islam, *Al Julanda* and his sons *Jaifar & A'bd* accepted peacefully the mission of Prophet Mohammed and this put them as the first commanders of Islam in Oman. following their period, the leading system in Oman changed to *Imamate System* according to Islamic rules where the Imamate represented a *politico-religious democratic system* and the head is called *Imam* who represented a chosen leader by the people. Although the democratic system in Oman had appeared very earlier in the Arab world, the early Islamic wars and conflicts between Islamic state, Persian State and Imamate of Oman left scenes of historical tragedy.

The presence of Persians (Sasanians) was noticed that it had shrunk and came to end during the third quarter of 9th century as well as the end of the first period of Imamate system of Oman where the country felt under the regime of the *Abbasside State* for almost two centuries, up to approximately 1100. Those conflicting periods ended up with a country lost control of its booty and had worse political, social and economic conditions.

Also, because of the accumulated issues and pure economic situations, some Omani people started to migrate, as early as the year 740 (Badger, 2010), to the east coast of Africa and settled there. That early migration illustrates the deep relations between Oman and the east coast of Africa as will be mentioned later.

At the end of the Abbasside rule over the country, Oman reverted back to the old Imamate system. Here the country started to learn from the lessons of the past and to heal slightly from the wounds created by the older systems.

OMAN FROM 900 AD BACK TO 4000 BC

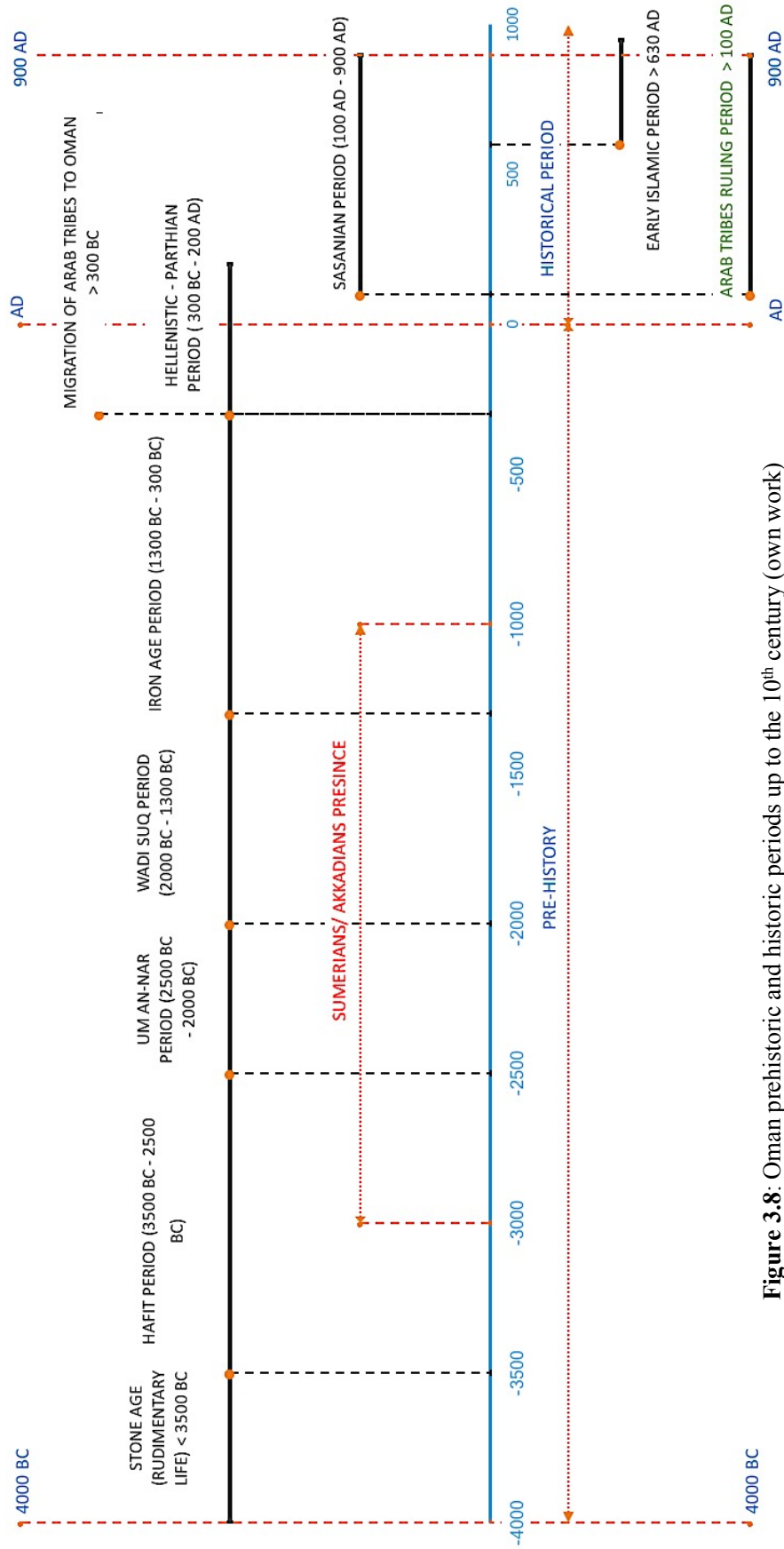


Figure 3.8: Oman prehistoric and historic periods up to the 10th century (own work)

Benu Nabhan dynasty (1154-1435)

After years from reestablishing Imamate system, new Omani mid-Islamic dynasty came into sight, *Benu Nabhan dynasty* 1154-1435 (Badger, 2010). They tried to gather some of the fragmented pieces of Oman and tried also to maintain a better economic situation. Unfortunately, this family or tribe was unlucky to get the appreciation from all Omani tribes. Therefore, their administrative influence as well as development progress were considerably very low on land. Following *Benu Nabhan* period, the Imamate system continued its legacy with deferent leaders from other tribes. However, up to the year 1624, the situation in Oman was not getting much better and the accumulated issues were relatively severe. In other words, there was huge conflict between Omani tribes as well as segregation within communities. In addition, one of the things which was critical that period, some of the northern coastal areas felt under the fest of the Portuguese such as Muscat and Sohar (Jones & Ridout, 2015; Owtram, 2004) and these two cities were considered as key areas in the international trade.

Al-Yarebah dynasty (1625-1741)

In 1624, *Naser bin Murshid Al-Yarubi* was elected as new Imam. That year was a year for the dramatic change on the face of Oman. He started to solve the conflict between the Omani tribes and started also to form a strong reinforcement to protect its booty. *Naser bin Murshid Al-yarubi* was the first of *Al Yarebah* dynasty 1624-1741. *Al-Yarebah* during their period had cleaned the territory from the sociocultural conflicts and free the coast of Oman from the fest of the Portuguese that colonized the coastal area for almost 140 years since nearly 1507 (Owtram, 2004). In addition, they had fought and followed the Portuguese to the coast of *Guzerat* and to the east coast of Africa. They formed a strong navy and extended their political and economic influence on Zanzibar, Mombasa, Kilwa, and other places on the east coast of Africa, in addition to the coast of *Guzerat* (in Pakistan currently). They also with their strategy structured a strong base for Oman politic and economic relations in the Indian ocean.

Al-Busaid dynasty (1749- current)

Al Yarebah dynasty had not last for long ruling over Oman due to the weakness of the last leaders (Imams). In 1749, the Omani tribes elected Imam *Ahmed bin Said Al-Busaidi* (who represents the origin of the current royal family) to take the power and continue leading the country and solve the upcoming issues related to *Al Yarebah* period (Darke, 2013; Owtran, 2004). After the death of Imam *Ahmed bin Said Al-Busaidi* and his son Imam *Said*, the term “Imam” was changed to the term “Sayyid” to represent the ruling family members. The country continued expanding and spreading its political influence on the north regions as well as on the east coast of Africa. During the period of Sayyid *Said bin Sultan* who ruled over Oman from 1806 to 1856, Oman reached its maximum territory size and became a regional commercial leading power in the Indian Ocean (Figure 3.9). Its area reached in the north; Coast of Oman (currently United Arab Emirates) and Coast of Makran and Guzerat (Iran and Pakistan Sides) and in the south; Zanzibar, Pemba, Manfia, and other sovereign dependencies in the Coast of Africa from Cap Delgado to Mukdishu (Badger, 2010).

After the death of Sayyid *Said bin Sultan (1856)* a conflict over power had occurred between the two sons Majed and Thuwaini and this ended up in separating the country

into two parts (Badger, 2010; Owtram, 2004); the north (Oman and its surrounding areas) ruled by Sayyid Thuwaini, and the south (Zanzibar and the neighboring Arab settlements) ruled by sayyid Majed. From this separation point, the degradation in Oman had started in both lands for a period of more than a century. Zanzibar state and its Oman Arab government came totally to an end after a long scene of tragedy in 1964 (Maamiry, 1988). The main land (Oman), on the other hand, went into an internal conflicting period, started from the 5th decade of the 19th century and ended in the 7th decade of the 20th century. Similarly, Figure 3.10 summarizes Oman leading systems from the 7th century until the mid-19th century.

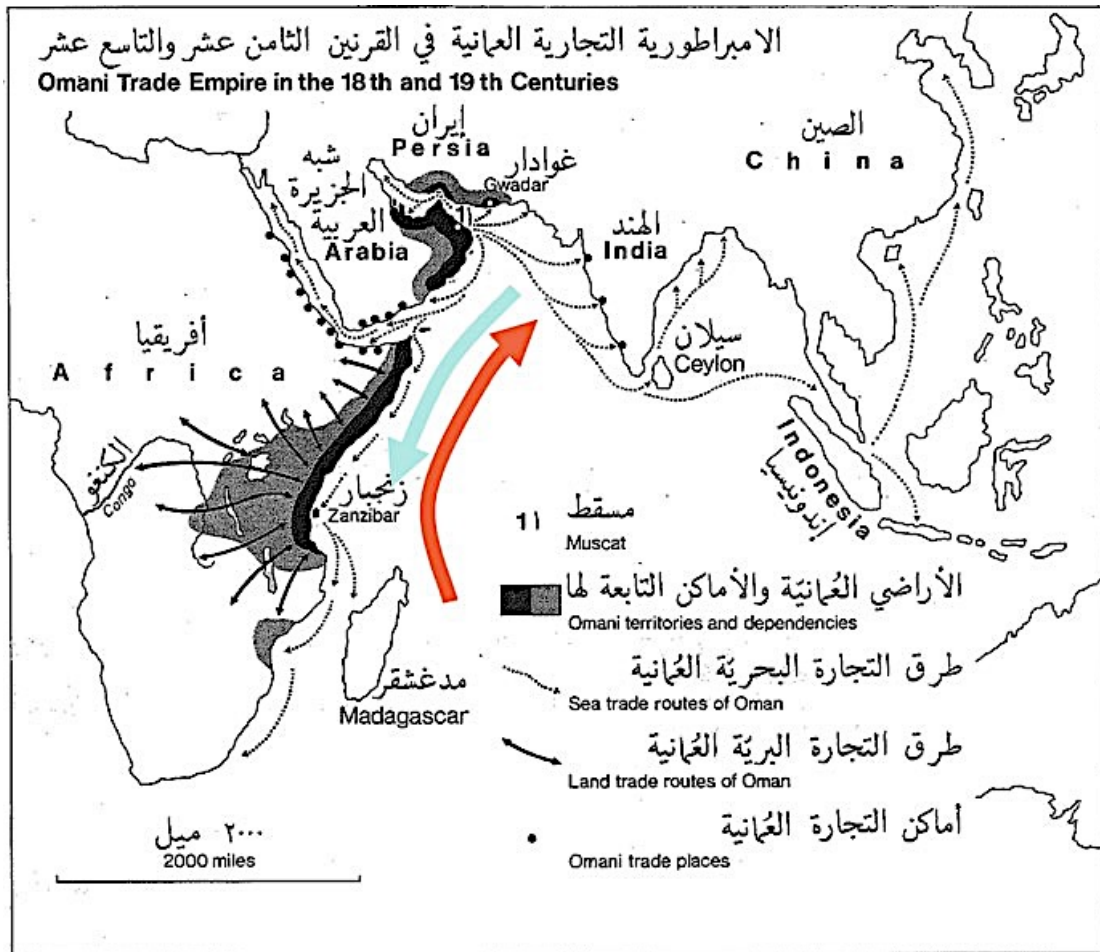


Figure 3.9: Oman trade empire in the 18th and 19th centuries by Fred Scholz (Source: Wippel, 2013, p. 322)

3.2.4. Oman between 1856 and 1900

Before entering into the heart of this argument and to understand clearly what was happening in Oman during this period and the following periods, it is good first to clarify the nature of the social structure of the Omani society that was existed or in other words to clarify how the country was socially organized. Omani society was mainly a composition of Arab tribes, as mentioned before, migrated from several locations during the first few centuries AD; from the south (Yemen region) as well as from the north of the Arabian Peninsula.

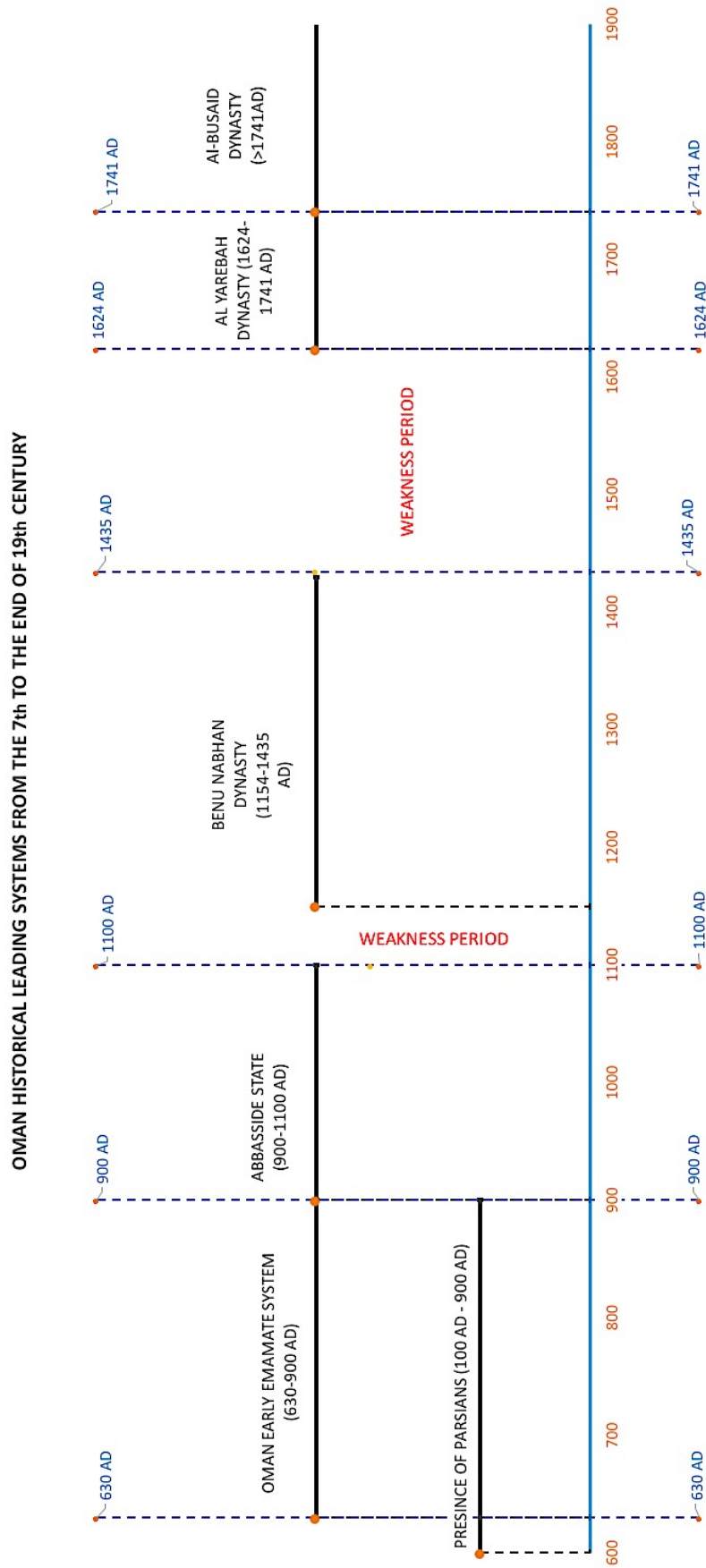


Figure 3.10: Oman leading systems up to the end of 19th century (own work)

The tribal system of the society was unique where each tribe had its own leader and its own territory and settlements distributed all over Oman, and these tribes aligned in a broader scale with main tribes to create somehow strong social powers and this could be one of the main reasons for the social conflict in Oman throughout the years.

Apart from the country ruling system, especially during 19th and 20th centuries, Omani tribes aligned mostly with two major opposing tribes; *Benu Hinai and Benu Ghafer* and these two main social powers had their weight and prominent influence on the country. The negative side of the two powers was the continuous conflict between them, which caused degradation on the social relations and social harmony as well as raised hate and anger among their members to the others.

On the other side, after the death of *Said bin Sultan (1856)* and the separation that occurred between Oman and Zanzibar State, the situation in Oman got blazed and the difficulties appeared to take two main directions; economic and political breakdown and stagnation on the one hand and social and religious conflict on the other one. The economic collapse that happened after *Said bin Sultan* period and its repercussions on the second half of the 19th century caused direct negative impacts to the entire country in addition to the prevailing anger between Omani tribes on the division of Oman itself as well as on the British intervention in the separation (Owtram, 2004). Also, the economic and political influence of the British and the relations between the royal family that time and the British government caused anger among local tribes because of the treaties and agreements that were signed between the two parties (which had mainly not meeting their aspirations and also not matching with their beliefs). According to the researchers (James & Ridout, 2015; Badger, 2010; Shahdad, 1989), these treaties included policies enhancing the commercial monopoly and imposing taxes on the internal trade between the capital Muscat and the interior cities as well as created restrictions on the international trade. Nevertheless, the unexpected shift on the ruling system from the Democratic governance (Imamate) to the hereditary system, which was against the religious customs of Oman ruling system over the years, forced some of the Omani tribes including clerics and scholars to re-establish the Imamate system again. This pushed the country to internal battles between the two sides with the help of the existing tribal conflict. As an example; during the period of *Imam Azzan bin Qais (1868-1871)*, how was elected as Imam in 1868, the conflict was obvious on the researches (Badger, 2010; Beasant, 2002; Shahdad, 1989). He entered into huge conflict with *Sayyid Turki bin Said* (who defended the hereditary system) and this conflict over power ended up in battles in several areas in Oman and after the assassination of *Imam Azzan bin Qais* in 1871 in Muscat, *Sayyid Turki bin Said (1871-1888)* succeeded to claim back the leadership of his family. The studies showed that, the followed trials to re-establish the Imamate system during the late 19th century did not succeed.

The continuous increase of the political and economic influence of the British on most of the coastal area of the Arabian Peninsula as well as the social segregation created pure economic conditions in the interior of Oman.

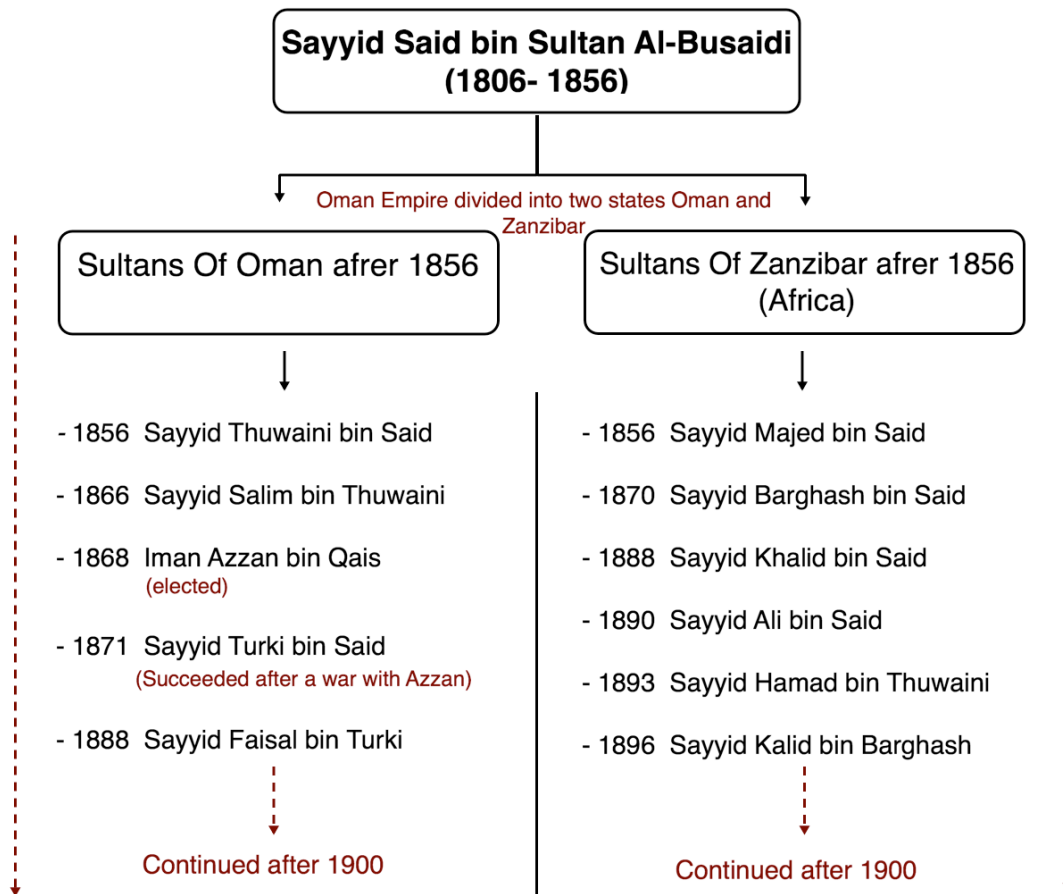


Figure 3.11: Oman leading family after Said bin Sultan in Oman and Zanzibar up to the end of 19th century (author’s own work)

3.2.5. Oman between 1900 and 1932

In the early 20th century and during the ruling period of *Sultan Faisal Bin Turki* (1888-1913), the drop on the economic situation and the disagreement with the official policies pushed heads of tribes as well as scholars to re-establish Imamate system again, believing that this will help in accumulating the critical issues, and in 1913 they elected *Salem Bin Rashid Al Kharusi* as a new Imam (Shahdad, 1989). Imam *Salem Bin Rashid Al Kharusi* was supported with the loyalty of both *Benu Hinai* and *Benu Gafer* social powers which mean there was dramatic shift on the balance of power between the Sultan and the Imam. The Imam succeeded to gather the interior of Oman on his side and entering into a conflict with the sultan who was controlling mainly the coastal areas. In the same year, 1913, *Sultan Faisal Bin Turki* passed away lifting critical situation to his son *Taymur* who took the lead after his father. The conflict with the Imam during *Sultan Taymur bin Faisal* (1913-1932) lasted for several years until the two sides (the Sultan and the second Imam ‘*Mohammed bin Abdullah Al Khalili*’ who became an Imam in 1920) reached and signed successfully an agreement in 1920 called *Al Seeb Agreement* (Valeri, 2009; Shahdad, 1989). *Al Seeb Agreement* served, to some extent, some economic and political relations between the two sides but the mystery behind this agreement is the distribution

of the administrative and the political structure between each of them that was not clear (Shahdad, 1989), and the debate here whether the Imamate system was totally an independent system, or it was in principle under the Sultan but without his direct political influence. Apart from the debate about the nature of *Al Seeb agreement* between the Imam and the Sultan and its political dimensions, there was an obvious two ruling powers in the country with totally two deferent administrative systems representing sort of a country inside a country. After that agreement, the country entered into a peaceful period with some sort of surviving economic situation in both sides.

Figure 3.12 shows a simple map dated 1928 representing the complicated situation in Oman during that time and somehow represented also the main political influences of the Sultan (red zone) and the Imam (green zone) as well as other areas with limited influence from the sultan side (yellow zones).

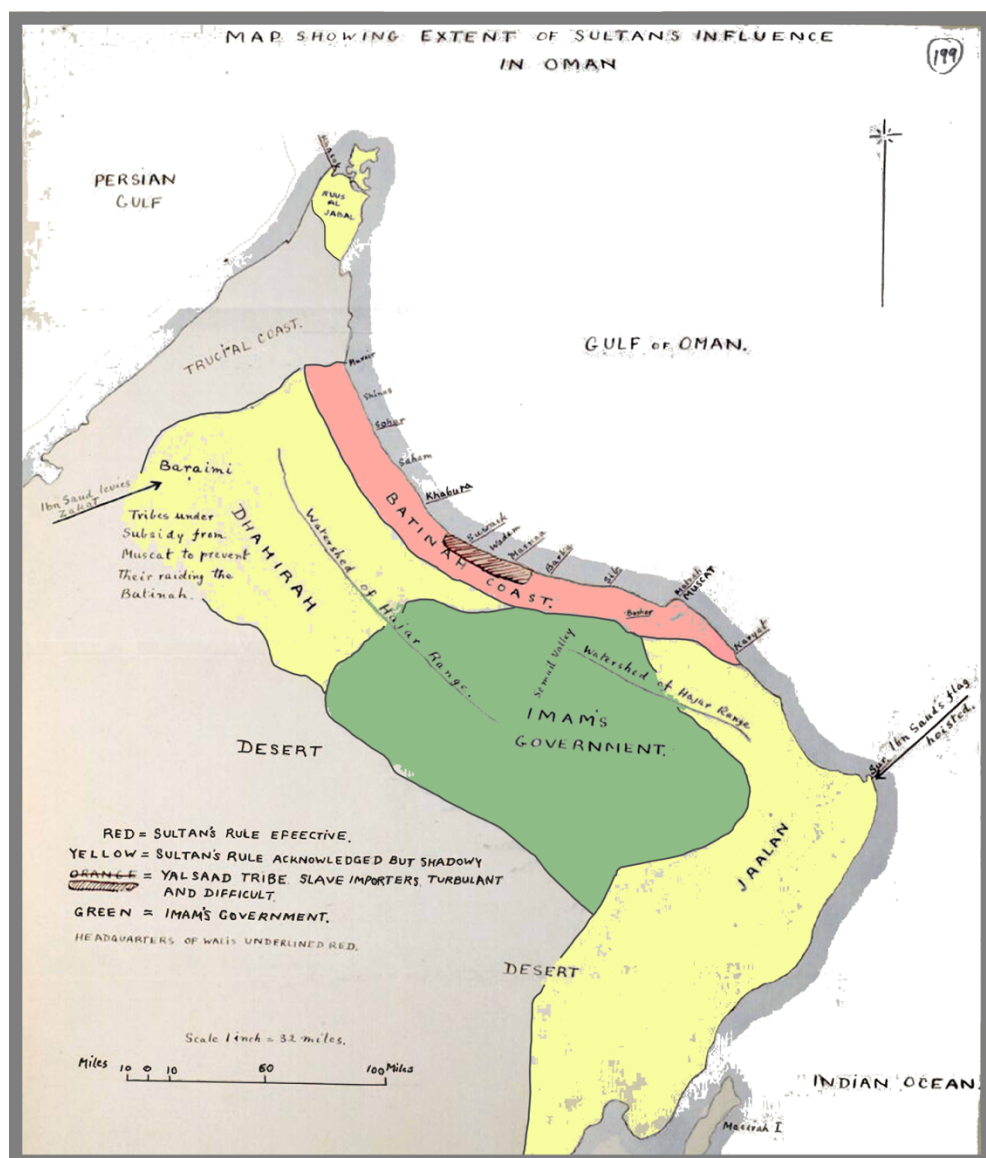


Figure 3.12: An old hand sketch by the political Agent in Muscat, Major G.P. Murphy showing Sultan and Iman influences in Oman dated 1928. Amended for clarification from (Murphy, 1928).

3.2.6. Oman during the Period of Sultan Said bin Taymur (1932 and 1970)

In contrast to his father, *Sultan Said Bin Taymur* (1932-1970) was probably not happy with *Al Seeb Agreement* and not happy to share the power with the Imam especially after the discovery of oil in the region where potential oil reservoirs were predicted to be in the Imamate zone. Therefore, he started first in the late 1930s to fade the Imamate system from the inside through purchasing the loyalty of some of the symbols of the Imamate even who were closed to the Imam himself (Alamri, 2011; Shahdad, 1989). He succeeded in his move to gain some social repetition as well as causing weakness to the Imamate system. When Imam *Mohammed bin Abdullah Al Khalili* passed away in 1954 the situation got again complicated.

Unlike the second Imam who had focused in his internal affairs, *Ghalib Bin Ali Al Hinai* who was elected as the third Imam in 1954 started to strengthen the Imamate influence as well as investing in educating and started also making some international relations, the matter that made the Sultan moved forward to attack the Imamate before it get stronger. The conflict over oil was the actual internal war flame between the two sides where the Sultan signed an agreement with a British petroleum company for oil exploration and production in all Oman areas in 1937 (Sultanate Muscat and Oman, 1937).

According to Al Amri (2011) and Shahdad (1989), *Sultan Said Bin Taymur* entered into bloody civil war with the Imamate by using the support of British military that time. This civil war lasted for about 5 years until finally the Sultan succeeded in 1959 to destroy the opposing power and gather the country on one hand.

Sultan Said Bin Taymur was conservative oriented from the beginning of his ruling period. The post bloody conflict era threw its shades on Oman and took the country into the darkness. The implemented policies and administrative practices during that time made the country an isolated and forgotten piece in the world map. The 6th decade of the 20th century was one of the darkest decades in the history of the country. *Sultan Said Bin Taymur* limited the whole government to a very few personals and implemented very strict and strange personal regulations on his people. According to Shahdad (1989), there was no minister for foreign affairs and the people were prohibited from traveling abroad only few destinations were allowed. It is noticed from the history that the Sultan was against information sharing and he prevented journalists and reporters from entering the country. He was against education where he categorized education as one of the national threats, and according to his believe there were no jobs for educated people (Boustead, 1974). There were only two or three schools since 1927 and no other schools or universities were added during all of his long ruling period. It is noticed also that, he neglected health care where there was till 1970 only one hospital in the whole country and it was in the capital Muscat. The health conditions that time were very bad, and the mortality rate was very high. According to one of the researches, the mortality rate in 1970 within infants in Oman reached 7.5% (Halliday, 1979).

In addition, another bloody conflict or internal war occurred against Sultan Said bin Taymur in the southern region '*Dhofar*' in 1965 (Al Amri, 2011; Shahdad, 1989). Dhofar revaluation last for about 10 years until finally Sultan Qaboos Bin Said (the current Sultan) solved this situation in 1975.

OMAN SULTANS AND THE CONFLICT WITH LAST IMAMATE SYSTEM IN THE 20th CENTURY

<<< AL-BUSAID DYNASTY (1741AD- Curent) >>>

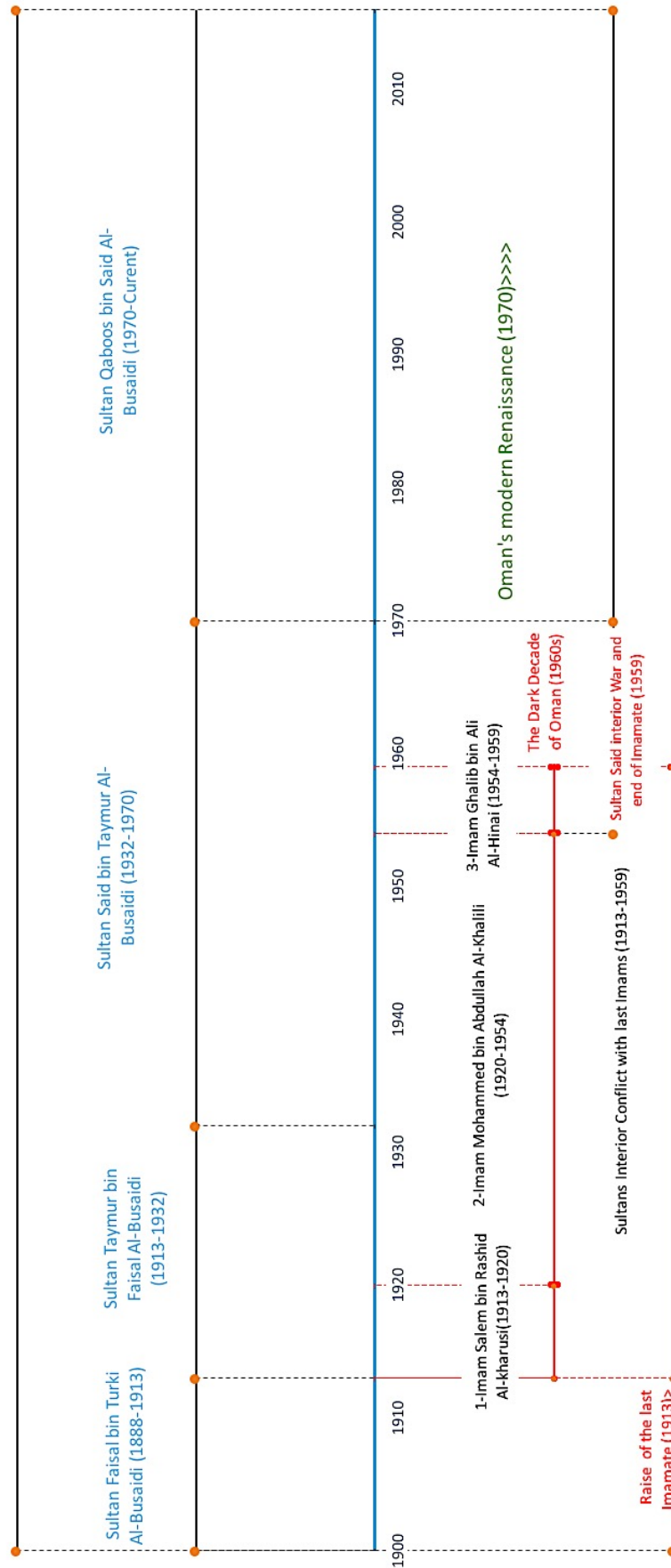


Figure 3.13: Oman Sultans and the conflicting period with Imamate system during 20th century (own work)

3.2.7. *British Influence in Oman*

Through studying the history, it is noticed that the relationship between Oman government and Great Britain was very old. The British economic and political influence on the Indian Ocean started mainly to grow during the 19th century. According to the literature (Owtram, 2004; Jones & Ridout, 2015; Bhacker, 1994), one of their strategic approaches during that time was to control the spread of Oman influence in the Indian Ocean especially in the east coast of Africa and reduce its economic strength. Strategically, they succeeded in the mediation to solve the conflict over Oman power between the two sons (Thwaini and Majed) after the death of Sayyid Said bin Sultan in 1856 and they played a key role in arranging the separation between the two sides of the country (Owtram, 2004); the north (Oman) and the east African side (Zanzibar) which caused degradation in Oman regional, political, and economic influences. Later on, the British became gradually the dominating power in the Indian Ocean and they influenced most of maritime trade practices as well as influenced most of the coastal areas of the Arabian Peninsula. During the late 19th and early 20th centuries, they performed economic pressures on Oman and signed treaties with the government restricting some trade practices such as slave and weapons trades which on the other side affected the country economic situation negatively. Jones and Ridout (2015) stated that one of the causes of the severe economic decline in the Arab Gulf area including Oman was the British involvement in the region.

Although, Oman government was independent throughout the years (Common, 2011; Owtram, 2004), the informal British influence was considerably high at the time the whole country was struggling and suffering from social, political and economic problems. During the first half of the 20th century, they play a key role in Oman external and internal affairs and in 1920 they managed the mediation of Al-Seeb agreement that was signed between the Sultan and the Imam that isolated the administration of Oman interior (which was directly under the Imam) from the coastal areas (which was under the Sultan). Furthermore, based on the request of Sultan Said bin Taymur for British assistance in the mid of 20th century, they supported the Sultan with military forces to solve his conflict with the Imam and this resulted in an internal war lasted for several years. After that period, the British influence in the whole region started to shrink down, as it was observed in the historical writings.

3.2.8. *Oman after 1970*

The year 1970 was a critical changing year in the modern history of Oman when the current sultan (Sultan Qaboos bin Said) took the leadership of the country. Before that, the country had suffered from the accumulated social, political and economic problems in addition to the existed conflicts in the south. *Sultan Qaboos bin Said* took the leadership from his father in 23 of July 1970 and all Omani people still remember his first historical statement during his first day as a leader:

“My people; I will work as fast as I can to make you live happily for a better future and each of you has to contribute to this duty” (Sultan Qaboos, 1970).

For its importance, this day was taken as a national day called '*Renaissance Day of Oman*'. In the hearts, this was the first sight of hope for all Omani people who lived inside or outside the country to dream for a promising better future.

Sultan Qaboos is an educated person. He took his first elementary studies in Oman and then his father sent him to complete his school study in England. After finishing his school period, he joined the Royal Military Academy Sandhurst and after completing his military program and achieving his military grade, he joined the British army for six months to get the experience before returned back to Oman (Ministry of Information, 2010). His educational background and international experience helped him to understand the essential needs of his country.

From the beginning of his period, Sultan Qaboos is famous with his royal annual tours for Omani regions. Annually, he visited most of the regions, and he lessened directly to the speech of people (children, adults and elders) without any mediation. This move made him near to the hearts of most of the Omanis. As a person, he is a unique figure and a unique leader. He acquired many international prizes such as Environment Preservation Prize by UNESCO in 1989, International Peace Award in 1998 (National Council on US-Arab Relations, 1998) and Peace Prize by the Russian International Association in 2007 (Oman Qaboos, 2016). From the beginning of his period, he always gains success and good reputation locally and internationally.

Economically, he gave more concentration to the petroleum industry as a main source of income and from 1970, he focussed in solving the main accumulated issues that were inherited from the previous periods and started also to reshape the development of the country. During 1970s and 1980s, he concentrated mostly on providing the communities and areas with their basic needs and infrastructure such as healthcare and education as well as raising the country national economy and structuring his government. The development growth of the national economy during these decades is noticed very high. In planning field, his government started from 1976 to establish national short-term planning approaches called 5-years-plans (as well be discussed later).

In comparison to other regions in the middle east (Especially Saudi Arabia and United Arab Emirates), the progress in Oman has started a bit late due to its historical issues. However, Oman development has grown very fast. Through looking education sector as an example, there were in 1970 only three schools in whole of Oman with a total capacity of not exceeding 900 students (Ministry of Economy, 2003). There were no universities or higher academic or technical institutions. Nowadays, according to the National Centre of Statistic and Information NCSI (2016b), the total number of schools in Oman are, as in 2016, 1647 schools with a capacity of more than 720 thousand students. In higher education there are around 69 institutions including universities, colleges and other technical institutions in both public and private sectors. The total registered students in high education were exceeding 170 thousand students as for the academic year 2014/2015 (NCSI, 2016b). Sultan Qaboos fulfilled his promise when he said:

'We are going to teach our children, even under the shade of the tree' (Ministry of Information, 2010).

In healthcare, from one hospital in 1970, there are nowadays more than 250 public hospitals and healthcare centres (NCSI, 2016a).

Although Oman has improved very fast, nearly from nothing to a well-structured developing country, the previous development practices may have neglected some of the

strategic dimensions that have left straggles as a development tax which could be paid by this generation or future generations. The pressure that was on the government and the fast running development wheel, on the one hand, ended up with great achievements in most of the sectors and, on the other hand, ended up with some impacts and issues. Physical planning could be one of the fields that has not get enough care from the government and this ended with considerable impacts and issues as will be mentioned later.

All in all, Oman like any country, has faced struggles and obstacles from the start of its renaissance in 1970. In addition, from the last few years, the whole globe is passing through a hard political and economic stage. The Financial Crises in 2008 and its impacts and shades to the international trade are still memorable. Also, in the Arab region, the Arab countries socio-political crises or what is known as '*the Arabic Spring*' that has floated since 2010, and its extended influence, left the whole Arab region as a blazed area. As a reaction, Oman has changed a lot of key personals and restructured some of the governmental bodies to keep ready for any unexpected challenges. In addition, Oil crises and the dramatic fall and fluctuation in oil prices since the second half of 2015 has created a true challenge to all countries that are depending on oil to maintain their visions especially in the Middle East. Oman as a country cannot stay away from the global matrix and has to deal with all conditions and stand against all challenges to shape a promising future.

3.3. Conclusion and Lessons Learned from Chapter Three

From the general characteristics, it is concluded that Oman has a monarchy leading system and has a centralized government. Even though it has several governorates, most of the main decisions are issued from the capital Muscat. In addition, although the country is located in a semi-arid region and has relatively high temperatures, it has a distinguished geographical location with unique features and characteristics including a stretched coastline of more than 3000 km and a variety of landscapes. It is concluded also that Oman society is a conservative oriented society in relation to the beliefs and lifestyles and the people enjoy ethical, ideological and religious tolerance which make it deferent in comparison to other societies in the region. Thus, understanding the general features of the country is considered as a basic requirement in order to study and analyse its related spatial planning and spatial development.

Moreover, in order to understand what was happened in the past and look for clues which lead to recognize the relation between the past practices and the current planning and development in the country, it was very necessary to study the related history and highlighted the historical influences.

As it was noticed, Oman is a very old country (Omani and Persian political systems and civilizations are the oldest in the region) which is appreciated by history and has very strong routes extended to the ancient ages and the name '*Oman*' has been preserved for more than 2000 years. As it was noticed also that, during the second millennium, many Omani socio-political systems took the throne of the country such as Benu Nabhan Dynasty (1154-1435), Al Yarebah dynasty (1625-1741) and Al Busaid dynasty (1741-current). Furthermore, although Oman was a strong country in the 18th and 19th centuries and had wide international influence, since the late 19th century and up to the seventh decade of 20th century, Oman entered into a dark era with huge political

conflicts that ended up with poor economic situation, social degradation and illiteracy. Within this, the period of Sultan Said bin Taymur (1932-1970) was considered as one of the darkest periods that Oman went through in the modern history due to his restricted practices and administrative behaviours. He was against education and information sharing and he neglected healthcare. He entered with a huge political conflict with the interior of Oman (bloody conflict with Imamate) as well as in the south (Dhofar revolution). In the modern history, the sixth decade of the 20th century was a dark decade in Oman history. Oman only saw the light again in 1970 when Sultan Qaboos took the lead from his father and he started to rebuild Oman as a modern country.

From the historical incidents of the 20th century, it is concluded that:

- Political and economic fluctuation has great influence on the development of any country and threatens its security and stability. Therefore, the persecutions of the worse political and economic situation and the sovereign disputes of Oman during this period affected definitely the direction of the modern planning and development of the country after 1970.
- The period before 1970 was characterized by the weakness of governance system (the government structure was very small, weak, and not stable).
- The external interventions in the interior affairs of the country during the same period, mainly the British interventions, had negative impacts on its development and resulted in adverse persecutions on the political, social, and economic conditions.
- Negligence of education and education infrastructure (as well as public health) for a period of more than 40 years (from around 1930 to 1970) had negative influence on the development of the country after 1970 due to the high illiteracy and this made the state more or less retroactive. Education is very essential requirement in the development of any country, and thus Oman has spent great efforts after 1970 to correct this situation.
- The previous contradiction of the tribal formation (opposing tribes) affected the unity of the country negatively and this was possibly a barrier in front of the proper planning and development in the beginning of Sultan Qaboos period, before the modern civil government minimizes this tribal intolerance.

4. The Reality of Spatial Planning and Spatial Development in the Sultanate of Oman

This chapter sheds a light on the planning system in Oman and demonstrates the main related parameters that interact with spatial planning and spatial development practices such as institutional and organizational structures, legal frameworks, regulations, standards and corresponding plans and studies. Studying these types of planning related areas in a timeline and synchronistic method is going to clarify the picture of spatial planning system in the country and highlight some of its critical aspects that are going to be analyzed in the next chapter.

4.1. Source of the Laws in Oman and the Administrative Structure of the Government

It is very necessary in the beginning to give some explanation about the nature of legal frameworks and the structure of Oman government. In a simple way, this section introduces the source of laws and the organization of the government apparatus.

Oman is an independent country with full sovereignty and according to *the Basic Statute of the State* that was issued in 1996 by the Royal Decree No. 101 and its amendments (which defines the general duties and rights in the state, the governance system, the Sultan authority, Council of Ministers, and judicial system), the source of the laws in Oman is the head of the state. The Sultan is the head of the state and one of his main duties is to issue and ratify Omani laws according to Islamic provisions. The projects of the laws and rules are usually suggested to the Sultan by the state administrative apparatus units (via council of minister or other leading authorities) and come out in a form of royal decrees that has to be implemented by the judicial and the administrative systems.

In addition, the Sultan is responsible for the establishment and abolishment of administrative apparatus units, and appointing deputies, ministers, secretaries-general, undersecretaries, political representatives, senior judges and their equivalents as well as ratifying the international treaties and agreements. He is also able to take direct actions when necessary and establish and preside supreme councils. Thus, all of the supreme decisions are formulated in a shape of royal decrees.

In Oman, the sultan represents the commander in chief of the armed forces, the head of the state, the head of council of minister (the prime minister) and the head of all supreme councils.

In relation to the government administrative structure in the country, *the Basic Statute of the State* did not define clearly the working mechanism of the government as well as the links and arrangement between all government units. Usually, the role of each unit is defined in its terms of reference. However, from the personal understanding, the following diagram illustrates how the government structure is organized.

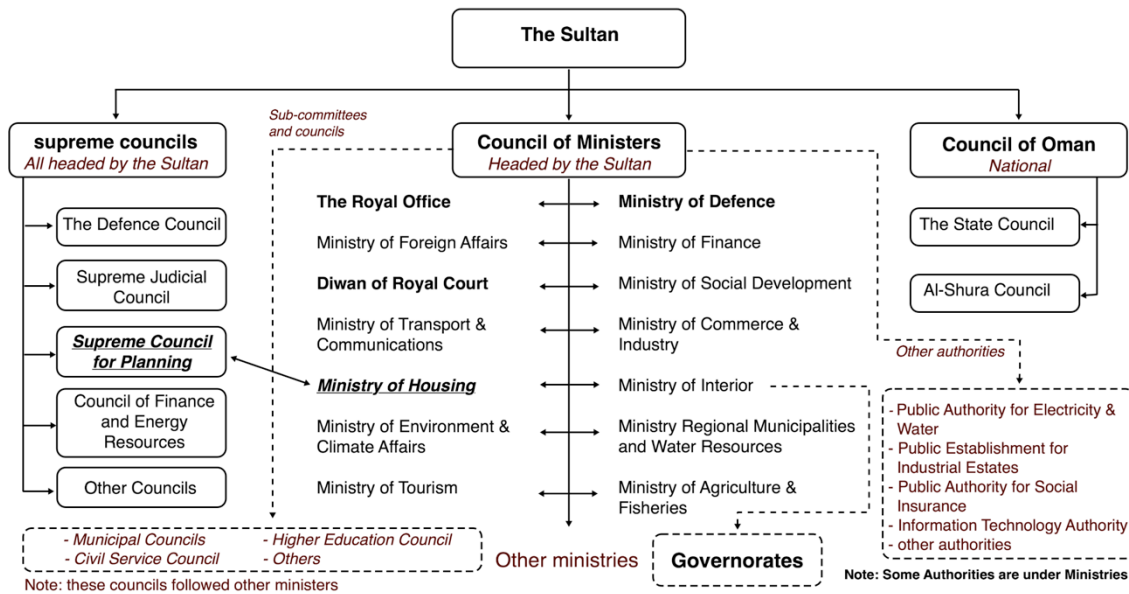


Figure 4.1: A simple diagram represents the government structure in Oman (author’s own work)
 Note: only some government units are included.

4.2. Land-Use Authorities before 1970

The history showed that Oman suffered from social, political and economic instability and this affected its urban development negatively. Before 1970, most of the cities and communities struggled to survive and suffered lack of basic infrastructure and needs such as healthcare and education. In planning field, there were no spatial plans, no development regulations, no responsible authorities for planning or land-use management, etc. As an exception, the development in Muscat (as the capital) has started somehow earlier with some sort of laws and regulations and the first municipal office in Oman was established in Muscat in 1938 to take some municipal duties in a very limited geographic area (Muscat Municipality, 2016). All other municipalities and land use authorities were established after 1970.

As a personal conclusion for that period of time, the spatial structure of the country was somehow distributed in segregated cities and communities with some sort of community-based planning. Built environment and land ownership were managed and organized through some legal instrument depending on the location such as through the procedures of local government offices or through legitimacy papers from local courts (some of them were managed according to the prevailing customs) as noticed from the articles 9th -19th of Lands Law that was issued in 1980 by the Royal Decree No. 5.

4.3. The Timeline of Physical Planning and Land Use Authorities since 1970

Oman government entered a new age after Sultan Qaboos bin Said took the lead from his father in 1970. This was the actual changing time in Oman modern history. The evolution of physical planning and land-use authorities like other governmental bodies have started from the 7th decade of the twentieth century.

In relation to planning and land use authorities, In 1970 a new administrative body was formed to manage ownership of properties and lands in Oman called *Land Department*

and that time it was under *Ministry of Justice*. The main duty of this department was to review the applications of citizens with the assistance of the area municipal office in order to distribute land plots with several activities for applicants.

In 1972, this land department was shifted to *Ministry of Development* for the purpose of land distribution and building permits. In the same year *Ministry of Lands Affairs* was established to include departments responsible for lands, lands' registry and surveying services.

In 1975 a Royal Decree was issued to organize the administrative structure of the whole govern system in the country (26, 1975). Within these changes, the duties of *Ministry of Land Affairs* were clearly specified to include urban and regional planning for the whole lands of the country. It was responsible for preparing development plans and land distribution plans which take into consideration public spaces, utilities and all necessary urban services (parks, schools, mosques, hospitals, market, open spaces, recreation and sport areas, etc.).

In 1976, the administrative structure of this ministry was subjected to some changes. The Royal Decree (17, 1976) changed the name to be *Ministry of Land affairs and Municipalities* which took, in addition to its duties, the supervision liability of *Muscat Municipality* and the other municipalities in the country. In 1982, another royal decree was issued to integrate *Ministry of Public Works* which was responsible for the public development during that time with *Ministry of Land Affairs and Regional Municipalities* (48, 1982). From the date of the Royal Decree, this ministry held the whole responsibility of planning and development practices in the country up to nearly 1985.

A significant change in the planning and development field occurred in 1985 when the *Ministry of Land Affairs and Regional Municipalities* was segregated into two deferent authorities. The first one was *Ministry of Regional Municipalities Affairs* through the Royal Decree (2, 1985) and this took all duties related to the supervision of the regional municipalities from the previous ministry. The second one was *Ministry of Land Affairs* and later on its name was amended to be *Ministry of Housing* through the Royal Decree (10, 1985) which took all duties related to land use planning, land distribution, surveying and land registry from the former authority (*Ministry of Land Affairs and Regional Municipalities*). Another worthy fruit of that year was the formation of *Supreme Committee of Town Planning (SCTP)* which was established through the Royal Decree (27, 1985). This was an important step towards creating integrated modern cities with strategic planning. The given duties to *SCTP* included the preparation of plans for urban and spatial development in both national and regional levels and in conjunction with economic and social development of the country.

Structurally, *SCTP* had subjected to several amendments through consequent Royal Decrees (50, 1995), (86, 1999), (31, 2005), (102, 2006) and (15, 2007) to be more efficient in town planning. Unfortunately, with all amendments, the performance of *SCTP* was noticed not enough to meet the country aspirations. Thus, due to the accumulated issues that emerged in urban planning and urban development in the whole country, *SCTP* was abolished in May 2012 through the Royal Decree (32, 2012).

During 2011 and 2012, Oman government was subjected to several changes. On the one hand, a lot of key personal in leading positions (ministers, undersecretaries, general managers, etc.) were excluded from their positions. On the other hand, one of the major royal decisions in the government structure was the abolishment of *Ministry of National*

Economy in March 2011 by the Royal Decree (38, 2011). As a result of the abolishment of *SCTP* and *Ministry of National Economy*, *Supreme Council for Planning (SCP)* was established in May 2012 through the Royal Decree (30, 2012) to hold the responsibilities of *Ministry of National Economy* as well as the responsibilities of *SCTP*. From the personal analysis, the motives behind these holistic changes could be associated with the social unacceptance towards the governmental performance as well as the accumulated issues that emerged in several fields.

Similarly, *Ministry of Housing* was also subjected to so many changes and amendments. In 2000, transport sector and all duties of *Ministry of Transport* was transferred to *Ministry of Housing*. Therefore, the name was amended to be *Ministry of Transport and Housing* (Royal Decree No. 10, 2000). In 2001, transport sector was separated from the ministry, but electricity and water sectors were added and accordingly, the name was changed to *Ministry of Housing, Electricity and Water* (Royal Decree No. 47, 2001). In 2007, water and electricity were separated from the ministry and became a new authority and hence it reverted back to its previous name *Ministry of Housing* (Royal Decree No. 93, 2007). In 2014, the organizational structure of *Ministry of Housing* was adapted, and its terms of reference were also adapted to include new duties (Royal Decree No. 64, 2014).

On the other side, directly after the establishment of the SCP, a new centre for statistics was formed. *National Centre for Statistics and Information NCSI* was established by the Royal Decree No. 31 (2012) to provide the essential statistics and information required by the government. Organizationally, SCP consists of two parts; the first one is the *SCP Secretary General* and the second one is the *National Centre for Statistics and Information NCSI*. The institutional structure of *SCP Secretary General* was adopted in 2014 by the Royal Decree (63, 2014) which includes departments for spatial planning, economic planning and social planning.

In general, it is concluded that the current main two authorities responsible for physical planning and land use practices in Oman are *Supreme Council for Planning (SCP)* and *Ministry of Housing*.

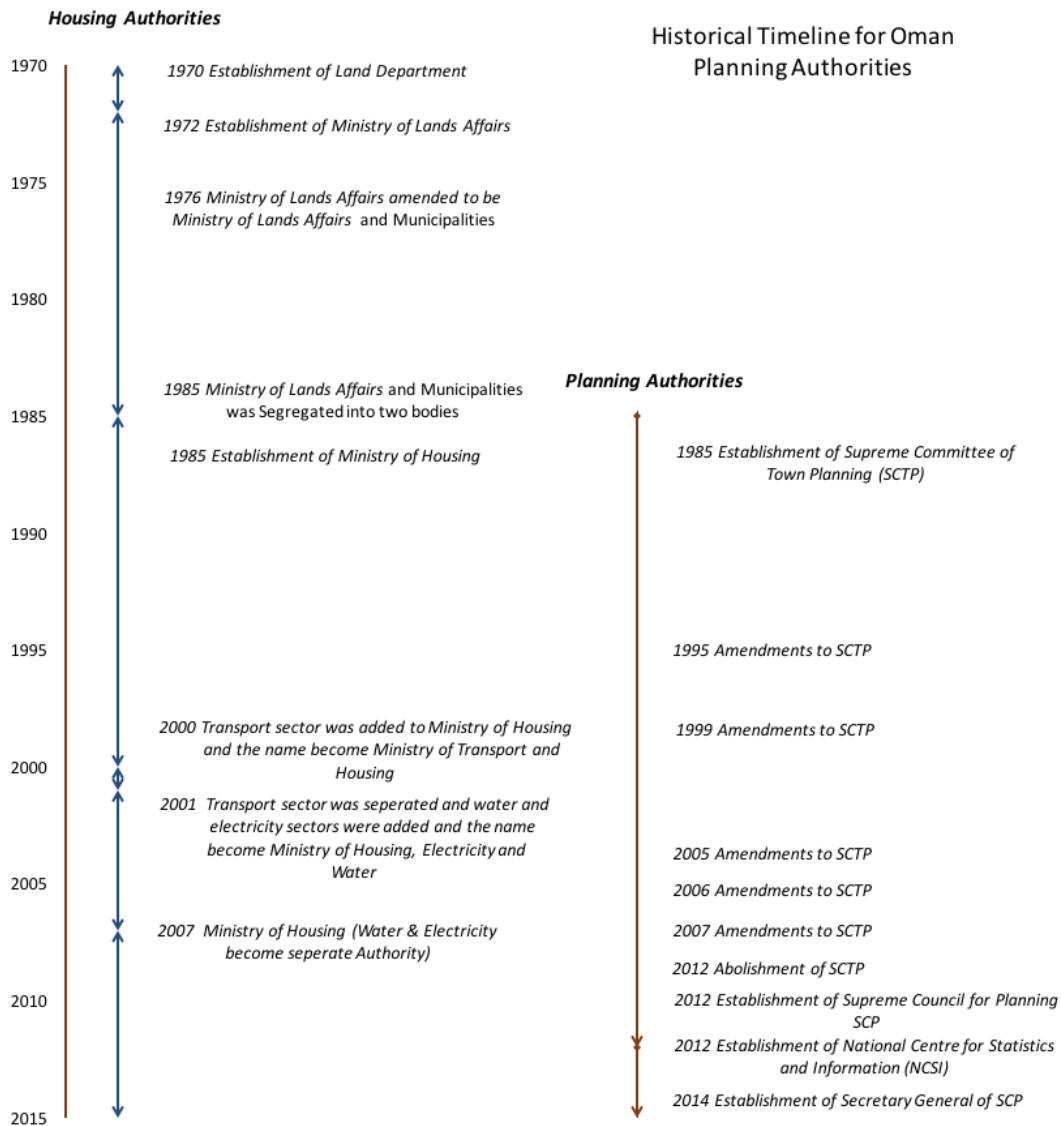


Figure 4.2: Oman planning and land management authorities' timeline (author's own work)

4.4. Concern Authorities in Oman Planning and Development

In any country, planning matrix is not simple to be held by one or two authorities. The competitive difference between regions could be achieved through the implementation of good strategies, practices, guidelines, standards, regulations and legislation.

4.4.1. Oman Main Planning Authorities

As it is mentioned that currently *SCP* and *Ministry of Housing* are the main two bodies responsible for physical planning in Oman.

For a long period of time, *Ministry of Housing* included its old structures played the essential and holistic role of land-use planning and lands affairs management even during the presence of *SCTP*. Most of the duties related to physical planning were directly

managed through this ministry and usually it was coordinating with other authorities in case there are any sort of common interests exist or in case there are some interference with other sectors (Such as natural reserves, industrial zones and restricted areas).

According to the Royal Decree (64, 2014), the added duties to *Ministry of Housing* which are directly related to spatial planning were; (1) suggesting the required legislation for spatial planning and spatial development, (2) preparing spatial plans in coordination with the strategies and policies of SCP and (3) preparing guidelines and standards to be followed by other public authorities as well as by the private sector.

On the other side, the associated tasks of SCP are; (1) providing long term holistic strategy for the future development of the country, (2) specifying the future visions and orientations of the government to maintain sustainable development, (3) providing national strategies and policies for spatial development that take into consideration economic, social and environmental factors, and (4) providing national strategy for statistics and information.

Moreover, unlike other municipalities in the country, *Sohar Municipality* is a special case where this one is responsible for land-use planning of Sohar region and its surrounding areas (Al-Batinah North Governorate). This municipality was known previously as *Sohar Development Office* which was responsible for all the duties of *Ministry of Housing* in that specific region.

Also, institutionally, Muscat municipality is an independent governmental unit. Dhofar municipality is similarly a special case where this one is under the Minister of the State and the Governor of Dhofar, whereas most of the other municipalities followed *Ministry of Regional Municipalities and Water Resources*.

In addition to these governmental bodies, there are still so many other concern authorities that play significant roles in the planning and development cycles in the country.

4.4.2. Leading Authorities

In addition to Oman supreme councils and authorities that are under the direct supervisor of HM Sultan Qaboos such as SCP and the Royal Office, there are some leading authorities and that have direct relation to the planning system in in the country such as;

Council of Ministers

Council of ministers is considered as the highest authority in the government pyramid headed by the Sultan himself. It is responsible for the supervision of the institutional performance and the major decisions of the government. It is also responsible for the revision and approval of national policies and strategies including five-years plans and other national plans. Therefore, this council plays a key role in the successful implementation of any national strategy related to urban planning.

Ministry of Defense

This is a leading ministry that can interfere in any plans getting close to its properties and premises (affected some planning and development regulations in some restricted areas).

4.4.3. Other Concern Authorities

Ministry of Finance

This governmental body is responsible for the financial studies and financial planning. No doubt that there is a direct connection between financial planning and urban planning practices. Finance plays an important role in the successful implementation of any urban plans especially when it comes to the cost of implementation processes that urban plans could offer or when it comes to other public financial liabilities that these plans could hold.

Ministry of Transport & Communications

This is the ministry responsible for transportation and infrastructure planning in the country. It is also responsible for civil aviation, port and maritime affairs as well as logistics services. From the transport and infrastructure dimensions, this ministry plays a major role in spatial planning.

Ministry of Environment and Climate Affairs (MECA)

The environment dimension is considered as one of the main factors and pillars in the success of any urban planning system. In Oman, MECA is the current main responsible authority for regulating environment sector. This ministry was established in 2007 by the Royal Decree (90, 2007) to hold all the duties, responsibilities and tasks associated with environment conservation and pollution control. Previously, environment sector was managed through a former ministry called *Ministry of Regional Municipalities, Environment and Water Resources* before it was split out into two deferent authorities. Some of the main duties of MECA which are related to environmental field include; (1) preparing national strategies for environmental management and nature conservation, (2) conducting the necessary environmental surveys, (3) managing natural reserves and all other environmental sensitive areas, (4) developing the guidelines, regulations and standards required to be followed in the country in order to maintain biodiversity, environmental sustainability and pollution control, (5) issuing the environmental permits for the new projects as well as for the running commercial and industrial activities after fulfilling the necessary environmental requirements and finally (6) coordinating and cooperating with other authorities as well as with international agencies to insure the safety of Oman environment.

Royal Police

This body is somehow associated with development process and it mostly interferes in the planning regulations especially road specifications, civil defense regulations and buildings security and safety requirements.

Ministry of Tourism

Ministry of Tourism (MoT) is the authority responsible for tourism planning and development in Oman which was established in 2004 by the Royal Decree (61, 2004). Before the presence of MoT, tourism sector was regulated through a directorate followed Ministry of Commerce and Industry. According to the Royal Decree (95, 2005) which defined the term of reference of MoT and approved its organizational structure, the main duties and responsibilities of MoT are; (1) executing the aims and strategies of tourism

industry, (2) developing a database for tourism activities, (3) formulating legal frameworks, guidelines and standards for developing tourism industry, (4) studying and assessing the suggested tourism projects, (5) managing and regulating tourism sector and (6) conducting the promotional programs to raise the national and international awareness of Oman tourism values, capabilities and potentials to attract investments in this sector. Form the above, it is concluded that this ministry represents one of the main planning authorities that shares some parts of Oman urban and regional structure.

Ministry of Regional Municipalities and Water Resources

The is the ministry responsible for most of the municipalities in Oman. The municipalities are the physical arms of development and they are responsible for building practices and building permits. Some of the main duties of the municipalities are; (1) preparing the policies and plans for the municipal work, (2) developing their urban and regional areas including roads, lighting, pedestrian lanes, public spaces, playgrounds and recreational parks as well as develop public car parking, (3) regulating buildings, (4) regulating residential, commercial, industrial, touristic and recreational activities (5) regulating public markets, (6) organizing boards (for places and roads), signage and advertisements, (7), regulating and organizing beaches and (8) controlling food products, food factories, and places such as restaurants. The municipalities usually have significant roles in local planning and local development. There are supported also by municipal councils (at the governorate level) that include public and private representatives.

Ministry of Commerce and Industry

In general, this authority is responsible for preparing the policies and plans required for commerce, mining and industry sectors. It is also responsible for technical studies required for the development and establishment of industrial states and free zones in Oman.

The Public Establishment for Industrial Estates

In connection with *Ministry of Commerce and Industry*, this authority is responsible to manage and regulate the industrial estates. It is responsible for distributing industrial lands to companies and Omani individuals interested in developing projects in the industrial estates as well as preparing plan for the public utilities, roads and all technical requirement by industrial estates. It is responsible also for preparing the industrial estates regulations and issuing building licenses.

Similarly, there are many sectoral governmental bodies involved in the physical planning processes such as *Ministry of Agriculture and Fisheries* which is responsible for agriculture and costal zones planning and management. *Public Authority for Electricity and Water* which is responsible for energy and water. In addition, there are several public and private utilities companies that usually have a significant input in the structural and detail urban plans such as NAMA group (energy), Haya water (sewerage) and Omantel (telecommunication) companies.

4.5. National Plans and Strategies

In general, urban planning, regional planning and land distribution processes cannot be isolated from the national plans and national strategies. National plans and strategies determine the main direction of the development as well as the future visions and the

concentrations of the government. There are two types of national plans/visions noticed in Oman:

- Short term plans (Oman 5-year development plans)
- Long term visions (Oman 2020 and Oman 2040)

4.5.1. Oman National Short-term Plans

Oman's first 5-year development plan

The first 5-year plan was the plan covered the period between 1976 and 1980. The aims of this plan concentrated mainly on finding deferent sources to increase the national income through industry, mining, agriculture, and fishing and on the other hand, working on providing the infrastructure and essential services. According to the economic expert Al-Shathli (2016), the national income was increased by more than 22% within the years 1976 and 1977.

Oman's second, third and fourth 5-year development plans

Similar to the first 5-year plan, the second (1981-1985), third (1985-1990), and fourth (1991-1995) plans concentrated on increasing the national gross domestic product (GDP), enhancing the free trading and working on attracting investments. They gave priority to the distribution of infrastructure and essential services and to increase the national contribution for improving individuals' income.

Oman's fifth 5-year development plan

The fifth 5-year plan (1996-2000) came in parallel with the announcement of the first long-term national strategy (Oman 2020) through the Royal Decree (1, 1996), sharing some of the strategic aims of developing human resources, diversifying the economy and enhancing the rule of the private sector in the development. Based on attachment No. 3 of the same royal decree, the government concentrated also on facing the financial crises which emerged that time due to the decrease of the petroleum product revenues. Within this period, the government enhanced the role of the private sector in development through privatizing some of the public companies and utility services institutions (Dhahir, 2010). The royal decree (42, 1996) set the policies of the privatization practices in the country in order to release the load of the government, maintain sustainable development and achieve a homogeneous relationship between public and private sectors.

Oman's sixth 5-year development plan

The sixth 5-year plan (2001-2005) focused mainly on promoting economic diversification and increasing the participation of non-petroleum activities in the GDP. This plan gave more attention to water resources and privatizing utility services including electricity and water supply as well as restructured telecommunications sector. In education field, the sixth plan concentrated on improving higher education and increasing the output of this sector to enhance the national workforce. It also gave attention to social welfare and improving social conditions. According to the speech of ex-minister of national economy, Makki (2006, January 1) mentioned that this plan registered an annual increase in the revenues of non-petroleum product of 9%. He mentioned that the GDP was subjected to an annual growth of approximately 8.7%. Tourism sector achieved also

a significant annual increase of 6.7% in average during the years of the plan. In relation to higher education, the number of participants in higher education institutions was almost doubled by the end of the plan (around 32 thousand as in 2000 and became 60 thousand as in 2005).

Oman's seventh 5-year development plan

The seventh 5-year plan (2006-2010) is the third plan in Oman 2020 chain. This plan continued working on and improving the objectives of the last plan and redirecting the focus of the government to additional specific aims. The main focuses of this plan were; (1) trying to achieve a continuous economic growth of at least 3%, (2) promoting local and international investments, (3) continue diversifying the economy and increasing the participation of non petroleum products to the GDP, (4) widening the opportunities of the higher education system, (5) enhancing the legislation and judicial system, (6) continue developing tourism, industry and fishery sectors, (7) preserving the national heritage, (8) improving the living standards of Omani nationals and providing sufficient job opportunities and (9) giving special attention to women social development and increasing the participation of women in both public and private sector as well as increasing females opportunities and scholarships in higher education. The ex-minister of national economy, Makki (2011) clarified that despite the financial crises in 2008, the country was able to achieve an economic growth of 6.3% (in fixed prices) and 13.1% (in current ones). The growth of non-petroleum product was subjected to an average annual increase of 8.2% (in fixed prices) and the country was able to provide more than 170 thousand job opportunities during the plan years.

Oman's eighth 5-year development plan

The eighth 5-year plan (2011-2015) was similar to the seventh plan with some additional aims and objectives. The aims of the plan are; (1) continue achieving annual economic growth of 5%, (2) continue diversifying the economy and promoting the role of private sector, (3) developing human resources, (4) investing in education and increasing higher education inputs, (5) increasing job opportunities and providing a minimum of 200 thousand vacancies in both public and private sectors, (6) implementing the strategy of Oman Digital Society, (7) improving the performance of the government sector, (8) enhancing and supporting the development of small and medium enterprises, (9) concentrating on the infrastructure development, (10) reducing the differences between public and private sectors in relation to employment characteristics and amending the labour law, and (11) continue investing in social dimension and maintaining the living standard of individuals. According to SCP report (2016a) the country achieved within the plan period a medium of 3.3% annual economic growth which was less than the plan objective (5%). There was a decline in the annual growth of non-petroleum products (5.8%). There was also a significant increase in the public employment rate as well as a significant increase in the salaries and wages amounts.

Oman's ninth 5-year development plan

The current plan is the ninth 5-year plan (2016-2020) and the last plan in the chain of the long-term vision *Oman 2020*. Through reviewing and analysing the plan summary report published by SCP (2016a), it is noted that the preparation of the ninth plan took more integrated direction in comparison to the preparation of previous plans which aims to fulfil the objectives of the long term national plan *Oman 2020* and face the regional

challenges especially the fluctuation of oil prices and its implications and also the surrounding political turmoil. In addition to the participation of all government authorities, this plan embraced the participation of the international organisations including United Nations organisations and took also the aspirations and visions of young individuals, academics, private sector, and other social institutions. This plan was prepared based on a detailed study to highlight the competitive advantages of the country. Therefore, and in order to maintain sustainable economic growth, it targets the development of five main sectors; transformative industries, transportation and logistics services, tourism, fishery, and mining. Some of the key objectives of the plan are; (1) adopting the economic diversification policies and maintaining an annual economic growth of not less than 3%, (2) providing a road map for the next long-term vision *Oman 2040*, (3) modifying the path of education and training and linking the education outputs with labour market, (4) achieving the balance and stability in regional development, (5) activating the national strategy of spatial development, (6) reviewing the legal framework, (7) promoting environmental sustainability, (8) developing national strategy for information and statistics to limit information conflict and (9) developing the governmental performance and providing a high level electronic government services.

4.5.2. Oman National Long-term Visions

Oman 2020

In parallel to the fifth 5-years-plan (1996-2000), the government announced working on the first long-term national vision (*Oman 2020*) which was ratified by his Majesty Sultan Qaboos through the Royal Decree (1, 1996). According to the Supreme Council for Planning (SCP, 2016b), *Oman 2020* intended to be a strategic plan to guide the country towards a sustainable and diversified economy. It offered a wide range of goals, aims and objectives for a period of 25 years and has worked side by side in parallel with the 5-year plans. This long-term strategy focuses in reducing the reliance of the government on the petroleum sector and maintaining the achievements and gains that were added during the renaissance years since 1970. It focuses also in creating a stable ground and climate for the economy in general, diversifying the sources of the national GDP, increasing the participation of the private sector in the development of the country and maintaining a balanced economic development between governorates and regions. It gives more attention to the development of the human resources, building capabilities and upgrading the skills of national workforce. As a government commitment, it has concentrated in creating enough job vacancies to reduce the rate of redundancy and raising the standard of living through providing quality services and increasing individuals' income.

Oman 2040

Oman 2040 is a running project in parallel with other projects such ONSS and tourism strategy 2040 which are expected to be ready by 2020. *Oman 2040* is an extension to *Oman 2020* and according to the fourth meeting of the main committee responsible for *Oman 2040* project (SCP, 2017), the vision is going to concentrate on social elements, economy, and environment. In addition, it is going to maintain integration with other national strategies. As was acknowledged also that the formulation of this national vision is going to include community participation.

All these plans (short-term and long-term) share the goals and objectives to speed up the wheel of development, bring Oman to the front and secure a decent life for people.

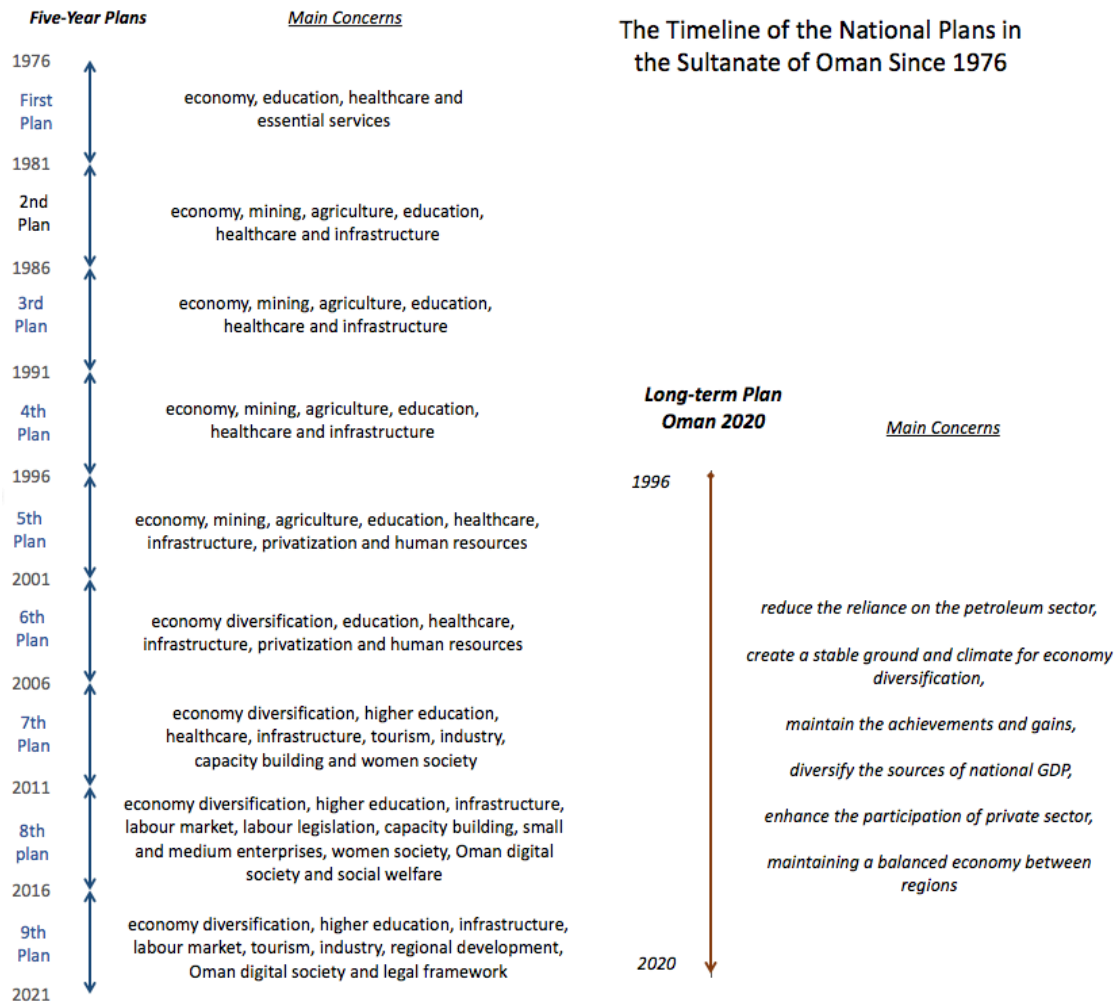


Figure 4.3: The timeline of Oman national plans (author’s own work)

4.6. Legal Framework

In addition to the planning and land-use organizational and institutional public structures, related suitable legal framework is considered as one of the main pillars in the success of spatial planning in any region. Through studying the nature of the legal framework in Oman, it is discovered that there is no exact urban, regional or town planning legal standards or associated comprehensive law exist. The legislation that affect lands and physical structures is distributed into a set of several laws and governmental decisions.

Lands law is one of the important laws that interact with lands, land-use management and land-use distribution. Lands law was issued in 1980 by the Royal Decree (5, 1980) and had served Omani nationals in its earlier version. This law is mainly associated with land ownership and land management but not interacts with planning practices. It defines that all lands outside the approved private or public ownership is own by the state and

set some rules to manage and distribute these lands and to deal with all related cases and issues. The law has subjected to subsequent changes where the last one was in 2010 (Royal Decree No. 76, 2010). This Royal Decree included some amendments in the clauses of the law to serve additional groups. As was observed from the research, all the changes of the law interacted with the management and administrative part of land use but not with the physical one.

Similarly, the *Law of Usufruct* for individual and companies including expatriates was issued in 1981 by the Royal Decree (5, 1981) to manage and set some general rules of land usufruct agreements. In 1984, *Governmental Lands Entitlement System* was established by the Royal Decree (81, 1984) to manage and set rules to distribute lands for individuals and companies for residential, commercial, agriculture and industrial purposes. These frameworks have also subjected to several changes and amendments.

In addition, during the presence of Supreme Committee of Town Planning (SCTP), some decisions related to town planning were issued including a general guideline for town planning which was issued in 2003 as well be discussed later.

In 2013, Ministry of Housing issued a decision (53, 2013) for the executive regulations of lands planning. The list of regulations was general and included clauses related to; (1) the directions of city expansion, (2) necessary services for areas and road networks, (3) providing enough public spaces, (4) standards for merging and dividing lands, and (5) standards for existing land extensions.

Also, one of the important legal instruments is the *land registry system* which was established in 1998 by the Royal Decree (2, 1998). Land registry system deals with ownership documentary and all land disposition procedure including transfer of ownership, mortgage, and collect related governmental taxes and fees. In Ministry of Housing, land registry department is responsible for granting ownership/usufruct documents including detail areal drawings for land plots that usually define their locations according to the coordinates and define the development setbacks, development maximum heights and maximum built-up areas.

In addition to these, there are several fragmented pieces of land related legal framework that usually take into consideration limited aspects. From the research, it is concluded that most of current legal framework deals mainly with the general aspects and lands management affairs.

4.7. Existing Spatial Planning Guidelines and Studies

4.7.1. Planning Guidelines and Mechanisms

Spatial Planning Guideline Document 2003

As is mentioned before that there is no single planning standard exists in the country for spatial planning. However, one of the important guidelines is *spatial planning guideline* (SCTP, 2003) which was prepared and published by the former institution Supreme Committee of Town Planning in 2003. This guideline consists of two parts and a total of 25 chapters. Part one negotiated the policies and procedures that preceded the preparation of the guideline itself. It presented also some of the tasks, functions and duties of other authorities associated with spatial planning that time. Part two came with some detail information and criteria for planning practices including some detail statistics. In the

beginning of second part, the document overviewed the prospected four levels of urban planning in Oman starting from a national level to a regional level then a structural level and finally a detail level of planning. Then it presented some housing requirements as well as public places, public facilities, utilities and services requirement in these plans. It took into consideration the planning requirements for residential areas, commercial areas, health and education facilities, social and religious facilities, sport and recreational facilities, provisions of transport and telecommunication sector and the requirement of other infrastructure services including water, electricity and sewerage.

In general, this publication offered some visions and guidelines for several spatial planning and development practices. Probably, due to its limited scope of work or limited legal framework, it did not address the industrial sector or other development sectors in detail. Moreover, it is noticed that it was prepared based on a collection of information from several authorities according to their individual requirements and needs and on the other hand presented to be as a guiding document for other authorities for better planning decisions but not as an obligatory document.

Oman National Spatial Strategy (ONSS)

This is one of the current running projects and one of the largest and highly complex projects of its kind in Oman. The project consists of four consequent phases which are predicted to take several years of preparation and work. Phase No. (1) is related to the analyses and assessment of the current conditions of Oman which has already completed in 2014. Phase No. (2) related to the tendering procedure for the preparation of regional spatial strategies that will be conducted through technical consultants. Phase No. (3) is the preparation of regional spatial strategies and the last one (phase No. 4) is the formulation of the national spatial strategy. The prospected national strategy aims to present guidance for future decision making in urban and regional planning for the next 30 years. It tends to present a common vision for the development of the country in both national and regional levels and to prepare and suggest mechanisms for intuitional and legal planning frameworks as well as providing a mechanism for capacity building to insure the best implementation of the strategy.

Through reviewing and studying the output report of Phase No. (1) Stage No. (2) of *Oman National Spatial Strategy* project (SCP, 2013), it was noticed that the working team is moving in a good direction in formulating the prospected national spatial strategy, at least until the end of phase one. This phase was subjected to a collection of a wide range of information and documents from the governmental authorities related to spatial planning. In addition, there were several national and regional workshops conducted to enhance the quality of the output. In relation to the report itself, it concentrated in seven main areas; (1) GIS management and E-government, (2) environment and natural resources (3) human resources and social infrastructure, (4) economic sector, (5) transport and infrastructure, (6) administrative and legal settings and (7) capacity building. This report tried to discuss and present some of the development trends and issues as well as the opportunities and challenges of each area. It tried also to draw a picture on the relationship between existing land use policies and regulations and physical, social, and economic planning which were remarked not connected at the end. As an output issues, the reports indicated that there is deficiency in the plans, standards, legal instruments, and qualified workforce related to spatial planning as well as there is lack of research culture in the country, lack of public transport, sprawling urban form, and unbalance urban and regional growth. It highlighted also that the implementation

practices in urban and regional planning are beyond and not relevant to the already prepared plans and guidelines. However, what was noticed from the personal analysis of the report itself that it is not homogeneous in relation to its structure and quality. Some parts are relatively good and some of them are very subjective and have shallow information. In general, it is so early to talk about the final strategy how it may look like and how it is going to be implemented. In a sort of technical analysis, next chapter is providing a variety of indicators related to spatial planning in Oman.

Interim Mechanism for Spatial Planning

Through studying the mechanism documents provided by Ministry of Housing (2014), it is noticed that this essential step came into practice in 2014. It was prepared in coordination with SCP as a temporary action plan to monitor and control spatial planning in Oman. For the success implementation, a technical committee was formed to put this mechanism in action and follow up all spatial planning associated aspects. This committee is headed by Ministry of Housing and include the membership of the General Secretary of SCP, Ministry of Transport and Telecommunications, Ministry of Regional Municipalities and Water Recourses, Ministry of Agriculture and Fisheries, Ministry of Environment and Climate Affairs, Ministry of Commerce and Industry, General Authority for Electricity and Water, Royal Oman Police, Muscat Municipality, Haya water company (Sewerage representative) and Telecommunication Regulatory Authority.

The main aim of the *Interim Mechanism for Spatial Planning* is to control the path of development in Oman until issuing the final detail vision of Oman national strategy for spatial planning.

The mechanism presents some general criteria for land-use planning including residential, commercial and industrial use requirements as well as identifies the main public facilities and public spaces required to be provided in the new detail plans. It presents some planning and development limitations and guidelines such as coastal zone guidelines including the necessary setbacks from the shore line, building heights and buffer zones between areas. As a fundamentally regulation, all types of new plans are subjected to the approved of the concern committee first before Ministry of Housing takes farther actions.

4.7.2. Development Standards and Guidelines

Building regulation in Muscat 1992

Building regulation in Muscat Governorate was published by Muscat Municipality Local Order No. 23/92 (1992). The regulation document consists of four chapters. Chapter one illustrates the general provisions which include technical and administrative definitions as well as the procedure and requirements for contracting new buildings. Chapter two includes the architectural and technical standards that should be considered in preparing construction documents for buildings according to their land use type. Chapter three talks about the inspection and supervision procedure of buildings and the associated requirements. Chapter four is related to the penalties and legal procedure in case of violating any article of this building regulation.

The municipality is supported with a Municipal Council that include the membership of several authorities as well as elected representatives from local communities. The council supports the municipality from deferent angles include providing suggestions for the new regulations and suggestions for the amendments of existing ones.

In general, no project is allowed to be constructed without establishing earlier permit from the municipality as well as additional permits from other authorities according to the project type and size. However, there are no clear standards implemented for developing public spaces and amenities including vegetation, pedestrian (*Highway Design Manual* mentioned bellow elaborates on this field somehow) and cycling infrastructure, local playgrounds and other local services.

Highway Design Manual 1994

This a very technical document for roads construction in Oman published in 1994. It was mentioned also in the document that there was an earlier version from the manual implemented since 1986 (Sultanate of Oman, 1994). The manual is used as an official reference for roads by all planning authorities as well as construction institutions including Ministry of Transport and Telecommunication, municipalities, consultants and construction companies. The document includes more than 15 technical chapters which contain a wide range of roads detailed aspects such as earthworks, pavements, structural works, installation and utilities, safety, signage and marking, water drainage and landscapes. As it is known, transport planning is very link with spatial planning in shaping cities and regions. Thus, although the manual is much more with the construction aspects, it elaborated on some of the planning measures such urban and rural road hierarchy including the right of way required, pedestrian measures, parking spaces and amenities.

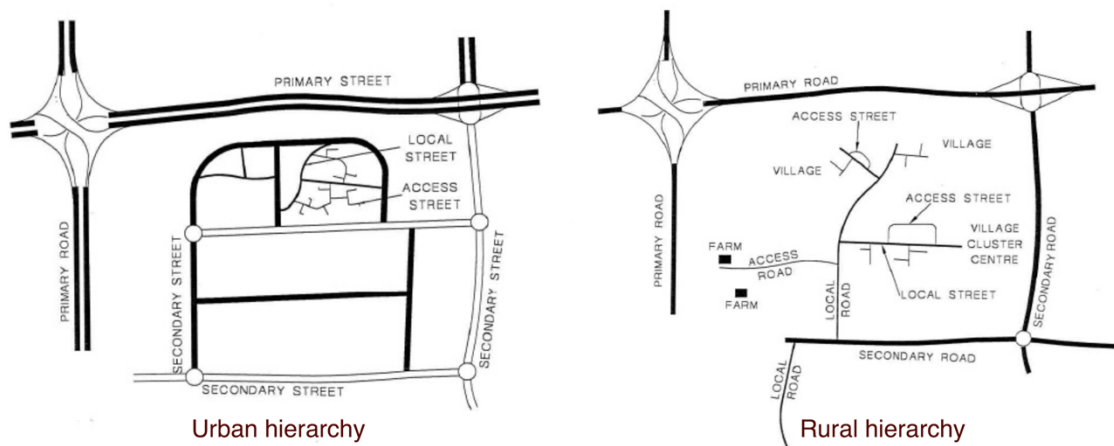


Figure 4.4: Urban and rural road hierarchy implemented in Oman (Sultanate of Oman, 1994)

Regulations for Organizing Buildings 2000

For other municipalities in Oman, Ministry of Regional Municipalities and Water Resources issued the Regulations for Organizing Buildings through the Ministerial Decision No. 48 (2000). The regulation document consists of five chapters. Chapter one overviews the general provisions. Chapter two is related to buildings' architectural and

technical conditions and specifications. Chapter three illustrates the specifications of buildings' drainage systems including water and sewerage water requirements as well as the specifications of restrooms facilities. Chapter four presents the implementation control of building including the administrative procedure as well as inspection and supervision of projects. The last chapter is related to the penalties and legal procedure in case of violating the ministry regulations related to buildings. In 2011, the ministry made some updates to these regulations (ministerial decision No. 43/2011) including some amendments in the articles as well as some amendments to the technical criteria. Similar to Muscat municipality, there are no standards provided for developing public spaces in the regions.

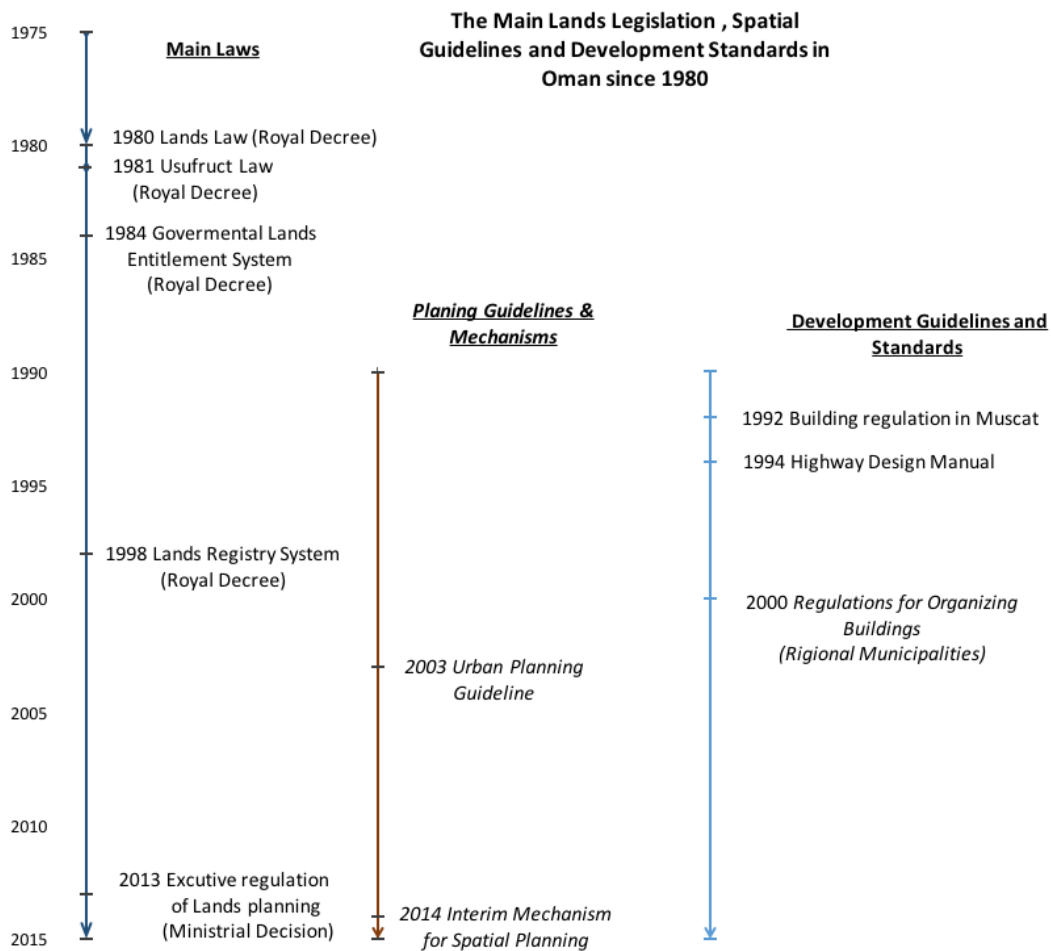


Figure 4.5: Oman main legal instruments and guidelines related to spatial planning (author's own work)

4.7.3. Existing Spatial Plans and Studies

In relation to the quantity of studies in this field, there are quite a lot of regional, structural and urban studies exist around the country. From 1980s there was a clear concern from the governmental planning authorities to conduct regional and structural plans in so many regions and cities in Oman. However, it is not easy to talk about the quality of spatial planning since the upper level (the national level included national spatial plans and strategies) and the lower level (detail plans including associated guidelines and standards) were missing somewhere in Oman urban and regional planning cycles. In addition, according to ONSS report (SCP, 2013) these plans and studies were conducted through several authorities which means on the other side that there is a conflict and overlap between Oman authorities in relation to their duties and responsibilities.

Due to its importance as the capital, Muscat Governorate is taken here as a case to show the availability of physical plans and studies in the area. Muscat is the most heavily populated region in Oman and the most area that has high dynamic growth and high construction rate.

For illustration, the following chart shows the main spatial studies conducted for Muscat Governorate since 1980.

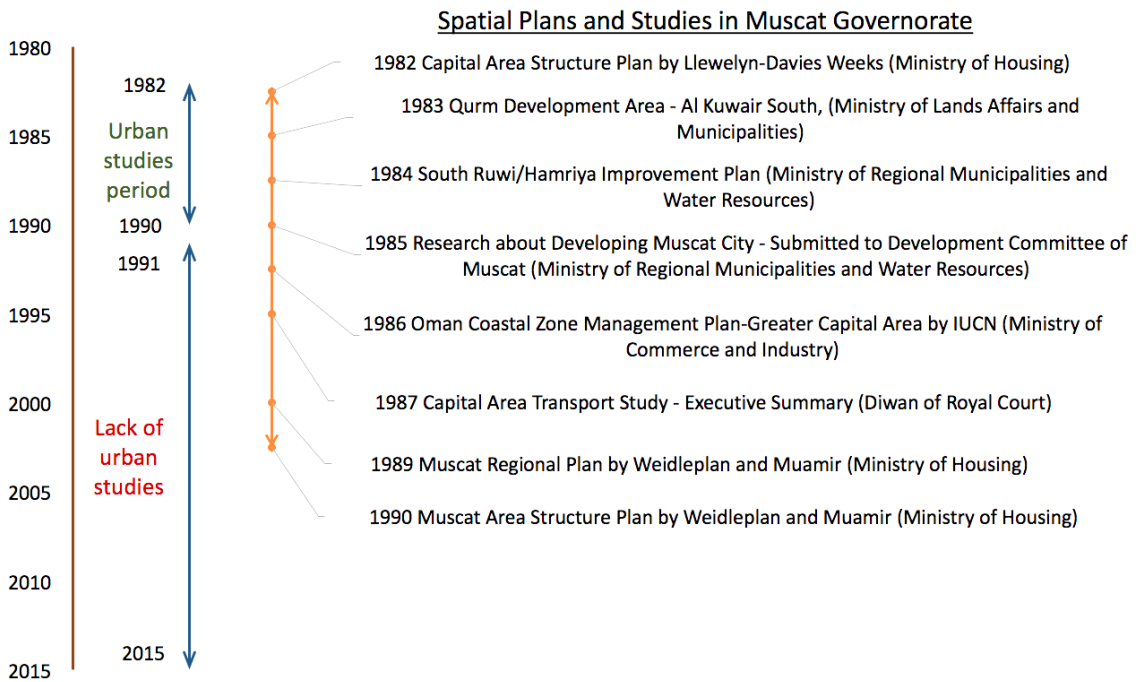


Figure 4.6: A timeline for spatial plans and studies in Muscat area (author’s own work)

As a fact, due to the official restrictions on private accessibility to the detail information about these plans and studies, the discussion here relies mainly on the information provided by ONSS documents. According to the report (SCP, 2013), the planner Davies-Weeks in 1980 prepared a structural plan for Muscat and he described the problems of the capital that time as (1) rapid demographic growth, (2) uncontrolled urban development, (3) rapid residential development and (4) urban congestion in some areas such as Matrah. He recommended a compact urban development approach that take into

consideration the maximum utilization of available lands. However, his structural approach showed absence of plans for undeveloped areas nearby the existing cities and developed zones (see Appendix A, Davies-Weeks plan 1980).

Later on, in 1989 and 1990, Weidleplan and Muamir conducted more comprehensive structural plans for the capital Muscat. They addressed within their works the key aspects of Muscat structure and made some substantial recommendations for the physical planning that take into account the orientations of to the national five-year plans. They defined the major land use areas in Muscat as well as the required transportation, infrastructure and utilities and they presented a strategic approach for the area expansion and direction of development (see projected land use 1989-2010 plan and projected growth concentration 2010 plan in Appendix A). During that time, they recommended for the responsible ministry to avoid the distribution of non-utilized lands to citizen. They recommended also to reassess land distribution system as well as establish land reserved policies.

As it is noticed from the previous timeline chart, most of Muscat spatial planning studies were conducted in the 1980s and early 1990s, so there is a wide time gap between the studies' period and the current time (more than 25years). Even though, these plans considered only limited areas in the capital and went out of date very fast due to the rapid dynamic growth leaving so many areas unplanned even within or between the developed clusters. Therefore, the current urban picture of Muscat shows somehow unbalanced development between areas due to several land-use issues such as the lack of spatial studies and standards.

For other governorates and in order to draw a wide picture about urban studies timeline in the country, there is a long list in appendix (B) representing the related urban plans and studies in several regions in Oman.

4.8. Lands Distribution Methods to Individuals and Institutions

All the procedure related to the distribution of lands to nationals is managed through Ministry of Housing according to its existing regulations and according to the rules of the governmental lands entitlement system that was issued by the Royal Decree (81, 1984). At the beginning, the law gave the right to all national males who exceeded the age of 21 years to ask for private residential lands for a maximum of two lands per person (one in the permanent address and one in the working place if deferent). Ladies were only allowed to acquire lands if they are divorced or they are the only persons responsible for themselves and their families. This law set also some other conditions to grant the final ownership of lands such as issuing temporary papers at the beginning and gave two years limited period to start using the allocated lands. This law was subjected to several consequent amendments and the number of residential lands to be granted per person was reduced to be one plot only (in the permanent address or in the working place). According to the Royal Decree (88, 2005), the minimum age of applicants was also amended to be 24 years and the government started here to grant two years restricted ownership for new lands that prevent selling and mortgage. All other clauses of the system remained similar. In 2008 the equation changed, the Royal Decree (125, 2008) amended the minimum age to be 23 years for all nationals with no more restrictions for ladies. This opens the gate far all ladies in Oman to claim for their missing right and hundreds of thousands of applications were submitted to the government in that year

which put the government in a real pressure as will be discussed in the next chapter. The two-years restricted period was also removed by the Royal Decree (73, 2011) and unrestricted ownership for new lands is given from the first issuing dates which led to an open lands market. According to the current regulations, the main requirements for granting residential lands to individuals are as follows:

- Should be Omani national (man or woman).
- Minimum age of 23 years.
- Lands are distributed by toss according to application order and available residential plans.
- Pay the related fees before getting ownership papers.
- Start the construction within two-years from receiving the land papers.

Similar to residential lands and based on the same system, nationals are qualified to apply for private commercial or industrial lands if they have businesses or activities related to the same field and same area (location of business). According to the latest amendment that provided by the Royal Decree (97, 2010) the requirements for commercial and industrial lands are:

- Should be Omani national with minimum age of 23 years.
- Have an active commercial or industrial activity for more than three years.
- Lands are distributed by toss according to application order and available commercial and industrial plans.
- The minimum period for granting free ownership that enable people to sell or transfer lands is 4 years.

Agriculture lands are also possible to be distributed to nationals after the approval of Ministry of Agriculture and Fisheries, and after submitting the proposals of agriculture projects and the necessary studies. When the applicant gets the approval and receive the land, he/she will be granted temporary ownership papers for the first three years to ensure the success of the projects before granting the final unrestricted ownership.

In general, all types of lands are distributed against some fees which are far away from the real cost of the lands. The fees vary according to the location and land-use type where the rate of commercial and industrial lands is much higher than residential and agriculture ones. The minimum area of residential plots is 600 m² in open places and 400 m² in congested ones whereas the area of other land use types varies according to project, location and other parameters.

In addition to the above private ownership procedure, the government allocate also lands to individuals (nationals and expatriates), companies and institutions through usufruct or rental agreements. As a governmental public share, the government plan and preserve some areas for the public use which are distributed and allocated based on the direct coordination between governmental bodies and Ministry of Housing.

4.9. Environmental Legal Framework and Regulations

In Oman, the concept of the environment protection and pollution control emerged in the 1970s where the country established the first supervisor office for environment conservation in 1974 (MECA, 2016). After a long institutional journey and as was mentioned earlier in this chapter, MECA is the current responsible ministry for managing

environment sector in Oman since 2007. In relation to the environmental legislation and regulations in the country, there are many legal documents and guidelines serving environment protection and pollution control. One of the main legal frameworks is the Environment Conservation and Pollution Prevention Law which has two editions. The first one was issued in 1982 to insure the safety of Oman environment and set the regulations for environment conservation as well as presented some of the standards required for pollution control (Royal Decree No. 10, 1982). This edition of the law defined clearly the main general conditions and the duties of the regulatory authority that time. It specified the requirements and the steps needed to be taken to protect the environment and natural habitats including the permitting procedures for projects and activities that have environmental impacts. It elaborated also on the penalties resulting from violating the law itself. The second edition of the law was issued in 2001 (Royal Decree No. 114, 2001) which overrode the first one and came with more comprehensive and flexible articles. This edition gave some flexibility to the responsible ministry to prepare the executive regulations and guidelines of the law.

Form the research, one of the key documents that were observed in environmental field is the 'Advance Regulatory Wiki Application' (MECA, 2013). This document was published in 2013 by *Sohar Development Unit* which is a division from MECA to be as a comprehensive guideline for the environmental regulations applied in Oman. This document presents around 25 environmental legal frameworks including all their guidelines and standards. It includes also the guidance for obtaining the environmental approvals and preparing the required environmental studies such as environmental impact assessments (EIAs) and environmental performance reports. It lists mainly most of MECA requirements from all type projects and activities subjected to obtain environmental approvals in order to perform their works. This document is noticed to be a good reference to understand how environmental measures are implemented in Oman.

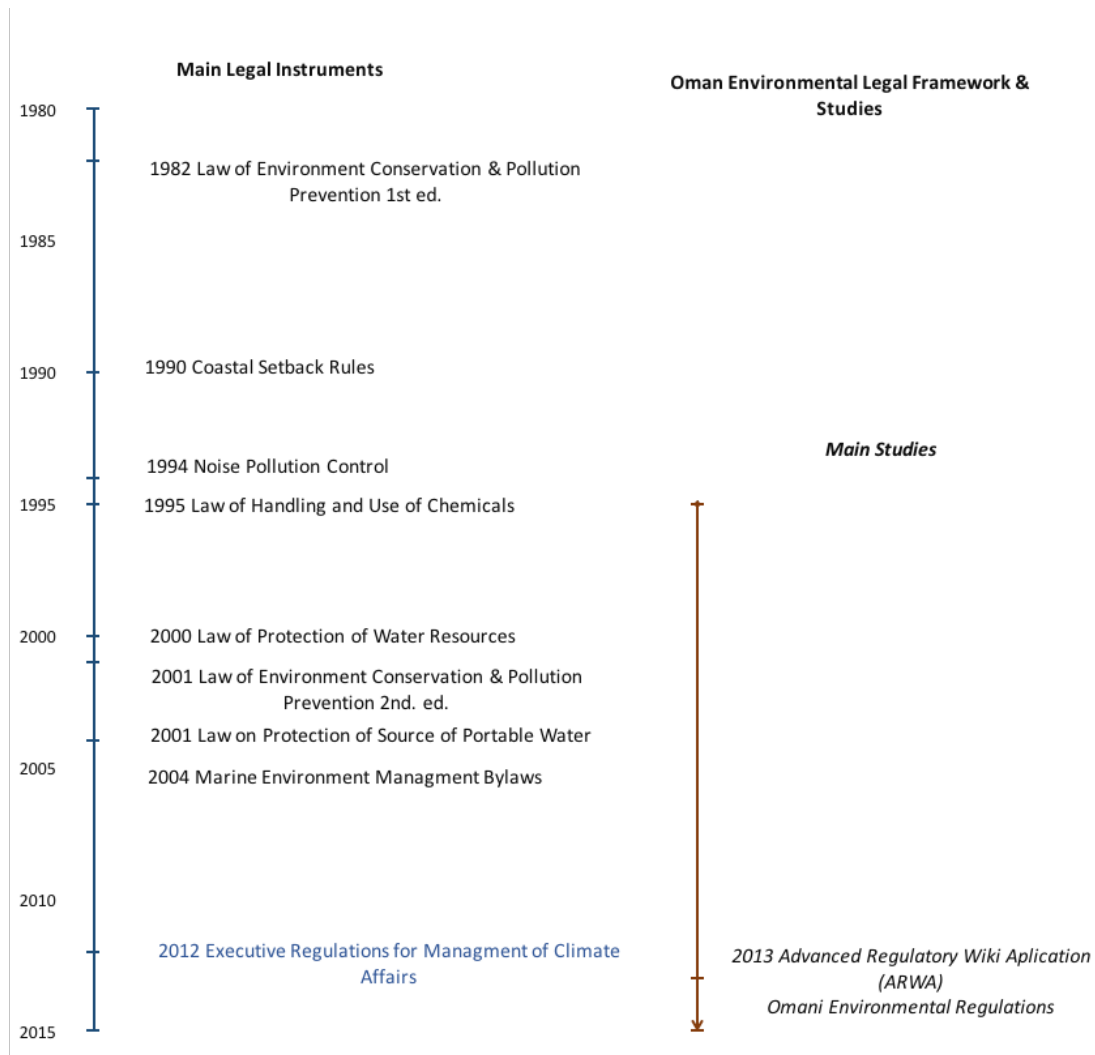


Figure 4.7: A timeline for environmental legal framework & studies (author's own work)

4.10. Tourism Development Legal Framework and Regulations

As one of the important concerns of this research, the main related legal framework and guidelines of tourism development are going to be addressed in this section.

In general, public and private investments in tourism sector came somehow very late in comparison to the investments in other sectors. The establishment of Ministry of Tourism (MoT) in 2004 represented the foundation for developing tourism industry in the country. Two years earlier to the establishment of MoT and as a main legal framework, tourism law was issued in 2002 (Royal Decree 33, 2002) to organize tourism industry and encourage tourism investments in Oman. The provisions of the law specified the government responsibilities and liabilities to develop tourism sector and organize tourism activities. In 2006, another legal framework was issued to allow expatriates to obtain land and real estate ownership in tourism complexes in Oman (Royal Decree 12,

2006). According to Oman system, land and real estate Ownership, outside tourism complexed, is restricted only to Omani nationals and GCC citizens.

In terms of tourism related criteria and guidelines, MoT has published some useful documents. Development Control Plan Framework, as an example, was prepared in 2010 by the planning division of the ministry to be as a guideline for developing tourism complexes (MoT, 2010). In relation to the development of accommodation facilities, the ministry has implemented two main obligatory standards. The first one is the Classification Criteria and Standards for Hotels (MoT, 2013a) and the second one is the Classification Criteria and Standards for Hotel Apartments (MoT, 2013b). Both of these two documents present the detailed specifications and requirements of the ministry to develop deferent types of hotel facilities (for places ranking from one star to five stars) which include engineering dimensions, amenities, services, decorations and calculations for public spaces. Also, the ministry published recently a document related to the requirements of developing camping areas.

In planning field, usually the ministry conducts segregated masterplans and studies for tourism projects and some touristic areas. In some cases, it coordinates also with Ministry of Housing and other authorities to conduct some urban plan for areas that have high touristic potentials such as Al-Jabal Al Akhdar master plan which was prepared by MoT in conjunction with SCTP and Ministry of Housing. At the national level, the ministry works in developing its national strategies for sustainable tourism 2040 which could sharp the vision of the ministry in the coming years.

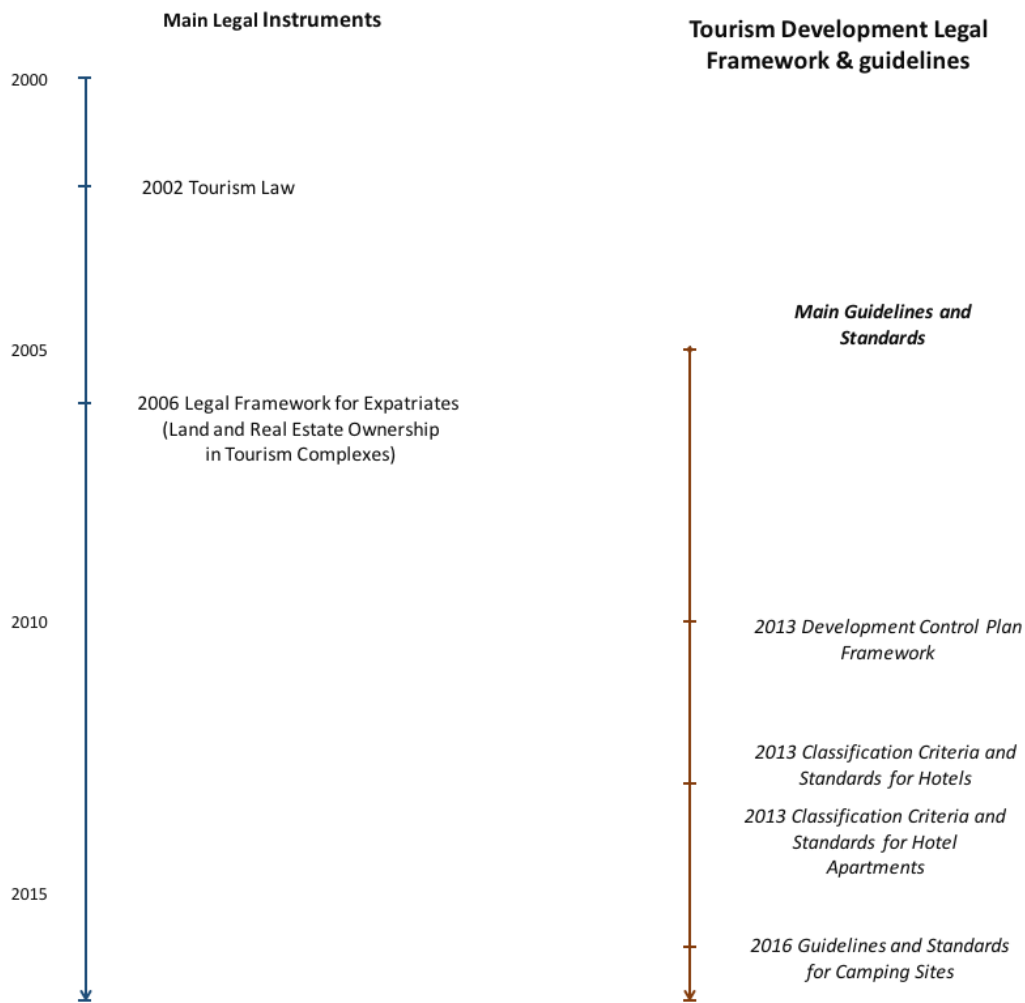


Figure 4.8: A timeline for tourism development legal framework & guidelines (author’s own work)

4.11. Conclusion and Lessons Learned from Chapter Four

There is no doubt that studying spatial planning in a country having rapid economic, demographic and development growth is one of the difficult matters especially if there are several challenges face this country. In Oman, the concept of planning and lands affairs management arose from the first years of its renaissance (since 1970) and the path of urban planning has been modified several times during the past four decades.

The history of the main land-use planning and management authorities is very rich in changes and amendments in relation to the institutional formworks as well as in the duties and responsibilities. Ministry of Housing including its old institution forms has taken the main load of spatial planning including physical duties and tasks and all land affairs management duties up to the current time.

In addition, from 1985 to 2012, SCTP took the guiding role for town planning in the country and tried to control and adapt the path of spatial planning to the right direction. Probably, due to the institutional structure or the working mechanism of SCTP, its overall

performance was not accepted, and it was abolished in 2012. Instead and in the same year, Supreme Council for Planning (SCP) was formed to take the supervision of all planning practices in the country including physical, economic and social planning. Institutionally there is a large deference between SCTP and SCP where SCTP was established to work under the ministerial level, but SCP is a supreme authority headed by HM Sultan Qaboos directly. In addition, there is a wide range of governmental authorities concerning about urban planning and each works and participates according to its terms of reference and responsibilities.

Through reviewing the general planning mechanism in the country from a national prospective, it is noticed that the country has implemented two types of national plans. The first type is the series of five-year plans which were started in 1976. Here the country sets short time goals and objectives to be achieved in a five years' period. The second type is Oman 2020 which is a long term national strategy started in 1996 and this has provided long term goals to be achieved in order to secure the desirable position of Oman in the year 2020 (currently the country is preparing Oman 2040). It is obvious from the concerns of these plans that spatial planning was not one of the main goals of the country throughout the years.

In addition, the legal framework that supports spatial planning is noticed as insufficient to serve all the related aspects. *Lands Law* and *the Governmental Lands Entitlement System* could be the main two legal instruments in this field but both of them are dealing with the administrative part of land-use (lands ownership and the distribution of land plots to citizens).

In relation to the spatial standards, guideline and studies there is a clear lack in these field. Up to 2003 there was no official document published to control planning practices in Oman. *Urban Development Guideline* was published by SCTP in 2003 to facilitate the planning matrix which was observed as not obligatory document to be followed by Ministry of Housing and other authorities or, in other words, was taking by the authorities as a guiding tool only. In 2014, SCP introduced a temporary action mechanism (*Interim Mechanism for Spatial Planning*) to control spatial planning aspects until the current running project (*Oman National Spatial Strategy ONSS*) is completed and the related output documents come into action. Moreover, most of the structural plans prepared in the past for the regions are very old and became out-of-date due to the rapid growth of development (especially for the capital Muscat). Furthermore, in relation to the development and construction side, there are some criteria and standards prepared by authorities mainly for designing, developing and constructing projects of deferent types.

In general, this chapter is highlighting some of the important aspects related to spatial planning system in Oman which represent a fertile soil of discussion and analysis for the next chapter.

In addition, this chapter provides several lessons to be learned such as:

- Distributing planning duties between authorities without clear organization might be one reason behind the segregation and conflict in spatial planning performance.
- It is obvious that planning processes are very complicated. They could be beyond the imagination of technical people even if they are planners in the government.
- Preparation and implementation of successful sustainable strategies and plans requires the participation of most of the concern authorities (public and private)

as well as the participation of local communities. It requires conducting studies and scientific research and learning from global good experiences. It requires training and upgrading the skills of associated workforce.

- Spatial studies, legal frameworks, regulations, and standards are very essential tools to guide spatial planning in a good direction and maintain the desired regional and urban structures.
- Creating a good hierarchy in the planning system (from national to local levels) is very important to maintain homogeneous spatial development and minimize the impacts of scattered planning.

5. Analysis of Spatial Planning System in Oman

After introducing spatial planning system in Oman, it is very necessary to analyse and assess this planning system in relation to sustainability and set a methodological platform to represent the output information of this discussion in a simple and more effective way in order to answer the first part of the research question; '*Is spatial planning system in Oman sustainable?*'.

In general, and as it is concluded from the literature that sustainability in any area takes into consideration three main parameters; people, economy and environment (Arcades, 2016; Amarjit, 2014; Thiele, 2013). In more descriptive words, sustainability represents a balanced relationship between social development, economic development and environment protection that ensures the continuity of all systems (natural and physical) without causing negative impacts on future generations as well as taking into consideration the expected influences coming from climate change and natural phenomena.

Thus, the evaluation and assessment of the spatial planning system in Oman is going to be carried out based on three main directions which are:

1. *Spatial planning governance analysis:*
This analysis is going to concentrate mainly on the governmental tools related to spatial planning such as planning institutions, legal framework, standards and regulations, land distribution rules, existing plans, and collaboration between authorities.
2. *Infrastructure, natural environment and built environment analysis:*
This analysis will focus on illustrating and discussing the actual status of infrastructure, natural environment and built environment in the country including the usage of renewable energy sources, built environment efficiency programs, and solid waste management practices. It will overview also the characteristics of current built environment as well as building regulations and building process used.
3. *Social and economic analysis:*
Discussing social and economic conditions are very necessary to clarify the picture of spatial planning and connect this planning system with sustainability. Therefore, this analysis is going to cover in a simple and easy descriptive form, some of the socio-economic indicators related to fields such as the national accounts and public finance, education, public health, social protection, and safety and security.

For the best representation of the results, the output of each analysis is going to be demonstrated in a sort of SWOT analysis form which is a useful technique and planning tool to identify the strengths, weaknesses, opportunities and threats associated with Oman spatial planning system.

Evaluation Process of Spatial Planning System in Oman

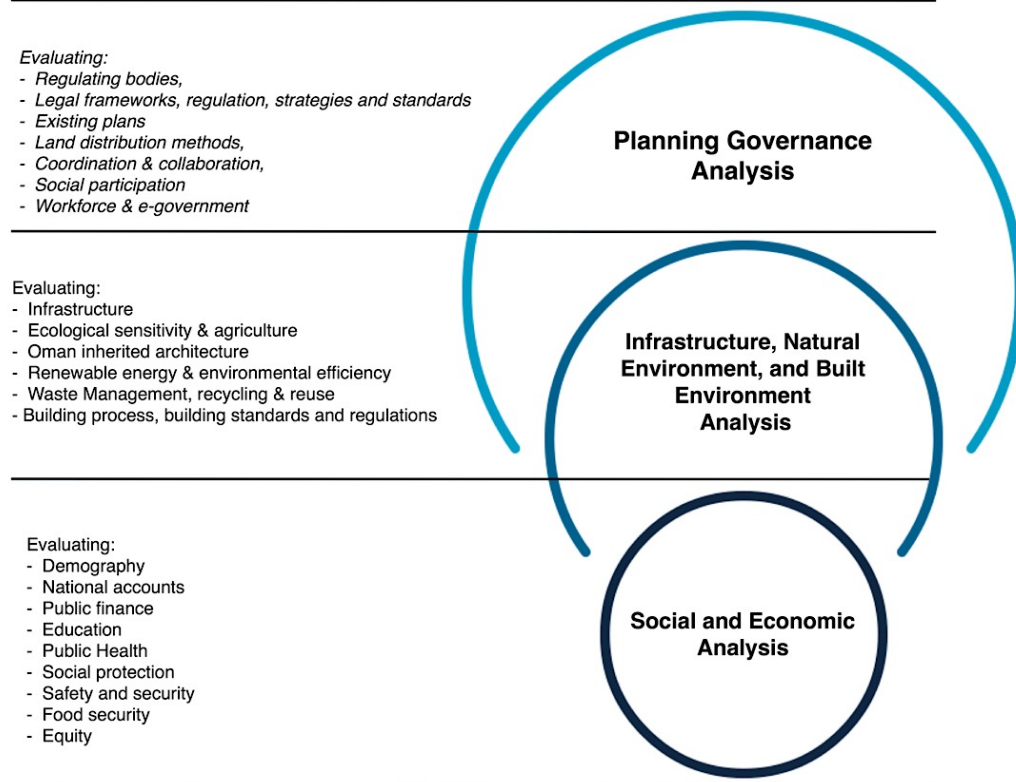


Figure 5.1: The process used for evaluating spatial planning system in Oman (author's own work)

5.1. Analysis of Spatial Planning Governance

Governance could be considered as the main pillar of sustainable planning and sustainable development. Governance system provides all necessary administrative and legal mechanisms as well as suitable working environment required to insure the success of any planning process. Therefore, governance system in Oman (related to spatial planning) is analyzed and evaluated here based on these subsequent elements:

- A. *Spatial planning institutions*
- B. *Legal framework and regulations*
- C. *Strategies, policies, standards and criteria*
- D. *Lands distribution methods*
- E. *Existing plans*
- F. *Coordination and collaboration between authorities*
- G. *Social involvement in planning system*
- H. *Planning workforce*
- I. *E-government*

5.1.1. Spatial Planning Institutions

Through studying the historical timeline of physical and spatial planning authorities and the development of their institutional structures and frameworks, it is very obvious that these institutions have been subjected to several changes in relation to their organizational structures or their duties and tasks.

As it was mentioned earlier in chapter four that Supreme Council for Planning (SCP) and Ministry of Housing are the current main two governmental bodies responsible for spatial planning. SCP is considered as a new-established authority (found in 2012) which overrode and took the place of Supreme Committee of Town Planning (SCTP) and Ministry of Economy at the same time. It is appeared from the research, that SCTP as a previous planning institution was not able to catch up with the speed of development in the country and was also not able to control the planning practices of other authorities (mainly Ministry of Housing) and this could be associated with its limited responsibilities or its insufficient institutional form and power. In addition, it is acknowledged from the personal experience that SCTP was engaged in some construction projects such as Al-Batinah Coast Highway Project (as the main government representative) which is noticed as not part of its assigned duties or responsibilities. Therefore, this kind of irrelevant major tasks could divert the focus and aims of any planning institution similar to SCTP.

On the other side, it is acknowledged that Ministry of Housing is responsible for the main spatial planning practices since 1980s. From that period till now, no comprehensive planning guidelines or standards have been developed to control spatial planning as well be discussed in the following sections. In addition, the historical timeline of this ministry shows that it was subjected to several huge institutional changes which included in one period the supervision and management of regional municipalities, then the responsibility of transport sector, and later on the responsibility of national utilities such as water and electricity before it reverted back to its main duties.

In general, the previous institutional changes and the conflict in duties within and between authorities could be considered as one of the main reasons behind the dispersion of the government focus in spatial planning field in Oman. On the other side, the establishment of SCP as a supreme authority led by H.M Sultan Qaboos, which includes social, economic and spatial planning departments as well as a national statistics center, showed a good governmental move towards paying good attention to the whole planning field in the country including spatial planning.

5.1.2. Legal Framework and Regulations

As it is illustrated in chapter four, most of the current laws and legal frameworks related to spatial planning are much more interacting with the management of lands and the administrative distribution practices. Thus, it is very obvious that there is a high deficiency in the legal instruments of spatial planning especially the physical part where no sort of comprehensive spatial planning law or clear effective regulating system was developed.

Before 2012, spatial planning is noticed to be regulated and managed through fragmented ministerial decisions which were assumed to be conducted based on some sort of limited visions from the planning authorities. After the establishment of SCP, it is noticed that since 2014, some sort of executive regulations for land planning were developed.

Although this could be considered as a good initiative from SCP to control spatial planning, it cannot be taken as an effective legal instrument.

5.1.3. Strategies, Policies, Standards and Criteria

No doubt that spatial planning strategies, policies and standards are very essential to create high quality spatial form and sustainable built environment. By looking into the timeline of the planning guidelines and standards, it is clear that till current days, the government did not develop any sort of holistic criteria or guidelines for spatial planning in the country. One of the previous initiatives was the *Urban Planning Guideline* document published by SCTP in 2003 to be a guiding tool for other authorities but not as obligatory standards. Based on a personal interview (23 September 2014), S. Saad, a planning engineer in Ministry of Housing, clarified that the planning practices are mainly conducted according to the planners' individual experiences and capabilities due to the deficiency in planning standards and criteria. He mentioned also that SCTP guideline is used as a good reference but not as an obligatory tool for the ministry. He elaborated, from his experience, that the period between 2003 and 2008 was subjected to some sort of scattered planning due to the high pressure on the ministry to provide residential lands. He clarified additionally that since February 2014 there is new committee created to control the path of spatial planning in all governorates and put the *Interim Mechanism for Spatial Planning* into practice to avoid any sort of random planning. This committee includes engineers, technical individuals and decision makers from nearly 16 authorities.

On the other hand, there is also a deficiency in spatial planning policies and strategies. From the research, no such strategy or policy is noticed to be implemented for spatial planning in the past. What was found is a new running project for developing national and regional spatial strategies (Oman National Spatial Strategy project ONSS) which is still required some years of preparation before the final output is published and come into practice.

Moreover, through studying the main focuses of the previous general national plans (the five-year plans and Oman 2020), it is obvious that spatial planning and spatial development was not considered within the main concerns of the government and this could be one of the reasons behind the lack of spatial standards, policies, strategies, and even supporting legal framework. The previous national development plans focused mainly in economic dimensions, essential services, infrastructure, and to some extent, in improving social capital. Recently the *9th Five-Year Plan* which has started since 2016 gives some attention to put the prospected national spatial strategy ONSS into practice, promote regional development, and also improve the general legal frameworks in the country.

5.1.4. Land Distribution Methods and Associated Administrative Practices

In comparison to the other GCC countries, Oman took the concept of horizontal development where high-rise buildings are rarely found in the country. The normal heights are 1-3 stories for residential areas and 4-10 stories for commercial ones. In addition, according to NCSI (2016d), most of the native citizens prefer to live in houses and villas rather than staying in flats or apartments. This cultural behavior in the living

style is predicted to be one of the motives behind the distribution of residential lands (for villas) to Omani nationals.

Through studying the distribution rules before 2008 as illustrated in chapter four and through realizing the cultural values that encourage earlier marriage in the age of twenties, it is concluded that the distribution of lands to people targeted much more families than individuals and therefore some restrictions on females were implemented to avoid any sort of land misuse.

For the gender equity which is a positive social indicator from one side, these restrictions were totally removed in 2008 and the Royal Decree (No. 125, 2008) gave clearly the right for all ladies to apply for residential lands similar to men. On the other side, the new rules put Ministry of Housing in front of a real challenge, knowing that hundreds of thousands of ladies were eligible that time to acquire land plots. For sure, this aspect could be considered as one of main Oman spatial planning challenges nowadays and in the future. According to Al Watan Newspaper (2009, September 23), S. Al-Habsi the general director of lands in Ministry of Housing stated that the ministry has received more than 429 thousand applications for new residential land plots in all governorates (around 109 thousands of these applications were submitted in the capital Muscat). Certainly, this is a huge number and it requires wide areas of land to provide residential plans with all services, infrastructure, public spaces, and other types of land use especially in the developed cities. In addition, Oman is a young country and the population growth is very high, thus these rules cannot work for a long period of time. In future, these are going to pose challenges and obstacles to infrastructure and utility providers, create unbalanced urban and regional development, affect other types of land use such as agriculture, affect natural environment and natural landscapes, affect economy and businesses, and create enormous challenge for the government in order to cover the demand and implement the prospected spatial strategies at the same time.

Through the personal investigation about the derives and motives behind these new rules, some interviews with Ministry of Housing officials were conducted to discover if there was any sort of previous arrangement or study prior to the issuing date of the royal decree (No. 125, 2008). K. Al-Guraibi the head of Muscat planning department, T. Al-Salami the head of GIS department, and S. Al-Wahaibi a town planning engineer in the ministry (personal communication, 23 September 2014) clarified all that this is a supreme decision and according to their knowledge, the ministry was not prepared and did not conduct any related previous studies. They clarified that the new rules put the ministry in a real challenge in the absence of the legal frameworks, planning standards and qualified workforce. As a personal view, the main reason behind this decision could be that Oman ratified in 2008 UN convention on the elimination of all forms of discrimination against women (CEDAW).

From the investigation, it was observed also that the burdens of the ministry are more than its capacity and capability, and because of this, the ministry took fast actions in the past to adopt spatial plans, distribute land plots and make decisions. In addition, it was realized from these interviews that there was a considerable influence coming from the decision makers on spatial planning practices and technical decisions.

Thus, this section shows that the leading and administrative decisions and procedures may directly or indirectly influence spatial planning practices as well as the path of development. For clarification, Figure 5.2 shows the number of distributed plots of various land use types to people up to 2015 including annual statistics from 2007 to 2015

(both charts demonstrate the huge No. of residential lands (for villas) in comparison to other land use types).

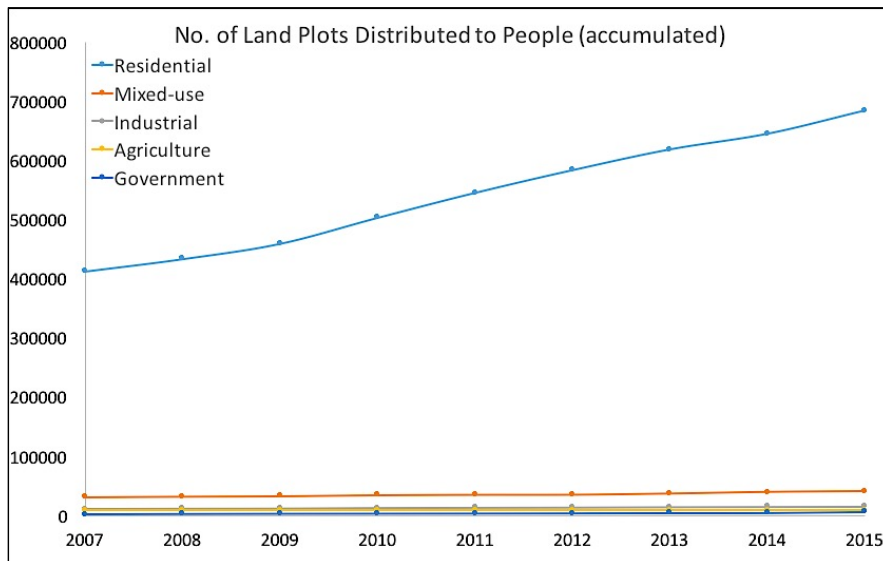
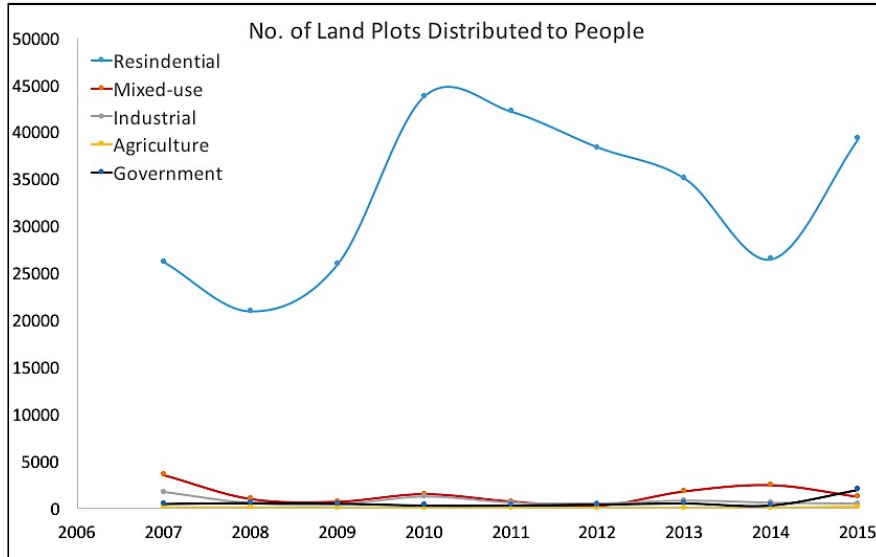


Figure 5.2: Two charts demonstrating the number of land plots distributed to people from 2007 to 2015 as well as the total accumulated distributed plots up to 2015 (author’s own work). Source of statistics is NCSI.

5.1.5. Existing Plans

This part represents one of the main critical concerns related to spatial planning in Oman. Through analyzing the available information related to the existing spatial studies, it is very obvious that there is a huge lack of effective spatial plans and studies that take into consideration the best practices of spatial planning ethics and maintain good harmony among all levels of planning (national, regional and local levels) as well as good harmony between areas and cities. Even though there are some studies and plans, these efforts assumed to be conducted much more related to the existed conditions and estimated basic demands than to the modern concepts of spatial planning that promote the best utilization of available lands and resources, present a high degree of coherence among all levels of planning, and maintain a good strategic vision for the future expansions. Nevertheless, the available plans in some areas are very old especially in the capital Muscat, and thus they went out of date very fast due to the dramatic urban growth form one side, and due to the narrow and limited planning visions from the other one. All of these facts led the country into uncontrolled urban and regional expansions in the absence of the qualified workforce and the complete set of standards and laws that regulate the planning process.

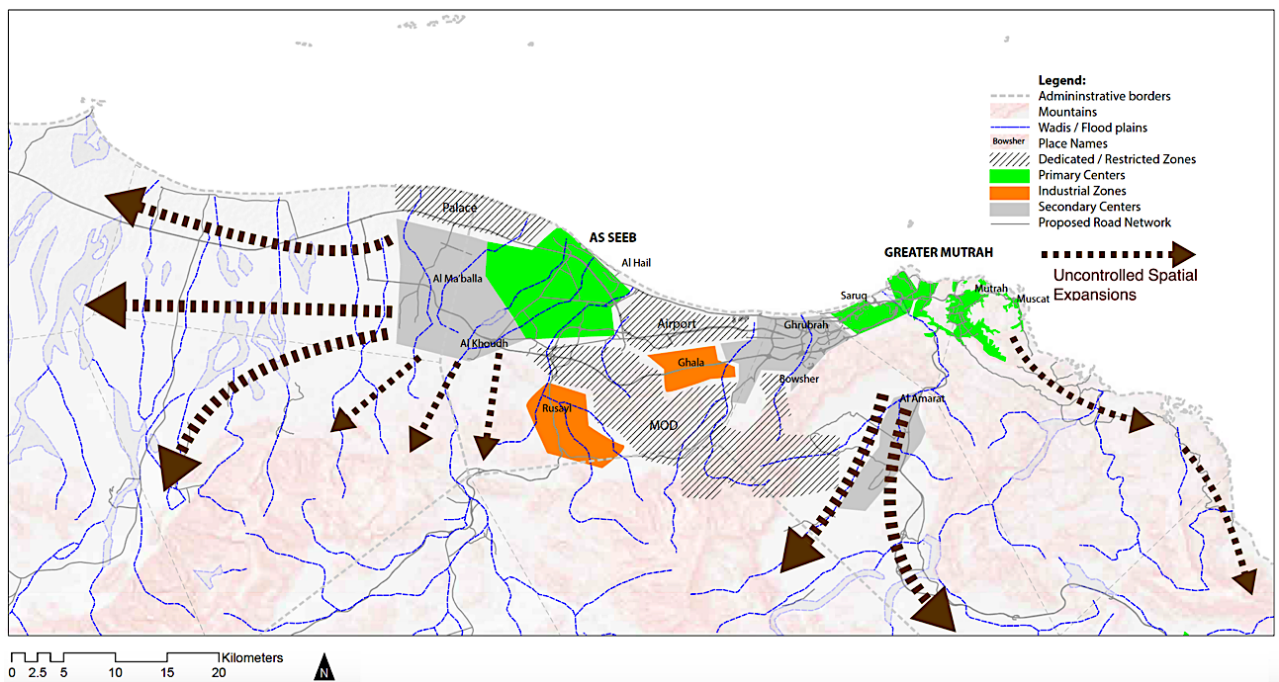


Figure 5.3: Uncontrolled spatial expansions in Muscat area (edited by author, base map from: SCP, 2013)

When looking into the current urban structure of Muscat area, as an example, it is very noticed that there are some differences between areas which reflect the various planning methods and individual planning experiences and abilities. For example, Sultan Qaboos city and Al-Qurm area are noticed to be planned and developed with good detail considerations which are assumed to be part of Al-Qurm Development Area and Al Khwair South Plan prepared by Ministry of lands Affairs and municipalities in 1983. On the other side, and in a very close area, most of old Al Khwair city is noticed to be very congested with poor connections and heavy infrastructure problems (see figure 5.4 which demonstrates two small parts from Al-Qurm area and Al-Khwair 17/2 district as an example for the differences in planning methods).

Moreover, due to the topographic composition of Oman that includes mountain ranges, most of the northern and southern areas in the country are subjected to flash flood during rainy seasons. Even though this issue is known, some parts of the modern planned and developed areas in Oman are noticed to be situated in zones threaten by flash flood due to the previous spatial planning errors (see Figure 5.5 that demonstrates Muscat geology and flood zones), and this reflects the poor consideration of the environmental hazards and natural phenomena in spatial planning in Oman. This issue was clearly observed several times during the last ten years especially during the two cyclones (*Gonu* in 2007 and *Phet* in 2010) as well as during the tropical storm *Ashobaa* in 2015 that hit the northern part of Oman. As a simple show case, Figure 5.6 demonstrates a small part of new developing area planned very close to natural flash water channel with no protection or efficient service water drainage system in Bausher province in Muscat.

Consequently, the distribution of building heights, setbacks and permitted built-up percentages within and between areas especially for commercial lands (which are part of lands ownership documents provided by Ministry of Housing) are not reflecting any kind of strategic visions or detail studies and this could be determined from the illogical variation on the values of these developing factors. The exact reason behind this kind of variation remains unclear, whether it is due to the missing standards and plans or due to the accumulated issues in spatial planning or due the limited currying capacities and infrastructure of each area or maybe due to the interference of the personal interests.

In general, most of the spatial planning practices conducted by Ministry of Housing as well as other planning authorities within the last 30 years are unclear and ended up with several issues.



Figure 5.4: Two different examples from Al-Qurm and Al-Khwair areas generated through AutoCAD as per Ministry of Housing plans (with the same scale) demonstrating two opposing planning methods (author's own work).

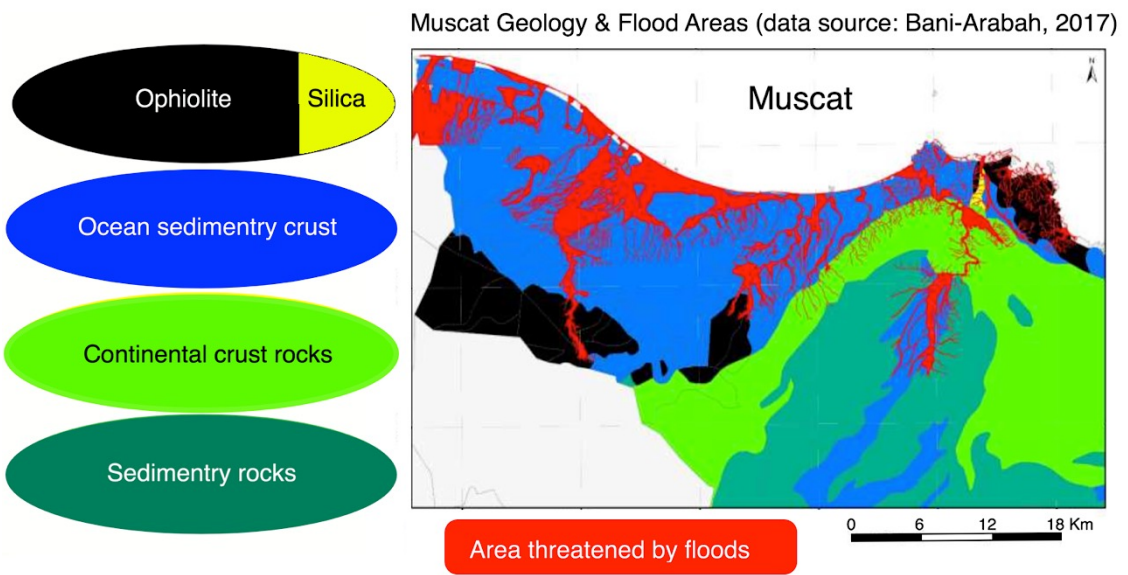
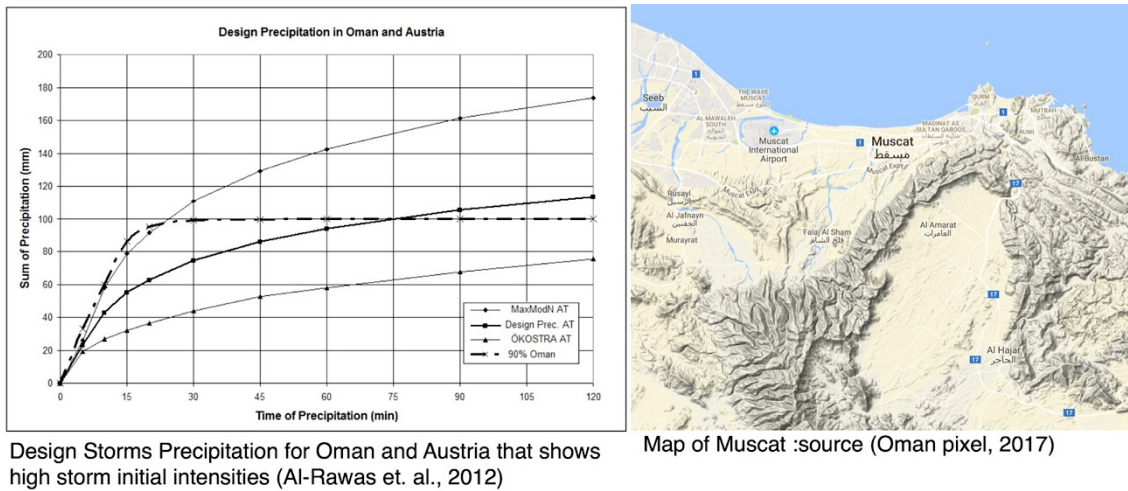


Figure 5.5: A graphical representation showing that wide area in Muscat governorate is threatened by flush flood due to the spatial planning practices that neglected natural hazards.



Figure 5.6: Two plans and a photo from the same area in Bausher (Muscat) showing an obvious threaten area by flush flood (edited by author).

5.1.6. Coordination and Collaboration between Authorities

No doubt that continuous coordination and collaboration between authorities is one of the important pillars to reinforce spatial planning and maintain urban and regional communities that take into account the principles of sustainability and the modern standards. In Oman, it is noticed that there is some sort of coordination and collaboration between authorities as well as some joint committees exist. Nevertheless, there is coordination/collaboration deficiency in spatial planning field which could be associated with several reasons such as lack of transparency, conflict of interest between authorities, scarcity of qualified workforce, lack of working mechanisms that define the roles of authorities to be played and the relevant working timeframes, excessive bureaucracy, absence of joint strategies and policies, and lack of centralized geographic information systems.

As a supporting argument, T. Al-Salami (personal communication, 23 September 2014) the head of the geographic information system in Ministry of Housing marked clearly that the GIS system is incomplete and there are voids in the planning processes. He argued that other concerned authorities do not play their desired roles in the sectorial planning. In addition, he shed light on the service authorities which usually take longer time than necessary to review and add their requirements on the proposed detail plans and this forces the ministry in some cases to adopt the new plans according to its estimates. Moreover, K. Al-Shaibni (personal communication, 24 September 2014) the vice-director general of technical affairs in Ministry of Regional Municipality and Water Resources believes that there is some kind of conflict of interest between governmental sectors, and as he recommended, spatial planning has to be linked directly with the national development plans due to its high importance. From other sectorial point of view, S. Al-Shuaibi (personal communication, 20 September 2014) the director general of tourism development and the previous director general of planning in Ministry of Tourism agreed that there is some kind of conflict of interest between sectors. He also noticed that the coordination between authorities especially in the planning field is insufficient.

5.1.7. Social Participation in Planning System

In relation to the social participation in the planning system, the country has several experiences in this field. Before 2014, there was some sort of local committees for land affairs assigned for the development of the provinces. These committees included representatives from Ministry of Housing, Mayor offices (Wali Offices), municipalities and also some selected people from local communities. They were responsible to provide some advices and suggestions for the regional development and lands ownership. They concentrated mainly on approving the ownership of lands and properties for people who have old legal customary papers or lands and properties acquired by inheritance. In addition, one of the key roles of these committees was to suggest the locations of the new residential plans and to give information and advices to the government about the free lands and pre-owned lands that have no official registered documents. Nearly in 2014 and due to the accumulated issues in spatial planning, these committees were abolished and the Royal Decree (No. 56, 2014) which came with some amendments to the Lands Law transferred all the duties of these committees directly to Ministry of Housing.

These communities represented, from one side, good supporting tools for the planning authorities to get better knowledge about the specific characteristics of each area

especially old cities and villages and to solve the various issues related to land ownership. However, the establishment of these committees reflected, from the other side, a sort of random planning due to the wide flexibility given to them. Based on the accumulated issues, legal cases, and public arguments, it is assumed that these committees did not represent the actual participation of local communities (could be considered as partial participation only) and also dominated by private interests much more than the public ones.

Since 2013, the country has implemented the concept of the municipal councils where each governorate now has its own municipal council. According to the Law of Municipal Councils (Royal Decree No. 116, 2011), each of these councils has to include at least a decision maker (general director or manager) from Ministry of Regional Municipalities and Water Resources (Muscat Municipality for Muscat and Dhofar Municipality for Dhofar), Ministry of Housing, Ministry of Education, Ministry of Health, Ministry of Tourism, Ministry of Social Development, Ministry of Environment and Climate Affairs, and Royal Oman Police. It has to include also two people from each province and both of them have to be selected by the government according to their personal experiences. In addition, these councils include the participation of communities based on a public election (4 years' cycle) and according to the following criteria:

- 2 representatives for provinces less than 30,000 people
- 4 representatives for provinces more than 30,000 people
- 6 representatives for provinces more than 60,000 people

Unlike the former local committees for land affairs, the municipal councils are more realistic and have more integrated multi-disciplinary visions which are logically better for the development of areas. In general, these councils are responsible to provide suggestions and recommendations for the development of the provinces. In spatial planning field and according to the Law of the Municipal Councils, each council has to participate with the planning authorities in preparing the structural and detail plans and presents recommendations for the management of the spatial plans in the area.

On the national level, Al-Shura Council represents the democratic identity on Omani society which has more than 80 members elected from all of the provinces and has the total financial and administrative independence. This council is situated in the capital Muscat and its main role is to assist the government with all the concerns of Omani society and presents proposals and recommendations that help the development of the country socially and economically. Although the council was established since 1991 (Royal Decree No. 94, 1991), during the first 20 years the council did not play its desired role which could be due to its limited power at the beginning or due to the low qualifications and experiences of the members. From the last cycle, the council was noticed to be more active and has a considerable influence on some of the decisions of the government as well as has more power than before. It is noticed also that according to the new election rules of this council (based on 4 years' cycle), that the minimum qualification of all members should be a university degree.

In addition, away from the organized councils and committees and as a good example on how effective is direct community participation to the country, the government has for the first time opened the access in 2016 for the public to participate on a high level national program called *Tanfeedh*. This program defines public participation as one of the core elements to achieve the desired results. *Tanfeedh* is a new initiative from the government led by SCP as an implementation program for enhancing economic

diversification and increasing the national income. This program is designed to assist the government in fulfilling the objectives of the 9th national 5-year development plan 2016-2020 and dealing with the current financial obstacles and challenges.

According to the outputs of the survey conducted by the program team on public participation (Tanfeedh, 2017), around 97% of the participants agreed on engaging society to contribute in the decision making and around 95% of them recommended for the government to create partnership with private sector. Furthermore, the participants recommended for the government to give high priority to education, higher education, fisheries, agriculture and health sectors as well as give some concentration to the innovation and communication fields. See Figure 5.7 for public participation statistics.

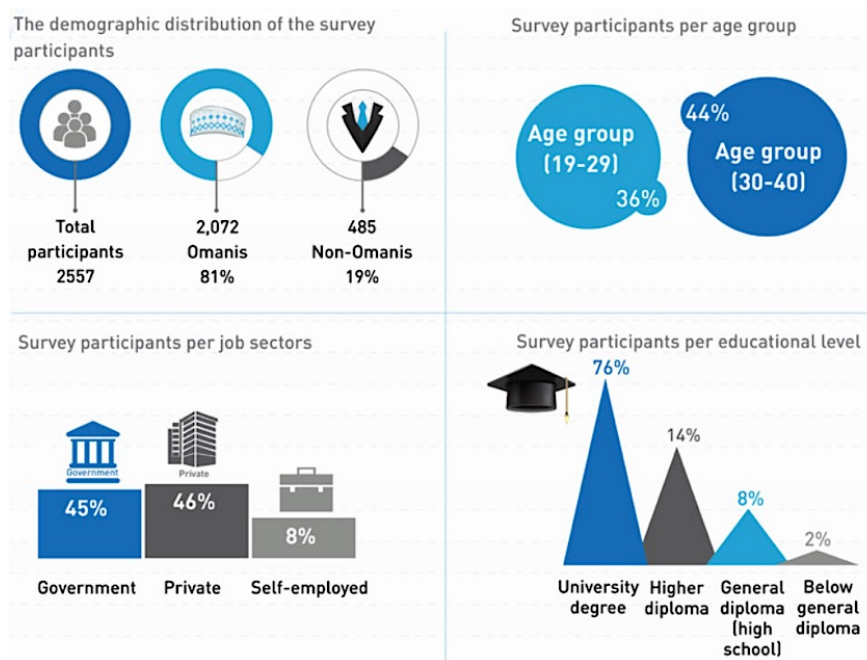


Figure 5.7: Statistics of public participants in Tanfeedh program (Tanfeedh, 2017)

Although Tanfeedh is a socio-economic national program, it provides good lesson to implement such method in spatial planning field that encourages direct public participation and information exchange with the society.

5.1.8. Planning Workforce

From the personal research and experience, it is detected that there is a clear lack of qualified technical workforce in spatial planning field. In Ministry of Housing, K. Al-Guraibi, the head of Muscat Planning Department (personal communication, 23 September 2014) has clearly mentioned that the ministry suffers from the lack of expertise in urban and regional planning fields and therefore they mainly rely on personnel with close qualifications such as general architects, civil engineers and GIS graduates. This issue was also elaborated in ONSS report (SCP, 2013) which takes capacity building as one of its main concerns.

In general, the deficiency in the qualified workforce is very common in the public sector. From the observation, this issue is associated with two main facts. The first one is the limited national capabilities in the planning field in general and in spatial planning in particular. The second fact is the migration of the expertise from the public sector to the private sector especially before 2011 due to the huge differences in the wages and benefits for qualified engineers and technical personals (the public wages got considerably increased in 2011).

5.1.9. E-government

No doubt that digital society is considered as an essential requirement for this Age. Since few years Oman has started implementing its digital society strategy in order to improve the governmental services and transform from the traditional paper work into more innovated, well-connected and effective system (the transformation plan was approved by the Council of Ministers in 2012 and clear instruction were given to government authorities to improve their services). As clarified in figure 5.8, the strategy concentrated on three main pillars; e-government, developing IT industry and enabling society and individuals to use the electronic services.

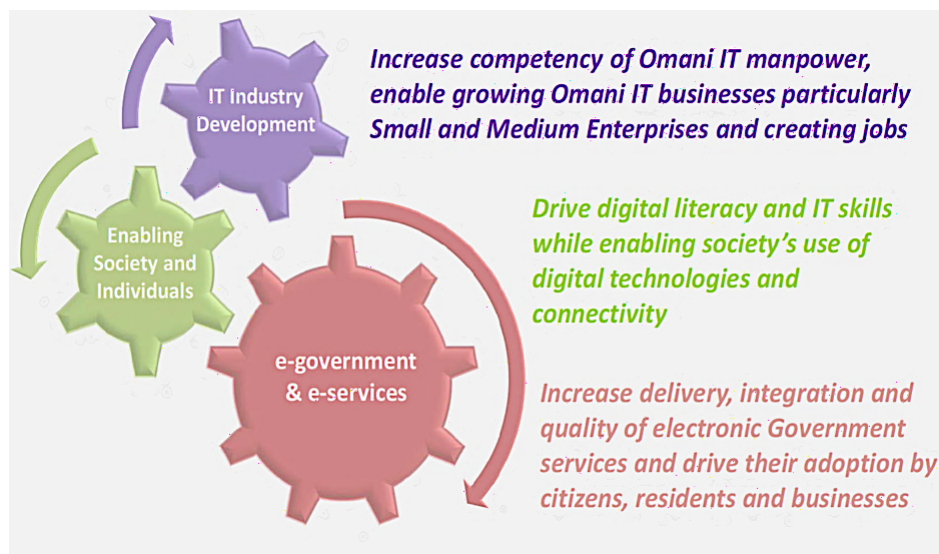


Figure 5.8: Oman e-government strategies main pillars (Information Technology Authority, 2016)

In addition, a digital portal via internet was developed as a main electronic gate for the e-government services (eoman.om) and this provides clear information and a variety of public services for nationals and citizens. In addition, most of the authorities have started digitalizing their services in order to fulfill the objectives of the strategy. Thus, there are currently a lot of public services offered through internet or through mobile apps that were developed by public agencies.

In the global scale and according to the UN e-government development database (United Nations, 2017), Oman has moved from the rank 84 (as in 2008 index) to the rank 48 (as in 2014 index) for its electronic services and this represents a dramatic improvement in the digital society. However, Oman recently dropped to the rank 66 (as in 2016 index)

which could be associated with the economic fluctuation that Oman is passing through and affected most of the governmental operations negatively, or the high global competition in e-government development in general. Nevertheless, the expansion of the e-government services in the country is very noticed and this represents a good step to improve the overall governmental performance in the future.

5.1.10. Conclusion and SWOT Analysis

		<i>Helpful</i>	<i>Harmful</i>
<i>Present</i>	<p>Strengths:</p> <ul style="list-style-type: none"> - The establishment of SCP in 2012 as a leading authority - The implementation of a spatial mechanism to control the direction of spatial planning since 2014 - The public awareness about some of the spatial planning issues - Social participation through Municipal Councils and Al-Shura Council - The consideration of Spatial planning in the 9th 5-year National Development Plan - Introducing e-government system 	<p>Weaknesses:</p> <ul style="list-style-type: none"> - The continuous changes in the institutional structures - Conflict of duties between authorities - Scarcity of spatial planning supporting legal framework, policies and strategies - Scarcity of effective spatial plans - Scarcity of comprehensive spatial planning guidelines and standards - Insufficient collaboration between authorities - The pressure of land distribution rules - Predominance of the private interests - Incomplete GIS system and lack of spatial data - Lack of technical capabilities 	
	<p>Opportunities:</p> <ul style="list-style-type: none"> - ONSS proposed national strategy and its associated regional plans - Public awareness that could influence spatial planning positively - The predominance role of SCP to modify the direction of spatial planning - Enhancing social and private sector participation in decision making - Utilizing e-government to be more efficient and effective in spatial planning - Building high quality GIS system that enhance information sharing between authorities - Capacity building and upgrading the skills of national manpower - Reforming land distribution rules to be more effective 	<p>Threats:</p> <ul style="list-style-type: none"> - The continuity of institutional changes - The continuity of administrative conflict between authorities - The retroactive influence of public authorities in the preparation of ONSS national strategy - The Scarcity of effective legal framework, policies, strategies and standards - The continuity of current land distribution rules - The future impacts of already planned and distributed areas - The scarcity of technical capabilities - Lack of transparency - Lack of accountability 	
<i>Future</i>			

Figure 5.9: SWOT analysis of spatial planning governance system (author’s own work)

5.2. Infrastructure, Natural Environment, and Built Environment Analysis

Discussing and analyzing these areas is very necessary to understand the nature of the spatial planning in Oman. Therefore, this analysis is concentrating on the main current aspects related to infrastructure, natural environment, and built environment.

5.2.1. Infrastructure Planning and Development

Transport

Since 1970, the government has worked hard to provide high standard roads network, as a main infrastructure for the whole transport system, and according to Ministry of Transport and Communications MOTC statistics (MOTC, 2015), the total length of asphalt roads network all over Oman reached 14,100 km by the end of 2015 (this number represents asphalt roads provided and supervised by this ministry only) and the total length of unpaved roads was estimated around 16,500 km by the end of the same year (Figure 5.10 illustrates the expansion of paved roads since 1990).

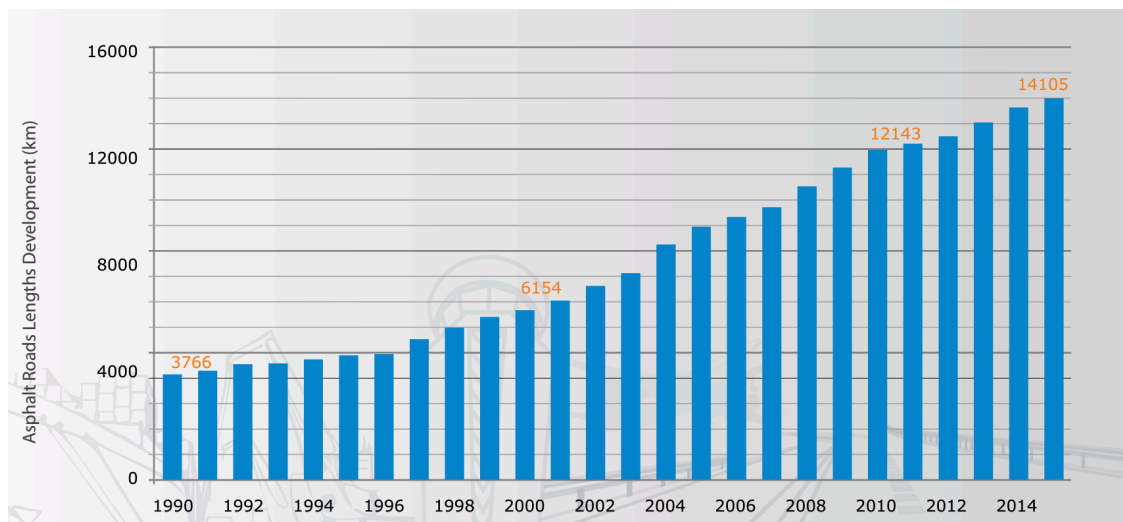


Figure 5.10: Length of paved roads in Oman since 1990 (MOTC, 2016)

In addition, Oman has a stretched coastline of more than 3000 km overlooking Indian Ocean. There are so many ports in the country and some of these are categorized as main ports for commercial and industrial uses. Sohar Industrial Port and Duqm Port are the two main industrial ports in Oman. Port Sultan Qaboos was the main port for commercial uses and in 2014 it was transformed into a cruise ship port to be the main entry sea gate for the country. Salalah Port in the south is also considered as a main port for industrial and commercial purposes (see Figure 5.11 for the location of the main ports).

Transportation system in Oman relies mainly on roads network and most of the individuals and institutions use their private vehicles. In addition, Taxi service in the country is a popular mean of transport which is totally private (owned by individuals)

and most of the taxi drivers work independently (till end of 2017, no metered-taxi companies).

In relation to public transport, there was (since 1972 to 2015) a government transport company called *Oman National Transport Company*. This company operated some intercity routes (long-distance buses) to connect some of the main cities in Oman (these buses were only available on the main highways, have long-distance stops and run at long-time intervals for example one bus per day). Therefore, for a long period of time this public system was not effective to deal with the regular daily transport demand. In 2015, this company was renovated (the name was changed to *Mwasalat*) and it has started to provide some city transport inside the capital Muscat (until current days, city buses connect only the main hubs in Muscat). According to the information (Mwasalat, 2016), the company currently has a fleet of around 200 buses used for people and cargo transport services and it has an objective to implement a better bus transport system in the coming years.

In relation to sea faring, as a public transport, there are very limited scheduled connections and routes exists. According to the National Ferries Company NFC which is a public cruising company (NFC, 2016), there are three main sailing routes; (1) between Masirah Island and Shannah Port, (2) between Muscat and Khasab and (3) between Shinas and Khasab (see Figure 5.10 for illustration).

In relation to civil aviation, Muscat International Airport is the main airport in the country. It was under expansion and renovation and the work was completed in March 2018. Via this expansion, the capacity of the airport will raise to 12 million passengers per year (MOTC, 2015). Salalah Airport in the south is the second main airport in Oman. It was recently renovated and has a capacity of two million passengers per year. Khasab Airport in the north is also an active small scale regional airport and this provides direct air connection to Muscat governorate. There are some other regional airports currently under development such as Sohar, Duqm and Ras-Al-Had airports.

In addition, Oman is currently planning for constructing rail network (as part of GCC strategy to connect GCC countries with rail network). Oman has established a public firm called Oman Rail to be responsible for all rail network project inside Oman (the project is still in the designing phases). The length of the rail network is expected to be 2,135 km (Oman Rail, 2017). The main purpose of this network is to provide connection between the main ports of Oman and provide fast cargo and fright transport services. The secondary purpose is to provide a speed public transport system for people between regions (see Figure 5.11 for the predicted routes of rail network).

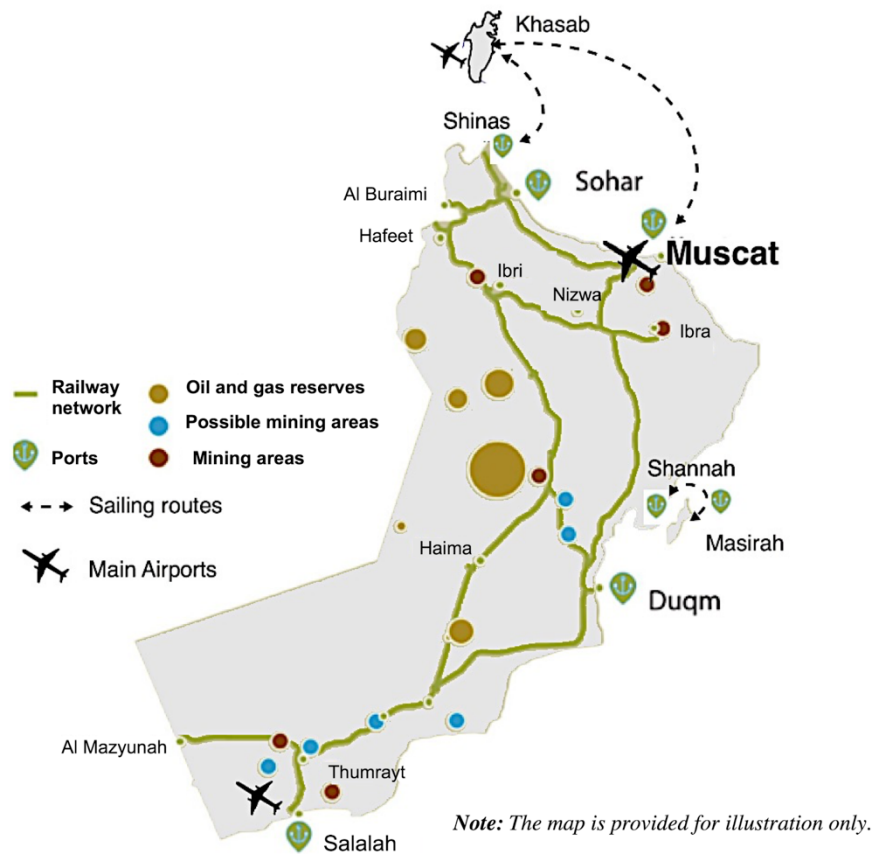


Figure 5.11: Map of Oman showing oil and gas reserves, mining areas, main airports, ports, sailing routes and expected rail network (edited by author from: Oman Rail, 2017)

Water

As it is mentioned earlier, Oman is located in a semi-arid area where the rainfall precipitation is very low. Because of this, Oman suffers some shortage in water natural resources which are mainly from groundwater. In parallel, the rapid growth of development results in high demand for water supply. For these reasons, Oman national water networks relies mainly on desalinated seawater. According to 2015 annual report of *Public Authority for Electricity and Water (PAEW)*, desalinated seawater represents around 80% of the total quantity whereas the remaining 20% is coming from groundwater (PAEW, 2015). The same report showed also that according to 2013, 2014 and 2015 statistics, there is around 7% annual increase in the demand of water supply.

Due to this high demand and the country geographical obstacles, there is no doubt that Oman faces difficulties in providing water to the communities. This issue could be one of the future main challenges of the country, in particular, with the current economic challenge. *Ministry of Regional Municipalities and Water Resources* gives additional efforts to enhance groundwater reserves through constructing dams in order to retain some flushing water in the ground during rainy periods.

Energy

The main sources of electricity in Oman are the power plants which use gas and oil for electricity production. Until current days, Oman has not started to invest in renewable energy sources. According to the International Energy Agency (IEA) 2014 statistics, 97.4% of the country electricity was produced from gas and 2.4% was produced from oil (IEA, 2016). In addition, electricity production in Oman is responsible for about 60 million tons of global CO₂ emissions. On the other hand, according to 2015 annual report of Authority for Electricity Regulation (AER), there was approximately an increase of 15% in the electricity demand in 2015 compared to 2014 and more than 200% compared to 2005 (AER, 2015). Table 5.1 shows the total electricity consumption in Oman from 1990 to 2015 and the associated annual consumption per capita based on 5-year interval.

In general, the governmental services in water and electricity are developing very fast in order to keep up with the continuous high demand. The negative fact behind this is the lack of water and energy efficiency policies and programs which could reduce the continuous pressure on the government as well as the associated environmental impacts and maintain a considerable long-term savings.

Table 5.1: Electricity consumption in Oman according to IEA statistics

Year	Total consumption (TWh)	Consumption (MWh/capital)
1990	3.96	2.19
1995	5.69	2.6
2000	7.29	3.24
2005	9.85	3.93
2010	16.79	5.70
2015	28.90	6.95

Sewerage network

In relation to wastewater management, until end of 2016, a lot of areas in Oman were not served with wastewater networks even in the well-developed urban and regional regions. The country is still developing in this sector and wastewater is usually collected by sewerage networks (in the served areas) or through sewerage trucks that dispose the collected wastewater in the treatment plants.

The current main responsible body for wastewater and reuse water networks as well as treatment plants in the country is *Oman Wastewater Services Company* (Haya Water). Haya Water was established in 2002 as a governmental company to build, manage and operate wastewater networks and treatment plants in Muscat Governorate. It has a target to cover 80% of Muscat developed area by the year 2020 (Haya Water, 2012). Recently, it took also the responsibility to develop and manage the wastewater networks in most of the governorates in Oman which were previously operated by the regional municipalities. According to the company database (Haya water, 2015), there are

currently about 63 regional treatment plants connected to a total length of 1000 km wastewater networks.

In Muscat (As the capital), Haya Water operates 11 wastewater treatment plants (the total capacity of daily treated water is around 120,000 m³) and it is working on developing two new plants (in Darset and Al-Amirat areas) and expanding the existing two main plants (Al Seeb and Al-Ansab ones). After completing the work on these projects and operating the new plants, the daily treated water is expected to reach 318,000 m³. Moreover, as an objective for the year 2025, the company targets to expand Muscat wastewater networks to reach a total length of 3500 km and also to develop new reuse water networks for irrigation and other public purposes (around 680 km).

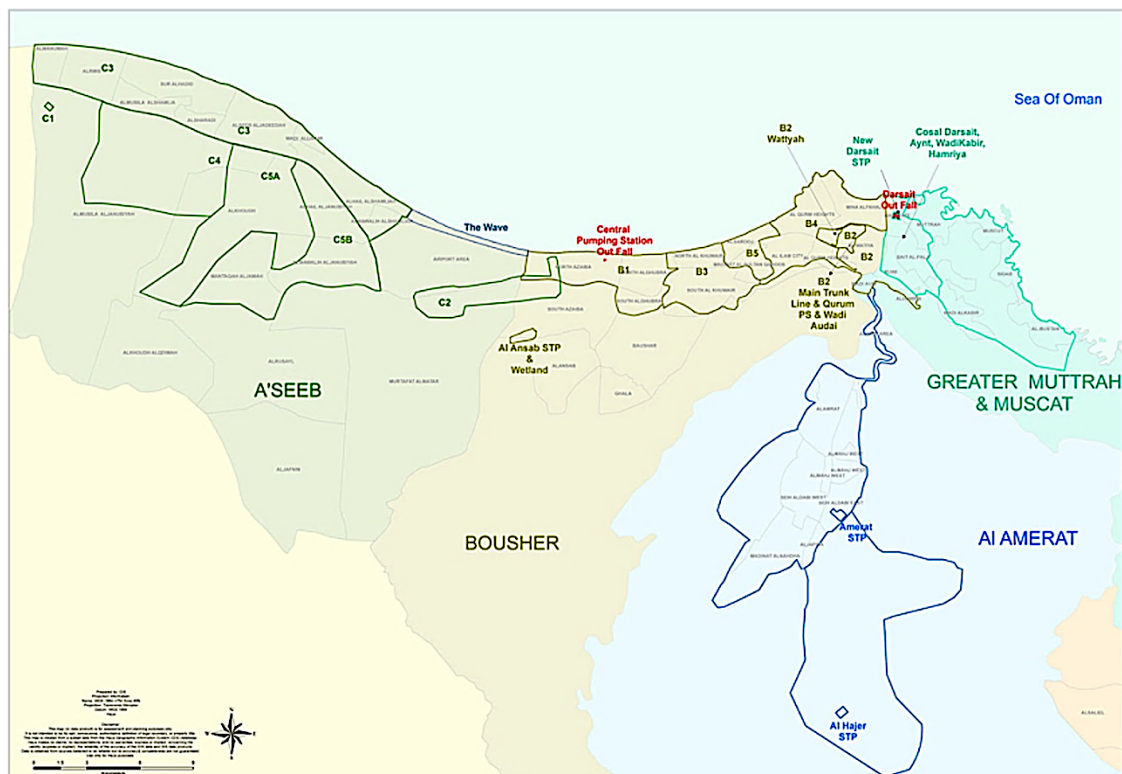


Figure 5.12: Haya Water projects in Muscat Governorate (Haya Water, 2013)

Solid waste management, recycling, and reuse

According to International Solid Waste Association ISWA (2014), solid waste management is considered as one of the global challenges where the global generation of waste reached around 10 billion tons per year (around 36% construction waste, 32% industrial waste and 24% municipal solid waste), and the average waste generation per capita was estimated as 1.3 kg per day which is expected to increase in the coming years. Therefore, since few decades, developed countries have started to step forwards in eliminating the practices of uncontrolled dumping and open burning of waste and implementing new technologies in waste management including recycling and reuse of municipal solid waste. In Oman the awareness of good solid waste management has arisen very late. For a long period of time, most of the solid waste in Oman is ending in uncontrolled dumpsites owned by the municipalities that were selected and constructed

previously with poor environmental and health considerations. In the country, there are more than 300 uncontrolled dumpsites randomly distributed over the country and some of these are noticed to be close to the inhabited areas as well as to groundwater catchments.

Due to the accumulated issues regarding solid waste, Oman Environmental Services Company was established in 2007 as a government owned company, known also as 'Be'ah', for the purpose of managing solid waste in a more environmental-friendly manner and in 2009 the Royal Decree No. 46 (2009) gave the company the duties to manage solid waste in the whole country including collection, processing, and management of waste, and also construction and management of new engineered landfill projects and waste disposal facilities.

Since then, the company has started to improve solid waste management via implementing the new technologies and standards in collecting, transporting, processing solid waste, and also constructing high standard landfills that take into consideration health and environmental factors (see figure 5.13 for the distribution of the new landfills). The current target of the company is to close all the traditional dumpsites and dispose solid waste in the new landfills.

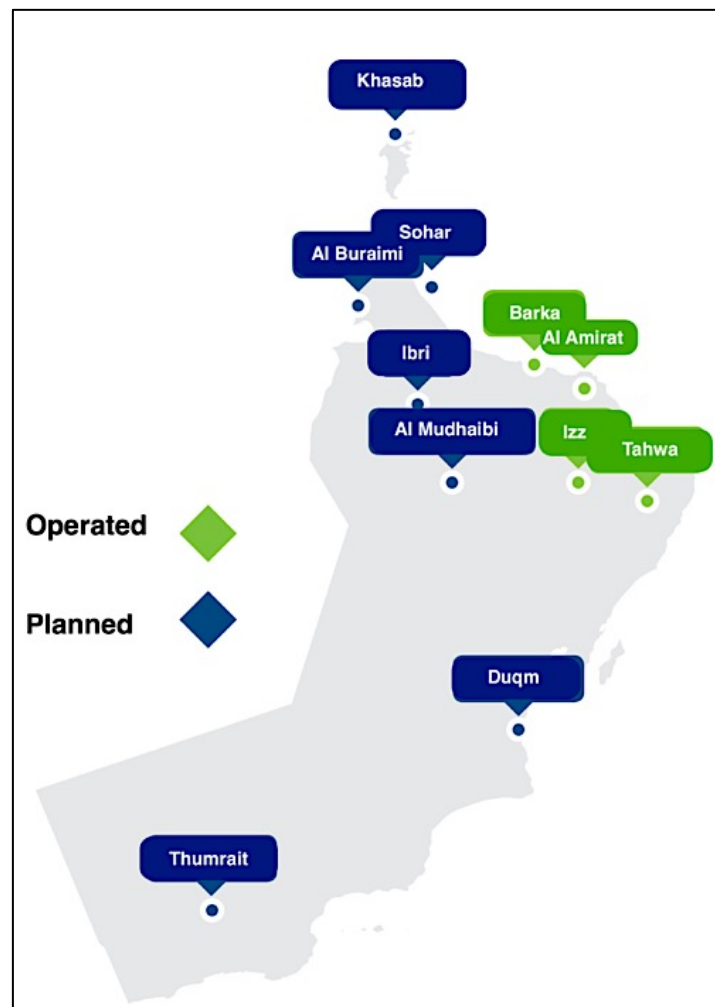


Figure 5.13: Locations of new engineered landfills in Oman. Data source (Ithraa, 2016)

In relation to recycling and reuse of solid waste, unfortunately there are no such waste recycling or reuse facilities are found in the country till current days. However, the new contracts of the government via *Be'ah* in solid waste management included the construction of recycling facilities in the near future such as the recent contract with the Austrian origin firm *Saubermacher* to manage solid waste in Al-Dakhiliyah and Dhofar governorates which is going also to operate landfills and various recycling centers in these areas in the next few years (Saubermacher, 2016). In addition, *Ithraa* the investment and export development agency in Oman is currently promoting the investment in solid waste recycling businesses in Oman (Ithraa, 2016).

As a concluded summary, infrastructure planning is very linked to the spatial planning itself. Transport and infrastructure services (including electricity, water, sewerage and telecommunication services) play an important role in shaping the urban and regional structures of cities and districts and thus represent core elements for the structural form of the sustainable, livable, efficient and inclusive communities. In Oman, it is very obvious that there is a sort of insufficient coordination and integration between infrastructure planning and spatial planning which could be noticed from the existing urban structures and the continuous conflict between authorities.

In addition, one of the critical issues is that 'development of new areas in so many cases come before their infrastructure planning and infrastructure development' which is associated directly with the cycle of spatial planning, land distribution to people, and the development/construction methods that are usually not properly connected with infrastructure. As an explanation, usually after preparing the spatial plans from Ministry of Housing and distributing land plots to people (mostly in fresh areas that are not served with infrastructure), the people are allowed to start building with no constrains or restrictions in order to organized regional and urban expansion in proper manner and reduce the load from infrastructure provides to deliver their services in scattered plans simultaneously.

Due to this issue, the common horizontal expansion, the topographical and geological constraints of the country, the current dramatic development, the limited financial and technical recourses of infrastructure providers, and the limited capacities of some infrastructure networks (water, electricity, sewerage, etc.), the services reach some of the new planned areas very late (several years in some cases). However, Electricity usually comes faster than other services due to its high importance.

In a simple form the following table summarizes the facts related to the condition of the infrastructure in Oman.

Table 5.2: Some facts about infrastructure services in Oman

Transport	<ul style="list-style-type: none"> - Oman gives high priority to road network and there are continuous efforts to expand the paved networks (expenses of transport sector represent > 5% of the public finance). - Due to the expansion of spatial plans, the increasing demand for roads remains a main challenge for the transport distribution authorities. - A lot of cutting and filling in the mountains and roads climbing up and down due the topographical limitations and limited technical solutions by the government (no road tunnels in the country until now). - <i>Musalat</i> bus system represents a good starting point as sort of public transport. - <i>Oman Train</i> as a new planned project represents a good foundation for establishing a well-connected railway network in the future. - Considering efficient Public transport is very essential since this will reduce the pressure of the road networks.
Electricity	<ul style="list-style-type: none"> - Electricity is widely spread in the country (cover most of the places) - Due to the fast development, the demand for electricity remains very high (there is 8-10% annual increase). - Due to the modern structures and the low prices of electricity, there is excessive use of electricity.
Water network	<ul style="list-style-type: none"> - Oman is suffering huge shortage in water resources (the source of water for public networks is 20% groundwater and 80% desalinated seawater). - There is high demand for potable water (7-10% annual increase) - Due to the modern structures and the change in the lifestyle, there is excessive use of water in the country.
Wastewater and solid waste	<ul style="list-style-type: none"> - The focus of the government on the national sewerage network and the high standard solid waste management came very late. - Most of the places in Oman are not served with sewerage network till now. - Haya water as the current main responsible governmental company is paying great efforts to distribute sewage network as fast as possible (as well as Be'ah for solid waste) - There is almost no recycling and reuse of solid waste, (the concept is yet growing).
Telecommunications	<ul style="list-style-type: none"> - Telecommunication services are acceptable in the country. However, the distribution of the high-speed internet is still not covering all areas due to the topographical constraints of the country. - There are several providers in Oman such Omantel and Ooredoo companies that offers a wide variety of products and services.

5.2.2. Natural Environment and Environmental Sensitivity

Although Oman is situated in a semi-arid region, it distinguished with a wide diversity in ecological composition and natural habitats. Its environment profile is very intense with both marine and terrestrial biodiversity. Along the extended coast of Oman, from the north to the south, the marine and coastal life is rich with a variety of fish species, sea mammals, coral reefs, sea/coastal plants (including mangrove trees) and other marine organisms which represent a valuable national wealth for the country and have to be protected. On the other side, terrestrial life offers several types of natural ecosystems and natural habitats with a huge quantity of natural species and organisms (birds, animals, mammals, plants, etc.). For example, and as rare and endangered animals, the Arabian Tahr, and Arabian Gazelle are found in low quantities in the Al-Hajr mountain range in the northern part of Oman. The Arabian Oryx, Arabian Gazelle, Sand Gazelle, Striped Hyaena and Nubien Ibex are found in the center of Oman (Al-Wusta governorate). In addition, the Arabian Leopard is found in the southern region (Dhofar) and particularly in Jabal Samhan Reserve, and this species is classified as one of the highly endangered species in Oman which is in the red list of IUCN (Stein et. al., 2016). Therefore, Ministry of Environment and Climate Affairs MECA pays great efforts in protecting the areas and maintaining the biodiversity. It has successfully protected around 18 highly sensitive areas in the country and its efforts are still growing and continuing. See Figure 5.14 for more illustration about Oman biodiversity and the main nature reserves.

In addition, due to the geological and topographical composition of Oman that includes mountain ranges and sand deserts, the agriculture and green cover areas are very limited. The main three existing areas with extensive suitable soil for agriculture are the extended plain of North Al-Batinah and South Al-Batinah governorates as well as the area of Dhofar Governorate. In addition to that, most of the interiors of the northern part of Oman (which are highly inhabited) are distinguished with the existence of the green oases within, between or close to the mountains areas, near the flush water channels' banks (wadis) or in the open plains that have good fertile soil and good groundwater quality and levels. These green oases have been preserved by the old Omani society since long generations as valuable natural resources. See Figure 5.15 for illustration about agriculture areas.

When looking into the structural form of old cities and the locations of old settlements within these oases, it is very noticed that there was a great harmony between human life and the surrounding natural environment which reflects the sustainable ideology of old communities in planning the areas (sort of community-based sustainable planning). Although there were no guidelines or standards, it can be judged that these places were developed based on clear common vision. For example, it is very obvious that there is a clear zoning between built environment and natural environment. Also, the settlements are noticed to be situated in very strategic locations within these oases with good connections between the main centers and the other settlements.

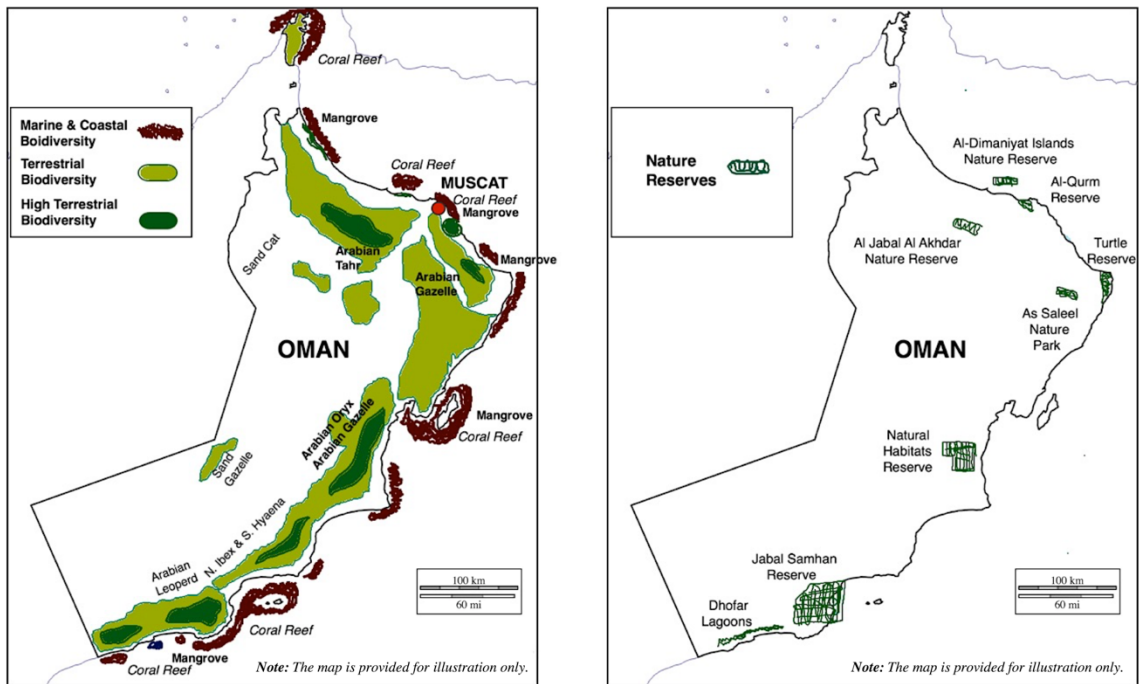


Figure 5.14: Marine and terrestrial biodiversity concentrations and the main natural reserves locations in Oman (author’s own work based on collected information).

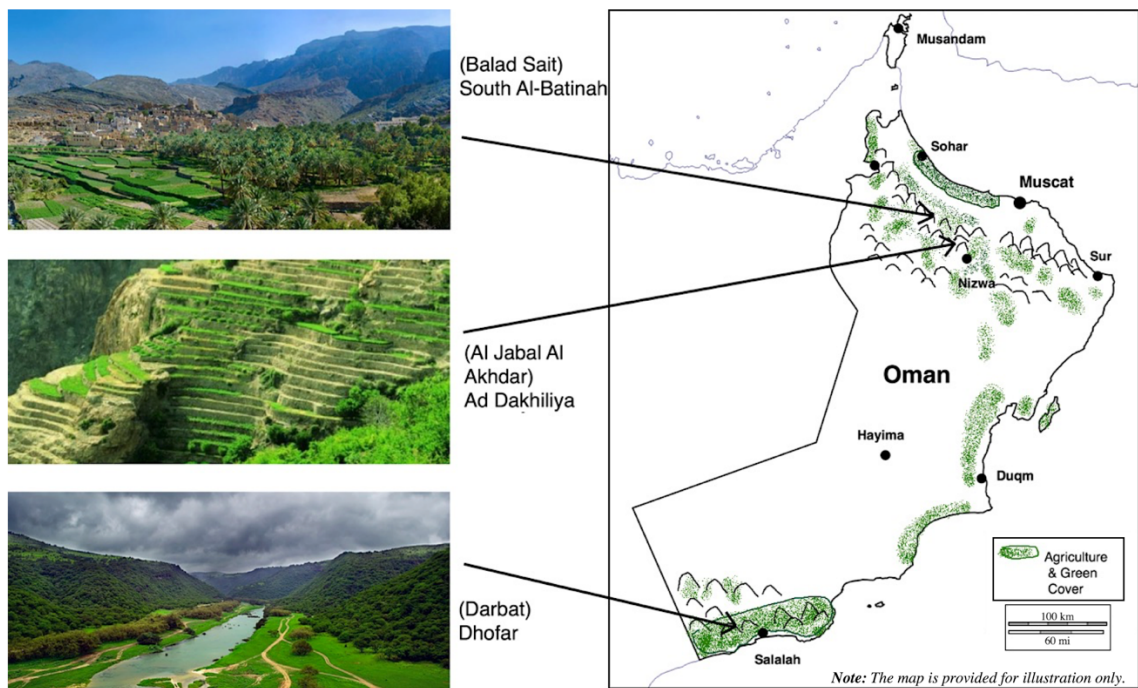


Figure 5.15: A sketch showing the location of agriculture areas in the country (author’s own work based on collected information).

As a show case, the following figure represents a layout from part of old Nizwa city (which is considered as the heart of Oman heritage) to demonstrate how old cities were organized.

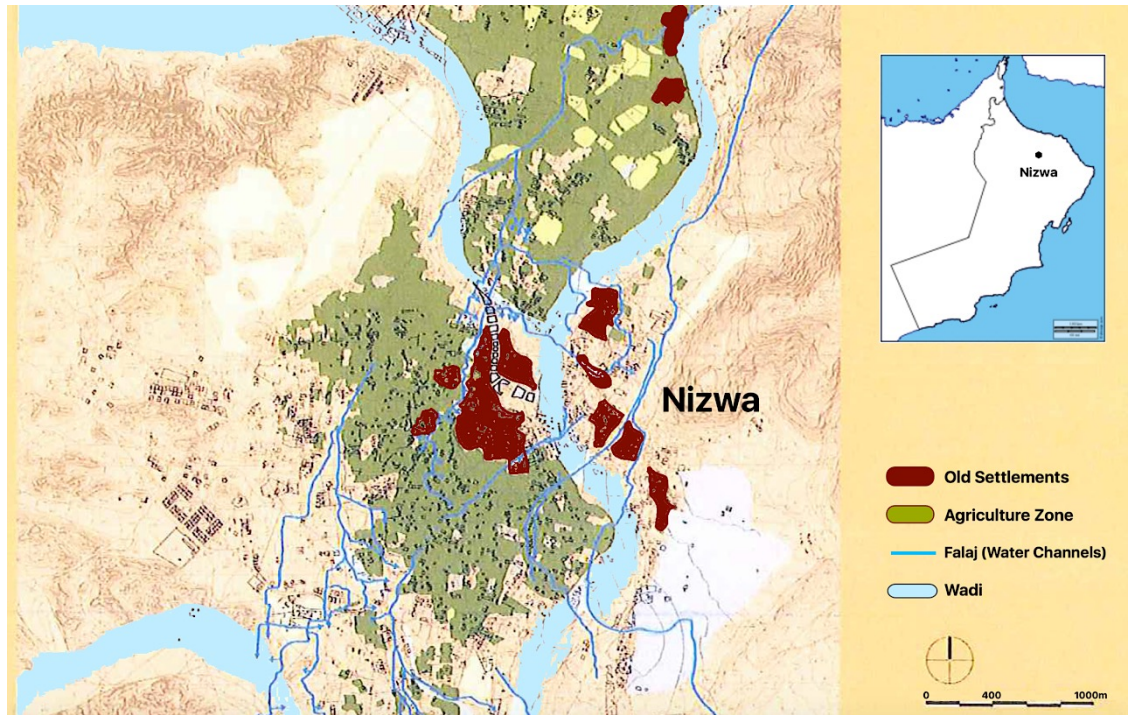


Figure 5.16: A sketch showing the layout of old Nizwa city (edited by author from [Gangler, 2008]).

Because of the existing voids in the reality of spatial planning in Oman, the previous planning and development practices (as well as the current) have influenced the natural resources and thus the environment and natural habitats negatively. There is a considerable degradation in the green cover and agriculture lands due to the rapid expansion of the built environment within the last four decades (of course, in addition to the high salinity rate in some areas such as in Dhofar and Al-Batinah coastal regions as well as the overgrazing in Dhofar region). Moreover, due to the absence of land use strategies, it is very noticed from the current picture of Oman oases that there is a dramatic loss in the ecological cover of these natural values. Through investigating a new aerial satellite image showing the current picture of the same part of Nizwa city (Figure 5.17), the loss of the green cover is very observable as a result of the extensive spread of modern buildings within agriculture lands.

This picture of land-use conflict is very common in most of the country. The majority of the open natural lands close to the inhabited areas, the agriculture lands and the potential regions for agriculture with good fertile soil have been subjected to the misuse of the current spatial planning wheel and a lot of fresh residential plans have been created and distributed to people due to the increasing demand for residential plots. Eventually, it is very noticed from the new plans and new structures that there is a great shift in the shape of areas as well as a visible land-use overlap exists.

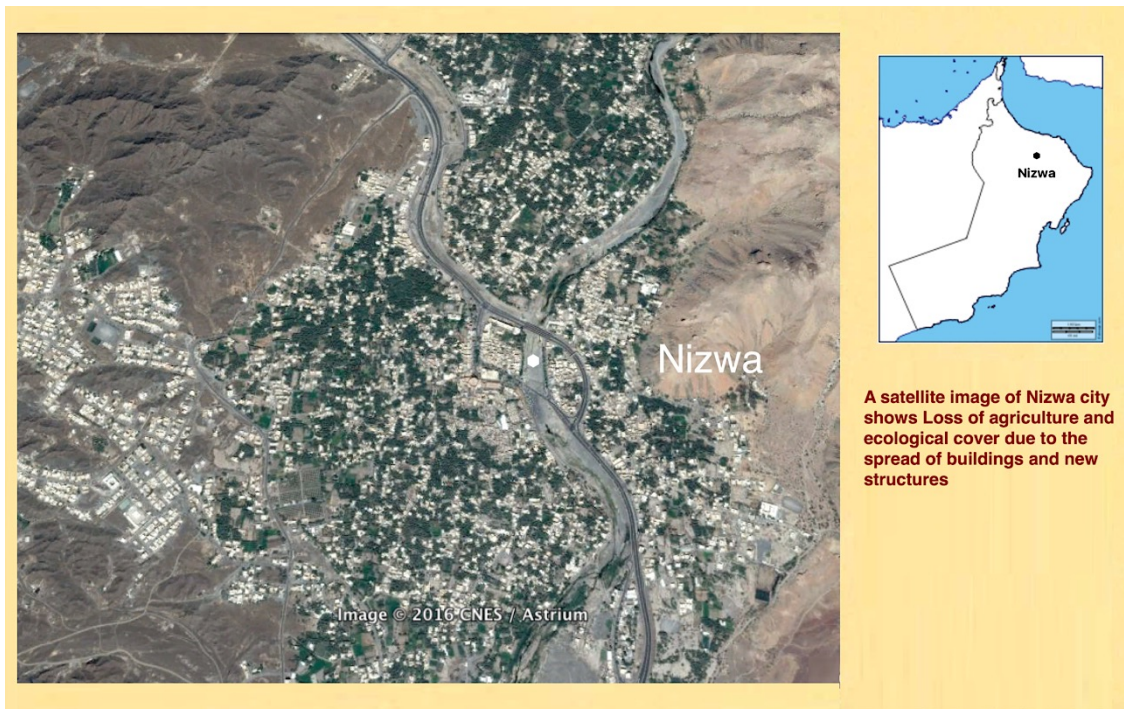


Figure 5.17: A satellite image showing the current condition of Nizwa city: generated from Google Earth

Definitely, the continuity of this type of spatial planning practices threatens agriculture in most of the inhabited regions as well as threatens the natural environment and the balance between the built environment and natural environment which could lead to some losses and impacts that cannot be recovered or mitigated in the future. Figure 5.18 shows the main threatened agriculture areas and natural habitats areas in the country (due to the various spatial planning impacts, high utilization of coastal areas where most of the coastal cities are very close to the shoreline, coastal erosion, salinity, excessive use of groundwater, overgrazing, etc.).

Although, MECA has several legal instruments to control the influence of projects on the environment (mainly industrial type and other large-scale projects), the connection between the environment sector and spatial planning is still not well-defined since no clear regulations or mechanisms exist. ONSS project working team (SCP, 2013) has clearly mentioned that there is a gap of data in the regional and local levels where most of the available environmental studies are mainly on the national level and in deferent qualities and forms. It elaborated on the EIAs and environmental measures implemented by the ministry which are insufficient and required to be assessed. More or less, it is concluded that Oman environment is in a real danger in front of the current scattered spatial planning and in the absence of regulating environmental guidelines and standards.

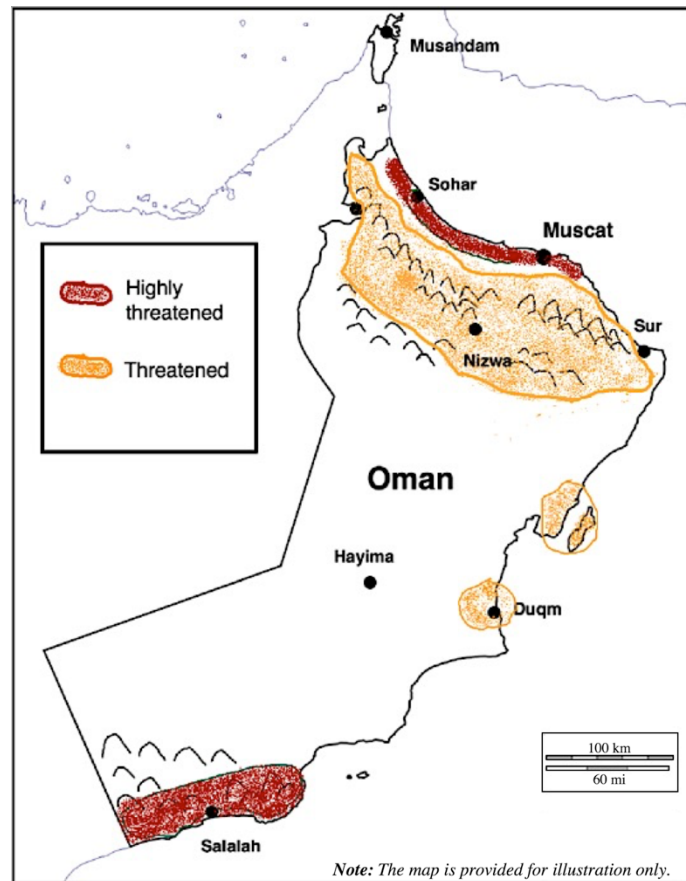


Figure 5.18: A sketch showing the threaten agriculture and natural environment areas in Oman (author's own work based on collected information)

5.2.3. Oman Inherited Architecture

Similar to any country that has historical depth, Oman is distinguished with its special architecture heritage which can be sensed in the formations of old cities and old villages as mentioned earlier. Preserving this kind of national heritage and creating urban and regional harmony that highlights the historical importance of areas should come on the priority list of any government. No one can neglect the continuous efforts of both Ministry of National Heritage and Culture and Ministry of Tourism in restoring, maintaining, and managing the main historical sites in order to preserve and promote the unique architectural identity of the county.

Unfortunately, the main planning and development authorities, on the other hand, did not take into consideration the significant importance of this historical feature in their processes. From the spatial planning and spatial development point of view, no such zoning plans or standards were made to control and protect Oman inherited architecture especially in the old cities and old districts that have high historical sensitivity. Gangler (2008) with other scholars who have studied Oases settlements in Oman, noticed the dramatic change in the architecture form with no such harmony due to the new developments and she warned from the continuous loss of this valuable heritage. Thus, she strongly recommended to take the historical dimensions into consideration when new plans are made especially close to the historical settlements.

5.2.4. Usage of Renewable Energy

In Oman, there is almost no renewable energy sources found to contribute to the national power. It is very obvious that the government did not give any attention to this field to date (no such regulations or strategies are implemented). Probably, the main four reasons behind this negligence are; (1) the availability of oil and natural gas in large reserves, (2) the scarcity of national capabilities and technical resources in this field, (3) the predominance of the economic dimension and the low consideration of the environment and (4) the low selling prices of electricity in the country which are not feasible to implement any sort of renewable energy projects. As promising initiatives, the national Public Authority for Electricity and Water (PAEW) has conducted recently some studies in the field of renewable energy such as the feasibility study for using solar energy to generate electricity, Photovoltaic (PV) study for buildings’ roof-tops and the Wind Resources Atlas study (PAEW, 2017). All of the conducted studies showed promising results to generate electricity from wind and solar energy. However, the main challenges in Oman to introduce this kind of environmentally friendly technologies as define by PAEW are; (1) the huge differences in the cost and benefits between the traditional methods and the renewable energy technologies (which are still expensive), (2) the scarcity of bankable data and studies in this field and (3) introducing renewable energy will require additional public subsidy knowing that electricity in Oman is heavily subsidized by the government.

As a technical opinion, Al-Sarihi (2017) argued that removing or reforming government subsidy is very essential to introduce renewable energy in the country. Because of this governmental support, as she elaborated, the electricity prices in Oman (similar to most of GCC countries) are very low in comparison to the global market. In addition, according to her analysis on the differences between traditional natural gas-based technologies such as close cycle and open cycle gas turbines (CCGT & OCGT) and the renewable energy technologies (by taking into account the investment cost and the average levelized cost of electricity [LCOE]), she agreed that renewable energy methods are still very costly (see Figure 5.19 for more illustration).

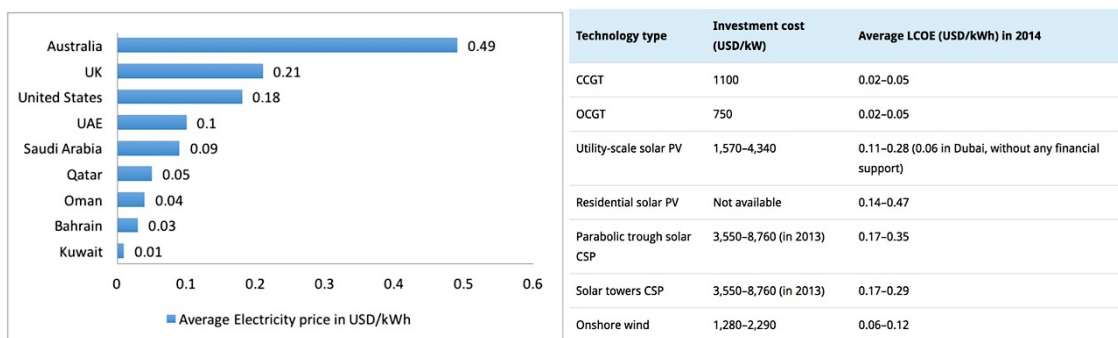


Figure 5.19: The average price of electricity in GCC countries, and the cost of electricity for some renewable and gas-based technologies (Al-Sarihi, 2017).

5.2.5. Environmental Efficiency of Built Environment.

Since more than two decades, so many countries have started in prompting their environmental efficiency programs and assessment methods such as BREEAM (UK) and LEED (USA) which were established in 1990 and 2000 respectively (as mentioned in the second chapter). However, Oman is noticed until current days to be totally isolated from this innovated community. No such method or program is implemented and no such authority or even a department has been established to enhance the environmental efficiency and environmental sustainability in the built environment. Environmental efficiency programs and regulations (including efficiency of construction materials, water and electricity) are very essential to enhance the sustainability of buildings from one side and reduce the impacts and negative influences on the environment (including CO₂ and other greenhouse gas emissions) from the other side. Even though the initial cost to consider efficiency measures in new and existing buildings is slightly higher than the traditional one, the long-term savings add great benefits to both consumers and providers. From the economic and environmental point of view, introducing energy and water efficiency programs is very successful way of innovation as noticed from the global experiences.

In Oman, there is no exact reason why this area which has great economic, environmental and social benefits has been neglected. However, according to the personal analysis and the personal experience, the main four reasons associated with this aspect are the lack of capabilities and technical experiences in this field, the predominance role of the initial cost in the public and private development practices, the scarcity of supporting products in the local markets, and the limited governmental consideration of environmental sensitivity in general.

5.2.6. Characteristics of Omani Cities

In Oman, the architecture of old cities tends to be simple, workable and livable. Despite this simplicity, the formation of old Omani city characterized with the ingenuity of planning and this could be touched in the layout of buildings, entrances and exits of the city, public spaces in the center (including traditional markets, public halls and mosques), defensive fortifications, city walls, setbacks, walking paths, and could be touched even in the fine details such as the design of windows, doors, ventilation openings, building heights and the decoration items. This kind of inherited characteristics represent a rich field for those who are interested in studying the history of architecture art in Oman.

Due to the dramatic urban expansion and development boom in the last four decades which reflect the accelerated rise of the national economy as well as the population welfare, the shape of Omani cities has been totally changed. Most of the cities nowadays are widely expanded and characterized by the composition of modern architecture. The following points represent some of the common aspects related to the current urban structure of cities which reflect, from the other side, the nature of spatial planning and development practices in Oman:

- There is some sort of urban privacy which could be noticed from the boundary walls designed to isolate the residential buildings from each other as well as from the transportation system used in the country (private transport).

- There is conflict in land use (residential, commercial, agricultural, industrial, etc.), variation in building heights, variation of architecture form, and variation in the planning styles (different shapes and layouts of districts even in the same area)
- There are differences in urban densities (high densities in some areas and low densities in other ones)
- There is variation in the governmental concerns for developing areas (some areas are good developed with good infrastructure and public amenities and some are not)
- Green cover is almost neglected in most of the urban areas (except some of the main centers)
- There is negative influence on the natural landscapes (such as the wide cutting and filling in the mountains and sand dunes for constructing buildings and roads) as well as destruction to natural habitats.
- Buildings are extended in the dangerous zones such as in areas threaten by floods with no protection measures.
- There is lack of interest in developing open public spaces including cycling infrastructure, pedestrian lanes, playgrounds and sport facilities (except some parts in the main centers).

5.2.7. Building Regulations and Building Process

Through looking into the development and construction standards and associated regulations, it is very obvious from the research that this area is much healthier than the planning one. The municipalities have their own general building standards to manage and control construction processes as illustrated in chapter 4 (Building Regulations for Muscat Municipality implemented since 1992 and Regulations for Organizing Buildings for other municipalities implemented since 2000). Even before these documents, the buildings were regulated via several municipal instruments to control new constructions as well as existing buildings. In addition, although there is no specific detail structural and architectural building code designed for Oman buildings (including concrete design, steelwork design, etc.), some of the international building codes are applicable in the country for the purpose of preparing the detail construction documents required by the municipalities such as the British Standards (BS) and the International Building Code (IBC).

Depending on the size of the project, soil bearing capacity geotechnical study is also a general mandatory requirement by the municipalities which is only excluded for small projects such as small villas. Environmental studies (including EIAs in some cases) are other mandatory documents to be submitted for Ministry of Environment for medium-size and large-size projects. Very similar, Royal Oman Police has its own regulations for approving civil defense, security and traffic plans for medium-size and large-size projects as well. Moreover, one of the new requirements coming on the horizon is the seismic consideration on the building design to minimize building damages associated with earthquakes and tectonic plates motions. Not only these, there are additional guidelines and standards associated with the type of project (touristic, industrial, etc.) which are implemented by other authorities contributed in the planning, construction and development processes.

Due to the variety of requirements as was mentioned and the strict legislations in this field, uncontrolled and illegal construction in Oman is rarely occurred and if so, the law is explicit to demolish the violated buildings as one of the penalties.

As can be noticed that construction process in Oman is very complicated especially in the preparation stage and obtaining the necessary approvals from the authorities (designing stage) and this usually consumes a considerable time (several months and in some cases more than a year) prior to the commencement of projects. The construction drawings must fulfill the requirements of all concern authorities according to the project type and size. Due to the variety of development standards and criteria implemented by authorities that contain in some cases information overlap and conflict, the required designing documents are usually subjected to several amendments before obtaining all approvals and receiving the final building permit. As an exception, residential projects have the easiest process due to the limited approvals required for this type of land use projects. The following figure demonstrates in a simple form the development process of projects in Oman.

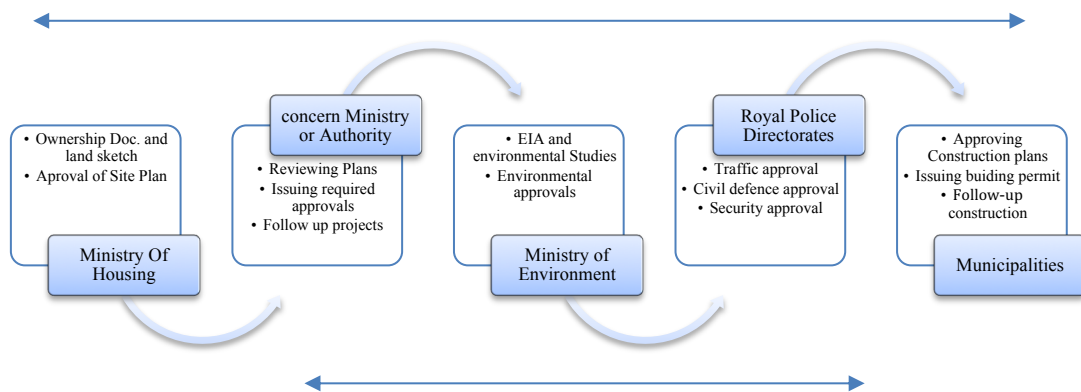


Figure 5.20: A diagram shows construction process in Oman (author’s own work).

For more illustration, and as an example, if some developers plan to construct a tourism project (such as a 5-star hotel), they have to follow these steps:

- They have first to obtain a preliminary approval from Ministry of Tourism.
- Then they have to prepare architectural plans according to the criteria of Ministry of Tourism and the individual criteria of the official land sketch provided by Ministry of Housing (which include heights, No. of floors, built-up area and setbacks) in order to get the preliminary approval of Ministry of Tourism on the prepared architectural plans as well as the approval of Ministry of Housing on the masterplan (site plan).
- Simultaneously, they must obtain a preliminary approval from Ministry of Environment and submit the necessary environmental studies.

- Additionally, they must prepare security, civil defense and traffic plans according to Royal Oman Police ROP guidelines and obtain the necessary preliminary approvals from 3 deferent directorates in ROP on these plans.
- The municipality comes at the end and after obtaining all other approvals and fulfilling the concern authorities' requirements. Here, they must prepare the complete set of construction drawings (architectural, structural, electrical etc.) according to the guidelines and the building codes implemented in the municipality in order to obtain the final building permit (the geotechnical study and any additional required document has to be taken into account).

During the whole designing cycle, the main essential layouts must remain the same and any change in any stage (which is very expected) means the changes of the specific drawings of other authorities. The developers/owners and their consultants usually suffer during this stage which is not totally clear for the public and assumed to be one of the main obstacles for foreign investments in the country. From the personal experience and due to the variety of standards and the deferent regulations of authorities, large projects take up-to few years of preparation to fulfill all the requirements because of the continuous revisions and amendments on the plans. In addition, there are also final approvals from authorities which are granted after completing the projects if all the requirements are successfully fulfilled.

5.2.8. Infrastructure, Natural Environment, and Built Environment SWOT Analysis

		<i>Helpful</i>	<i>Harmful</i>
<i>Present</i>	Strengths:	<ul style="list-style-type: none"> - The availability of building standards - Social participation through Municipal Councils - Governmental awareness about some of the issues - Current positive changes in waste management. 	<ul style="list-style-type: none"> - Long building procedures - Conflict of land use (residential, commercial, agricultural industrial, etc.) - Insufficient infrastructure - Continuous loss of natural landscapes - Continuous loss of agriculture and green cover - Negative influence on natural environment - Continuous loss of historical architecture - Scarcity of environmental efficiency programs (water & electricity) - Negligence of renewable energy - Lack of interest in developing public spaces outside the main centers (including play grounds, pedestrian and cycling lanes) - Expansion of buildings in the risk zones (flood areas) - Lack of public transport
	Weaknesses:	<ul style="list-style-type: none"> - Facilitating building process through e-government to reduce approvals required time - Developing comprehensive building standard and effective systems to avoid any sort of conflict in the criteria between authorities - Integrating building process with spatial planning practices - Protecting environment, landscapes and historical areas. - Introducing environmental efficiency programs to enhance the efficiency of buildings - Introducing renewable energy - Paying more attention in developing public spaces and open areas including pedestrian and cycling infrastructure. - Introducing efficient and effective public transport - Introducing recycling and reuse of solid waste 	<ul style="list-style-type: none"> - Continuous loss of landscapes, green cover, natural environments and agriculture lands - Continuous negligence of environmental efficiency of build environment and renewable energy sources - Future impacts of the current urban development - Scarcity of technical studies and technical capabilities - Lack of accountability - High demand for water and electricity - High utilization of coastal zones - Coastal erosion
<i>Future</i>	Opportunities:		Threats:

Figure 5.21: SWOT analysis of infrastructure, built environment, and natural environment (author's own work)

5.3. Economic and Social Analysis

In fact, economic and social area of study is very wide and diverse, and analyzing the various Oman socio-economic parameters requires more detail study which is beyond the objectives of this research. Therefore, in order to clarify the picture of Oman spatial planning system, link it with sustainability dimensions, and reach an overall convincing conclusion, this part is going to overview and highlight some of the main socio-economic indicators and facts that interact directly or indirectly with the planning methods in the country. In addition, for the best understanding of the financial performance of Oman government, some of the results are going to be compared with the statistics of the Organization for Economic Co-operation and Development (OECD).

5.3.1. Demography

According to the annual statistical report of the National Centre for Statistics and Information (NCSI, 2016a), the population of Oman was estimated, in 2015, as 4.16 million divided into 2.36 million Omani nationals and 1.8 million expatriates, the ratio is 56% to 44%. The population growth in Oman is considerably high and for the last ten years, the population growth was noticed to be increased from 2.3% (as in 2006) to 3.3 % (as in 2013, 2014 and 2015). The 2015 population pyramid of Omani nationals indicated that Oman is a young country with a young population.

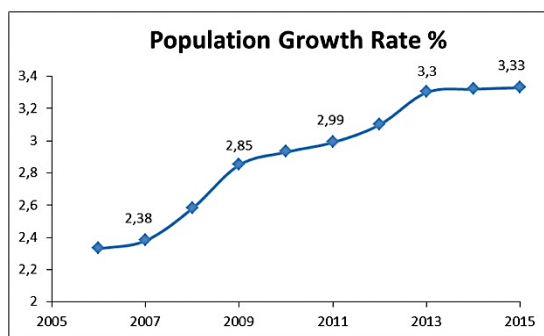


Figure 3.22: Population growth of Omani nationals (author's own work)

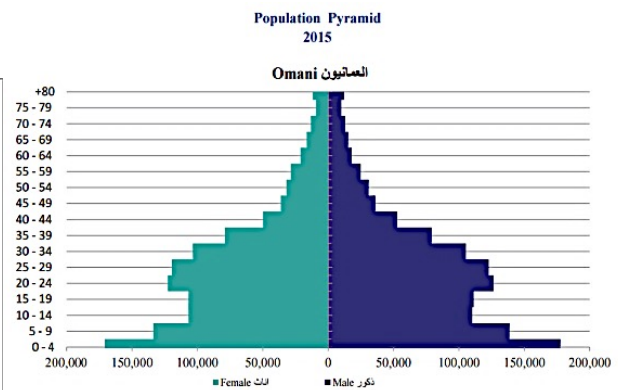


Figure 3.23: Population Pyramid according to 2015 statistics (NCSI, 2016a)

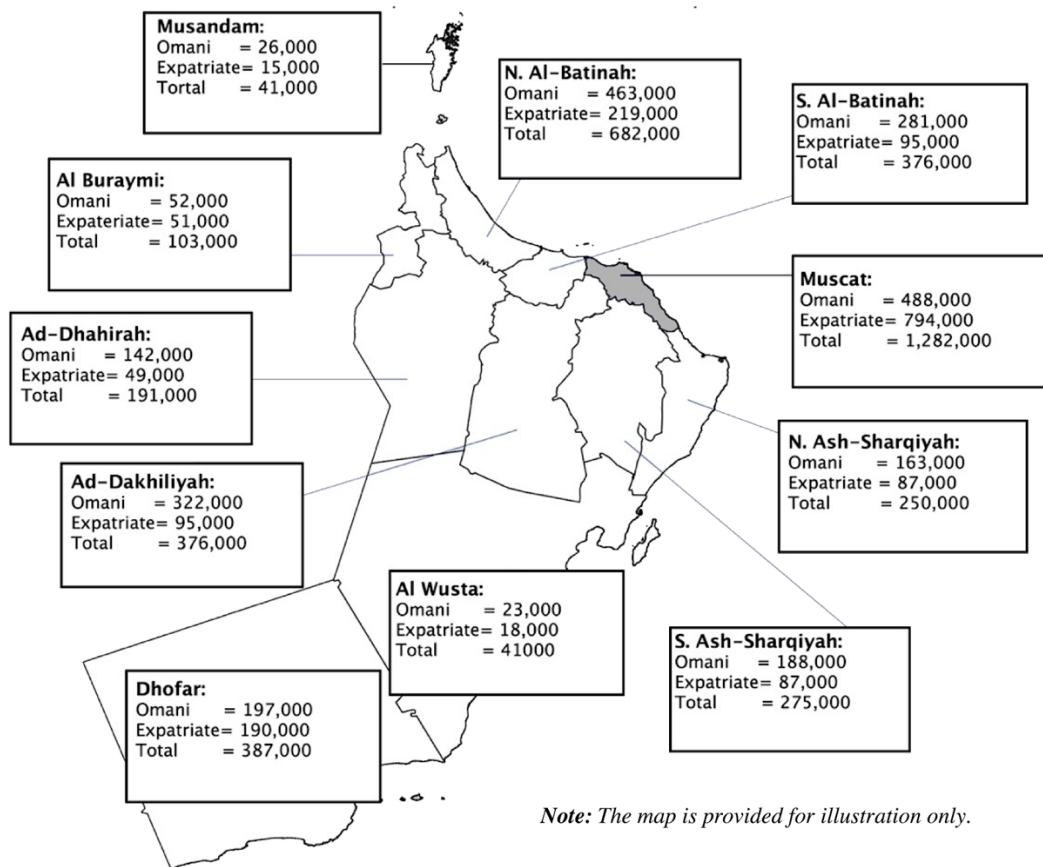


Figure 5.24: Population distribution in Oman based on 2015 statistics (author's own work)

In addition, according to the analysis of the statistical reports published by the National Center for Statistics and Information (NCSI, 2016a; 2016e);

- The population is mostly concentrated in the northern part of Oman (as illustrated in the above figure).
- In addition, Muscat is the highest inhabitant area (its population density in 2015 was 320 inhabitants per km²) and the expatriates represented, in the same year, around 62% from its total population (very high).
- As mentioned, the national population growth is very high (the rate in 2015 was 3.33%).
- 65% from the Omanis are under the age of 29 years.
- Also, the males to females' ratio in Oman is almost equal; 49.5% to 50.5%.
- Indians, Bangladeshis and Pakistanis represent around 85% from the expatriate population.

5.3.2. Oman Economy and Gross Domestic Product (GDP) Indicators

Through studying and analyzing Oman national accounts from the related NCSI documents (NCSI, 2016a; 2012; 2010; 2008), it is concluded that:

- Petroleum and natural gas sector represents one of the main GDP sources in Oman; the contribution rate of this sector to the GDP, as in 2014 and 2015, was 46.6% and 34.1% respectively.
- The second main source is service sector, which includes service activities such as general trade, real estate, public administration, transport, education, health, and tourism activities, and this contributed to the GDP, as in 2014 and 2015, by 41.0% and 49.9% respectively.
- Industrial sector is considered as the third main source, and this includes activities such as manufacturing of chemical products, building and construction, electricity and water, mining and quarrying, and transformation manufacturing activities. The contribution rate of this sector to the GDP, as in 2014 and 2015, was 17.6% and 19.8% respectively.
- As indicated in the following chart for the period 2007-2015, there is a smooth inflation in the added values of non-petroleum activities, with an average annual increase of 9%. However, within the same period, the added values of petroleum activities are noticed to be unstable and there are two obvious drops, one in 2009 and the other in 2015, due to the dramatic fall of oil prices.

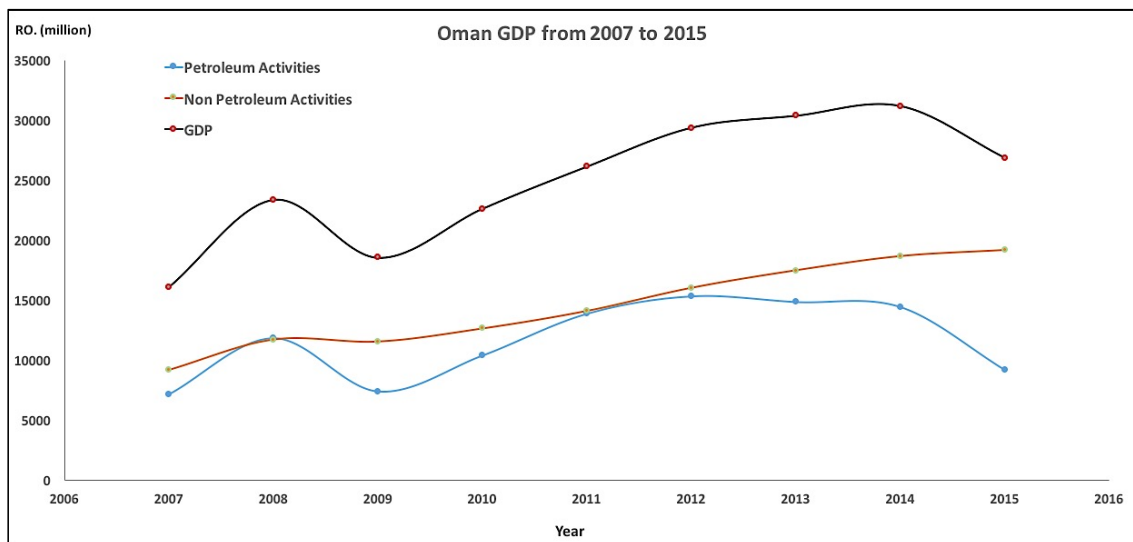


Figure 5.25: Oman GDP and the contribution of petroleum and non-petroleum products from 2007 to 2015 (author’s own work).

5.3.3. Public Finance Indictors

Analyzing Oman government finance is one of the most important things in order to understand the economic and administrative behavior of the government, discover its area of deficiency and failure, and connect the financial dimension with the governance of planning and development. For this purpose, this part presents some of the facts and indicators related to the revenues and expenditures of the government based on the available official statistics about to the public finance (NCSI, 2016a; 2012; 2010; 2008).

Government income

- As is observed from the public finance, Oman government relies mainly on oil and natural gas revenues. The contribution rates of these revenues to the total government income in 2013, 2014, and 2015 were 86%, 84%, and 79% respectively.
- The government finance is noticed to be not stable due to the fluctuation of oil prices, and this explains the huge decline in the government total revenue in 2015, which was around 35% less than the revenue of 2014.
- As indicated in the following chart, it is very obvious that Oman government did not pay good attention to increase its non-petroleum revenues which are noticed to be more stable.

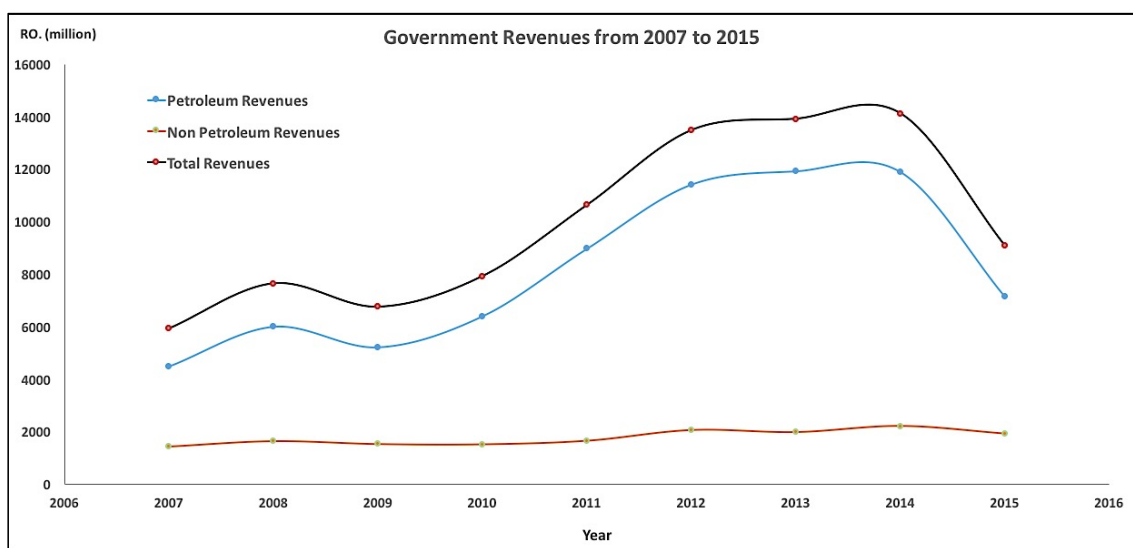


Figure 5.26: Oman government revenues from 2007 to 2015 (author’s own work).

Government expenditure

- The government expenditure is divided into three main categories. The first one is the *Current Expenditure*, and this includes defense and security expenses, government salaries and wages, public administrative expenses, oil and gas production running costs, and the other consumptive expenses of the government. The second one is the *Investment Expenditure*, and this includes the development and capital expenses as well as the government investments in oil and gas production. The third one represents the *Government Participation and Subsidies*, and this includes the participation in the international and local organizations, the subsidies of oil products, loan interests, electricity, and food commodities as well as the operational subsidies of government companies.
- In 2014 and 2015, the *Current Expenditure* represented, from the total government expenditure, around 63.3% and 66.8% respectively, and the majority of this expenditure was directed to military sector and civil government wages and salaries. Military and national security expenses represented, from the current

expenditure category, approximately 43.8% in 2014 and 42.1% in 2015. In addition, civil government salaries and wages represented more than 34.8% in 2014 and 37.2% in 2015, from the same category.

- Similarly, for 2014 and 2015, the *Investment Expenditure* represented 23.6% and 24.2%, from the government expenditure. In general, outside the investments in oil and gas sector, the statistics of 2014 and 2015 showed that less than 15% from the total government expenditure was directed to the development and investment fields in all sectors including infrastructure and social development!
- *Government Participation and Subsidies* category represented 13.1% and 8.9% from the total expenditure, as in 2014 and 2015. Part of this expenditure represents the government subsidies of oil products, electricity, and food commodities which are good government initiatives towards society. However, Oil products subsidies were totally removed, since 2016, due to the financial deficit that the government encountered.
- Up to the end of 2015, the government deficit was estimated as 6.4 Billion Omani Rials and this explains from one side, the government reliance on one main source and from the other side, the dramatic increase in the running current expenditure and the unjustified employment in the public sector in 2011 and 2012 (more than 200,000 jobs were created in the government and military sectors).

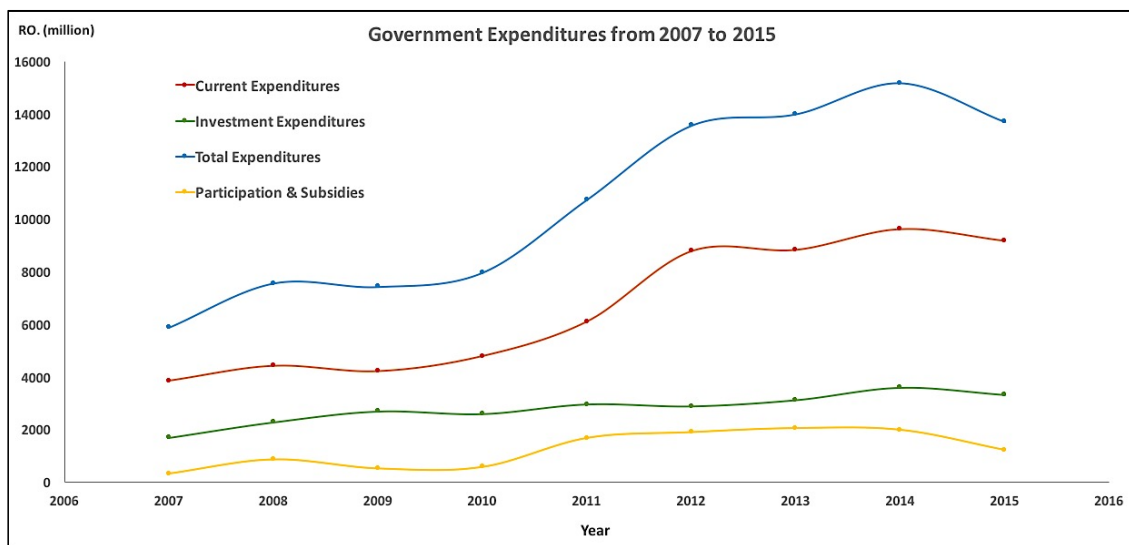


Figure 5.27: Oman government expenses from 2007 to 2015 (author’s own work).

5.3.4. Education and Higher Education Indicators

Education

Education and training are considered as one of the main pillars for the development of any nation. Due to the historical challenges that were mentioned earlier and in relation to other countries in the region, education system has started very late in Oman. Up to 1970, there were only three schools and had only primary classes. The educational revolution in Oman has started after 1970.

As a result of governmental efforts and according to 2015 statistics, there were around 1647 schools distributed all over the country and for the academic year 2015/2016, the total number of registered students in ministry of education was exceeding 720 thousand students (NCSI, 2016b). The current educational system is divided into two phases; 10 years of essential study and then two years of general classes.

Although there was no exact figure for illiteracy during 1970s and even during 1980s, there is no doubt that the rate was extremely high. Among all population, the illiteracy was estimated as 41% in 1993, 26.6% in 2000 (Ministry of Economy, 2003) and 12.2% in 2010, and for the age group (15-45 years), the rate was estimated in the same year as 3.5% (SCP, 2012).

Higher Education

Higher education has only started in 1980s when the educational colleges and the first university were established. Sultan Qaboos University, as the first university, was founded in 1986 and had its first batch of graduates in 1990. According to 2016 higher education statistical report, there are currently around 69 institutions for high education in Oman including universities, colleges, and other technical institutions. For the academic year 2014/2015, the total registered students in high education institutes were around 165 thousand students inside Oman and there were around 6.8 thousand students outside the country (NCSI, 2016c).

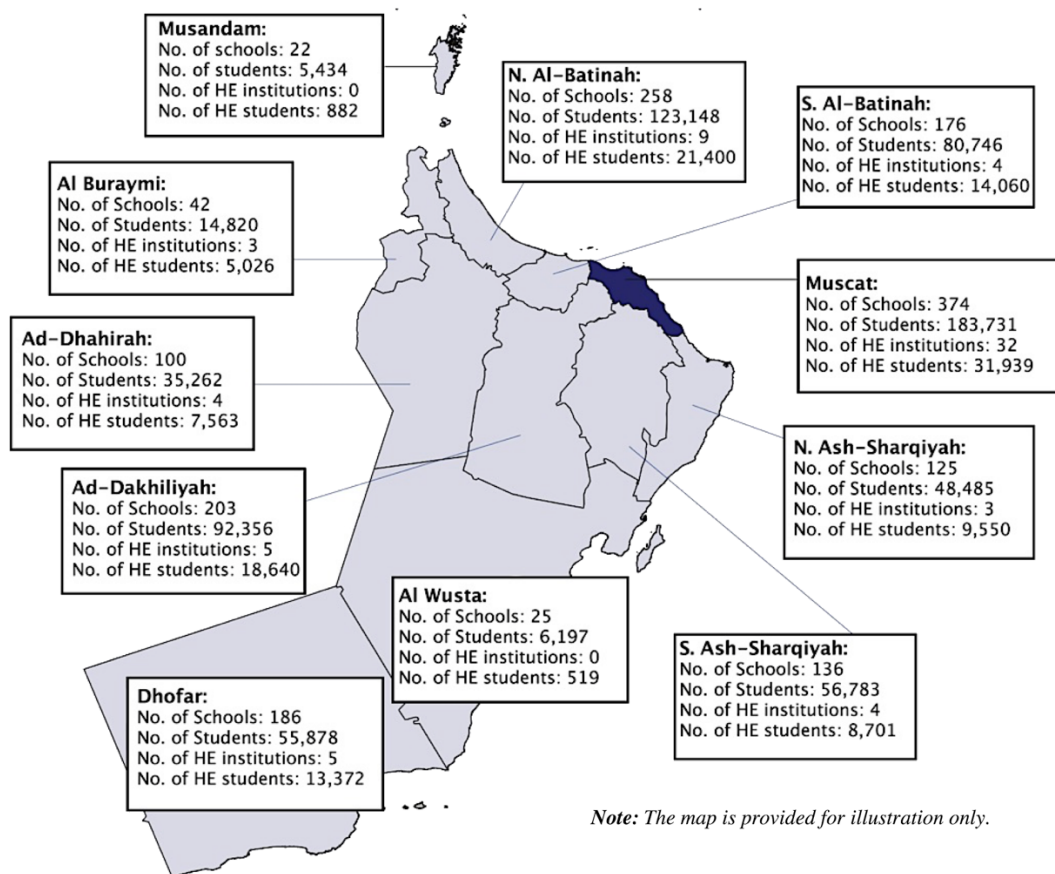


Figure 5.28: Statistics of education and higher education in Oman for the year 2015 (author's own work).

As illustrated that since 1970, Oman has paid great attention to education and higher education sector. Accordingly, and based on the analysis of the reports (NSCI, 2016b, 2016c; SCP, 2012);

- The illiteracy rate was reduced to 12.2% as in 2010.
- There are currently more than 1645 public and private schools distributed all over the country, from 3 schools in 1970, and this represents a dramatic change in the picture of education in Oman.
- As a fact, education services and transport of students in the public schools are provided free of cost.
- Although higher education has started very late since 1980s, there are currently more than 65 higher education institutions in the country (public and private).
- Since few years Oman has started to invest heavily in higher education, and providing national and international scholarships (Bachelor, Master and Doctoral qualifications).
- As calculated from 2015 public financial statistics, more than 9.5% of the governmental expenses as in 2015 was directed to public education which was around 4.9% of the GDP, and also around 3% of the governmental expenses was directed to higher education (mainly, the expenditure of Ministry of Higher Education and Sultan Qaboos University only), almost 1.4% of the GDP. In 2015, the total government expenses in education sector represented around 7.2% of Oman GDP. As an international figure, the average expenses in education, as derived from OECD data for 2015, was 5.5% of the GDP of the country, i.e. France and Norway had this rate (OECD, 2016).
- From the research and as an issue, it is predicted that higher education is much more quantitative than qualitative, and higher education outputs are not directly linked with labor market demand, i.e. there is high shortage in teaching workforce.

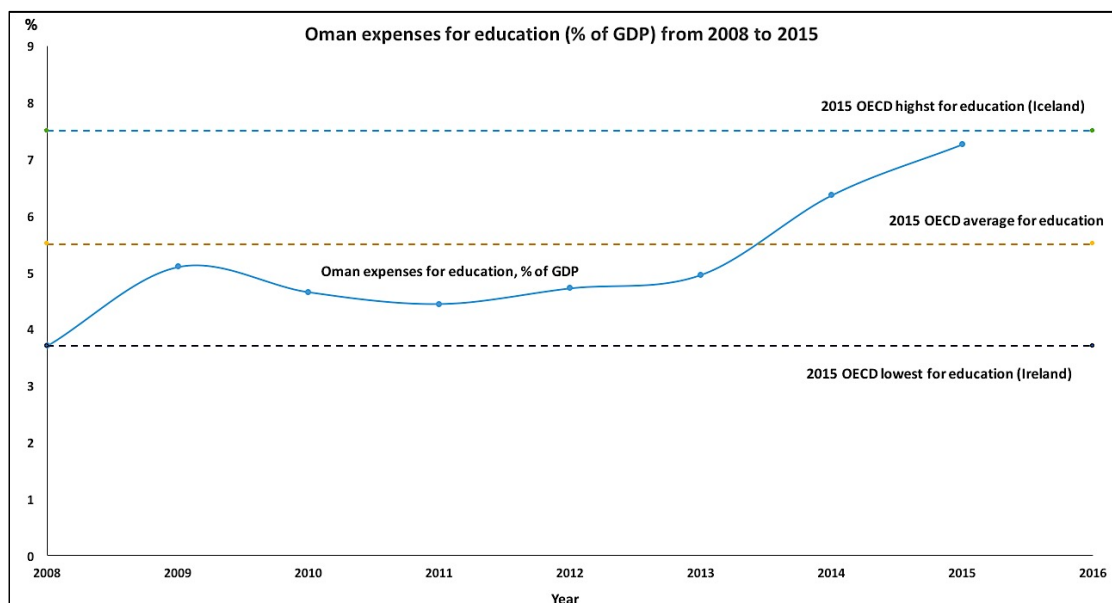


Figure 5.29: Oman expenses for education (% of GDP) from 2008 to 2015 (author's own work).

5.3.5. Public Health Indicators

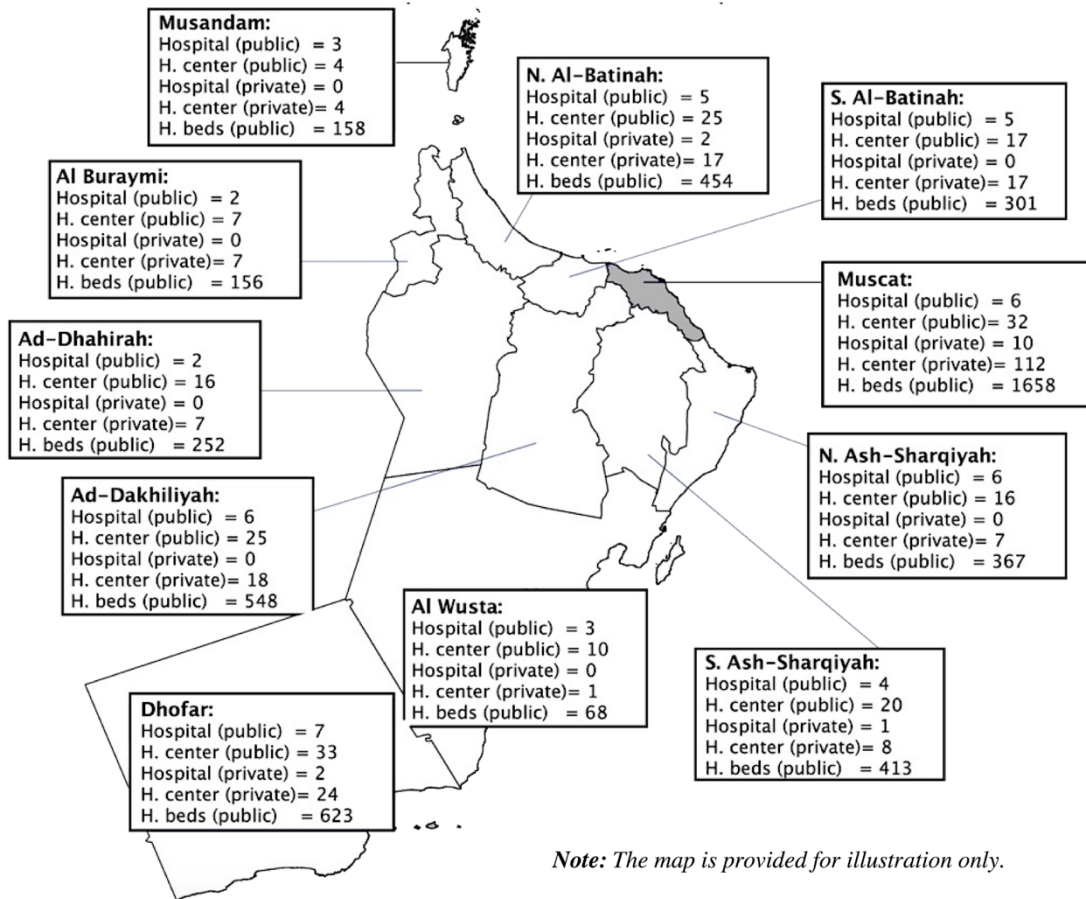


Figure 5.30: Oman statistics for health facilities based on 2015 data (author’s own work).

Similar to education, developing health sector was one of the main priorities of the country since 1970. Public healthcare services are well distributed in the country (see the above figure). In addition, through studying and analyzing health documents such as (Beaudevin, 2013), 2015 health statistics (NCSI, 2015), and 2016 Statistical Book (NCSI, 2016a), it is concluded that:

- According to (Beaudevin, 2013), the public healthcare structure is divided into three main levels. The first level is the primary health services (local health centers and health complexes that are widely distributed in the whole country). The second level is the secondary healthcare which represents the regional hospitals (this level is distributed in 10 health regions). The third level is the advanced healthcare, and this represents the national referral hospitals that are located in the capital Muscat.
- As it was mentioned previously, there was only one hospital in 1970 located in the capital Muscat. His Majesty Sultan Qaboos has paid a great attention to this sector from the start of Oman renaissance. Ministry of health in Oman was

established in 1970 and became a member of World Health Organization in 1971 (WHO, 2016).

- From one hospital in 1970, the country has currently around 55 public hospitals, 22 public health complexes, 173 public health centers, and more than 1000 private health institutions including 15 private hospitals, private health centers, medical laboratories, and clinics (general, ENT, dental, etc.) distributed over the country.
- All Public health services are provided free of cost and accessible by Omani nationals based on the applied system of Ministry of Health, except 6 hospitals which are outside the umbrella of the ministry and dedicated to certain categories (mainly the employees of the regulated authorities) such as the Military Hospitals.
- Private health hospitals and centers are popular in the country as well as they cover all other citizens who are not eligible to the free public services. They are fast, easy access, affordable, and offer good services and good medicine. They are suitable for light and medium health conditions. All severe cases must be treated through public hospitals including all accident cases.
- Based on 2015 financial statistics, the public health in Oman represented nearly 3% of the GDP. However, this rate is very low in comparison to the international rate as derived from OECD 2015 health statistics which is around 7% (OECD, 2016).
- There is no health insurance or programs is implemented by the government to enhance the efficiency and effectiveness of the public health services.
- The public health institutions (except few hospitals) suffer from a lack of quality in the medical equipment, devices, and products as well as scarcity of qualified workforce, and this could be linked with the limited financial budget and the governmental constraints on health sectors.
- One of the main issues in health sector, in addition to the financial challenge, is the absence of the high specialized private hospitals in the country where the load on the public hospitals is considerably high. In many chronic cases, the people have to wait for a long time (months) to get appointments in the referral public hospitals that are located in Muscat due to their high pressure. This issue pushes many people to travel abroad in order to get fast and better healthcare and usually this cost them a lot of money. In addition, up to the current days, the country has not started to implement any sort of public health insurance. Health insurance is a good solidarity method to generate extra funds to the health sector, enhance the quality of healthcare services and on the other side save the unnecessary private expenses of people on healthcare.

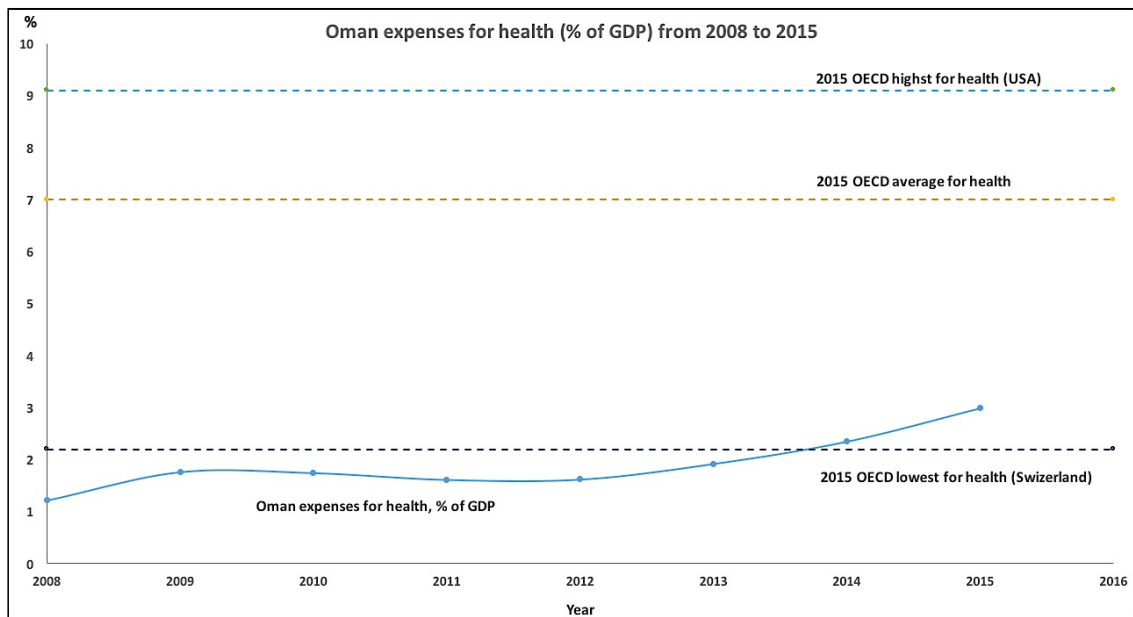


Figure 5.31: Oman expenses for health (% of GDP) from 2008 to 2015 (author's own work).

5.3.6. Social Protection Indicators

No doubt that social security system is considered as a main pillar to maintain social sustainability. In this regard, Oman has several social protection programs and has a ministry responsible for social affairs called *Ministry of Social Development*. Such programs and social protection indicators are listed below, but are not limited to:

- One of the important programs is the social security system implemented by Ministry of Social Development that include monthly financial support to a wide range of beneficiary groups that have no or insufficient income (such as people with special needs, old people who are not covered by any retirement program, families with insufficient income, children with no families, families of prisoners that have no income, widows and divorced ladies including children). According to 2015 social insurance statistics (NCSI, 2016f), this program covered around 84,000 cases with a total amount of 132 million OMR. More than 70% of the cases covered by this program represented disability and senility group. Moreover, the beneficiaries of the program have several additional supports including exemption from paying government fees in several services, education and high education financial supports, housing supports, and other benefits.
- This ministry provides also several financial and non-financial supports to other society members according to the laws, available budget and individual cases requirements. It pays special attention to orphans, children with no families and old people through providing them with places of residence and the required services. It also regulates a wide range of non-profit associations and women associations that aim to promote harmony and collaboration among society members.
- Another program is the financial housing support system, which is part of the Social Housing Law, implemented since 2013 by Ministry of Housing for people with low-income, which allows this group to do maintenance works for their

homes, build or purchase new ones (maximum around 26,000 OMR per case). In 2015, this supports reached 1957 cases with a total amount of approximately 49 million OMR (in 2014 the amount was around 90 million OMR for almost double the cases).

- There is also a housing adaptive loan program (loan with no interests) for people with limited income (approximately less than 400 OMR per month) implemented also by Ministry of Housing which allows qualified people to maintain their existing homes or build/purchase new ones and pay the amount back in easy-going installments with no additional costs (around 700 cases got benefit from this program in 2015).
- According to 2016 statistical book (NCSI, 2016a), it is estimated that social security share represented around 2% of Oman GDP and it is noticed that this rate is very low in comparison to OECD average rate; which is more than 17% (OECD, 2016).

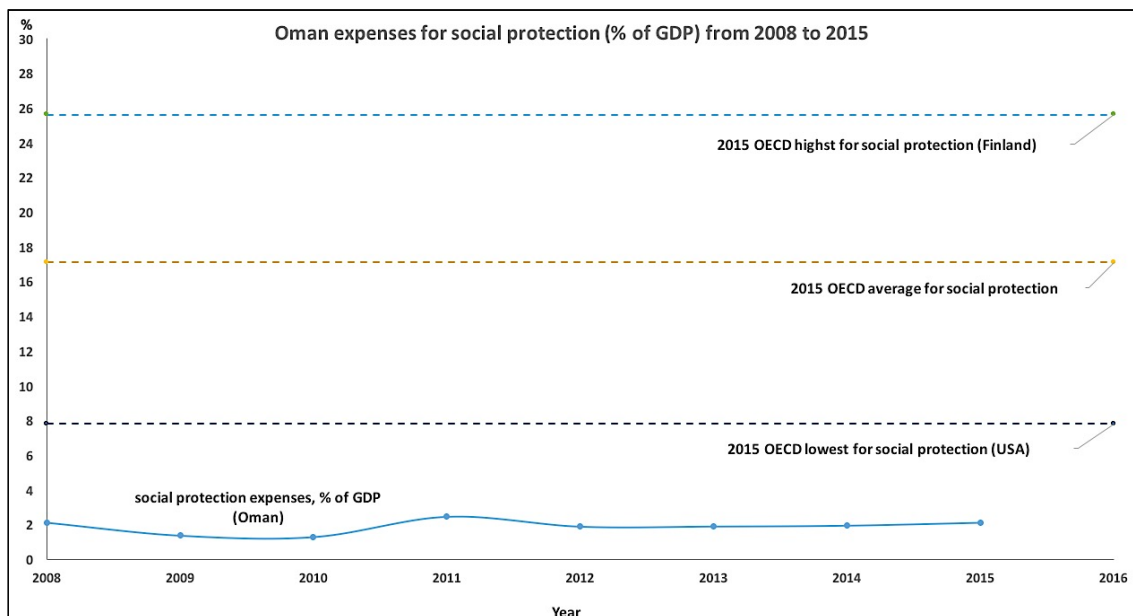


Figure 5.32: Oman expenses for social protection (% of GDP) from 2008 to 2015 (author’s own work).

5.3.7. Safety and Security Indicators

Oman is considered within the safest countries due to its low crime rate and therefore:

- According to Crime and Offenders 2015 report (NCSI, 2016g), the crime rate (including all types of crimes; personal, property, statutory, etc.) was not exceeding 4 cases per 1000 inhabitants and more than 52% of the cases are associated to non-Omanis due to their violation of the laws. In addition, the same report showed that the crime level in 2015 has decreased by 29% in comparison to the level of 2013 (Figure 5.33).

- According to Numbeo 2017 statistics related to the global crime and safety levels, Oman took the position 15th in the safety index out of 117 countries. In the same index, Qatar is ranked the 1st as the safest country followed by Singapore, Taiwan, Austria, and United Arab Emirates respectively (Numbeo, 2017).
- From the Statistical Book of 2016 (NCSI, 2016a), it is noticed that the government expenditure in safety & security represented around 0.5% of the GDP. See the related Figure 5.34.

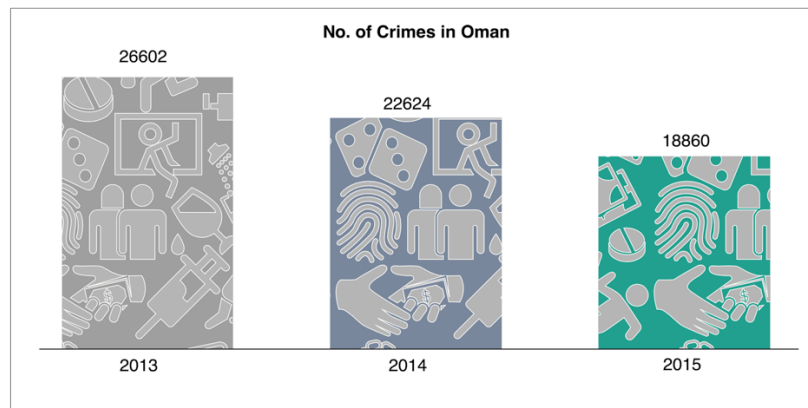


Figure 5.33: Number of crimes in Oman from 2013 to 2015 (author’s own work)

Similarly, since the last five years Royal Oman Police has paid great attention to traffic safety in order to reduce the number of accidents in the country and reduce the related injuries and deaths. According to 2016 Traffic System report (NCSI, 2017a), the number of traffic accident in 2016 has dramatically decreased by 42.5% compared to 2012.

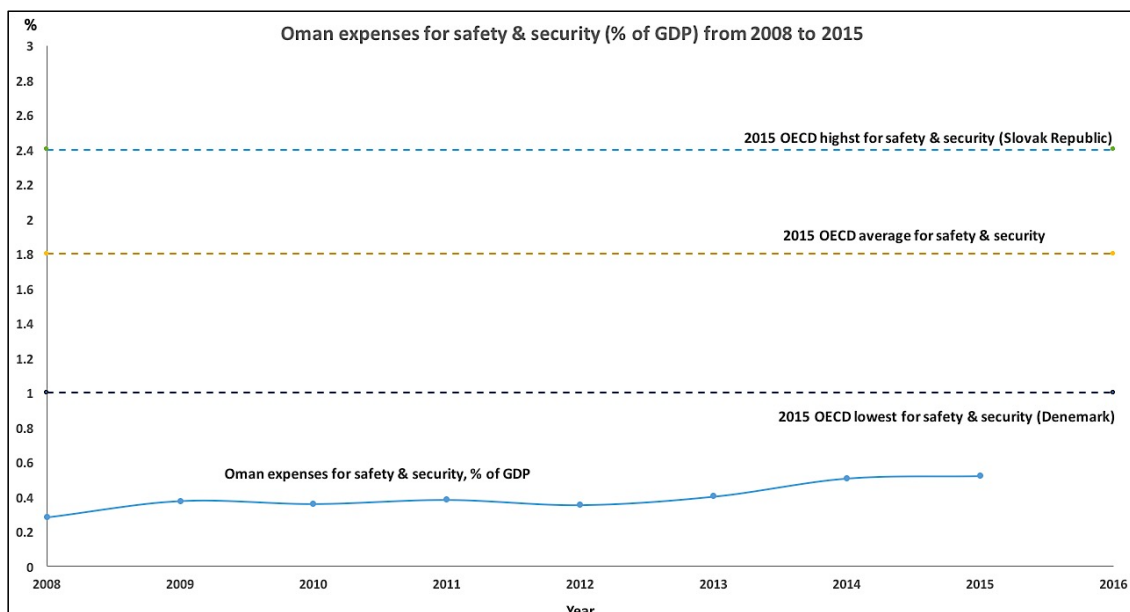


Figure 5.34: Oman expenses for safety and security (% of GDP) from 2008 to 2015 (author’s own work).

5.3.8. Food Security Indicators

According to 2011-2014 performance report of agriculture and fishery sector (Ministry of Agriculture and Fisheries, 2015), the productive and economic statistics showed that there was around 10% decrease in the cultivated lands in 2014 compared to 2011. However, there was a slight increase in the agriculture products (fruits, vegetables, field crops, dates, animal feed, etc.) with an annual average rate of 3.7%. It is noticed also that, there was a considerable increase in the livestock production (meat, poultry, milk, eggs, etc.) and the average annual rate was around 15%, as well as an increase in the fishery products (the average annual rate was 10.9%).

In general, the productive indicators of this sector for the same period demonstrated that there was an annual increase in its added values to the GDP and the average annual increase was estimated as 7.4% (in 2014, the total added value was around 406 million OMR). The following figure shows the inflation and local sufficiency rates of deferent products.

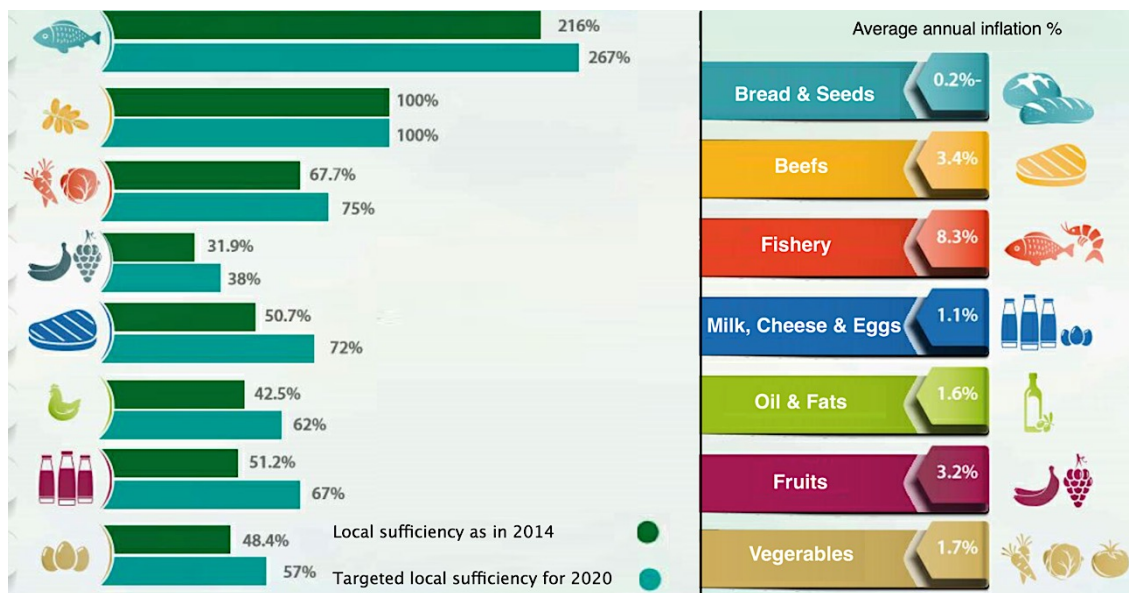


Figure 5.35: Average annual inflation of agriculture and fishery products and local sufficiency rates (edited from: Ministry of Agriculture and Fisheries, 2015)

In an international scale, and according to the Global Food Security Index 2016 constructed by the Economist Intelligence Unit (EIU, 2016), Oman is ranked the 26th out of 113 countries in the food security which is a good global ranking. This evaluation of this index relays mainly on three main indicators; (1) availability of food, (2) affordability, and (3) the quality and security.

5.3.9. Social Equity

Most of the modern laws and rules in Oman promote social equity which is one of the key elements of sustainable development. This could be touched in the fair and equal access of society members to education, employment, social benefits, and resources. In addition, the laws endorse gender equity and secure the rights for both genders without any kind of discrimination, where both genders have the same opportunities such as education and employment opportunities, and also have the same benefits (i.e. same salaries and wages, privileges, and government social benefits).

5.3.10. Socio-economic SWOT Analysis

		<i>Helpful</i>	<i>Harmful</i>
<i>Present</i>	<p>Strengths:</p> <ul style="list-style-type: none"> - Oman distinguished with young population and high population growth - There is consistent inflation rate in non-petroleum activities of Oman GDP - High investments in education and good distribution of education institutions - Good distribution of public healthcare institutions - Good social protection government initiatives - High safety and security record - The laws and rules promote social equity 	<p>Weaknesses:</p> <ul style="list-style-type: none"> - High expatriates' rate in some areas could affect the demographic balance - Petroleum activities are highly contributed to the GDP and their added values are not stable - Oman government finance relies mainly on oil revenues > 70% - Most of the government expenses are running current expenses which are consumptive expenses - less than 15% form government expenses are invested in development sectors - unbalanced distribution of government expenditure between sectors. - low investments in public health and social protection. 	
	<i>Future</i>	<p>Opportunities:</p> <ul style="list-style-type: none"> - Utilize young educated generations in developing the country - Increase the investments in non-petroleum activities - Reduce the rate of current expenditure - Increase government investments - Maintain balanced government expenditure - Reform the path of education to meet the demand of labor market - Increase the investments in public health - Increase the investments in the social protection system - Increase agriculture and fishery resources 	<p>Threats:</p> <ul style="list-style-type: none"> - Increase of expatriates' rate - Continue relying on petroleum sector for the public finance - Continue concentrating on current administrative government expenditures much more than concentrating in investment and development ones - Unbalanced expenditure between sectors

Figure 5.36: Socio-economic SWOT analysis (author's own work)

5.4. Oman Global Competitiveness

To create a realistic conclusion about Oman spatial planning, it is very useful first to search in the literature and find the global competitiveness of Oman.

There are many international organizations and agencies interested in studying and assessing the performance and competitiveness of countries and cities in a global scale.

For example, World Economic Forum organization is interested in the general global competitiveness of countries. This organization is annually evaluating and ranking countries based on 12 main pillars such as institutions, infrastructure, health and education, higher education and training, labor market, market size and innovation (figure 5.36 demonstrates all pillars). According to the Global Competitiveness Report 2016-2017 (Schwab, 2017), Oman ranking is the 66th out of 138 countries. The report shows that Oman has good score in health and primary education pillar as well as institutions and infrastructure ones. On the other side, it shows that the country has very low score in innovation pillar and semi-moderate scores on all other pillars (see Figure 5.37). It also elaborates on some of the main issues to make businesses in Oman such as inefficient government bureaucracy, inadequate workforce and restrictive labor regulations.

In comparison to the other GCC countries, Oman has the lowest global competitiveness ranking (66th) whereas United Arab Emirates UAE and Qatar have the highest ranking, 16th and 18th respectively (See table 5.3 for more details). In addition, according to the same report, Oman rank has dramatically dropped from the position 32^{ed} (as in 2012-2013) to the position 66th (as in 2016-2017) due to the high competition between countries as well as the accelerated development of some other countries around the world.

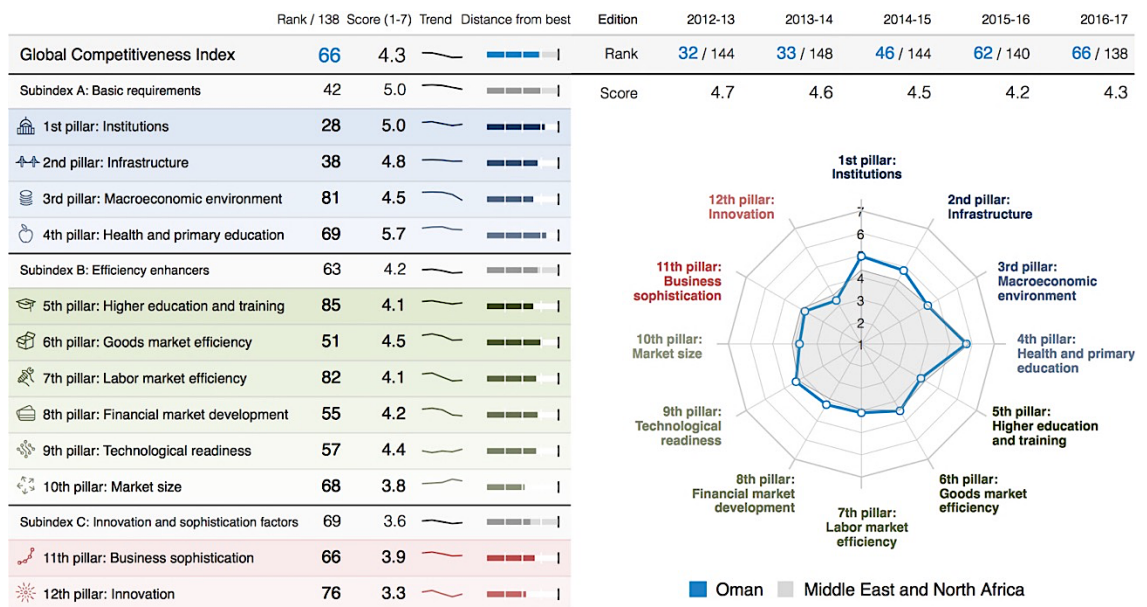


Table 5.3: Global Competitiveness Ranking of GCC Countries according to World Economic Forum

Country	Global Competitiveness Ranking of GCC Countries				
	2012-2013 (out of 144)	2013-2014 (out of 148)	2014-2015 (out of 144)	2015-2016 (out of 140)	2016-2017 (out of 138)
UAE	24	19	12	17	16
Qatar	11	13	16	14	18
Saudi Arabia	18	20	24	25	29
Kuwait	37	36	40	34	38
Bahrain	35	43	44	39	48
Oman	32	33	46	62	66

Similarly, Solability Sustainable Intelligence group is an independent Swiss-Korean advisory interested in studying global sustainable competitiveness. Solability is the official publisher of the Global Sustainable Competitiveness Index GSCI. GSCI measures the performance of countries based on quantitative indicators derived from United Nations agencies and the World Bank studies. The index takes into consideration five main pillars; (1) governance capability, (2) social capital, (3) natural capital, (4) resource management and (5) sustainable innovation.

According to GSCI 2016 report (Solability, 2016), the overall ranking of Oman in the sustainable competitiveness index is 70 out of 180 countries. In addition, the report provides sub-indexes for the five mention pillars. Governance pillar measures the ability of the country to provide sustainable legal frameworks, regulations and well-trained official workforce to control the whole development processes, provide quality services and reduce the level of corruption. In this sub-index Oman ranking is 52/180. Social capital pillar measures the social cohesion and social harmony of the country, health level, the equity in resources between individuals and genders, crime level, human rights and individual happiness (the global ranking of Oman is very high: 17/180). Natural capital pillar measures the availability of the natural resources such as agriculture lands, flora and fauna, water, energy and natural minerals. It measures also the depletion and degradation rate of natural resources and the ability of the country to sustain natural physical environment (Oman ranking is low: 141/180). The forth pillar measures mainly the ability of the country to manage its resources as well as its ability to control resources depletion and biodiversity loss (Oman has very low ranking: 148/180). The last pillar is innovation and intellectual capital which measures the ability of the country to innovate, increase job opportunities, provide stable ground for businesses and sustain in the global market competitiveness (Oman ranking is 61/180).

Table 5.4: GSCI Ranking of Oman and GCC countries (according to 2016 Index)

Ranking of Oman in GSCI 2016 (out of 180 countries)					
Overall	Governance	Social Capital	Natural Capital	Resources Management	Innovation
70	52	17	141	148	60
GCC Countries Global Ranking in GSCI 2016 (out of 180 countries)					
Qatar	Oman	Kuwait	United Arab Emirates	Saudi Arabia	Bahrain
68	70	96	101	113	143

In a smaller scale, there are some other efforts from global organizations in evaluating the performance and competitiveness of cities around the world such as Green City Index by Siemens and Sustainable Cities Index by Arcades. In Green City Index, Siemens did not include any cities in the Middle-East where its researches cover mainly the area of Europe, North America, East Asia, and Latin America. Arcades, on the other hand, sheds a light on the main cities of the Middle East. In general, Arcades evaluates the sustainability of cities based on three main pillars; the first pillar is ‘*people*’ (social sustainability including social cohesion, equity, quality of life, life balance, housing, health and education), the second one is ‘*planet*’ (sustainability of the environment including water and energy consumption, usage of renewable energy, pollution and emissions control and other green factors) and the last pillar is ‘*profit*’ (economic sustainability including economic growth, performance of businesses, transport and infrastructure, GDP per capita and other economic health factors). According to Sustainable City Index 2016 report (Arcades, 2016), Muscat lies on the position 75th out of the worldwide selected 100 cities. In the sub-indexes, Muscat has high record on the social one (9th out of 100), however, it is in the last list in planet and profit sub-indexes (88th and 84th respectively).

Table 5.5: Muscat ranking in Sustainable City Index with some GCC cities (according to 2016 Index)

Rank of Muscat in the Sustainable City Index 2016 (out of 100 cities)				
Overall	People	Planet	Profit	
75	9	88	84	
Rank of some GCC cities in the Sustainable City Index 2016 (out of 100 cities)				
Abu Dhabi (UAE)	Kuwait (Kuwait)	Doha (Qatar)	Muscat (Oman)	Riyadh (Saudi Arabia)
58	70	72	75	76

From the previous global statistics, it is concluded that Oman enjoys good social capital (Oman as a country and Muscat as a city both have good social global ranking),

however, its economic and environment sustainability measures are very low including the management of natural resources such as lands, water and electricity which are main elements in spatial planning. In general, according to the previous global analysis, Oman could be categorized in the middle group in relation to its overall global competitiveness.

5.5. Conclusion of Chapter Five

As it is noted from the Global Competitiveness Index by the World Economic Forum that Oman economic rank has decreased from the position 32^{ed} as in 2012-2013 to the position 66th as in 2016-2017. This represents that Oman is not able to maintain a high rank in this index which could be due to many reasons such as some weakness in its economic system and also its high reliance on depleted resources (mainly oil and natural gas resources). In addition, the Global Sustainable Competitiveness Index by solability demonstrates that Oman has relatively low rank (the 70th) in this index where it has more weakness in these two parts, the natural capital and resource management parts.

As a short conclusion, although the SWOT analyses that are provided in sections 5.1.10, 5.2.9 and 5.3.10 illustrate the overall condition of spatial planning in Oman, the following table represents the spatial planning relevant main facts in the country.

Table 5.6: Oman spatial planning relevant main facts.

<p><u>Governance</u></p> <ul style="list-style-type: none"> - There is deficiency in the spatial planning system and its institutional framework. - Insufficient legal instruments, policies, strategies, and standards that serve spatial planning. - Less effective land management and distribution mechanism. - Lack of spatial plans. - Ineffective use of GIS and remote sensing technologies. - Insufficient technical skills and experiences. - Low level of coordination and collaboration in spatial planning. - Low level of community participation.
<p><u>Natural and built environments</u></p> <ul style="list-style-type: none"> - Low level of attention is given to the natural environment and agriculture lands in spatial planning. - Spatial sprawl, conflict between the various land-uses, and variation within the planning and development practices. - Variation in the architected forms and styles. - Inefficient and insufficient public transport services. - Low level of attention is given to public spaces, landscapes, and community connectivity and services. - Low level of attention is given to the environmental efficiency of structures and the use of renewable energy sources. - Excessive use of water and energy. - insufficient sewerage networks. - Insufficient flood protection measures. - Complicated building and construction procedures.

Socio-economic conditions

- Population growth is high.
- The rate of expatriates in the country is high.
- High contribution of oil and gas sector to Oman's GDP.
- The government non-petroleum revenues are low.
- Unbalanced governmental expenses between sectors.
- Total expenses on health and social protection sectors are relatively low.

In addition, section 8.2 in Chapter Eight provides more concluded points and a rational answer for the first part of the research question (see section 8.2).

6. Scenario Approaches and Sustainable Guidelines for Spatial Planning in Oman

This chapter tries to draw three scenario approaches for the path of spatial and land-use process in the Sultanate of Oman based on the outcomes of the previous detail analysis of the planning system and on some additional modifications and upgrades. The first one is the basic scenario approach (planning as usual) and it simulates the planning process in case there is a continuity in the blurred visions and fluctuation in the governance of planning and its practices and tools. The second scenario approach is considered as a transition approach for the planning system and it resides in the midway between the traditional planning and the sustainable planning. This scenario relies on some modifications and upgrades in order to enhance the development of the planning system in a positive direction. The third scenario approach is the sustainable planning type, and this is the recommended path for spatial and land-use planning in Oman. This scenario simulates the state where the planning system is oriented towards a sustainable direction and considering a wide range of sustainability measures.

Additionally, as an output from this research, this chapter offers some sustainable guidelines and instructions which are recommended for upgrading the planning system in Oman and achieving an acceptable level of sustainability.

6.1. Scenario Approach One (Planning as Usual)

According to the analysis of the spatial planning system in Oman, this could be considered as the basic scenario to be prospected for Oman spatial planning and spatial development. In this scenario there are no farther improvements or actions required to be taken in spatial and land-use planning field. Although there are some initiatives related to spatial planning here and there, it is assumed in this scenario that planning cycle will remain more or less very similar due to the various constraints and obstacles facing spatial planning system in the country.

6.1.1. Scenario One Concern and Steps to be Taken

This scenario deals with the state that current traditional spatial planning system is moving ahead without being affected by any critical amendments to its physical processes or governance practices.

In this scenario, there are no steps required to be taken to modify or upgrade the planning system. It is considered as a simple approach without being affected by any additional amendments or mitigation efforts. It simulates somehow the planning processes according to the existing administrative and physical conditions.

6.1.2. Expectations of Scenario One

As a continuity to what is presented in the conclusion of chapter five (section 5.5) and although there are existing efforts to control spatial planning such as the Interim Mechanism of Spatial Planning and the running project of ONSS, it is assumed according to this scenario that the planning cycle will not improve a lot and the relationship between the various levels of planning will remain very low as well as the relation between spatial

planning and sectorial planning. It is assumed that spatial planning is going to be more controlled but at the same time incapable to capture the complexity of issues and impacts arisen from former and running planning practices. It is assumed also that part of ONSS prospected strategy is going to be out of date due to the long preparation period and it might not be effective in the joint government work due to the existing conflicts, gaps and overlaps in the duties and responsibilities of authorities. Additionally, it is assumed that the linkage between spatial planning and the existing fiscal system will remain very low as well as its linkage with built environment, natural environment, and social and economic capitals. Moreover, in view of the scarcity of legal framework, planning standards, and qualified technical workforce, it is predicted that spatial planning will continue suffering a state of confusion and inaccuracy.

As a simple representation for the organizational structure of the planning system, the following figure demonstrates how the planning system is expected to be organized.

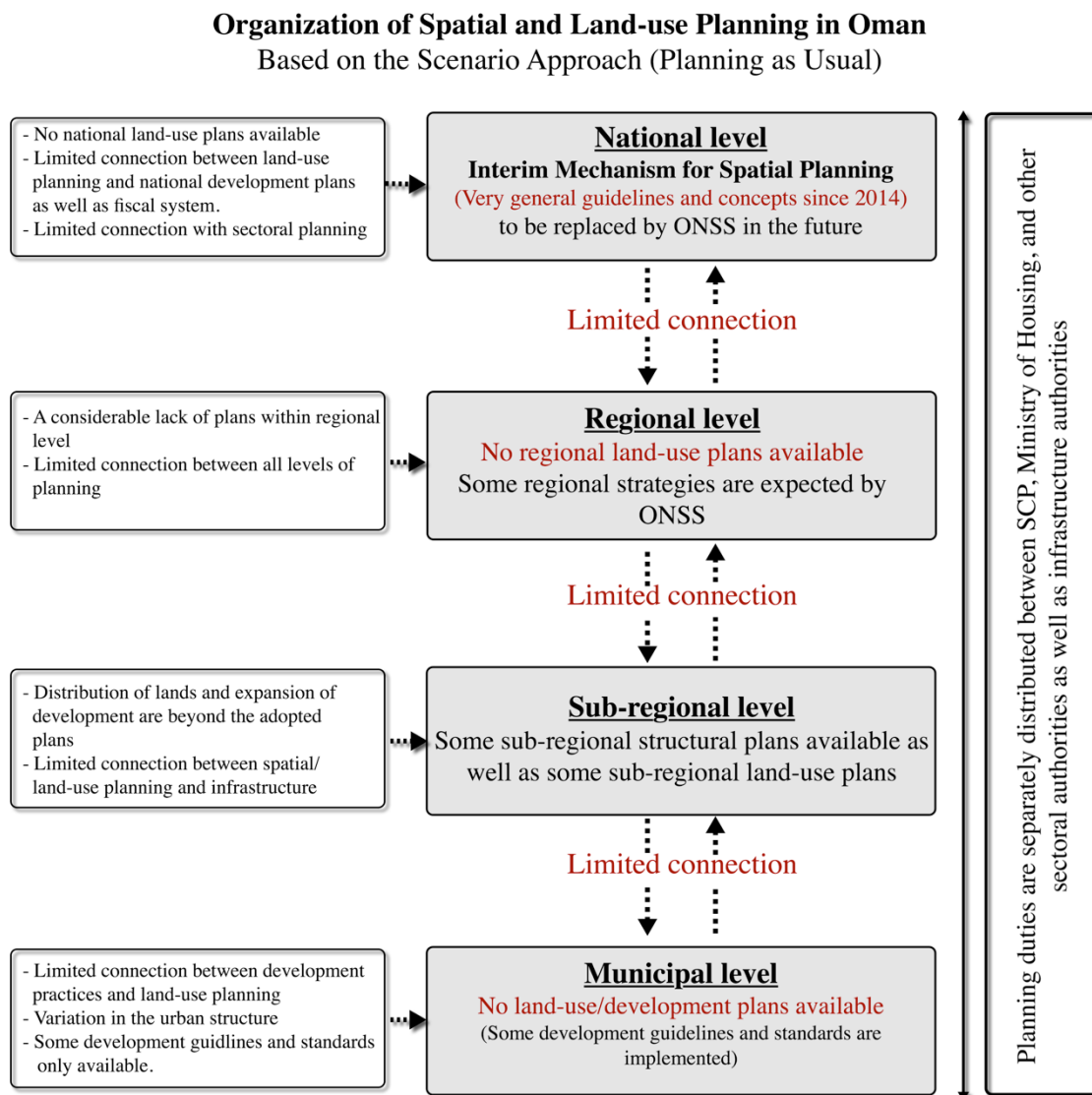


Figure 6.1: Organization of spatial planning in Oman based on Scenario One (author’s own work).

6.1.3. Spatial Impacts based on Scenario One

Due to what is mentioned above and the continuity of the traditional spatial planning method and the lack of plans, legal instruments, and main spatial planning tools, the following table reflects some of the main expected impacts based on this scenario.

Table 6.1: Some spatial impacts based on Scenario One

<i>First: The impacts on natural environment and agriculture</i>
<ul style="list-style-type: none"> • Continuous high loss of natural environment and agriculture lands. • Continuous high loss of native species and natural habitats. • Continuous high loss of natural landscapes and green cover. • Continuous loss of geographical and topographical distinctive natural features. • Continuous increase of CO₂ and other greenhouse gas emissions. • Damage to the groundwater resources.
<i>Second: The impacts on built environment</i>
<ul style="list-style-type: none"> • Unbalanced urban and regional land-use structure. • Unbalanced urban and regional densities. • Variation in the building heights and in the allowed built-up areas. • Conflict in land-use. • Development in the threaten zones (by natural hazards). • Domination of sprawling residential land-use type. • Less affordable housing. • Undeveloped areas close to the main centers of cities and in well-served zones by infrastructure and community facilities. • Excessive use of water and electricity in buildings. • Loss of inherited architecture and historical areas. • Low governmental concern to provide and develop public spaces. • Infrastructure and transportation impacts (high cost and low efficiency due to sprawling planning and low urban densities).
<i>Third: The impacts on sectorial development (tourism development as an example)</i>
<ul style="list-style-type: none"> • Segregated tourism development as well as tourism activities. • Weak touristic destinations due to the land-use conflict. • Continuous loss of natural, cultural and historical tourism attractions. • Excessive use of water and electricity in touristic buildings.

6.2. Scenario Approach Two (Transition Planning)

This is the second prospected scenario for Oman spatial planning system. In this scenario, it is assumed that the government is going to take some improvement steps in order to enhance the planning system and to better deal with the various planning issues and aspects. This scenario reflects also the image where the country is paying moderate attention to upgrade the planning system and to allocate additional administrative and financial resources for improving spatial planning.

6.2.1. Scenario Two Concern and Steps to be Taken

This scenario considers the state that Oman spatial planning system is oriented towards a positive transition direction, but it has still some deficit areas. It simulates somehow the condition where spatial planning system is acting in a better way and under a pre-prepared working mechanism that has good visions, strategies and plans, but it does not take into consideration all sustainability measures especially in the environmental direction.

In order to fulfil this scenario, there are some steps required to be taken for modifying and upgrading the planning system. In this regard, the responsibilities of the government or the main planning authority (SCP for example) are as follows:

- Maintaining a planning hierarchy that includes at least two main levels of planning; the national and regional levels and includes a third subsequent level for construction and development purposes, which is the municipal level.
- Implementing ONSS strategies in order to control national and regional planning.
- Maintaining a kind of acceptable integration between spatial planning system and the main national plans and strategies.
- Maintaining an acceptable connection with the fiscal system and with the socio-economic conditions of the country.
- Maintaining an acceptable harmony within the various levels of planning.
- Maintaining an acceptable level of integration between spatial planning and infrastructure and other sectorial planning.
- Giving some attention to raise the technical capabilities especially at the national level.
- Reducing planning gaps and create a state of balance in spatial development.
- Developing an acceptable legal instruments, regulations and planning standards to regulate spatial planning in a better way.
- Enhancing the joint government work to create better working environment.
- Developing land-use plans that include the existing conditions and projections for development growth.
- Establishing an integrated GIS system (Ministry of Housing).
- Maintaining an acceptable level of public participation in the planning process (through the public established gates or at least through some limited direct involvement in the planning process, which may include individuals, private sector and NGOs).

6.2.2. Expectations of Scenario Two

Based on this scenario, and in comparison to the first one, it is assumed that spatial and land-use planning is going to be controlled, managed and regulated in a better manner. It is expected that through maintaining the suggested hierarchy for spatial planning, the planning process will be more organized, and it will have an acceptable level of harmony. Consequently, through implementing some additional legal instruments, regulations and standards, there will be more control on the planning practices, and thus these tools will add a considerable positive influence on spatial planning. However, it is predicted that these planning tools will not be sufficient to promote spatial sustainability. It is also expected that there will be a moderate connection between spatial planning system and the national development plans and strategies, sectorial plans and strategies, and the national fiscal system. In addition, it is expected that there will be moderate coordination and collaboration between planning authorities and other planning stakeholders. This kind of integrity is going to add a value to improve the planning system and maintain a transition stage for spatial planning.

Additionally, it is assumed that the GIS system in Ministry of Housing is going to be upgraded. Based on that and with the support of the legal instruments and planning standards, the physical planning practices are expected to be relatively managed in a proper way and therefore, a moderate state of balance on spatial structure is going to be formed.

Moreover, due to the assumed limited public financial expenses on capacity building, it is expected that the technical resources and capabilities will not improve a lot especially at the regional level and therefore, this shortage in the technical workforce is expected to have a negative impact on the physical practices of spatial planning and on the implementation of the related strategies and plans. In addition, it is expected that there will be a very limited community participation in the spatial planning process which could be merely through official channels (Al-Shura Council and the Municipal Councils) and through some limited initiatives from the government to enhance public involvement in the planning process (through joint workshops or electronic questioners as an example).

Based on this scenario also, it is expected that there will be more land-use plans available. However, due to the excessive bureaucracy, political conflicts, and the prominent influence of the existing land-use issues, the new land-use plans are expected to focus mainly on the existing conditions and to offer very limited projections for development growth. It is expected additionally that there will be a continuity in the sprawling planning because of the existing land distribution rules and the lack of innovation in the management field especially in the regions which have low densities and have wide open unplanned areas. It is expected accordingly that residential land-use will continue dominating the other land-use types in spatial planning which is going to remain as a critical issue.

Furthermore, although there is some expected attention from the government to the socio-economic dimensions in spatial planning, the main loser in this scenario will remain the environment. Due to the major role of the initial cost in planning and development practices, and the expected limited public financial resources allocated for considering environmental dimension, it is predicted that the environmental sector is going to have the lowest attention from the planning authorities and therefore, the

environmental measures as well as natural hazards measures are not expected to be essential in spatial planning practices where there will be a considerable lack of environmental studies among all levels of planning.

As a graphical representation, the following figure provides an image on how spatial planning system is expected to be organized based on this scenario.

Expected Organization of Spatial and Land-use Planning in Oman
Based on the Scenario Approach Two (Transition Planning)

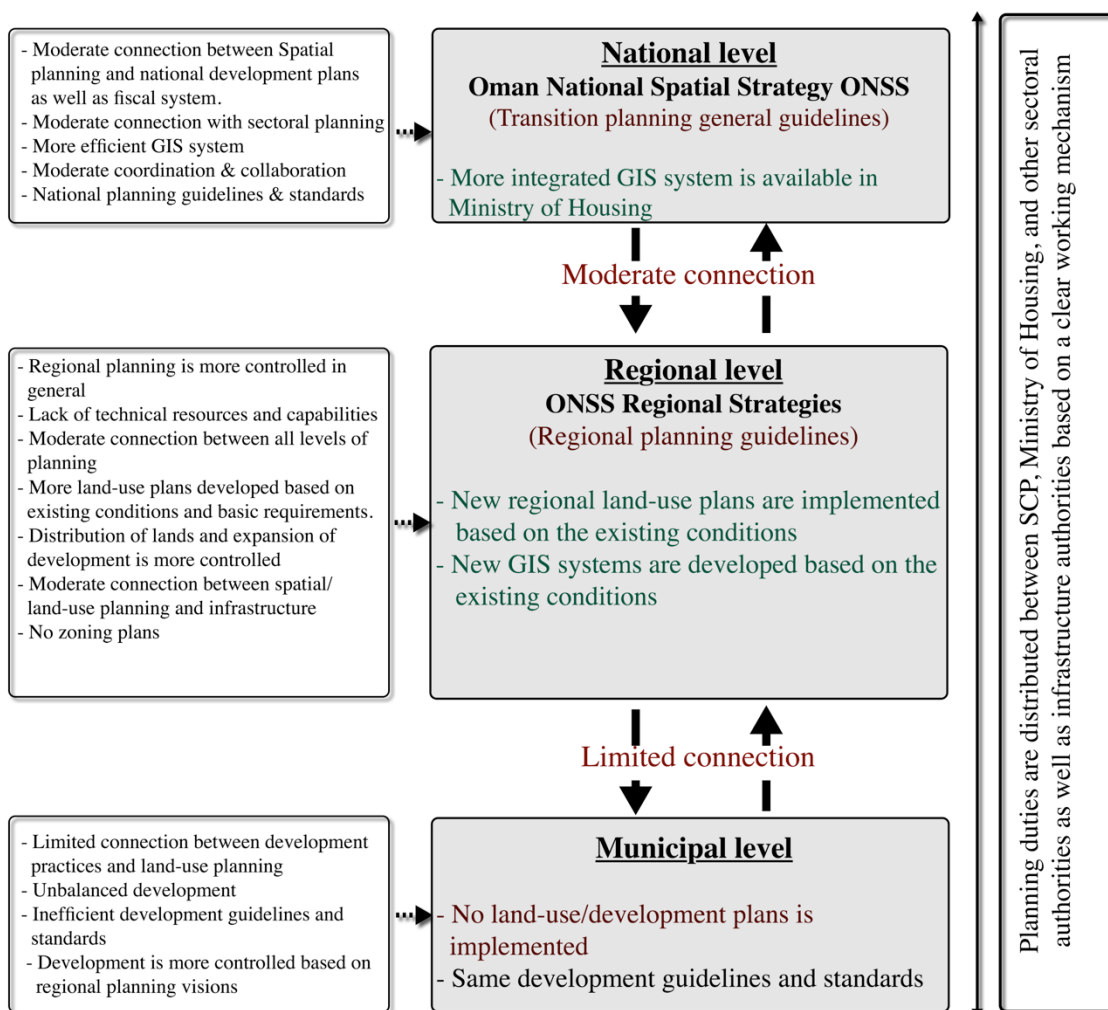


Figure 6.2: Expected organization of spatial planning in Oman based on Scenario Two (author's own work).

6.2.3. Spatial Impacts based on Scenario Two

Through providing a transition method in spatial planning system and providing more effective land use plans, legal instruments, and spatial planning tools, Table 6.2. reflects some of the expected impacts (positive and negative) based on this scenario.

Table 6.2: Some spatial impacts based on Scenario Two

<i>First: The impacts on natural environment and agriculture</i>
<ul style="list-style-type: none"> • Moderate loss of agricultural and natural virgin lands. • Moderate loss of native species and natural habitats. • Moderate loss of natural landscapes and green cover. • Moderate loss of geographical and topographical distinctive natural features. • Continuous increase of CO₂ and other greenhouse gas emissions. • Considerable damage to the groundwater resources.
<i>Second: The impacts on built environment</i>
<ul style="list-style-type: none"> • More controlled urban and regional development with moderate unbalanced land-use structures. • Limited variation in the building heights and in the allowed built-up areas. • Moderate conflict between the various types of land-use. • Development will relatively continue in the threaten zones (by natural hazards) with very limited protection measures. • Residential land-use will continue dominating other land-use types. • Less affordable housing. • Undeveloped areas close to the main centers of cities and in well-served zones by infrastructure and community facilities. • Excessive use of water and electricity in buildings. • Moderate loss in inherited architecture and historical areas. • Moderate governmental attention to provide and develop more public spaces. • Infrastructure and transportation impacts (high cost and low efficiency due to sprawling planning and the continuity of low urban densities).
<i>Third: The impacts on sectorial development (tourism development as an example)</i>
<ul style="list-style-type: none"> • More controlled tourism development as well as tourism activities. • More improved tourism destinations. • Low protection of natural, cultural and historical tourism attractions. • Excessive use of water and electricity in touristic buildings.

6.3. Scenario Approach Three (Sustainable Planning)

This scenario approach is the recommended path for spatial and land-use planning in Oman. It takes into consideration the outcomes coming from the analysis of the planning system that was conducted in conjunction with sustainability dimensions and it takes into account also the remarkable areas of deficiency and the possibilities of adaptation and innovation. It is presented as a potential alternative to deal with the various spatial planning issues and aspects based on some modifications and upgrades.

This scenario reflects also the image where the country is paying high attention to upgrade the planning system and going to invest heavily to maintain sustainable planning orientation.

6.3.1. Scenario Three Concern and Steps to be Taken

This scenario deals with the state that spatial planning system in Oman is oriented towards a sustainable direction and has an acceptable level of sustainability. It simulates, more or less, the condition where spatial and land-use planning is acting under clear strategic visions as well as defined sustainable strategies, plans and mechanisms.

In this respect and in order to achieve an acceptable level of sustainability, there should be some steps needed to be taken for upgrading the planning system. For this purpose, the country should:

- Maintain and establish a defined symmetric hierarchy in spatial planning field that include four levels of planning; national, regional, municipal and local planning levels.
- Upgrade the planning governance to be more integrated and collaborated.
- Create a field of collaboration and a symmetric relation along the various levels and sectors of planning.
- Prepare and implement sustainable spatial strategies, plans and mechanisms.
- Develop and implement efficient and effective legal framework, regulations and standards that take into consideration sustainability measures and go in parallel with the spatial strategies and plans.
- Create more efficient and effective land management system.
- Link spatial planning with the fiscal system and the socio-economic planning dimensions.
- Link and connect spatial planning with Oman main national plans and strategies.
- Link spatial planning with infrastructure planning and infrastructure development.
- Upgrade technical workforce and provide efficient working environment.
- Provide a centralized GIS system, utilize the electronic services and potentials, and get the maximum benefit from the e-government.
- Enhance the productivity of the joint government work and create a field of coordination and collaboration between public authorities and planning stakeholders.

- Enhance the public participation in the planning processes and get benefit from the community energies.
- Provide initiatives for sustainable development practices and enhance the environmental efficiency of buildings.
- Give high consideration to the natural environment wherever spatial planning is going to take place.
- Find applicable solutions for existing and predicted land-use impacts.
- Give high consideration to the physical planning elements such as land-use projections and trends, surrounding environment, natural hazards, architecture, public spaces, transportation and infrastructure, expansion of development, distribution of businesses, and distribution of community facilities and services.

6.3.2. Expectations of Scenario Three

In this scenario, it is expected that through maintaining the previous steps or following the suggested guidelines and instructions (as presented in section 6.4), spatial planning in Oman is going to be perfectly managed and controlled, and it is going to take a clear path towards being more successful and sustainable. Through considering the presented symmetric hierarchy for the planning system and the suggested strategies and plans to be prepared and implemented in each level, the planning system is predicted to be more organized and collaborated. In addition, through upgrading spatial planning governance system and making the planning process more integrated and systematic, the planning practices will be strongly connected and regulated with the support of the suggested legal framework. The role of the comprehensive standards in spatial planning cannot be neglected especially when they promote sustainability. The probability of making planning errors with such standards is going to be very limited, thus a sustainable planning orientation is expected to be made. Consequently, one of the innovated areas that can contribute in reshaping spatial planning field in Oman is creating a new system for managing lands in a more sustainable manner and also revising *Lands Entitlement System* to focus more on couples and families.

The sustainable system of planning relays also on the continuous collaboration and coordination between authorities, planning arms and the other stakeholders in maintaining their duties and roles associated to the planning cycle. These duties may include preparing various types of studies and plans or conducting physical and administrative planning practices. Furthermore, creating a kind of relation with the deferent society layers and enhancing the public participation of communities in the planning process are going to support the successful planning and increase the level of sustainability. Therefore, by maintaining an innovated mechanism for the coordination and collaboration, maintaining a transparent working environment, upgrading the technical skills of workforce, and maintaining strong partnership with local communities, a solid base for sustainable planning is going to be established.

In addition, for the best utilization and management of the technical information, developing a high quality centralized GIS system is going to facilitate and guide physical planning in achieving sustainability. This kind of integrated systems is capable to support planning authorities in formulating more strategic decisions and transmitting the information efficiently and effectively. Also, activating the role of e-government and

utilizing the electronic potentials in a higher degree will add a value to enhance the wheel of development and improve planning governance as well as improving the overall governmental performance.

Physically, land-use planning in Oman is going to be wisely managed and controlled through promoting compact and mixed-use development (mainly in the urban structures that have high densities and high population growth), maintaining a state of balance between the various types of land-use, promoting land-use zoning to control the expansion of development, placing higher consideration to the environmental dimension and natural hazards field, protecting agriculture lands and natural habitats, promoting the best utilization of the natural resources and open lands, and promoting the best distribution of businesses and communities' facilities. In addition, providing a high integration between land-use planning and infrastructure planning and maintaining an efficient public transport system as well as efficient infrastructure networks (electricity, water, sewage, etc.) will add a great value to enhance spatial sustainability. Along with this, establishing and implementing an environmental efficiency program (which should be designed to guide sustainable development and sustainable building in the country and provide a base for physical sustainable practices) is going to consolidate the true meaning of sustainability in spatial planning field.

Consequently, it is expected that Oman is going, based on this scenario, to invest heavily in order to maintain spatial sustainability. It is also going to allocate sufficient public financial resources in order to consider the three dimensions of sustainability (environmental, social and economic dimensions). As a result, it is expected that Oman will overcome most of the challenges and obstacles facing spatial planning.

As a graphical representation, Figure 6.3 demonstrates similarly the expected organization for spatial and land-use planning in the country according to this scenario.

Expected Organization of Spatial and Land-use Planning in Oman

Based on the Scenario Approach Three (Sustainable Planning)

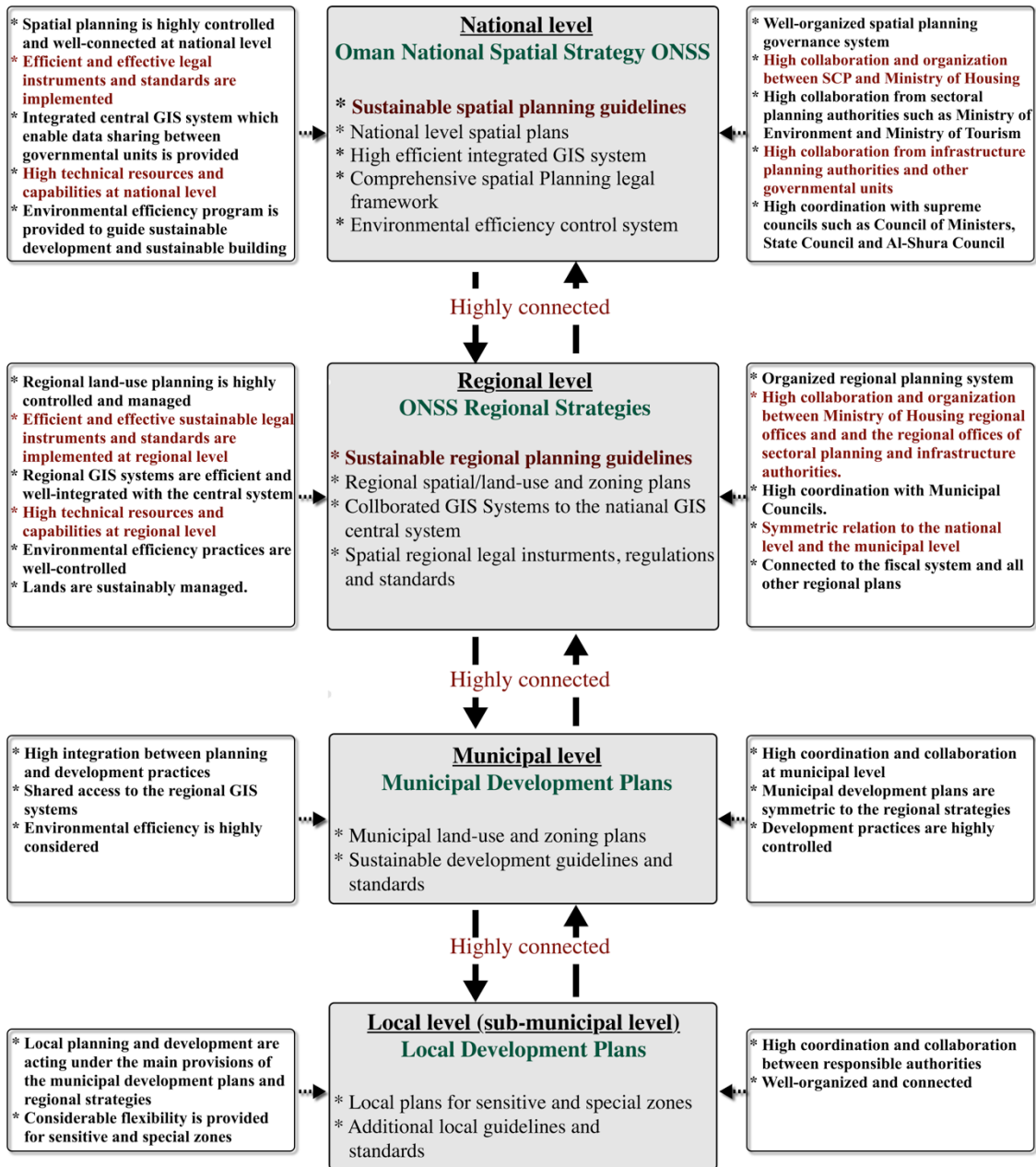


Figure 6.3: Expected organization of spatial planning in Oman based on Scenario Three (author's own work).

6.3.3. Spatial Positive Impacts from Scenario Three

Based on this scenario and through providing a distinguished sustainable spatial planning system that has sufficient land-use plans, legal instruments, and spatial planning tools, the following table demonstrates some of the expected positive impacts related to this scenario.

Table 6.3: Some spatial impacts based on Scenario Three

<i>First: The impacts on natural environment and agriculture</i>
<ul style="list-style-type: none"> • High protection to agricultural lands and natural virgin lands (including natural reserves, natural forests, and natural open spaces, and also high protection and control to the environmental sensitive areas and zones close to and within the development areas). • High protection to native ecosystem species and natural habitats. • High protection to natural landscapes and green cover. • High protection to geographical and topographical distinctive natural constituents. • Low CO₂ and other greenhouse gas emissions. • High protection to the groundwater resources.
<i>Second: The impacts on built environment</i>
<ul style="list-style-type: none"> • Balanced urban and regional development. • Minimum conflict between the various types of land-use. • Protected development close to the threaten zones by natural hazards. • More compact development and more affordable housing (more efficient, livable, and sustainable communities in general). • Less undeveloped lands in the centers of cities and in the well served zones by infrastructure and community facilities. • Wise distribution of community facilities and services. • Efficient use of water and electricity in buildings (more environmentally efficient buildings in general). • High protection to inherited architecture and historical areas. • High concern to provide more public spaces and develop the various types of public facilities. • More efficient and effective infrastructure and public transport systems. • Less visual land-use impacts (such as the variation in the urban architectural forms).
<i>Third: The impacts on sectorial development (tourism development as an example)</i>
<ul style="list-style-type: none"> • More integrated tourism development with other community facilities. • More protected touristic areas and zones. • Strong tourism destinations (based on the systematic integration between spatial planning and tourism planning). • Protection of natural, cultural and historical tourism attractions. • More efficient touristic buildings.

6.4. Suggested Sustainable Guidelines and Instructions for Spatial Planning in Oman

This section tries to provide some guidelines and instructions for improving spatial planning system in Oman and maintaining spatial sustainability. The following list of guidelines and instructions is prepared based on the sustainability measures and also according to the personal visualization on how spatial planning could take a sustainable direction in Oman. The preparation of the guidelines was preceded by studying some of the international planning standards such as *Planning and Urban Design Standards* by American Planning Association (Steiner & Butler, 2007). It was also preceded by reviewing and studying some experiences from OECD countries and their land-use governance systems (OECD, 2017a) as well as their implemented land-use planning systems (OECD, 2017b).

In addition, it is very useful to clarify that:

- The formulation of the guidelines reflects the personal research, analysis, experience, and conviction on what is required in Oman to achieve spatial sustainability.
- Through reviewing the initiatives that were undertaken by Oman planning authorities in the last few years, it is predicted that there is a national aspiration towards improving the planning system in general which represents the possibility of implementing such guidelines.
- Although the whole guidelines list is highly important, all guidelines marked as **(Extremely high priority)** in the list represent very essential steps needed to be taken in order to maintain a high progress and shape a sustainable direction in spatial planning.
- The criteria of prioritization depend on two main factors. The first one is the importance level or, in other words, the impact level of each step in improving spatial planning. The second factor is the urgency level which represents how necessary is each step or each part of the guidelines. For example, if the priority level is **(extremely high)**, it means that both the impact level and the urgency level are very critical. On the other hand, if the priority level is moderate or low, it means that either impact level or urgency level or both are moderate or not significant in the initial stages.
- This list tries only to provide some solution entrances for the various aspects related to spatial planning in Oman.
- The implementation of such guidelines could be considered in stages based on their importance level, priority and the availability of administrative and financial resources.

Table 6.4: Suggested guidelines and instructions for Oman spatial planning

I. Planning Levels and constitutions (Including Plans and Strategies)	
<p>Objective: <i>To maintain a symmetric and well-defined hierarchy in spatial and land-use planning system in Oman.</i></p>	
Suggested Guidelines and Instructions	Priority
<p>National Level</p> <ul style="list-style-type: none"> ➤ A national spatial plan or strategy that takes into account sustainability measures should be developed. Oman National Spatial Strategy (ONSS) could be served as a potential plan for this purpose but it has to promote sustainable planning. ➤ The national spatial plan has to be more common and present general guidelines for the development of regions and areas in the country. ➤ The national spatial plan has to be connected with Oman national development five-year plans, Oman 2040 long-term development vision, Oman fiscal system, national business plans, infrastructure plans, and other sectorial plans. 	<p>Extremely high</p> <p>Extremely high</p> <p>Extremely high</p>
<p>Regional Level</p> <ul style="list-style-type: none"> ➤ Regional plans and strategies should be developed to guide regional development in a sustainable direction. The prospected ONSS regional strategies could be potential documents for the regional level. ➤ The regional plans should be developed under the provisions of the national plan which could be divided according to governorates political boundaries or based on the regional spatial similarities. ➤ Comprehensive land-use regional plans should be developed to deals with wide variety of subjects in spatial planning. They should be also connected to the regional strategies and plans. ➤ These comprehensive plans should address many areas such as existing and projected land-use, housing trends, urban and regional growth, regional economy, population growth and population distribution, agriculture, natural assets, cultural values, landscapes, and natural hazards. ➤ These plans should include also all community services and facilities such as distribution of businesses, utilities, infrastructure and transportation systems, parks, recreational facilities, and public spaces. ➤ In addition, regional zoning plans should be developed for special areas such as historical, touristic, agriculture, environment sensitivity and hazard zones (they could be also part of the comprehensive regional land-use plans) ➤ All plans have to be adopted and be part of regional policies. 	<p>Extremely high</p> <p>Extremely high</p> <p>Extremely high</p> <p>Extremely high</p> <p>Extremely high</p> <p>Extremely high</p> <p>High</p>

<p>Municipal Level</p> <ul style="list-style-type: none"> ➤ Comprehensive detail municipal master plans should be developed. These should include all of the land-use elements and they should be adopted for the whole municipal administrative areas. ➤ Municipal zoning plans should be developed, and they should go in parallel with the provisions of the regional zoning plans. The municipal zoning plans should address all special areas such as environmental sensitivity areas, historical sites, and other restricted zones. They should be also considered as obligatory physical instruments to control construction and buildings within special areas by using adequate measures and precautions. ➤ Building development plans should be also developed. These are general municipal development plans that include building regulations and construction practices. 	<p>Extremely high</p> <p>High</p> <p>Extremely high</p>
<p>Local Level</p> <ul style="list-style-type: none"> ➤ This is an additional level under the municipal level. It is designed to deal with specific areas such as touristic districts that have specific characteristics. ➤ Local plans are recommended for producing visions for local development in order to deal with local opportunities and challenges in the best manner. ➤ Local plans could create also positive flexible framework for private investment to contribute in achieving sustainable development. 	<p>High</p> <p>High</p> <p>High</p>
<p>II. Spatial and Land-use Governance</p> <p><i>Objective:</i> To upgrade from government-based segregated planning to well-connected governance-based planning.</p>	
<p>Suggested Guidelines and Instructions</p>	<p>Priority</p>
<p>Planning Governance</p> <ul style="list-style-type: none"> ➤ The governmental performance on spatial planning should be evaluated and assessed through a supreme decision in order to reduce the overlaps and the conflicts in the duties of planning authorities and reduce the gabs in the planning process. ➤ The governance system should be upgraded from the segregated governmental planning practices to a more sustainable spatial planning governance system that defines levels of planning, relations and flow of information between planning levels, planning tools and regulations, distribution of responsibility between authorities, working environment and working mechanisms, implementation procedures, and monitoring system. ➤ All spatial and land-use related supreme decisions should come through a single channel to avoid any kind of opposing decisions (the potential channel is <i>Supreme Council for Planning SCP</i>). ➤ SCP should work side by side with Ministry of Housing in preparing and issuing the required plans, strategies and policies related to spatial planning. 	<p>Extremely high</p> <p>Extremely high</p> <p>High</p> <p>High</p>

III. Spatial planning Legal Framework, Regulations and Standards	
Objective: <i>To enhance the planning system with the required legal instruments.</i>	
Suggested Guidelines and Instructions	Priority
<p>Legal framework and Regulations</p> <ul style="list-style-type: none"> ➤ A comprehensive legal framework should be established to control spatial planning (it could be a sort of spatial planning law). This legal framework should consider planning ethics, levels of planning, role of each level, planning practices and tools, roles of authorities, planning limitations, and the main related aspects in spatial planning. In order to promote sustainability, the legal framework should consider also the various dimensions and measures of sustainable planning. ➤ The suggested legal framework should be integrated with the <i>lands Law</i> and all other legal instruments related to land-use planning or land-use management. ➤ In parallel to the legal framework, a set of regulations should be developed to control spatial planning and ensure that planning practices are oriented in the sustainable direction. 	<p>Extremely high</p> <p>High</p> <p>Extremely high</p>
<p>Planning Standards</p> <ul style="list-style-type: none"> ➤ Comprehensive sustainable planning standards should be developed to meet the aspirations of communities and achieve the pre-prepared sustainable planning goals. ➤ These planning standards should be integrated with spatial planning strategies, land-use plans and legal frameworks. ➤ They should be also implemented according to the hierarchy of planning. Relatively, they should be more general at the national level but more comprehensive and detailed at the regional and municipal levels. ➤ There should be a harmony between planning standards and development/construction standards and building regulations to avoid any kind of conflict or overlap. 	<p>Extremely High</p> <p>Extremely high</p> <p>High</p> <p>Extremely high</p>
IV. Lands Management and Lands Distribution Method	
Objective: <i>To establish more controlled and sustainable lands distribution methods and management system.</i>	
Suggested Guidelines and Instructions	Priority
<p>Distribution of New Residential Lands</p> <ul style="list-style-type: none"> ➤ The current lands distribution method in Oman has to be revised based on population trends and projections, and rather than targeting singles and individuals, it should focus on couples and families. 	<p>Extremely high</p>

<ul style="list-style-type: none"> ➤ The size of distributed residential land plots should be revised as well. The new rules should promote compact development with well-defined community facilities and open spaces that should be planned sustainably. ➤ The distribution of lands has to be controlled and has to be after infrastructure planning and infrastructure development of new areas, or at least it should be in parallel with infrastructure development. ➤ As an alternative in the crowded regions such as Muscat, the government could plan and develop mixed-use residential communities, and rather than distributing lands, it could distribute affordable residential units based on some intensives such as 0% interest long-term loans or any sort of subsidies or other intensives. 	<p style="text-align: center;">High</p> <p style="text-align: center;">Extremely high</p> <p style="text-align: center;">Moderate</p>
<p>Distribution of New Commercial/Industrial/Agriculture Lands</p> <ul style="list-style-type: none"> ➤ The distribution methods of commercial, industrial and agriculture lands should be revised and should be more controlled to avoid the misuse of national lands as well as the interference of personal interests. ➤ In addition, these types of lands should not be acquired by toss, there should be a new innovated system implemented for distribution. The location and size of lands should be linked with the scale of businesses, the feasibility of projects, their importance to the area, and the priority of applications. ➤ Similar to residential lands, the distribution of these types of lands should come after infrastructure planning and infrastructure development. 	<p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Extremely high</p>
<p>Management of Undeveloped Owned Lands</p> <ul style="list-style-type: none"> ➤ In Oman, there is no development rules or restrictions for non-used owned lands. Therefore, there are a lot of lands noticed to be not developed and some of them are situated close the centers of cities and to the main hubs that are well-served with infrastructure. These types of lands should have a grace period for development (for example 3 to 5 years) and there should be a strategic development action plan for developing non-utilized lands. ➤ To reduce the pressure on infrastructure providers, some restrictions have to be posed in developing new areas that are not served with infrastructure (municipalities should suspend building permits in the new plans that are not served and far away from infrastructure networks until being served with the necessary infrastructure services). 	<p style="text-align: center;">Extremely high</p> <p style="text-align: center;">High</p>
<p>V. E-government and Geographic Information System</p> <p><i>Objective:</i> To develop a centralized GIS system and utilize electronic services to an advanced degree.</p>	
<p>Suggested Guidelines and Instructions</p>	<p style="text-align: center;">Priority</p>
<p>E-government</p> <ul style="list-style-type: none"> ➤ The utilization of e-government should be increased in order to enhance the productivity and efficiency of governmental performance and, on the other hand, reduce the traditional slow-motion paper works. 	<p style="text-align: center;">Extremely high</p>

<ul style="list-style-type: none"> ➤ Additional e-gates should be provided in order to enhance both, government to government relations and government to public and private sector relations. 	High
<p>Geo-information system</p> <ul style="list-style-type: none"> ➤ A centralized real time GIS system should be developed to guide strategic decisions in spatial development and provide a strong information base for physical planning. ➤ This system has to offer working platforms to enable information sharing between authorities based on controlled entry access system. ➤ All type of plans (land-use, infrastructure, zoning, housing, touristic, industrial, etc.) and spatial studies has to be integrated in the system according to predefined unified input forms. ➤ This system should be continually monitored to ensure that all information and data are up-to-date. 	<p>Extremely high</p> <p>Extremely high</p> <p>Extremely High</p> <p>High</p>
<p>VI. Transparency, Capacity Building, and Coordination and Collaboration</p> <p><i>Objective:</i> To create more effective and efficient working environment.</p>	
<p>Suggested Guidelines and Instructions</p>	<p>Priority</p>
<p>Transparency and Accountability</p> <ul style="list-style-type: none"> ➤ The planning process should be distinguished with some kind of transparency in the joint government work. ➤ The excessive bureaucracy is not recommended in the planning cycle which should be avoided to maintain efficient planning. ➤ There should be also some transparency with the public as well as with the private sector (such as some information sharing and giving the public limited access to the GIS system). 	<p>Moderate</p> <p>Moderate</p> <p>Moderate</p>
<p>Capacity Building</p> <ul style="list-style-type: none"> ➤ Capacity building program should be established to upgrade technical capabilities in spatial planning. This could include training programs, workshops and short academic courses for technical workforce in sustainable spatial planning fields. ➤ Capacity building program could entitle authorities to hire some international experts to enhance the planning process and ensure that the planning path is oriented in the sustainable direction. 	<p>Extremely high</p> <p>High</p>
<p>Coordination and Collaboration</p> <ul style="list-style-type: none"> ➤ There should be a clear mechanism for horizontal and vertical coordination and collaboration between authorities in the planning system as well as a clear working mechanism among all levels of planning. ➤ These mechanisms should define the roles to be played by authorities in prescheduled working timeframes. 	<p>Extremely high</p> <p>High</p>

VII. Community Participation and Public Awareness	
Objective: <i>To include the public in the planning process and maintain sustainable thinking in the society.</i>	
Suggested Guidelines and Instructions	Priority
Community Participation	
➤ The participation of communities in the planning process should be enhanced via several channels such as direct involvement with the planning teams, joint workshops, and online participation gates.	Moderate
➤ Community participation is recommended to be included in all levels of planning (national, regional and municipal levels)	Moderate
➤ The public participation should include individuals, private sector and NGOs such as <i>Oman Society of Engineers</i> and <i>Environment society of Oman</i> .	Moderate
Public Awareness	
➤ To promote sustainability and maintain sustainable thinking within communities, public awareness is very essential. Therefore, there should be a clear action plan implemented for this purpose through utilizing all sorts of media such as radio and TV channels, newspapers and social media to raise public awareness.	Low
➤ There should be also educational programs and workshops on sustainable planning that could be carried out in academic facilities such as schools and universities.	Low
VIII. Environmental Efficiency	
Objective: <i>To establish an environmental efficiency program for sustainable development.</i>	
Suggested Guidelines and Instructions	Priority
Efficiency Program	
➤ An innovated environmental efficiency program should be developed to guide sustainable building and sustainable construction in the country.	Extremely high
➤ A specialized governmental unit should be established for the purpose of developing and implementing the program. This unit should work under a supreme authority such as SCP or Council of Ministers and should has the sufficient legal instruments to guide green and sustainable building.	Extremely high
➤ The program should include designing styles and construction materials as well as utilities and services such as water and electricity.	High
➤ The program should take into account the architectural, spatial, cultural, and economic determinates in the country.	High
➤ For the preparation of the program, Oman can learn and get benefit from the global experiences in this field such as from the Australian <i>Green Star</i> program, American <i>LEED</i> system and the British assessment method <i>BREEAM</i> .	Moderate

<ul style="list-style-type: none"> ➤ By some rules, the local market should be motivated to provide materials that promote environmental efficiency. 	Moderate
<p>IX. Sustainable Concerns for Physical Planning</p> <p><i>Objective:</i> To take into account various sustainability aspects in spatial planning.</p>	
<p>Suggested Guidelines and Instructions</p>	<p>Priority</p>
<p>Zoning</p> <ul style="list-style-type: none"> ➤ Zoning plans are very essential in Oman due to the existing unbalanced urban and regional development as well as unbalanced distribution of community facilities and services. ➤ There should be clear zoning ethics for planning residential, industrial, agriculture, touristic, commercial and mixed-used areas and districts. ➤ Based on the zoning plans, the development in each zone has to take a sustainable direction by implementing some regulations and standards in order to insure environmental sustainability. ➤ Solutions should be studied for the existing and predicted spatial problems in some plans which may include restructuring the plans or relocating some land-use types. ➤ Buffer zones between areas as well as between land-use types should be considered. The designing of the buffer zones should take into account the international standards in this field as well as the spatial and environmental determinants of the areas. 	<p>High</p> <p>High</p> <p>High</p> <p>Extremely high</p> <p>Extremely high</p>
<p>Architecture</p> <ul style="list-style-type: none"> ➤ Architectural patterns should be taken into account in spatial planning by providing sufficient guidelines and standards in this field for the various land-use types. ➤ Oman architectural identity should be highlighted in urban and regional forms by directing spatial development to take more concentration on the national inherited architecture elements. ➤ A state of harmony between old and modern urban architecture should be maintained to reduce visual impacts. 	<p>Moderate</p> <p>Moderate</p> <p>High</p>
<p>Transportation, Utilities and Infrastructure Services</p> <ul style="list-style-type: none"> ➤ Government investment in public transportation system should be effectively considered since oil and gas subsidy was excluded from the public subsidies. Therefore, by considering compact development orientation and increasing urban densities, there should be a high feasibility for planning efficient public transportation system. ➤ Development of road networks should be more sustainable, and it should include the implementation of new technologies such as road tunnels to reduce the negative impacts on natural landscapes. 	<p>Moderate</p> <p>High</p>

<ul style="list-style-type: none"> ➤ A scheme should be provided to enhance the reduction of utilities' usage (mainly water and electricity) by enhancing the efficiency of buildings and using more sustainable materials. Implementation of taxation programs is advised here to force people reducing their consumption and being part of this scheme. ➤ Electricity subsidy should be amended to enhance the investment on renewable energy. Removing subsidies from the traditional gas-based electricity generation technologies and subsidizing renewable energy projects is a good starting step to enhance the expansion of renewable energy projects in Oman. ➤ Due to the continuous increase in solid waste generation, investment on waste recycling and reuse projects is very essential to maintain sustainability. 	<p>High</p> <p>Moderate</p> <p>Moderate</p>
<p>Housing</p> <ul style="list-style-type: none"> ➤ There should be more concentration on compact development as well as on mixed-use and multi-families housing forms in urban and regional planning. ➤ Sprawling planning should be avoided to create connected, livable, well served, sustainable communities and reduce the excessive cost of infrastructure. ➤ Due to the rise in housing cost, there should be a governmental orientation towards providing affordable housing. 	<p>Extremely high</p> <p>Extremely high</p> <p>High</p>
<p>Open Spaces and Landscapes</p> <ul style="list-style-type: none"> ➤ There should be strategic plans provided for developing public spaces and public facilities in Oman. Public spaces are considered as a main component in the modern, livable, sustainable communities. As a predicted positive impact, development of public facilities and open spaces is going to enhance the public health in the society. ➤ There should be sufficient fund from the government for developing public spaces. ➤ Developing pedestrian lanes, local playgrounds, open recreational and sport facilities, and cycling infrastructure is very essential in this stage to create livable communities. ➤ Natural landscapes should have more attention and any kind of unacceptable development behaviors should be reduced such as the excessive cutting in the mountains and the continuous damage to the natural green cover and natural habitats. ➤ Urban green cover should be increased to maintain healthier communities and create aesthetic urban image. Due to the scarcity of water resources, treated wastewater could be utilized for the irrigation of urban green cover. 	<p>Extremely high</p> <p>High</p> <p>Extremely high</p> <p>High</p> <p>High</p>
<p>Distribution of Community Facilities and Services</p> <ul style="list-style-type: none"> ➤ Community facilities and services should be wisely organized according to the land-use type and the requirements of each zone of development and also based on the output of the joint economic and spatial studies. 	<p>Extremely high</p>

<ul style="list-style-type: none"> ➤ There should be a concentration on the efficiency and effectiveness of spatial plans through avoiding the disturbance in areas' functions. For example, there should be some restrictions on developing large shopping malls close to the cities' centers or to the main economic districts that have a wide range of small-scale similar businesses. ➤ Spatial planning should be utilized as an essential tool to direct economic development in any area. 	<p style="text-align: center;">High</p> <p style="text-align: center;">High</p>
Environment and Natural Habitats	
<ul style="list-style-type: none"> ➤ The environment should be considered as a main pillar in the planning process which has to be protected and preserved. ➤ These should be more and sufficient fund from the government to the environment sector. ➤ The planning and development processes in high sensitive areas and natural reserves should be strictly controlled. ➤ There should be sufficient environmental studies among all levels of planning to assess natural environment and natural habitats conditions. ➤ The environmental studies should be highly considered in spatial planning and in its strategies and policies. 	<p style="text-align: center;">Extremely high</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Extremely high</p> <p style="text-align: center;">High</p>
Natural Hazards and Climate Change	
<ul style="list-style-type: none"> ➤ There should be sufficient environmental studies on natural hazard field to insure the safety and security of spatial plans from natural hazards such as from flash floods and coastal erosions. ➤ Solutions should be studied for the current distributed and developed plans that fall under the umbrella of threatened areas by natural hazards. ➤ Sufficient studies on climate change possible impacts should be also considered to enhance the efficiency of planning process. ➤ All of these studies should be categorized as part of Oman spatial strategies. 	<p style="text-align: center;">Extremely high</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Moderate</p> <p style="text-align: center;">High</p>
X. Implementation and Monitoring	
<p>Objective: To establish effective and efficient implementation and monitoring systems.</p>	
Suggested Guidelines and Instructions	Priority
Implementation	
<ul style="list-style-type: none"> ➤ Implementation programs and action plans should be placed to implement all kinds of strategies, studies, mechanisms and plans in spatial planning and spatial development. ➤ All sorts of plans, strategies, mechanisms, and programs should be able to be implemented based on subsequent pre-prepared implementation actions. ➤ There should be also priority action plans for the implementation programs which should sort and list working actions based on their importance, and the financial, administrative, economic, and cultural capabilities and determinants. 	<p style="text-align: center;">Extremely high</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p>

<p>Monitoring</p> <ul style="list-style-type: none"> ➤ A monitoring system should be developed to follow up with the implementation programs. ➤ This monitoring system should provide a mechanism to assess and assist the implementation efforts and create links between the implementation action plans among all levels of planning. 	<p>Moderate</p> <p>Moderate</p>
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6.5. Conclusion of Chapter Six

This chapter is trying to show three different paths for the possible future orientation or direction of spatial planning in Oman. In short sentences, it is concluded that:

- Scenario One could be considered as the weakest scenario and represents the continuity of the traditional planning system without being affected by any modifications. This scenario reflects also the condition where the country is not going to pay a good attention to spatial planning and not going to allocate additional financial and administrative resources for upgrading the planning practices. It is expected, based on this scenario, that spatial planning will continue running in a traditional manner and accordingly there will be a continuity in the planning obstacles, issues and impacts on both natural environment and built environment which may include considerable losses in the natural, geographical, and landscape constituents as well as some degradation in the land-use and architecture forms.
- Scenario Two could be considered as a realistic and easy achievable scenario which represents the transition state in spatial planning. This scenario reflects the condition where the country is going to pay a considerable attention to spatial planning and going to allocate additional financial and administrative resources for upgrading the planning practices and reaching this transition state. It is expected, based on this scenario, that the planning system will be relatively upgraded and there will be more control on the planning practices. However, there will be still some areas of deficit in the planning process which will prevent spatial planning from achieving a good level of sustainability.
- Scenario Three is a more advanced scenario and it is the recommended path to be considered for spatial planning in Oman. This scenario reflects the condition where the country is going to invest heavily on spatial planning and going to allocate sufficient financial and administrative resources for upgrading the planning practices and therefore, achieving spatial sustainability. In this scenario, there is a high attention given to the various sustainability measures, environmental, social and economic measures. Accordingly, it is expected that spatial planning will be perfectly controlled, managed and regulated and thus, the country is going to achieve an acceptable level of sustainability.

In addition, this chapter is trying to provide a rational answer for the second part of the research question (*how spatial planning in Oman can be improved sustainably?*) by presenting a list of suggested guidelines and instructions for sustainable planning. This

guidelines list demonstrates that there is a wide area of innovation and possibilities in developing a sustainable spatial planning orientation in Oman and thus sustainable communities. The list emphasizes on the importance of the successful and proper planning in maintaining spatial sustainability and it emphasizes also on the sustainability measures that should be clearly marked in the strategies, plans and policies as well as in the physical practices of spatial planning.

7. Planning Tourism Oriented Sustainable Communities in Oman

The chapter tries to demonstrate the importance of developing local sustainable spatial plans for communities and areas that are highly sensitive. It takes into account the communities that are sensitive to tourism industry. The chapter starts with giving a background and some indications related to tourism industry in the country. Then it takes Mutrah city as a case study or example to demonstrate how local spatial plans are important to communities promoted for tourism industry. As an output, it presents some suggested guidelines for developing this type of local plans in order to maintain tourism oriented sustainable communities.

7.1. A Brief on Tourism Industry and Tourism Planning in Oman

Oman enriches with a wide variety of natural, geographical, and cultural tourism potentials and elements which represent a promising future for maintaining decent tourism destinations that include several types of tourism activities such as cultural tourism, nature and ecotourism, geotourism, sport and adventure tourism activities. In relation to the coastal areas, Oman has a stretched coastline that is distinguished with its natural diversity including sandy and rocky beaches, coral reefs, natural bays, islands, and other coastal and marine tourism potentials. In the terrestrial side, there is also a verity of natural features such as the mountains and the geological landscapes (i.e. Jabal Shams mountain and Duqum Natural Geopark), the sandy dunes, the natural oases, the natural valleys, the water channels (Aflaj), and the natural thermal springs (i.e. Nakhal and Al-Thawarah springs). In addition, Oman is also distinguished with its historical, archeological, and cultural places. There is a wide range of forts, castles, old historical villages and districts, historical markets, and various types of archeological sites.

In Oman, Tourism Law was issued in 2002 as the main legal framework to organize tourism activities and attract investments in this field (see also section 4.10). Ministry of Tourism (MoT) represents the main government authority responsible for tourism industry which was established in 2004 through the Royal Decree No. 61 (2004). The main duty of MoT is to plan, regulate, and manage tourism sector and enhance the contribution of tourism activities to the national GDP (some of MoT duties are elaborated in section 4.4.3). In planning field, the Ministry works on preparing masterplans and studies to develop tourism projects and touristic areas. It coordinates also with Ministry of Housing and other authorities in order to participate in the urban plans of areas that have high touristic potentials such as Al-Jabal Al Akhdar Master Plan which was prepared with the coordination between MOT, the former planning authority SCTP, and Ministry of Housing.

On the other side, there is a governmental company called Oman Tourism Development Company (Omran) that is responsible for developing and managing large-scale touristic projects and establishing new touristic destinations in the country. Omran was formed in 2005 as the main tourism physical arm with full administrative and financial independence. The board of directors of the company includes representatives from the governmental authorities such as Minister of Commerce and Industry (the Chairman), Minister of Finance, Minister of Tourism, Minister of Housing and other members to provide the sufficient financial and administrative support and facilitate the works of the

company. As a main developer, Omran conducts several types of tourism projects such as urban mixed-use tourism complexes and tourism historical projects. The current main two prominent projects of the company are the development of Madinat Al-Irfan tourism complex which includes the new international exhibition center and also the development of Mina Sultan Qaboos Waterfront, and both of the two projects are situated in the capital Muscat. This company represents also the government in the public partnerships with the foreign investments in relation to tourism sector.

Tourism industry in Oman is still developing and all indicators show that there is a great possibility to maintain good benefit from tourism sector in the country. According to the Travel and Tourism Economic Impact 2017 report by WTTC, tourism activities in Oman represent directly and indirectly around 7.3% of the country GDP and 7.2% of its total employment (WTTC, 2017d). Although these percentages are relatively low, there is a high potential for improving tourism sector because of the current governmental focus on tourism activities as well as the available diversity of tourism attractions, values, and resources.

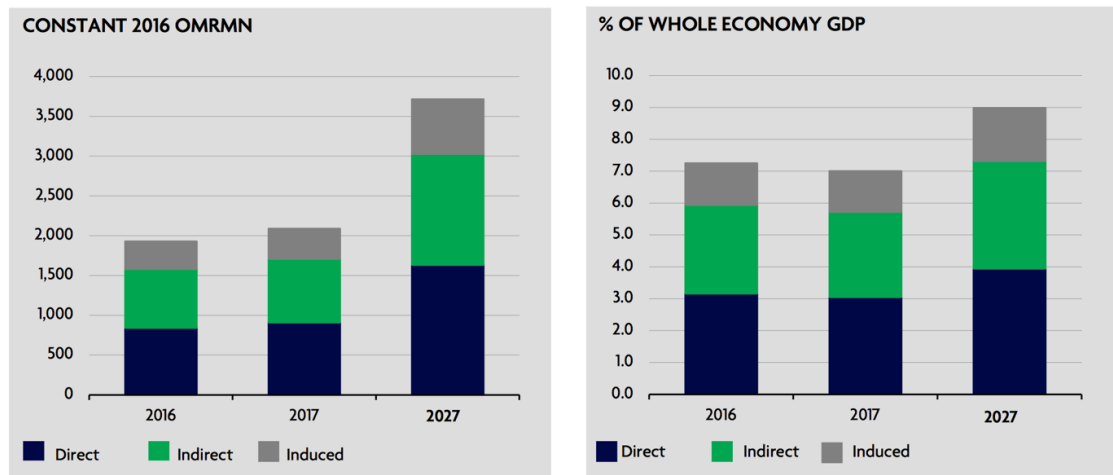


Figure 7.1: Tourism contribution to GDP in Oman for 2016 and 2017 (WTTC, 2017d)

According to the indicators of 2017 Tourism Statistics Report (NCSI, 2017), there is a clear growth in the inbound tourism movement which reflects, in a form or another, the continuous growth of tourism activities and services in the country. The report clarifies that there is a considerable growth in the movement of international visitors to the country where there was an increase in the number of visitors from 1.7 million in 2012 to 3.2 Million in 2016. According to the classification of the report, the number of international tourists from the total number of visitors increased from 1.2 million in 2012 to 2.3 Million in 2016 (the visitor is classified as tourist if his/her stay includes accommodation), which is almost the double number in a five-years period (see Figure 7.2). In addition, the same report indicates that there is a continuous growth in the revenues of direct inbound tourism activities where the revenues increased from 200 million OMR in 2012 to 318 million OMR in 2016. However, the revenues of local tourism and indirect tourism activities are still higher and represent almost three times the direct inbound tourism activities, 882 million OMR as in 2016 (see Figure 7.3 for more details).



Figure 7.2: Inbound visitors and tourists to Oman from 2012 to 2016 (author’s own work). Data source: (NCSI, 2017)

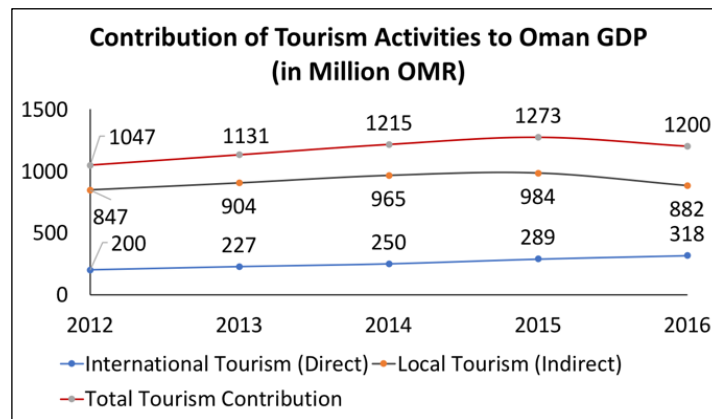


Figure 7.3: The contribution of tourism activities to the country GDP from 2012 to 2016 (author’s own work). Data source: (NCSI, 2017)

In addition, according to the Travel and Tourism (T&T) Competitiveness Report 2017 by World Economic Forum (2017), the global rank of Oman in T&T competitiveness index is 62 which is not a good rank (for example, the global rank of UAE and Qatar is 29 and 47 respectively). Through looking into the various indicators related to this index, it is observed that Oman has considerable weakness in these areas; international openness, environmental sustainability, air transport infrastructure, ground and port infrastructure, tourist service infrastructure, natural resources, and cultural and business travel resources (see the assessment indicators of T&T competitiveness index in Figure 7.4).

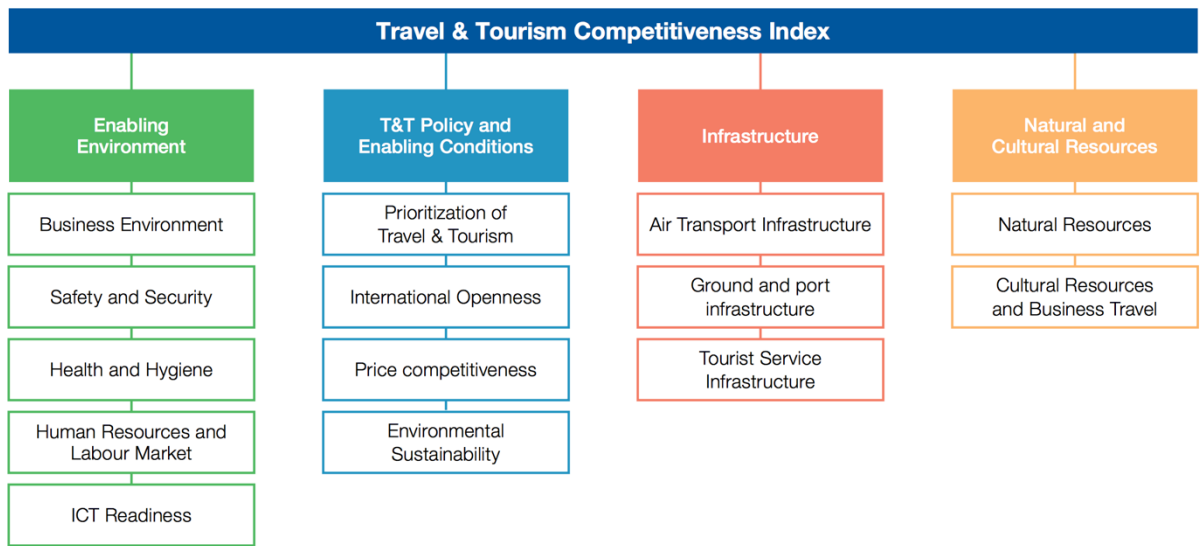


Figure 7.4: Travel and Tourism Competitiveness Index indicators (World Economic Forum, 2017)

Furthermore, as one of the valuable initiatives of Ministry of Tourism, it has recently prepared a national long-term strategy for tourism development which is prospected to be a guiding tool for tourism development up to the year 2040. The strategy aims to utilize tourism resources, get benefit from the various types of tourism potentials and attract investments in the tourism sector. It aims to invest around 20 billion OMR during the next 22 years and most of them will be as private investments. The strategy set several goals and objectives to be achieved in the year 2040 such as:

- Increasing the direct contribution of tourism activities to the national GDP from around 2.9% to be at least 6% by that year.
- Providing around 80,000 accommodation rooms for deferent types and levels of tourist groups (for instance; hotel rooms, vacation homes, apartments and chalets).
- Providing more than 500 thousand direct and indirect jobs in the tourism sector (currently, there are less than 100 thousand jobs in this sector).
- Increasing the number of international tourists to be more than 11 million/year by the year 2040 from around 2 million/year as in 2016.

7.2. Old City of Mutrah (A Case Study)

As a good example to demonstrate how important is local community planning in relation to tourism industry, Mutrah city in Muscat Governorate is taken as a case study in this research. Mutrah city is one of the oldest coastal cities in the governorate which has high historical and touristic sensitivity. It is considered as one of the important cities in the history of Oman due to the prominent role played by this region throughout the successive times as a main center for international and local trade. It has also the oldest main traditional market in the country. Mutrah is distinguished with its compact form that includes old districts having special architectural touches and building styles, and narrow and winding pedestrian pathways that reflect the simplicity of former urban life

of Oman. Nowadays, in addition to its significance as a traditional commercial center, this area is categorized as an important tourist destination because of its touristic sensitivity, attractions and values.

7.2.1. Tourism Characteristics of Old Mutrah

Mutrah enriches with a diversity of touristic values and opportunities that distinguish this city from the other areas in Muscat Governorate as an example. The geographical location of the city is also unique where Mutrah could be described as a small semi-confined city that resides between a group of mountains from the land side and the sea from the other side, and this location offers a variety of landscapes to be enjoyed by tourists as well as local people who visit the area. The most important characteristics that promote this area as a unique tourist destination are:

The old traditional market (Souq Mutrah), old districts, Mutrah Fort and the other cultural values

Souq Mutrah is considered as the main cultural attraction in the area which is dated back to more than 200 years (Omran, 2016). This traditional market is situated in the heart of the city and surrounded by old districts that have narrow and winding pedestrian pathways. The main pathways of the market are covered by traditional style shades to bring the inspiration of the ancient architecture. According to (Al-Maimani et al., 2014), the last renovation of the market was conducted in the mid of 2000s and according to their measurements, the market occupies an area of approximately 51,000 m² from the old city. Mutrah Fort is in the south of the old city which resides in a hill facing the sea from one side and the old city from the other side. This historical value is also considered as a distinguished tourism attraction. Additionally, there is a traditional fish market in the north, close to Sultan Qaboos Port, and there is a variety of museums and other cultural attractions in the area such as Bait Al-Baranda Museum.

Sultan Qaboos Port (Mina Sultan Qaboos)

Mina Sultan Qaboos in Mutrah represents the seafront of the city. From its establishment in the mid of 1970s and until a very recent year, this port was served as the main commercial port in Oman. Officially, Mina Sultan Qaboos was converted into a tourist port in 2015 due to the growth of tourism industry and to the increase of commercial and industrial activities as well as the expansion of ports network in Oman.

The port is currently served for cruise businesses and has some tourist activities. In addition, Oman Tourism Development Company is preparing to establish a large-scale tourism project in the port area as will be discussed later.

Corniche of Mutrah

Corniche of Mutrah is one of the beautiful places and landmarks of Oman. It is a winding coastal pathway extended along a sea road and overlooking the port from the seafront and the old city from the land side. It is one of the good places that have variety of natural and artificial landscapes.

Its relation to Muscat old city

To the south-east of Mutrah there is Muscat old city which represents one of the most important cities in Oman throughout the history as the center of Oman leadership and it still has a considerable political weight until current days. Mutrah and Muscat cities are both old cities and very close to each other (less than 5 km from center to center) and have a unique historical relationship especially in the maritime trade. Muscat old city enriches with political, cultural and historical features and it has the old royal palace (Al-Alam Palace) which is one of its landmarks. This city has also several museums such as the National Museum and Bait Al-Zubair Museum.

7.2.2. Why a Sustainable Spatial Plan Is So Important to Old Mutrah?

The availability of local spatial integrated plans in some areas are very essential to promote sustainability and reduce the impact of future development in that areas. In the case of Mutrah, there are several reasons why this area has to have a sustainable local plan. These following points explain some of the main reasons:

- According to the personal knowledge, there is no holistic or integrated local plan already maintained to control the development practices in the area of Mutrah which does take into account the various planning dimensions (whether these are spatial, transport and connectivity, environment, tourism, or cultural dimensions), and does take into account also the influence of the various types and scales of development on local communities and the influence of local communities on these developments (in an integrated approach and not just in a project-based approach or a single-authority oriented approach). From the personal research, it is acknowledged that Muscat Municipality had recently conducted a redevelopment masterplan for this area which is unfortunately unpublished and inaccessible to be assessed in this thesis. However, as the design group elaborated (Norplan, 2017), the plan is more oriented towards upgrading infrastructure and utility services in Mutrah especially sewerage and road networks. It considers also some amendments in the seafront of Souq Mutrah and provides concepts for developing two areas. One is under Mutrah Fort and the other is along Muscat Street. It provides also some municipal measures to enhance the development in the city. Although this is a valuable document in spatial planning, it represents more or less a single authority-oriented plan and cannot be considered as an integrated spatial-tourism sustainable local plan.
- Constructing a large-scale project such as Mina Sultan Qaboos Waterfront tourist project that is going to attract huge numbers of tourists very close to a relatively small city that has cultural identity without placing special sustainable criteria to develop tourism in the whole area is also a critical reason. This kind of tourist projects is huge and according to (Omran, 2016), it aims to mark Mutrah as the No.1 tourism attraction in Oman and utilize its amazing nature and beauty through establishing touristic facilities and services in the port area. As could be noticed from the early concept plan (as illustrated in Figure 7.6), the project occupies a large area and has deferent development zones. This project is going to include several hotel facilities, public spaces and amenities, residential units and offices, retail and food facilities, super yacht marina, recreational, leisure and sport facilities, and spa and wellness services.

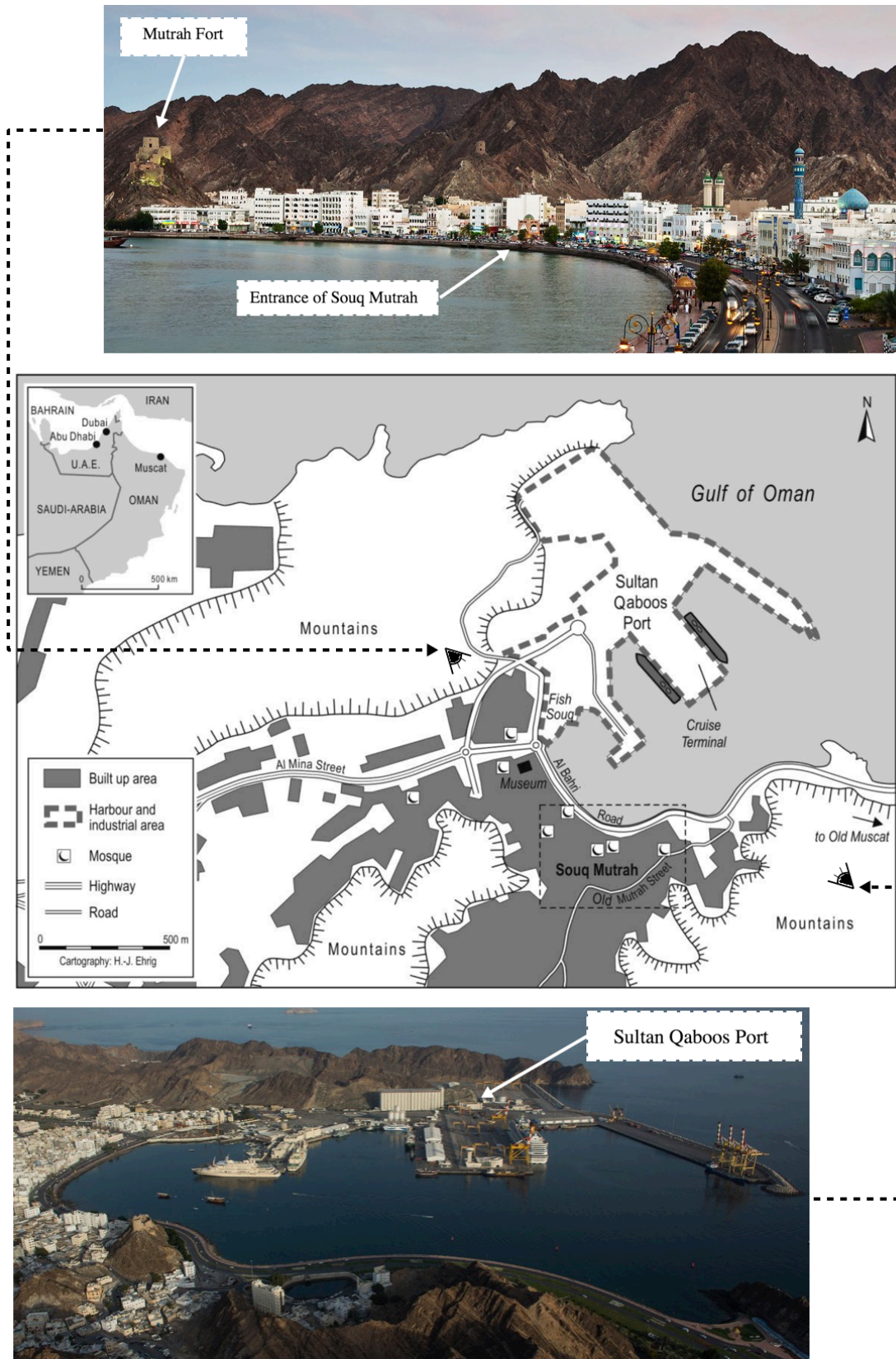


Figure 7.5: A plan and photos describing Mutrah city (edited by author, the source of the two photos is [Omran, 2018] and the base map is [Gutberlet, 2016])



LEGEND

H. HOTELS	7. MIXED USE / DESTINATION RETAIL	13. UTILITIES COMPOUND	19. MIXED USE & BRANDED RESIDENTIAL / RETAIL
1. MUTTRAH PUBLIC PROMENADE & TRAM	8. PUBLIC PROMENADE	14. LEISURE, TENNIS CLUB & BRANDED RESIDENTIAL	20. ROP - CUSTOMS & IMMIGRATION
2. MUTTRAH FISH SOUK	9. SUPER YACHT MARINA (150 BERTHS)	15. NFC, TUG, COASTGUARD, ROYAL NAVY BERTHS & ROP	21. RESTAURANT / CAFE
3. FISHERMANS WHARF & CAR PARK	10. MOSQUE	16. FUTURE DEVELOPMENT ZONES	22. HEALTH / WELLNESS SPA
4. ROYAL PRECINCT	11. BANQUET & SPA	17. GRAIN SILOS	23. COMMUNITY FOOTBALL & CLUBHOUSE
5. VARIOUS ATTRACTIONS	12. BEACH CLUB & BRANDED RESIDENCES	18. FISHERMEN & DHOW BERTHS	24. ROCK PARK & WALKWAY
6. WATERFRONT PUBLIC PLAZA			

Figure 7.6: A concept plan of Mina Sultan Qaboos Waterfront tourist project (Omran, 2016)

- Another reason is infrastructure, connectivity and transport issues because of the old urban structure of the city without providing sustainable scenarios for upgrading and optimizing the connectivity in the area including road network, parking areas, pedestrian and cycling facilities. Although the redevelopment plan that was recently conducted by Muscat Municipality is predicted to cover some of these fields, there might be some missing elements due to the complicity of issues in Muttrah, the expected slight excessive cost of sustainable oriented planning, lack of participating authorities, the limited planning and development budgets, and the restrictions which the plan might have.

- The continuous pressure on the traditional market (Souq Mutrah) without providing a clear strategy for managing and developing the market and its surrounding communities in a sustainable direction is also a reason. According to Gutberlet (2016), a researcher who studied the socio-cultural impact of large-scale cruise liners in the area, there are already some negative impacts from this tourism business on the traditional market as well as on the whole area. These impacts include a congestion issue because of the increasing number of tourists especially when more than one cruise ship present in Sultan Qaboos port at the same time. As she clarified, this makes the market pathways overcrowded with tourist. She also outlined some other impacts related to the dressing and clothing of tourists and their social behavior.
- Another reason is lack of high quality touristic services and recreational facilities in the area. Unlike other touristic areas in Muscat Governorate that have better quality services, facilities and services in Mutrah have low quality. For example, the rating of accommodation facilities is not exceeding there 2-3 stars according to Oman hotel classification criteria, and also restaurants, coffee shops and food services have low quality in general.
- Promoting environmental sustainability and providing control and mitigation measures for environmental issues in the area is also one of the main reasons. As a noticed issue in Mutrah, the main pathway of the traditional market is used to drain accumulated storm and surface water in the old city during rainy seasons. This is because of the location of Souq Mutrah, the urban form of old city, lack of efficient drainage system, and the topographical constraints of the area, and according to (Al-Maimani et al., 2014), this is why some shops in the market are several steps higher than the pathway ground especially close to its main seafront gate. Another noticed issue, there are several obvious manmade cuttings in the mountains due to the expansion of development which have environmental and visual impacts (As an example, the existing cuttings near Oman Flour Mills Company site).
- Migration of local people from the area is a considerable reason. According to Oman Census 2010 (Al-Maimani et al., 2014, p. 51), there is a decrease of 19% in the number of Omani citizens in Mutrah from 2003 to 2010 which could be due to spatial issues. In addition, according to (Gutberlet, 2016), there is also a huge decrease in the number of Omani shopkeepers in the traditional market which is currently dominated by foreign merchants especially from India, Bangladesh and Pakistan, and this means low chances of cultural interaction between tourists and local people in this market.

7.2.3. What Should be Considered in Preparing a Sustainable Local Plan for Mutrah?

In the case of Mutrah, the preparation, management and monitoring of the plan should take a multi-sectorial integrated approach based on a committee established for this purpose and based on a clear reinforced governance system. The potential participating authorities in the plan are Muscat Municipality, Ministry of Tourism, SCP, Ministry of Housing, Oman Tourism Development Company, Ministry of Environment, and transport and infrastructure authorities. There should be also an active involvement of

the local community of Mutrah in the planning and management process. Additionally, there should be an active involvement of the municipal council of the region. Combination of efforts and the joint-work are the way to achieve sustainable development for any community.

Analyzing and assessing existing conditions

For all of the issues related to Mutrah and due to its old form, this area requires several types of analytical studies for the successful preparation of a sustainable local plan (the recommended analytical studies are elaborated in the guidelines in section 7.3). In spatial field, Mutrah suffers from the various types of spatial issues and has subjected to un-organized planning and development practices during the previous planning periods similar to a lot of areas in Oman. There is variation in the building forms, highs, orientations, and architectural styles. There are huge infrastructure issues due to its old form. Transport, parking and connectivity problems are very obvious especially in the inner part of the city where the only way to get to the center is Mutrah High Street which is almost congested, narrow and one-way option ending to the corniche road near Riyam Park (see the 3D diagram in Figure 7.7 which shows also the terrain of the area). The spatial form of Mutrah is complex and there is a noticeable non-systematic form of land-uses and a huge overlap between residential and commercial buildings. There is a non-harmonized mix between old and new structures (see Figure 7.8 which shows the spatial form of the area, Figures 7.9 and 7.10 which show part of the center including Souq Mutrah). As could be noticed, the urban density in this city is very high and most of the land plots and buildings are not systematically organized.

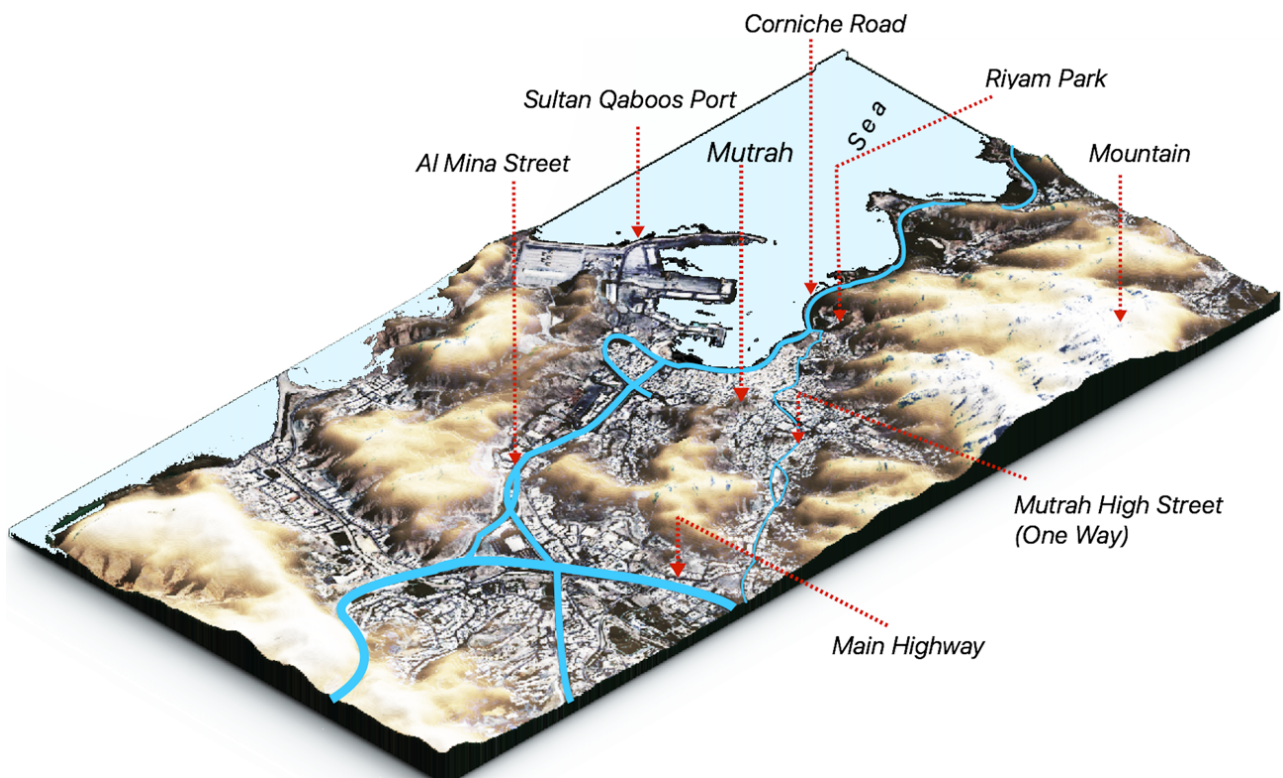


Figure 7.7: A 3D diagram showing Mutrah city including its terrain and its road network (author's own work)

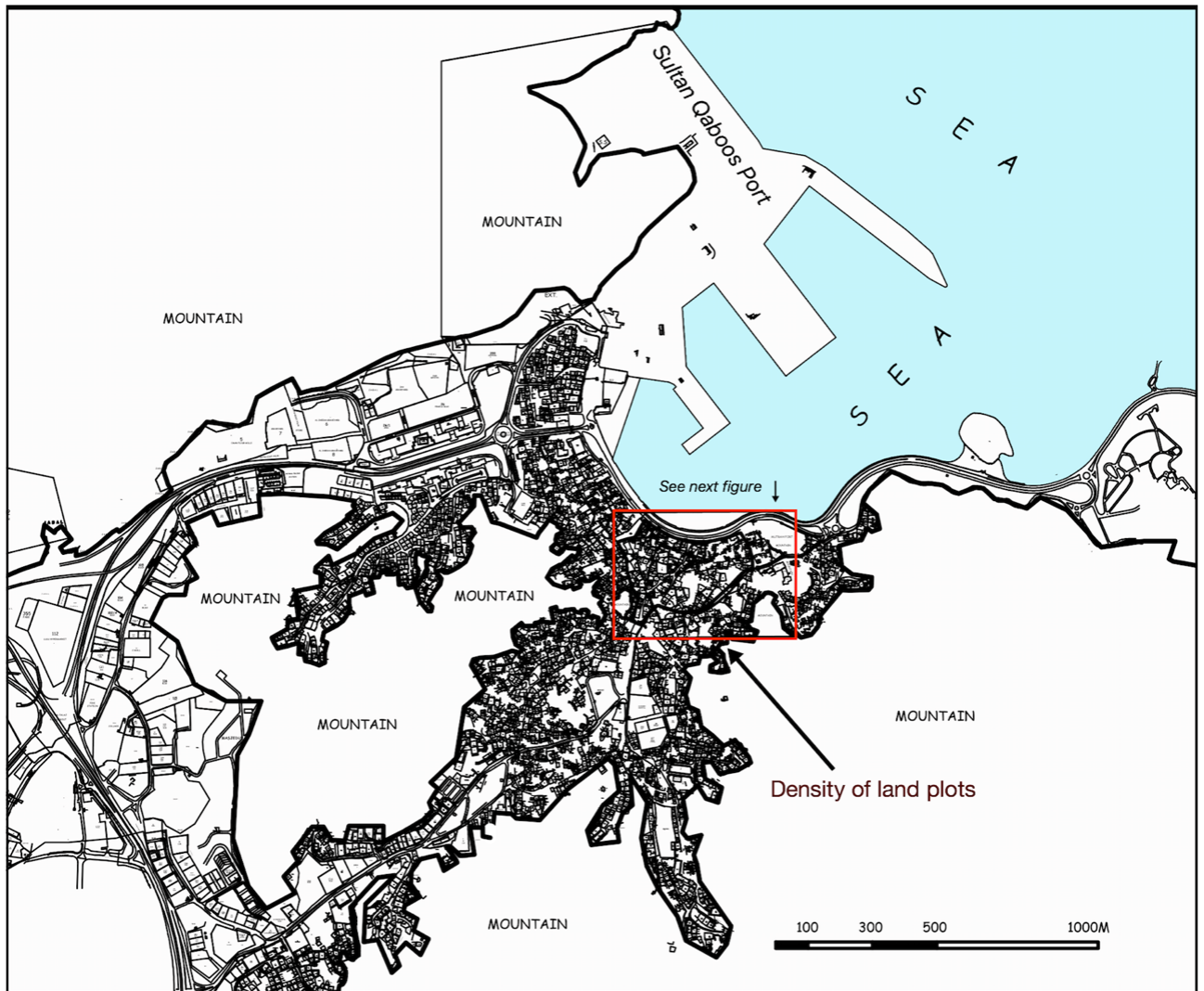


Figure 7.8: A map for Mutrah showing its urban densities (Generated and edited by author through AutoCAD)

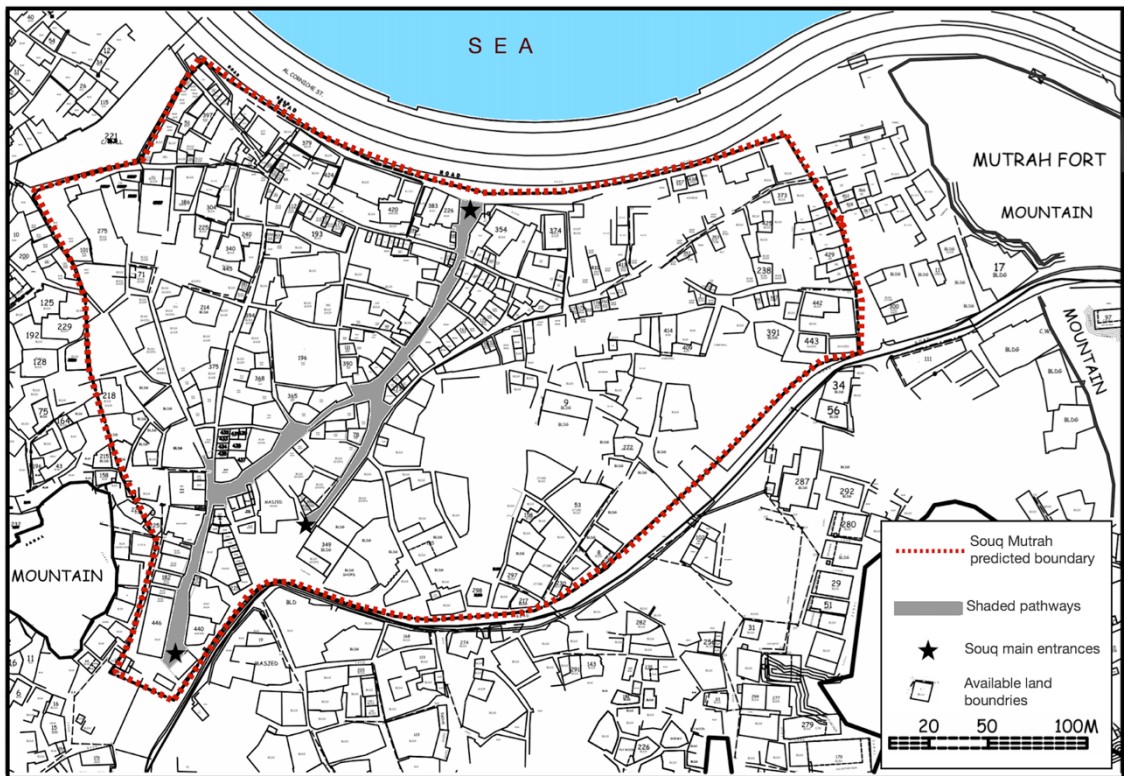


Figure 7.9: A map showing Souq Mutrah and its surroundings (generated and edited by author through AutoCAD)

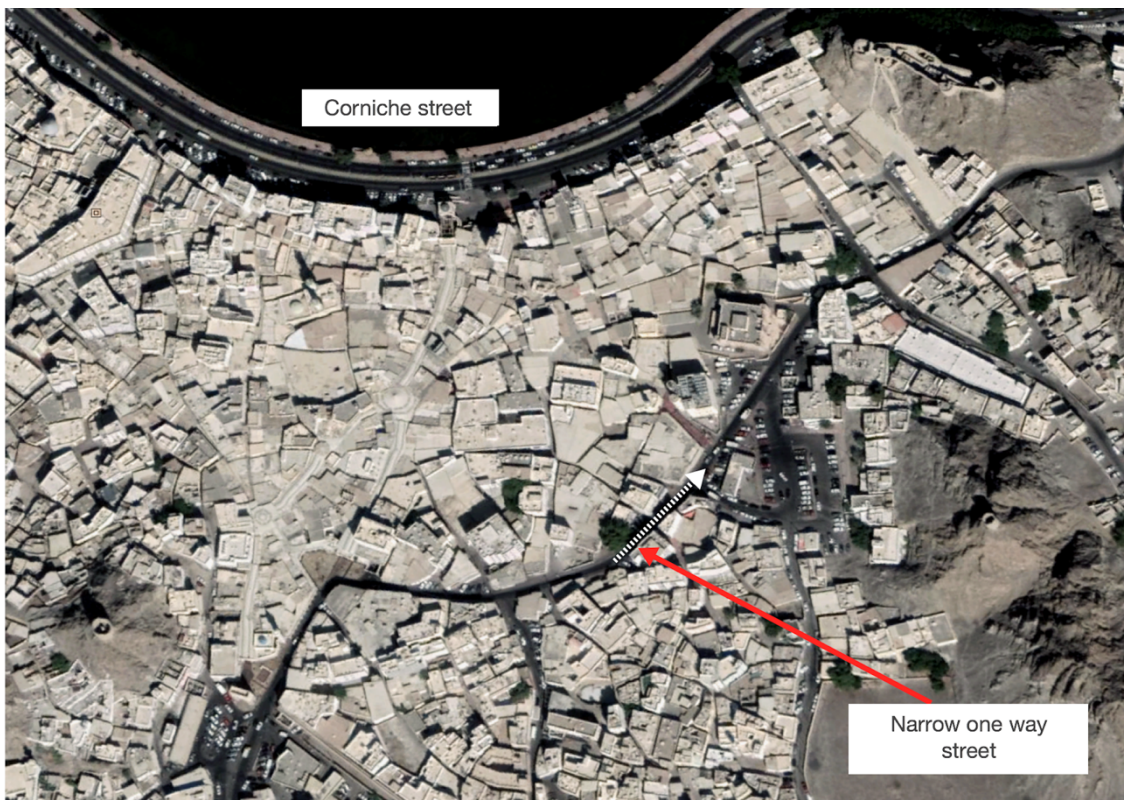


Figure 7.10: Aerial photo showing the same area (generated through Google Earth)

Planning for spatial sustainability

Considering the sustainable dimensions in spatial planning is an important matter in Mutrah city and this represents a foundation stone to convert this area into a sustainable community. In addition, having an inclusive and integrated local plan is very necessary for restructuring the area and making Mutrah more livable, efficient and connected city. This local plan should be formulated based on the outputs and recommendations of the suggested various types of analytical studies and according to the efficient collaboration between authorities. Nevertheless, the development process of Mutrah cannot be maintained in a short period and there should be some sort of development schemes that include several development phases which in turn reflect the needs and priorities of the area. All of these cannot be achieved without the assistance and active participation of the local community in the preparation of the plan as well as its participation in the private investment and development of the area. Public and private involvement and sharing the planning and development responsibilities is very important to develop and convert existing communities into more sustainable ones.

In order to maintain spatial sustainability in Mutrah, there are many areas of focus that the local plan should emphasize on (see the guidelines in section 7.3). For example, if the local road network is re-planned into more sustainable way and the local area is provided with well-organized and connected pedestrian and cycling networks and facilities as well as public transport facilities, there is no doubts that the local connectivity and efficiency is going to be improved (see Figure 7.11 for such example). In addition, restructuring the local places, organizing the distribution of land-uses and distribution of businesses, and enhancing the local community with the required facilities and services is going to add a great value and improve the overall spatial conditions in Mutrah.

In area similar to this old city, the expropriation of some lands and buildings (with the compensation of affected people) for the purpose of redesigning the local spaces in a sustainable way is very expected. The government in cooperation with private sector should participate in renovating and rebuilding the old residential and economic clusters that have complex issues and provide multiple economic and residential options that reflect the needs of modern communities and secure a decent life for local people. Hence, rather than distributing lands in a random way according to the Land Entitlement System, the government could distribute for example high quality residential and economic spaces to the local people based on some incentives. As a result, this will enhance the stability of the local community of Mutrah and improve the spatial conditions in the area. In addition, there should be some development standards to uniform for example building heights, colors, architectural touches which are necessary to protect the local identity and create a state of harmony within Mutrah spatial form. There should be also some sustainable building standards to control building practices and enhance the efficiency of buildings as well as the efficiency of water and electricity use.

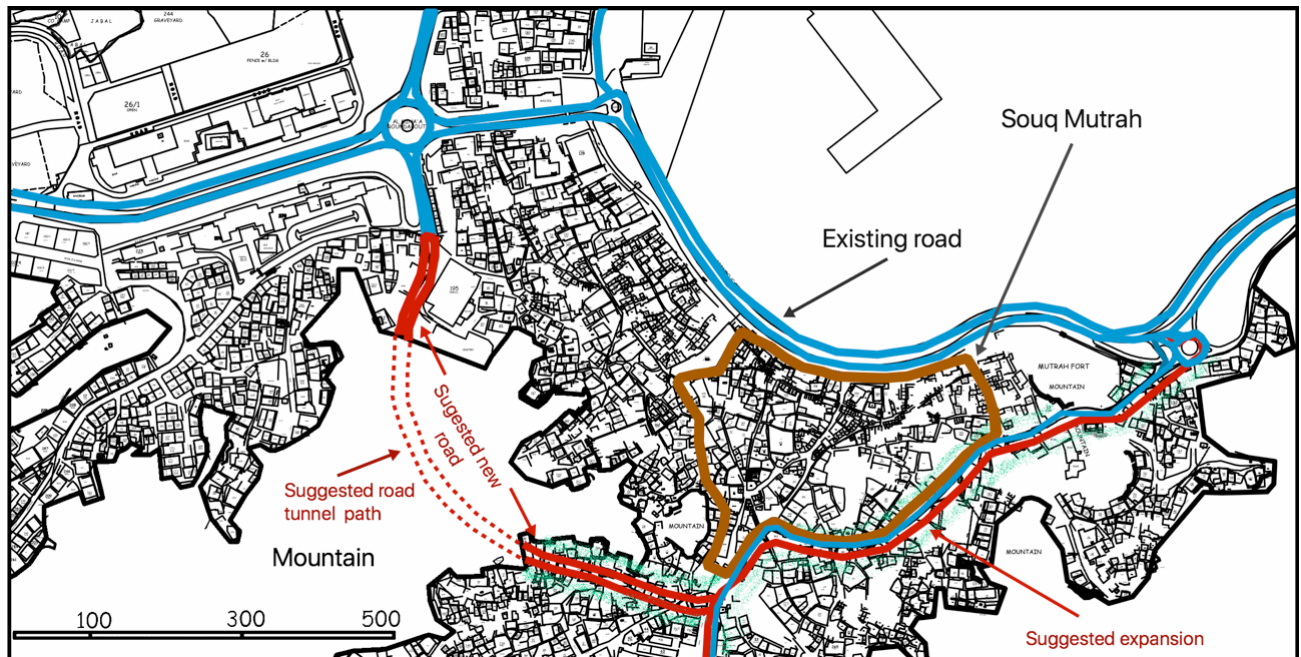


Figure 7.11: A suggested example how to enhance the efficiency of road network in Mutrah including also a cycling network (author's own work).

The attention to the local ecology and greenspaces is one of the sustainable communities' characteristics and hence it is very important to be considered in Mutrah local plan. In addition, the local plan should include protection measures to protect Mutrah from the natural hazards such as from the flush floods. The plan should also provide some pollution control measures to manage for example air, noise and light pollution in the local area. It should give attention to improve the public places, open spaces and landscapes in order to enhance the cultural interaction and create a state of comfort within Mutrah.

Tourism sustainability

In the modern life, there is no doubt that tourism has great benefit to the economy of local communities through the business chances that this industry may offer and the employment opportunities it may provide. As it was noticed from the previous sections, Mutrah has high potential to be developed as a unique tourism destination in Oman and this is why the local plan should give high concentration to this sector. Accordingly, Mutrah requires a wide and inclusive study to identify its carrying capacities related to tourism industry and provide a specific plan or strategy for the future distribution of tourism facilities, services and activities which secures the maximum benefit to the local community and minimize tourism related negative impacts. The local community should be enabled to participate in the investments through providing small and medium-scale related business chances which could include accommodation facilities, cafés, restaurants, recreational facilities, and support local people to develop and manage their activities in the right way.

In this area, there should be some control to the large-scale projects such as Mina Sultan Qaboos Waterfront tourist project which could affect the local community negatively if no practical integration with the city is made. This may end up with transforming the area of the port and the old city into a node for mass tourism. A state of balance in the tourism facilities (including size, location and type of facilities) is very necessary to be maintained in order to ensure the sustainability of tourism in the area and the sustainability of local community at the same time. According to the concept plan of this project and as a specialist view, the included size and type of developments in this project might, from one side, be over the capacity of the local area and may, from the other side, influence the economy of the local community negatively by attracting the tourism benefits to these places. Therefore, this project should be re-assessed by taking into account the long-term benefits and impacts on local community from all dimensions; (economic, social, spatial and environmental dimensions).

In addition, the local plan of Mutrah should zone the local places according to their level of sensitivity to tourism. In each zone, there should be some additional building and renovation standards or regulations. As a result of this zoning process, high attention and concern should be given to the places that have higher sensitivity levels. The development along the main streets in Mutrah should also have high attention (see Figure 7.12 which provides a simple illustration).

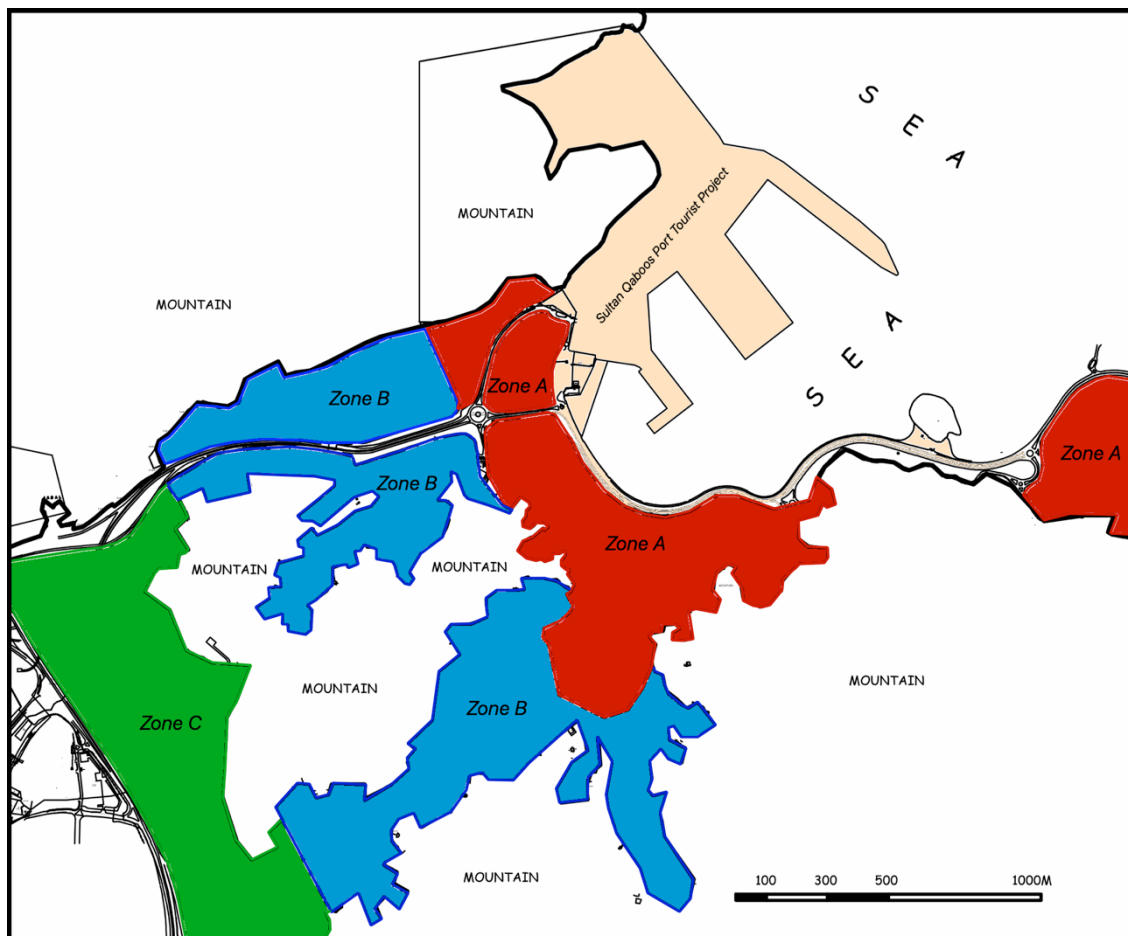


Figure 7.12: A basic example on how to zone the local area. Zone A represents high sensitive places to tourism. Zone B and zone C represent respectively moderate and low sensitivity (author's own work).

When taking the area of Souq Mutrah and its surrounding as an example for tourism high sensitive area, the enhancement of this place should take a better direction. There should be more open spaces and wider shaded and open walking pathways. The quality of tourism facilities and services should be high. The cleanliness level of the place should be also high. Furthermore, there should be more harmony in the spatial form and more security in this place.

In addition, the plan should take into account the long-term influence of tourism in the local infrastructure. It should provide projections and solutions for enhancing the road network and the parking facilities. Designing the cycling and pedestrian infrastructure should include the influence and the volume of tourism in order to be sustainable. These facilities should provide safe and efficient connection between the various types of tourism attractions in the area.

7.3. Recommendations for Preparing Sustainable Tourism-oriented Local Plans

Planning and designing sustainable communities is not an easy matter especially when it deals with existing conditions that have obstacles and constraints facing sustainability and deals with a complex industry such as tourism at the same time.

In the preparation of local spatial plans of such communities, the local authorities should consider integrating planning efforts and concentrate on two main fields. The first one is the spatial sustainability of local communities and the second one is the sustainability of tourism industry.

For this reason, this section is trying to demonstrate some recommended relevant guidelines that could be consider in preparing a sustainable local plan in an area similar to Mutrah in Oman.

The suggested guidelines are subdivided into four main groups in order to maintain a good understanding among readers. The first group of guidelines deals with the preparation and management of the plan. The second one is related to the analysis of the existing conditions of the local area. The third one is a set of recommendations related to spatial sustainability and the last one is the group related to tourism sustainability.

These guidelines reflect the personal experience and research in the various fields of sustainability including spatial and tourism fields. The preparation of the guidelines was preceded also by studying some of the international frameworks such as BREEM Communities Technical Manual (BRE, 2017) and LEED v4 edition for neighborhood development (USGBC, 2014). This kind of programs or frameworks aims to assist and assess planning practices in order to be more efficient and sustainable. Although these frameworks are mostly used for rating efficiency and branding locations and buildings, they provide useful criteria, instructions and mechanisms for maintaining sustainability. They provide also several solutions and act in deferent levels and scales from master-planning of projects down to designing the details of individual buildings.

Thus, as an output from this research, the following table represents some suggested guidelines for developing tourism-oriented local plans.

Table 1: Guidelines for developing sustainable local plans for communities promoted to tourism industry

1. Consultation and management of the local plan
<p>Governance</p> <ul style="list-style-type: none"> ➤ In general, all sort of local plans should be linked with municipal and regional levels of planning in order to maintain a wide and integrated vision for the orientation of spatial development in any region. ➤ Consultation and management of local plans should be carried out based on integrated multi-sectorial governance system where more than one authority participate in the planning process. Single authority-oriented planning should be avoided in order to maintain an effective sustainable plan that is able to be implemented. In Oman, the main four authorities that should involve in this type of plans are the municipality of the area, Ministry of Tourism, SCP, and Ministry of Housing. ➤ In addition, a committee should be formed for the preparation and implementation of the plan. This committee should include representatives from the planning departments of responsible authorities. It should be also enhanced with technical specialists. ➤ The committee should have the sufficient legal instruments for the successful preparation and implementation of the plan. <p>Training and skills</p> <ul style="list-style-type: none"> ➤ Training and upgrading technical skills of involved workforce is an essential element in local planning. ➤ The technical members of the suggested committee should be qualified or should have at least additional technical training to insure the successful implementation of the plan. <p>Community participation</p> <ul style="list-style-type: none"> ➤ Public participation should be considered in the consultation and management of the local plan. As an example, BREEM technical manual emphasizes strongly on the active involvement of local people in planning sustainable communities. ➤ Therefore, there should be some local representatives within the committee of the local plan. These representatives should be qualitatively selected based on their knowledge about the area and may have some training and also some intensives to be more effective in the joint work of the committee.
2. Assessment and analysis of local conditions (technical studies)
<p>Socio-economic analysis</p> <ul style="list-style-type: none"> ➤ This comprehensive study should include a social and economic analysis to identify the capacity, opportunities and needs of local area. This analysis should focus also on the priorities of local people. ➤ It should address local employment, existing type and location of businesses, provisions of essential community facilities such as schools, healthcare facilities, open spaces, and children playgrounds.

- It should analyze the demographic condition of the area (including age, gender, local citizens, and expatriates' analysis) in order to define the opportunities and priorities of local area and provide projections for future occupants.
- It should address the skill gap within local community, the living standards of local people, and the community cultural behavior and its traditions and costumes.
- Thus, it should provide projections for the overall development of the area (including existing and future development) in order to enhance the economic and social wellbeing of local people as well as enhance the economic condition of local activities.
- It should emphasize on the positive economic and social impacts in the local area and the opportunities to attract investments.
- Consultation of local community is very essential in order to define the social and economic needs, requirements and priorities of local area.

Tourism opportunities and impacts analysis

- An integrated analysis should be carried out to study the opportunities and impacts of tourism industry in the local area (current and future).
- All kinds of tourism opportunities should be assessed and addressed. This includes the current tourism attractions such as the natural landscapes and cultural attractions. It includes also the existing tourism facilities such as accommodation facilities, restaurants, cafes, and leisure and recreational facilities. The quality of tourist facilities and services should be also assessed.
- Tourism infrastructure facilities should be assessed including transport means (public and private), public transport facilities (if any), walking pathways, cycling infrastructure (if any), tour and travel services, public toilets, and all other mandatory services required by tourism industry.
- Based on an integrated approach, all kinds of tourist projects or activities in the local area should be studied. This includes all existing and planned tourist projects.
- All impacts related to tourism activities and tourist projects (positive and negative) on local community and local area should be analyzed and assessed. These include all related social, economic and environmental impacts (containing both current and future predicted impacts).
- The tourism capacity of the local area should be also assessed and measured in order to control tourism development of the area.
- The connectivity between tourism activities and attractions within the local area and its surrounding should be also considered in this analysis.
- This analysis should include projections for the scale and type of development according to the local area carrying capacity and opportunities.

Land-use, existing building and infrastructure analysis

- Land-use analysis and assessment should be carried out to define all aspects related to land-use planning in the area including existing land-use patterns, distribution of buildings and land plots, architectural forms, and buildings condition. This kind of analysis is a main step in spatial planning in order to develop practical solutions in

any area, measure its land-use efficiency and address the spatial impacts within its community.

- This analysis should define and zone all historical landmarks, cultural values, city centers, commercial hubs, and local sensitive areas.
- Assessment of infrastructure networks and facilities should be carried out to measure the local efficiency and connectivity, and also to define the deficiencies in the community infrastructure.
- Mapping of existing land-use and infrastructure networks and its facilities is very essential step in local planning which is considered as a practical guiding tool for developing sustainable planning solutions.

Transport and parking analysis

- Road networks and transport infrastructure should be carefully studied and assessed in the local area in order to measure the transport efficiency, connectivity and accessibility in the area.
- The transport analysis should contain also the assessment of car parking infrastructure including the availability of parking areas (private and public) and the projections needed for parking. It should include also assessing the efficiency of the existing design of parking lots alongside the main streets and in the open parking areas.
- In this analysis, any kind of potential deficiencies in transport and parking field should be clearly addressed in order to provide sustainable and efficient solutions in the design of the local plan.
- There should be also an assessment for the existing public transport and public transport facilities (if any), walking pathways, and cycling infrastructure (if any).

Energy and water use assessment

- Energy and water use assessment is very necessary in local planning in order to identify the community consumption of these two services and organize the future local demand of water and electricity.
- The assessment study should define the sources of electricity and water used in the area and the community's consumption practices in order to measure the efficiency in water and electricity usage.
- It should provide recommendations for enhancing the efficiency measures that should be integrated in the local plan as well as in the local development regulations.
- It should define also the local opportunities in using renewable energy sources such as solar and wind energies.

Ecological assessment

- Addressing sensitive ecological areas and natural habitats that are possibly needed to be protected is very important in local planning.
- Assessing the green-cover and the natural landscapes of the local area is also very important in order to plan and design a sustainable and livable community.
- Such ecological zones and ecological features should be clearly marked in the study to be integrated later on in the local plan.

- This assessment should also address the possible potential impacts of current and future development practices in the ecological features of the local area.
- It should provide recommendations to enhance the ecological features. It should provide also protection measures for the conservation of natural environment and define the ecological sensitive zones that are needed be protected.

Flood risk assessment

- A flood risk assessment should be carried out for the local area in order to identify the various types of risk related to flooding and natural phenomena events.
- It should address also flooding consequences and flooding chances related to climate change.
- It should address flooding zones and risk levels within the local area (mapping of low, moderate and high-risk levels is essential). It should consider the existing flood protection measures in the area (if any).
- It should consider the knowledge of local community on flooding consequences.
- The flood risk assessment should provide recommendations and protection measures for the local area that are needed to be considered in the planning and development practices.

Noise and light pollution assessment

- Noise impact assessment should be carried out to determine the source, level and nature of existing sounds and define the noise pollution sensitive areas (such as residential areas, hospitals, schools, tourism attraction, and natural habitats).
- Light impact assessment is also very essential in order to reduce the light pollution in the local area. Unfortunately, Oman is noticed not consider this field which is very important (As an example, light pollution from the street lighting is very obvious in the country).
- This assessment should provide recommendations for noise and light pollution mitigation and protection.
- Renovation and redevelopment of the local area should consider noise and light pollution sensitivity which could affect also the planning practices and the building locations and orientations as well as the building materials used.
- In general, all types of pollution should be assessed according to the needs of the local area including air pollution and land contamination.

Safety and security assessment

- Although Oman is a safe country in general, safety and security is an essential component in tourism industry. Thus, there should be some sort of safety and security analysis in local planning especially in areas promoted for tourism industry or areas having high crime rates.
- This analysis could be carried out based on a field study and assessing the local security data that could be collected from the security authorities such as from Royal Oman Police.

- The output of this analysis should be integrated in the mapping of the current conditions of the area, and any kind of hot zones in this field should be clearly defined in order to provide solutions and protection measures.

3. Planning for Spatial Sustainability

Inclusiveness

- The local plan should be an inclusive plan in order to promote spatial sustainability. It should consider for example; land-uses, transport infrastructure, building practices, utilities, landscapes, ecology, pollution control and flood risk management. It should consider also the local economy and tourism developments and its practices in the area.
- Based on an integrated approach, it should consider all planning and development practices and it should provide a set of regulations and standards to control the development in the local area in a sustainable direction.
- It should consider also the surrounding areas to maintain a state of connectivity and harmony (according to LEED V4 edition, the plan should consider at least the development in a buffer zone of 800 meters from the local site in order to be sustainable).

Land-use enhancement

- Based on the land-use analysis of the local area, there should be a zoning plan that identifies all types and conditions of land-use such as residential districts, economic districts, cultural values, historical areas and buildings, provisions of roads and pathways, open and public spaces, infrastructure, etc.
- Based on this zoning plan, local spaces could be divided into several clusters for the purpose of redesigning the whole area in a sustainable direction by taking into account all types of existing development as well as future planned development.
- Based on the output of land-use enhancement; renovation, restoration, and re-organization of land-uses are expected in some areas. Displacing and relocating local people and local activities are also expected in areas that have spatial issues.
- Designing of public spaces and landscapes is very important. Based on the scale of local community, there should be for example sufficient children playgrounds, open spaces, and recreational and sport facilities.
- Expropriation of some buildings and land plots is expected for the enhancement of public infrastructure and community services or for the purpose of re-planning local places in a sustainable direction.
- The land-use enhancement should take into consideration the local identity of the area, building maximum heights, architectural forms and styles, building colors, topography, and all community values.

Transport infrastructure enhancement (including pedestrian and cyclist infrastructure)

- The local road network should be enhanced and optimized in order to; maintain sufficient provisions for the traffic flow, enhance the accessibility and connectivity in the area, reduce the physical separation of local spaces, reduce the length of trips,

insure the easy access to jobs, business areas and commercial hubs, and ensure the overall safety and sustainability of road infrastructure.

- Required capacity and location of local parking should be also considered in transport infrastructure enhancement. The local plan should ensure the efficient utilization of parking spaces (providing underground and multistory parking spaces should be considered in the residential and commercial areas that have high urban densities). Moreover, the location of the parking lots should be wisely planned and measured in order to be accessible within short walking distances.
- Providing of sustainable transport alternatives is very important in local planning which include pedestrian, cyclist and public transport infrastructure that are required to reduce the need of vehicular travel and enhance the outdoor comfort in the local area.
- Pedestrian and cyclist infrastructure should be wisely planned within the local area. Also, the related networks and facilities should be efficient, connected and integrated in order to promote sustainability.
- Although the attention to public transport field has recently started in Oman, the local plan should consider also the prospected location of future public transport nodes that have to be accessible within short walking distances (according to BREEM, the walking distance to public transport should not be more than 650 meters in urban areas).

Utilities

- The local plan should take into consideration utility services and networks (such as water, electricity and sewerage networks).
- The provisions required for utility services should be included in the design of road network.
- Planning and designing utility services should take an integrated and sustainable approach in order to deal with the physical issues and constrains and also reduce the physical conflict within utility and infrastructure networks in the local area.
- The local plan should contain detailed geographic information for utilities networks to guide development practices and support decision making.

Housing provisions

- The housing provisions should reflect, more or less, the local community needs and its requirements including size and type of housing units.
- Enhancing residential areas with community facilities and services is very essential to make sustainability within local communities. This may include safe and well-served streets, open spaces, children playgrounds, attractive landscapes, sport and recreational spaces, enough parking lots, cyclist and pedestrian pathways.
- Providing affordable residences and subsidized housing options is going to enhance the stability of local people and attract more local occupants. For example, instead of distributing new land plots for people, the country could re-develop old districts in a sustainable direction and offer more residential units for local people with some subsidies and incentives.

Sustainable building practices

- Sustainable building practices should be considered in the local plan. This should include both superstructure and infrastructure development to enhance the environmental efficiency of the local area. Sustainable building is a wide innovated field which deals with building designs, construction materials, use of local materials, buildings equipment, and provides more innovated methods to enhance buildings efficiency.
- Any kind of recommended sustainable building measures for the local area should be integrated with its development regulations.

Flood risk management

- Based on the output information of the suggested flood risk assessment, there should be sufficient protection and mitigation measures provided to minimize the risk related to rain and storm water flooding in the local area. The design of the flood management system should take into consideration the level of risk and the mitigation requirements and recommendations.
- Moreover, it is important to provide sufficient drainage infrastructure to drain the surface water in the local area during rainy seasons.
- In general, the sustainability of flood management and drainage system should be considered in the local plan (see for example *SuDS Manual C753* for more information about sustainable drainage design [CIRIA, 2015]).

Ecology and greenspace enhancement

- Ecological value and green cover should be maximized in the local area (protecting and improving some local natural spaces could be considered).
- Green cover should be also considered in the local landscapes.
- The local plan should promote planting native trees and species (for example, BREEM stated that at least 60% of the plants should be native species).
- Based on the condition and scale of local area, size and location of green cover should be measured and provided in order to maintain healthier environment (a strategy should be maintained to enhance local ecology and green cover).
- Due to the shortage of water resources in the country, treated sewerage water could be used for irrigating the natural green cover within local areas.

Pollution control (gas emissions, and noise and light pollution control)

- In order to provide a healthy micro-climate, sources of pollution should be measured, controlled and minimized. The local plan should provide regulation for controlling the sources and types of pollution.
- Reduction of CO₂ and other greenhouse gas emissions should be considered (through for example; enhancing the use of efficient materials in buildings and sustainable non-motorized choices of transport such as walking and cycling, and also maximizing the natural green cover in the local area).

- Noise control measures should be considered in the development of local area. Usage of construction materials that minimize the transmission of noise into buildings is very essential in areas that have noise pollution such as in buildings close to the main streets.
- For light pollution, the design of street lighting should be efficient to minimize light pollution. The design of lighting should also limit the upward light transmission.

4. Planning for Tourism Sustainability

Considerations related to tourism

- The local plan should include a special and integrated part for the sustainability of tourism activities and tourism development in the local area.
- This part should include all of the local activities, attractions, values and projects related to tourism industry.
- It should include also the influence of tourism activities in the local transport and infrastructure networks and facilities including parking, pedestrian and cycling infrastructure.
- Based on assessing the carrying capacities related to tourism industry (social, economic and environmental carrying capacities), the size, type and location of tourism projects and activities should be planned in a sustainable direction in the local area. This step is very essential to maintain a balanced development and avoid transforming the area into a node for mass tourism.
- The plan should provide a vision to distribute tourism activities and services in order to control the densities of tourists (local and international) in a way not affecting the local community negatively. It should enable also the local community to get benefit from tourism sector through creating investment and business chances for local people within their limits and capabilities and make some control on large-scale businesses and tourism activities.
- The plan should zone the local places and districts according to the tourism sensitivity of the area. There should be some sort of zoning drawings demonstrating the tourism sensitivity level of each place in the local area and the precautions required to be considered in each area or level.
- In the zones which have high tourism sensitivity level, the enhancement of the public places, landscapes and open spaces should be highly considered in the local plan. The improvement of these places should take into account the density of international and local tourists as well as the density of local people.
- In addition, there should be some quality standards to improve the quality of buildings and infrastructure and also improve the quality of services and business activities such as cafés, restaurants, hotels and shops.
- There should be some sort of mechanisms to connect touristic places within the local area as well as with the surrounding areas, for example providing special walking pathways and cycling lanes that are well-served and facilitated.
- There should be also some mechanisms to direct the movement of tourists within the local area in order to avoid the negative impacts on the local community. For instance, providing some tourism signs to guide tourists.

- There should be some spatial privacy to the residential clusters to reduce the negative impacts of tourism and provide more comfort to local people.
- There should be some safety and security mechanism to protect tourists and local people in these areas based on the percentage of crime and misdemeanors cases. This may include installing monitoring cameras and providing security patrols.

7.4. Conclusion of Chapter Seven

In a short clarification, the following points reflect to some extent what is concluded from this chapter:

- From what was mentioned earlier in section 7.1 that tourism industry in Oman is still developing and there is a governmental orientation to concentrate more on the tourism sector as one of the sectors that could support the national economy. There is also orientation to increase the number of international tourists from around 2 million/year as in 2016 to around 11 million/year by the year 2040 and achieve a 6% direct tourism contribution to the GDP.
- It is concluded that some areas require sustainable local plans to deal with their unique spatial conditions such as the areas that have high sensitivity to tourism industry.
- From considering and overviewing Mutrah old city as an example on this type of areas, it is obvious that this city should have a sustainable local plan in order to deal with its spatial conditions and issues. The area is poised for a massive tourism development at the time that it suffers from the various types of issues related to its spatial form.
- It is concluded also, sustainable local plans that deal with spatial and tourism development should be more integrated and inclusive in order to insure the spatial sustainability of the local areas, the sustainability of local communities and the sustainability of tourism activities at the same time. This could not be achieved without analyzing and assessing the local conditions and considering the deferent dimensions and elements of sustainability.

In general, planning and development of sustainable communities require high attention, concern and combination of efforts especially if the local areas have unique social, economic, environmental and spatial conditions. The variations in the characteristics between local communities could make the mission of the national and regional levels of spatial planning more difficult to maintain common sustainable plans.

8. Conclusion and Future Recommendations

This is the last chapter of the thesis. It tries to provide an overall conclusion and give a clear answer for these two parts of the research question (*Is spatial planning system in Oman sustainable? What are the requirements to create sustainable communities?*). It tries also to overview some of the lessons learned from this research and provide some recommendations for future works related to the field of study.

8.1. Oman as a Developing Country

From what was discussed in chapter three, it is clear that Oman is a long-standing country and has its own historical identity. Although the modern development in Oman has started somehow late in comparison to its surrounding countries, it is considered as one of the developing areas that have unique potentials and features which enable it to achieve a high global position in the future. The following table gives short summary about the general characteristics of the country.

Table 8.1: The general characteristics of Oman

<i>Population and Society</i>	The population of Omani nationals is around 2.3 million and the Omani society is a conservative-oriented Islamic society enjoying some ethical, ideological and religious tolerance.
<i>Governance System</i>	Oman governance system is a monarchy system having a semi-centralized government located in the capital Muscat, and the Sultan represents the head of the government and has the absolute power.
<i>Geography</i>	Oman is located in the south-eastern part of the Arabian Peninsula. It has a total area of 309.5 km ² and a stretched coastline of more than 3000 km. Its geography consists of plains, natural bays and valleys, oases, mountains (15% of the total area), and deserts and sand dunes (82% of the total area).
<i>Climate</i>	Oman is located in a warm and semi-arid region. Winter average temperature ranges from 15°C to 25°C and summer average temperature is ranging from 25°C to 45°C. In addition, the annual rainfall precipitation is very low in most of the cities (not exceeding 100 mm in average).

Administrative development

As it was extracted from the history, Oman was suffering from the internal political instability especially in the late 19th century and the first three quarters of the 20th century due to the successive internal conflicts, the dominating regimes, and the foreign intervention in the country's internal affairs. The political stability and the development of the modern government in Oman has only started since the 7th decade of the last century. From that time there has been a continuous improvement in the administrative

and institutional system of the government. With regards to the planning field, there is a continuous upgrade in the planning institutions, from small planning departments in the 1970s to current supreme and ministerial planning authorities. There is currently a supreme council for planning (SCP), a ministry for housing and land-use affairs (MoH), a ministry for environment (MECA), a ministry for tourism (MoT) and other planning and development authorities. Although the government structure has passed through several substantial changes in the last four decades, as it is clarified in Chapter Four, this indicates the continuous pursuit of Oman to upgrade its administrative system.

Economic development

In parallel to the deteriorating political situations and the internal conflicts for almost a century prior 1970, Oman had suffered from the worst economic conditions. The actual dramatic economic growth in the country started only after 1970. The country investments in Oil sector have played a major role in changing and improving its economic situation which until these days has a great share in the country GDP.

Nowadays, it can be noticed that there is a great economic development in Oman after more than 45 years of continuous efforts. In addition, there is a continuous increase in Oman’s GDP, as it is demonstrated in Figure 8.1 which shows the country GDP from 2007 to 2015. Although there is some fluctuation in the GDP due to the rises and drops of oil prices, there is some stability and steady increase in the share of non-petroleum activities. This is a good indication for Oman to invest more in the non-petroleum sectors in order to achieve an overall economic stability in the near future.

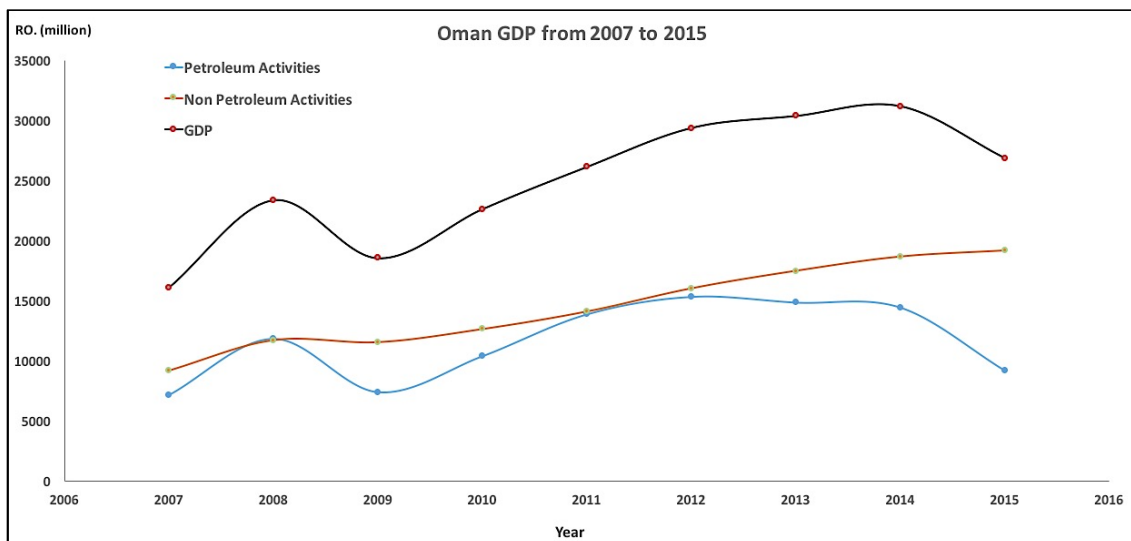


Figure 8.1: Oman GDP and the contribution of petroleum and non-petroleum products 2007- 2015 (author’s own chart based on collected data).

Social development

Simultaneously, the social conditions were not in a better situation prior 1970. There was segregation and conflict in the Omani society during that time. The repercussions of the political, economic and social conditions had a great impact on the Omani society in particular and made from it a tribal semi-retroactive society which took a long period of time after 1970 to be rehabilitated as a modern civil society. In the field of education, there is a dramatic improvement. From two or three schools in 1970, there are currently more than 1640 schools and 65 higher education institutions. During the previous four decades, Oman society has shifted from a semi-illiterate society to a well-educated one. There is also a great improvement in the field of public health. From one hospital in 1970, there are currently more than 250 public health establishments which provide free health services to the local people. Oman has also paid attention to providing some social protection measures and allocates around 2% from the government's budget for this purpose.

Spatial development

Since 1970, one of Oman main concerns is providing the essential infrastructure networks and services to all communities. Nowadays, there is a great achievement in this sector. Infrastructure development costs the country a considerable part of its revenues for almost half a century. Moreover, in parallel to the high economic growth and the improvement of living standard, there is a rapid development in the spatial field in all Omani cities which is characterized somehow with the horizontal expansion. Although there are some issues related to the land-use and spatial forms, the country has currently large modern urban structures which are considered as valuable national wealth.

For a simple representation, the following figure shows the development concerns of Oman during the past decades since 1970.



Figure 8.2: A simple chart representing the main concerns of the government during the development phases since 1970 (author's own work).

8.2. Is Spatial Planning System in Oman Sustainable?

In order to provide a convincing answer for this question and make the picture of spatial planning in relation to sustainability more visible, it is very essential first to highlight and clarify some of the main concluded points related to spatial planning governance, built and natural environments, and social and economic dimensions related to sustainability.

Spatial planning governance

- Spatial planning did not get the necessary attention from the government during the last four decades and therefore, the development of spatial planning field suffered a lot from the blurred vision, the administrative confusion, and the frequent institutional changes.
- The establishment of Supreme Council for Planning SCP, is considered as one of the great steps from the government in the planning field. This represents that Oman has recently realized the importance of proper planning and the integration of planning dimensions (spatial, social, economic, and environmental) in order to maintain sustainable development. However, the image of spatial planning is not yet clear due to the existing conflict in duties between authorities and the scarcity of effective mechanisms in the joint governmental work related to this field.
- Because of the previous low concentration on physical planning field, there is a lack of legal instruments, strategies, standards that regulate the physical part of spatial planning. These are considered as essential tools for the proper planning. To an extent, the preparation of current national spatial strategy represents also a good step from the government in order to improve the condition of spatial planning, however, it may suffer from the uneven influences from some public sectors.
- There is some kind of delay and a slow-motion process in the preparation of spatial plans and studies which make them out of date very fast in parallel to the accelerated development and the high pressure of the socio-economic demands. For example, the mandate for preparing SCTP guidelines was issued in 1989 and the final document came into sight in 2003 after more than ten years of working process. In addition, the mandate of ONSS was issued in 2003 and until this year (2018) the project is still running and may requires some additional years of preparation.
- The possible lack of transparency, possible lack of accountability, possible influence of private interests, low level of public participation, the traditional way of coordination and collaboration between planning actors, and absence of information unity, as they are noticed from the previous governmental practices in spatial planning, are considered within the main obstacles and challenges in front of spatial planning to maintain sustainability.
- In the context of accelerated uncontrolled planning processes, most of the areas in Oman have been subjected to some sort of scattered and unbalanced planning in the absence of the effective standards and legal instruments as well as the absence of the various levels of spatial plans (national, regional, municipal, and

local) that take into account the best practices of modern standards. This issue represents an enormous challenge for the country in order to mitigate the related urban and regional impacts and direct the path of spatial planning towards sustainability.

- The scarcity of the qualified workforce in the government sectors and the weakness in the governmental collaboration between planning authorities are some of the obvious obstacles related to spatial planning in the previous period. However, the latest governmental efforts give an impression that there is some kind of awareness in the public sectors about the nature of spatial planning in the country and therefore, some actions have been taken such as the Interim Mechanism for Spatial Planning and its related committee to promote the joint work as well as to enhance the participation of communities via deferent channels.

Built and natural environments dimension

- The distribution of land plots to people comes before the planning and distribution of infrastructure. Hence, it is very obvious that infrastructure and transport services are not complete even in the developed areas especially sewerage networks where the relevant development has started very late (the state-owned company '*Haya water*' has officially started distributing sewerage networks and developing related wastewater facilities since 2005). From the other edge, the scattered planning and the wide distribution of land plots create continuous challenge to provide infrastructure to all areas with the limited budgets that utility providers usually have.
- In relation to transport, the construction of roads consumes a considerable share from the public finance each year (> 5%) due to Oman topographic constraints that include a lot of mountains as well as due to the sprawling planning that may offer more road lengths. In addition, it is very obvious that sense of innovation in introducing new technologies and solutions for road construction was almost absent during the last decades where these are necessary to overcome the obstacles and minimize the visual and environmental impacts. Moreover, the concept of developing public transport systems in the country has recently appeared through introducing two new state-owned companies; '*Muasalat*' for developing bus transport system and '*Oman Trains*' for developing rail networks. However, these are still crawling and may take long period of time to be effective (if they are developed successfully).
- Although the development standards are much healthier than the planning ones, urban built environment is characterized by the variation in planning and developing specifications (such as deferent urban densities, urban shapes, and heights, and unbalanced development of areas and public spaces). All of these issues reflect the multiple spatial planning methods which ended up with unbalanced urban and regional structures, overlap between land-uses, loses in agriculture lands, loses in Oman inherited architecture, and significant loses in natural environment and natural landscapes.
- Due to the scarcity of field studies that include topographic, hydrographic and flood studies which should come prior to the preparation of urban and regional

plans, some part of the current plans are noticed to be situated in areas threatened by natural floods.

- Natural environment is considered as the main loser from the current spatial planning practices in Oman. Although there is a ministry responsible for natural environment, the previous spatial planning practices and the wide distribution of residential and industrial plans did not consider natural environment as a main pillar in spatial planning as well as a natural value that has to be protected. The role of the ministry is noticed to be more or less limited to the development side and control the impacts of projects and activities that are highly sensitive to the environment.
- Urban planning and development regulations neglected the important role of the environmental efficiency programs and the use of renewable energy sources which are capable to minimize the environmental impacts of human structures and activities, promote the best utilization of natural resources, and achieve long-term economic savings.
- The practices of traditional solid waste management in Oman are harmful to the environment and human health. Although, the government has recently realized the importance of implementing high quality waste management/disposal system which has already started in some areas, recycling and reuse of solid waste has not took place until now. In addition, the impacts of the old uncontrolled dumpsites pose a considerable threat in front of current spatial planning.

Social dimension

- Oman could be considered as a safe country and the Omani society is a consistent and collaborative society that is distinguished with high social spirit inspired from the cultural heritage that comprises hospitality and religious and ethnical tolerance. This is a good social indicator to maintain social sustainability.
- In addition, most of the rules and laws in Oman promote social and gender equities which are considered as good social sustainability measures.
- Moreover, Oman has young population as well as high population growth, which are, from one side, essential elements for building nations. From the other side, these could create challenges to the country in order to provide all the needs of next generations and secure a decent life for everyone in the presence of economic fluctuations. These also represent a true challenge in front of spatial planning which has rules encouraging gender equity and linking distribution of land plots with individuals.
- In relation to the distribution of essential services such as education, healthcare and social protection measures, Oman has paid great efforts and most of these services are well distributed between regions. However, it is very difficult to talk about the quality of these services since they require additional detail studies. In general, the good distribution of education and healthcare facilities as well as all other necessary services, encourages regional development and may results in reducing the load from the main cities especially the capital Muscat.

Economic dimension

- There are several issues arising in the economic direction. For example, petroleum activities have still great influence in the GDP of the country (46% of GDP as in 2014) after more than 45 years of development, which reflects the narrow economic visions and the lack of innovation and creativity in this field. In addition, the government depends mainly on oil and gas revenues for its public finance (for example, they represented 84% in 2014), and this clarifies the low investments of the government in the other sectors. As a result, this may affect the future financial power of the government and creates continuous fluctuation on its annual revenues. Hence, excessive dependence on depleted resources could be one of the weak points in front of maintaining a good level of spatial sustainability.
- There is a state of imbalance in the government expenses between sectors (for example, education, health, and social protection sectors) and between the items of expenditure (such as the current expenses, investments, and subsidies). For example, the current expenses, that are mainly administrative and public consumptive expenses represent more than 60% of the public finance whereas the investment and development expenses represent only around 20%, and this state of imbalance creates a question mark about the sustainability of public finance in the presence of the high financial deficit of the country since 2015.
- On the other hand, the actual government investments in agriculture, fisheries, environment protection, industry (outside oil and gas), and service production sectors are not exceeding 2% from the government total expenses (as it was calculated from 2013, 2014, and 2015 public finance statistics), whereas most of the government investment expenses are directed to oil and gas production as well as developing infrastructure sectors especially road networks.

Although sustainability as a concept has arisen in Oman since more than a decade, which was highlighted from the official documents and speeches, the real understanding and implementation of this concept could be not yet realized in the governmental work which is still dominated by some traditional processes and practices. Sustainable planning is more or less a planning approach that encourages the best utilization of available resources, potentials, and capabilities to secure a decent life for people and insure the safety of natural environment at the same time. Therefore, as can be extracted from all of the previous concluded points that spatial planning system in Oman resides between the traditional planning and the early stages of sustainability. However, the latest positive governmental efforts indicate that the country is able to step forwards and overcome the difficulties and challenges facing spatial planning and achieve an acceptable level of spatial sustainability in the future.

8.3. What is Needed to Create Sustainable Communities in Oman?

Although the answer of this question could be extracted from the two sets of suggested guidelines in section 6.4 and section 7.3 that present detail information about the areas needed to be improved in spatial planning, the following main few points summarize Oman requirements to create sustainable communities:

A) Establishing a connected and integrated governance system for spatial planning

The government performance in spatial planning should be reassessed to identify the voids and areas of deficit in this system. This may require a supreme decision and a high collaboration between SCP and Council of Ministers to restructure and reorganize the responsibilities and duties between planning authorities. Moving from government-base planning or segregated authority-base planning to more well-defined and integrated governance planning system is very important to promote spatial sustainability. This system should provide mechanisms to connect and integrate the planning sectors and support the joint-government work. It should organize and sort the planning processes and practices into deferent levels (national, regional, municipal and local levels). It should organize and define the roles to be played by authorities or planning stakeholders among all of these levels. It should enhance the use of e-government and new technologies in planning to speed up the planning processes and provide a strong base for information sharing. It should also enhance the participation of local communities in the planning processes.

B) Developing a comprehensive legal framework that is supported with the sufficient regulation and legislation instruments

As it was discussed and mentioned earlier in this research, the legal framework that supports spatial planning in Oman is insufficient. Therefore, it is very essential to provide a complete set of laws, regulations, standards and legal instruments to support the planning processes. The planning authorities in Oman should collaborate to develop a comprehensive and integrated legal framework that promotes economic, social and environmental feasibility and sustainability, and controls the planning processes in the best manner. This framework should provide various types of legal instruments to serve all levels of planning. In addition, building and construction regulations and standards should be also updated and optimized in order to promote spatial sustainability.

C) Providing and developing the essential spatial plans and studies among all levels of planning

Since there is a huge lack in this field, sufficient spatial plans and studies should be provided to guide sustainable planning (for example; land-use, infrastructure, transport, environmental, zoning, and related socio-economic plans and studies). Although the running ONSS project is predicted to provide some plans and strategies at both national and regional levels, the inclusiveness of sustainability measures should be ensured in the expected outputs prior putting these plans and strategies into practice. In addition, a high attention and concentration should be given to the municipal and local levels since these usually contain more detail plans which in turn are very necessary to maintain sustainable communities.

D) Planning according to the communities' needs and restructuring lands distribution and management methods

This is one of the most important steps that are needed to be taken in order to create more liveable and sustainable communities. The planning style and the distribution of lands in Oman should be more linked with the requirements and needs of communities, and according to scientific and practical studies that take into account the population growth

and the actual requirements of housing and community services. In addition, land-use planning should take more compact or semi-compact style in order to reduce the spatial sprawl, reduce the loss of natural lands, get the maximum benefit from transport and infrastructure networks, maintain more connected and liveable communities, and provide more affordable housing options. Moreover, the management system of lands should be revised in order to control the spatial expansion and reduce the undeveloped lands within cities and communities that are well-served with infrastructure services. This will enhance the connectivity and efficiency of communities.

E) Planning and developing public spaces and public facilities in a proper and sustainable manner

Planning and development of public places should have more concern and attention from the government in order to promote sustainability within local communities (including local open spaces, children playgrounds, recreational and sport areas, and all public facilities). The local areas should be enhanced with connected and efficient pedestrian and cyclist networks and facilities. The development of local streets should be more integrated and should enhance the liveability, connectivity and efficiency of communities. There should be also a balanced distribution of community services and economic activities.

F) Considering the natural environment, natural habitats and the environmental efficiency elements of built environment as a main pillar in spatial planning

Planning and development of sustainable communities should consider the best integration between natural and built environments. Special concern should be given to the areas that have more environmental sensitivity as well as the agriculture lands. There should be more environmental protection measures and environmental efficiency practices within communities. Green spaces and green cover should be highly considered in planning local areas. In general, the environment sector in Oman should have more financial, technical and administrative support in order to act in a sustainable direction.

G) Monitoring and assessing the path of spatial planning

The continuous assessment and monitoring is very important in order to measure the performance of spatial planning system and insure its effectiveness. Therefore, there should be some effective related mechanisms among all levels of planning to follow-up the progress of spatial planning processes and practices, insure their sustainability, and provide early intervention to mitigate and resolve any sort of arising spatial impacts and issues.

8.4. Lessons Learned from this Research and Future Recommendations

This research could be considered as one of the scientific entrances in spatial planning field which tries to present and overview a complete experience for a specific planning situation in a country having a centralized government system, high urban and economic expansion, high population growth, and a scarcity of spatial plans and related legal instruments. Although the suggested guidelines that are presented in section 6.4 and section 7.3 are more or less directed to improve the planning situation in Oman, these

suggestions represent in their entirety common keys in the field of spatial sustainability which can be used in areas having similar conditions. In general, the main lessons learned from this research are:

- The scientific research in spatial and land-use planning field is a wide and opened area and cannot be restricted to a specific type of studies or isolated from the other planning fields due to the high interconnection between them (for example; fiscal, economic, social, and environmental fields).
- There is multiplicity in the planning styles which reflect the differences in the local conditions between countries and areas. For example, OECD organization clarified that there are around 229 unique forms of spatial and land-use plans distributed between national and regional levels in the OECD area which in turn reflect the various planning styles used (OECD, 2017b).
- The political and economic orientations of countries and areas have great influences on shaping the path of spatial planning and spatial development. In addition, whenever there is political and economic stability, spatial planning takes a more balanced and systematic path.
- The high level of education and technical experience plays a significant role in directing spatial planning towards sustainability. The scarcity of technical experiences could be considered as one of the main obstacles in front of maintaining sustainability in any region.
- Achieving a decent level of spatial sustainability requires the collaboration of efforts from the planning sectors based on pre-prepared policies and strategies that are feasible and able to be implemented, not based just on ambitions that have low practical credibility.

Finally, as some recommendations for future works, Oman should give more attention to spatial studies and scientific research. In the official direction, it should emphasize on preparing the necessary official studies in the various planning dimensions. In addition, it should give more concern to raise the governmental technical experiences and knowledge in sustainable planning and transform this thinking into practical tools where the country is suffering a lot from the lack of technical experiences in the planning fields. In the scientific direction, Oman should invest much more in the scientific research because its overall expenses are very low in this area.

In addition, due to the scarcity of spatial studies in general, there should be more concentration from the specialized scientific research councils, universities and academic institutions on the field of spatial planning because of its high importance and its direct relation to human activities.

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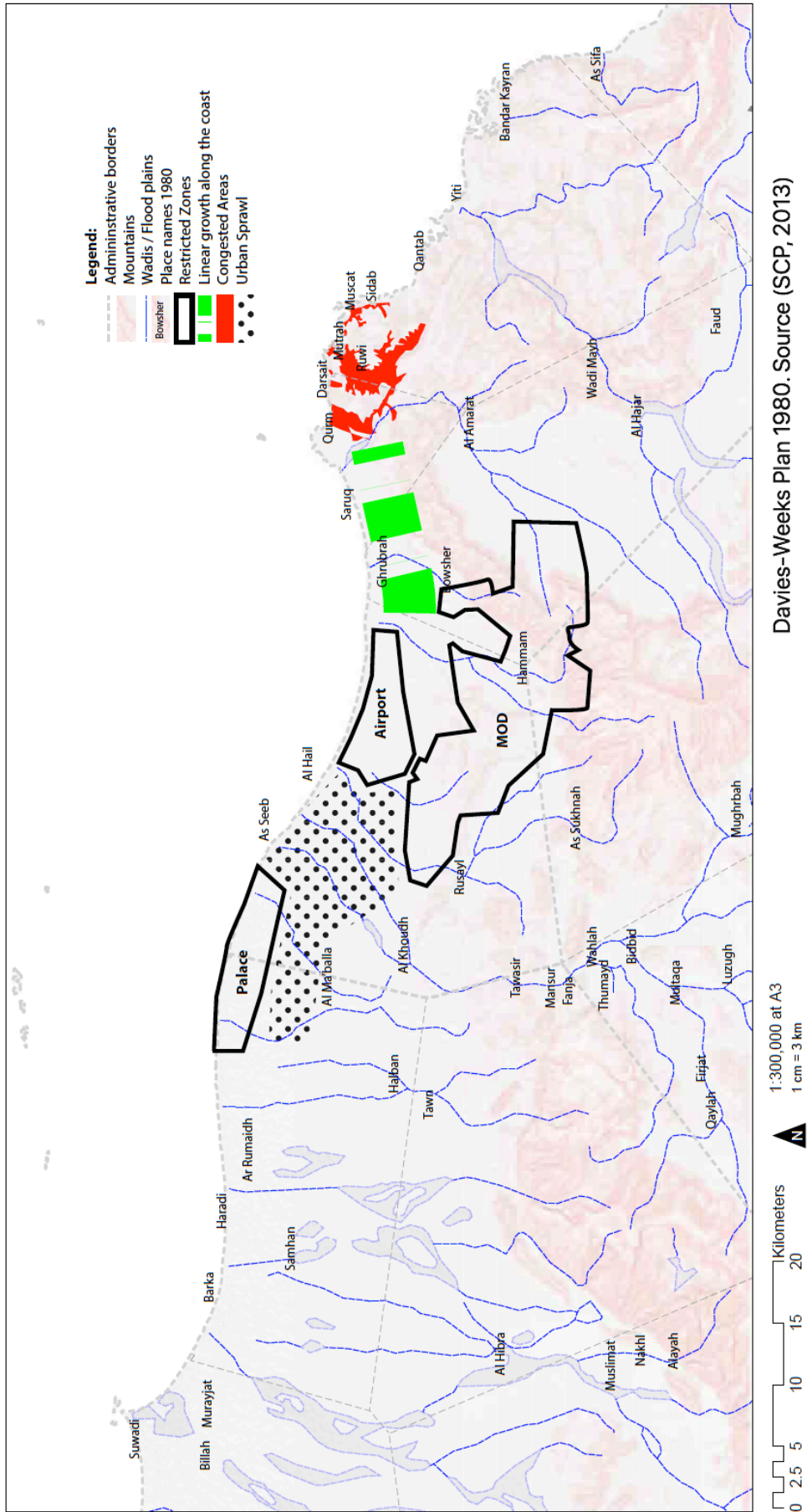
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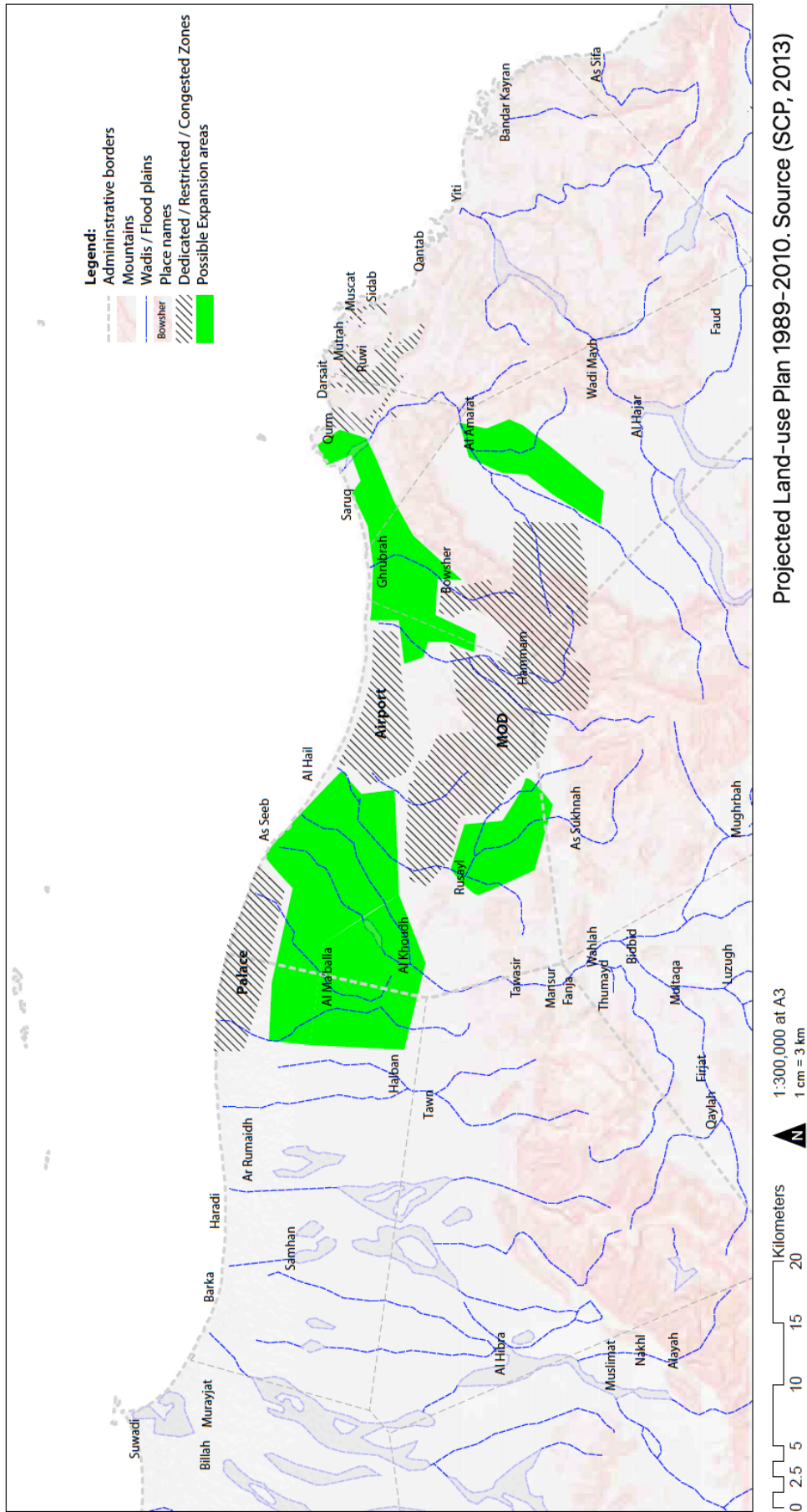
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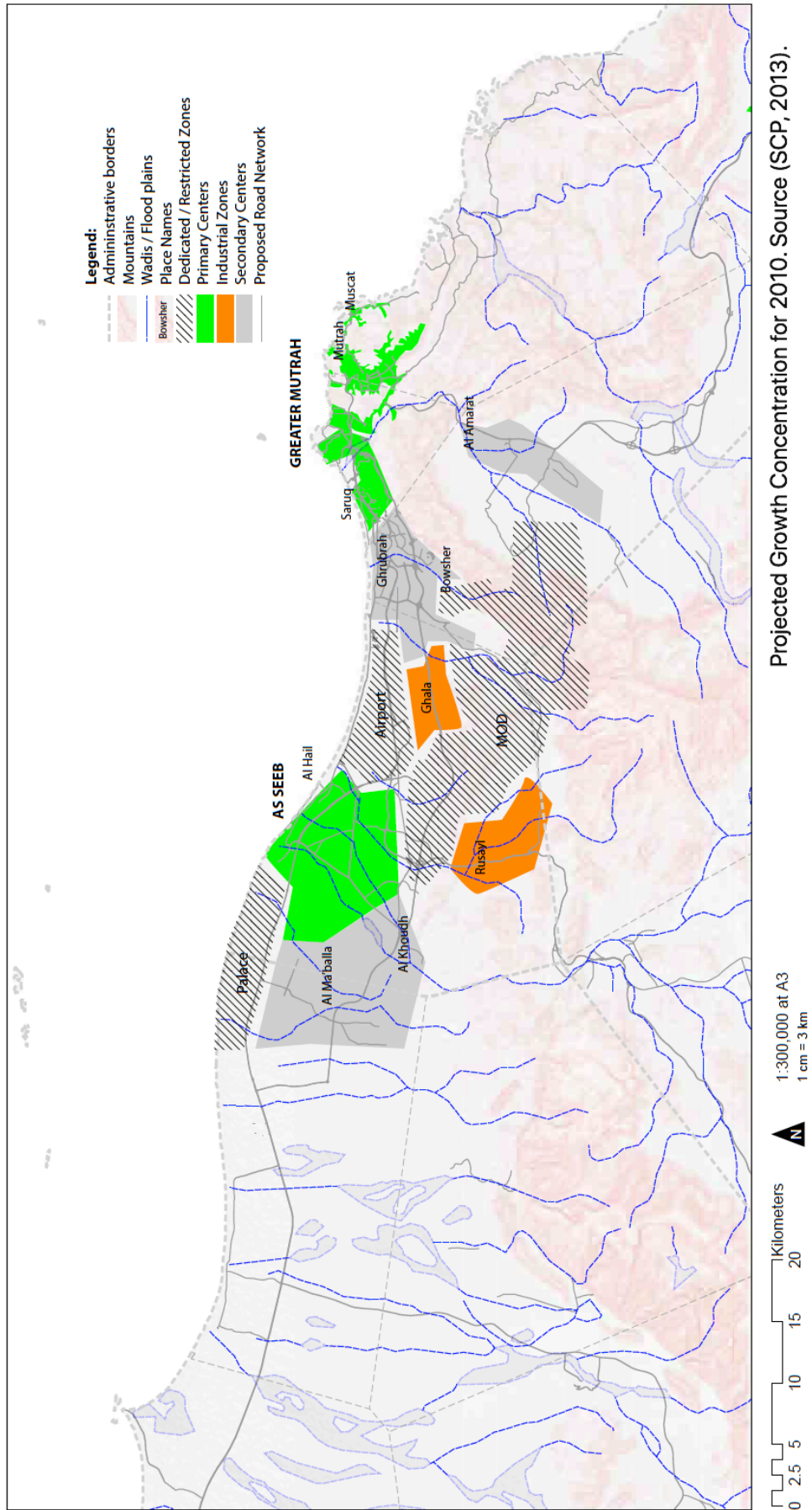
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Appendix (A)



Davies-Weeks Plan 1980. Source (SCP, 2013)





Appendix (B)

List of Plans and Studies Related to Spatial and Land-use Planning

Note: The source of this list is ONSS report (SCP, 2013)

Mutrah-Ruwi Local Plan, Preliminary Policies, Llewelyn-Davies Weeks for the Ministry of Land Affairs and Municipalities, 1977

Planners Manual Part 2: Standards and Guidelines, Llewelyn-Davies Weeks for the Ministry of Land Affairs and Municipalities, 1979

Development Regulations, Llewelyn-Davies Weeks for the Ministry of and Affairs and Municipalities, 1979

Capital Area Structure Plan, Llewelyn-Davies Weeks, Ministry of Housing, 1982

Qurm Development Area - Al Kuwair South, Ministry of Regional Municipalities and Water Resources, 1983

South Ruwi/Hamriya Improvement Plan, Ministry of Regional Municipalities and Water Resources, 1984

Dhofar Land Use Plan, Initial Zonation (English), Technical Secretariat-Planning Committee for Development and Environment in the Southern Region, Planning Committee for Development and Environment in the Southern Region, 1985

Research about Developing Muscat City - Submitted to Development Committee of Muscat, Ministry of Regional Municipalities and Water Resources, 1985

Sohar Structure Plan (English), WS Atkins International and Maunsell Consultants Ltd, Diwan of Royal Court, 1986

Salalah Plain: Land Use Plan - Integrated Rural Development for the Jerbeeb (English), COWI Consulting Engineers and Planners AS, Planning Committee for Development and Environment in the Southern Region, 1986

Draft Development Guidelines for the Southern Region (English), Technical Secretariat-Planning Committee for Development and Environment in the Southern Region, Planning Committee for Development and Environment in the Southern Region, 1986

Proposals for a System of Nature Conservation Areas (English), IUCN, Diwan of Royal Court, 1986

Oman Coastal Zone Management Plan-Greater Capital Area (English), IUCN, Ministry of Commerce and Industry, 1986

Capital Area Transport Study - Executive Summary (English), Dar Al-Handasah Consultants (Shair & Partners), Diwan of Royal Court, 1987

Oman Coastal Zone Management Plan: Quriyat to Ras al Hadd (English), IUCN, Ministry of Commerce and Industry, 1988

Coastal Zone Management Plan, Dhofar (Vol 2: Resources Atlas) (English), IUCN, Ministry of Commerce and Industry, 1989

Muscat Regional Plan (English), Weidleplan and Muamir, Ministry of Housing, 1989

Regional Development Plan for the Southern Region, Planning Committee for Development and Environment in the Southern Region, 1989

Economic Development Prospects for Southern Region (Industry - Mining - Tourism), 1989

Ibra Town Structure Plan, Ministry of Housing, 1989

Coastal Zone Management Plan-Dhofar (English), IUCN, Ministry of Commerce and Industry, 1989

Muscat Area Structure Plan (English), Weidleplan and Muamir, Ministry of Housing, 1990

Musandam Town Planning, Ministry of Housing, 1990

Subregional Land Use Plans for the Southern Region (English), WS Atkins International, Planning Committee for Development and Environment for the Southern Region, Ministry of Tourism, 1990

Detailed Investigation for Development of up to 1000 ha of Irrigated Land: Nejd Region, N/A, Ministry of Agriculture and Fisheries, 1990

Musandam Regional Plan (English), Weidleplan and Muamir, Ministry of Housing, 1990

Sur Town Structure Plan (English), COWI Consulting Engineers and Planners AS, Ministry of Housing, 1991

Batinah Regional Plan, Ministry of Housing, 1991

Rustaq Structure Plan, Ministry of Housing, 1991

Musandam Regional Plan, Ministry of Housing, 1991

Oman Coastal Zone Management Plan: Musandam (English), IUCN, Ministry of Commerce and Industry, 1991

Regional Plan for Al Wusta Region, Technical Secretariat for SCTP, 1992

Coastal Zone Management Plan, Final Report, Phase 4, Musandam Oman (English), Dr. Rodney V. Salm, IUCN, Ministry of Tourism, 1992

Development Project for Rustaq City (English, Arabic), N/A, Ministry of Regional Municipalities and Water Resources, 1993

Planning of Al Maziona Commercial Town, Ministry of Commerce and Industry, 1993

National Strategy to Protect Oman's Environment - Protection of Environment and the Preservation of Natural Resources for Sustainable Development (Arabic), Ministry of Regional Municipalities and Water Resources, 1995

Vision for Developing Economy in Ash Sharqiyah Region (Arabic), N/A, Oman Chamber of Commerce and Industry, 1996

Visions to Promote the Economy Perceptions in Al-Batinah Region, Introduction by Businessmen in the Region (Arabic), N/A, Oman Chamber of Commerce and Industry, 1996

Al Dakhliya Planning Studies (Adam), Ministry of Housing, 1996

Detailed Land Use Study in Jebal Dhofar, SCTP, 1996

Detailed Land Use Study in Jabal Dhofar, Phase 1: Survey of Current Conditions, Final Report, Vol 1: Main Report (English), Travers Morgan, SCTP, 1996

Village Conversion Pre-Feasibility Study-Nakhl (English), Entec Europe Limited, Ministry of Tourism, 1996

Village Conversion Pre-Feasibility Study-Minsifah (English), Entec Europe Limited, Ministry of Tourism, 1996

Village Conversion Pre-Feasibility Study-Muaydin (English), Entec Europe Limited, Ministry of Tourism, 1996

Detailed Land Use Study in Jabal Dhofar, Phase 1: Survey of Current Conditions, Final Report, Vol 2: Technical Appendices AC
(English), Travers Morgan, SCTP, 1996

Detailed Land Use Study in Jabal Dhofar, Phase 2: Policy Options and Proposals, Final Report (English), Travers Morgan, SCTP, 1996

South Hamassa Residential - Commercial Development Land Area/Boundary Surveying & Detailed Land Planning, Ministry of Housing, 1997

Dhahira Planning Studies - Town Centre Plan (Dhank), Ministry of Housing, 1998

Revision of Salalah Structure Plan (1995 – 2015) (English), National Engineering Office, Ministry of Housing, Dhofar Province, 1998

Al Dakhliya Planning Studies (Samail), Ministry of Housing, 1998

Proposal for the Proclamation of an Area of Adh Dhahirah Region as a Projected Area (Adh Dhahirah National Scenic Reserve)
(English), N/A, Ministry of Regional Municipalities and Water Resources, 1998

Dhahira Planning Studies-Town Structure Plan: Dhank, Phase 2: Draft Structure Plan (English), National Engineering Office, Ministry of Housing, 1998

Sohar Industrial Area Master Plan Study, Draft Final Report, Volume 1: Main Report (English), Brown & Root Mid-East LLC, Ministry of National Economy, 1999

Al Dakhliya Planning Studies (Bahla), Ministry of Housing, 1999

Regional Development in the Sultanate of Oman (Current Model) (Arabic), Dr. Rasoul Faraj Al Jabri - Regional Planning Expert,
Ministry of National Economy, 2000

Dakhilya Planning Studies - Town Centre Development Plan (Samail), Ministry of Housing, 2000

Tourism Land Use Plan for the Rhodah Tourism Development Area, Ministry of Tourism, 2000

Aflaj Inventory Project Summary Report (English, Arabic), Directorate General Water Resources Management, Ministry of Regional Municipalities and Water Resources, 2001

Detailed Flood Control Recharge & Drainage Design Study for Salalah Plain - Inception Report (English), Consulting Engineering Services LLC, Office of the Minister of State and Governor of Dhofar, 2002

Final Priority Action Plan for Tourism Development in Oman - Implementation, Priority Areas and Projects (English), Parsons International Limited, Ministry of Commerce and Industry, 2002

Features and Visions-Achievements 2003 (English, Arabic), N/A, Ministry of Regional Municipalities and Water Resources, 2003

Guide to Physical Planning (Arabic), Supreme Committee for Town Planning, 2003

The Detailed Plan of the Study for National Ports Development Strategy Study in the Sultanate of Oman (English), Japan

International Cooperation Agency (JICA) and the Overseas Coastal Area Development Institute of Japan, Ministry of
Transport & Communications, 2004

The Omani Environment over Three Decades (English, Arabic), N/A, Ministry of Environment and Climate Affairs, 2005

Corridor and Alignment Study of Batinah Coastal Road- Volume 2: Drawings (English), Parsons International & Company LLC, Ministry of Transport & Communications, 2005

Nature Reserves in the Sultanate of Oman (English, Arabic), Director General of Nature Conservation, Ministry of Regional Municipalities and Water Resources, 2006

Tourism Land-Use "Al Rodhah" Tourism Development (English), Renardet SA & Partners, Centre of Design and Development and Wimberly Allison Tong and Goo, Ministry of Tourism, 2006

Preparation of the Master Plan for Various Sites: Al Jabal Al Akhdar, Khasab Marina Port at Musandam & Al Khyran, Ministry of Tourism, 2006

National Development Plan (English), CDD, Ministry of Tourism, 2006

Comprehensive Master Plan for the Development of the Coastal Area from Daghmar to Qalhat (English), Khatib & Alami and Partners, SCTP, 2006

Coastal Zone at Salalah, Draft Final Master Plan and Urban Design Concept (English), CDD, Ministry of Tourism, 2006

Salalah Tourism Development (English), Ministry of Tourism, 2006

Sustainable Development Indicators (English, Arabic), Statistical Advisory Committee, Ministry of National Economy, 2006

Duqum Town Master Plan (English), CONSER & Partners, SCTP, 2006

Comprehensive Master Plan for the Development of the Coastal Area from Daghmar to Qalhat, (English), Khatib & Alami
Consultants Engineering Company, SCTP, 2007

North of Al Batinah Master Plan Region 2025, Port of Sohar and Port of Rotterdam, Ministry of Transport & Communications, 2007

Report, Volume 1B (Appendices) - Al Sifah Resort Development - Environmental Impact Assessment (English), Geo-Resources Consultancy, Muriya Tourism Development Company, 2007

Study of Regional Development of Buraimi Governorate (English), WSAtkins, Ministry of National Economy, 2007

Feasibility Study Report- Alignment Study for Link Road Between Al Amirat and A'Rusayl - Nizwa Road (English), Parsons International & Company LLC, SCTP, 2007

Jabal Akhdar Master Plan Drawing, Northern Escarpment (East) (English), Knut Lohrer, Ministry of Tourism, 2007

Jabal Akhdar Master Plan Drawing, Northern Escarpment (West) (English), Knut Lohrer, Ministry of Tourism, 2007

Jabal Akhdar Master Plan Drawing, Hanging Gardens Farming Villages (English), Knut Lohrer, Ministry of Tourism, 2007

Jabal Akhdar Master Plan Drawing, Saih Qatana (English), Knut Lohrer, Ministry of Tourism, 2007

Jabal Akhdar Master Plan Drawing, Sheperds Trail (English), Knut Lohrer, Ministry of Tourism, 2007

Coastal Zone at Salalah, Final Master Plan and Urban Design Concept (English), CDD, Ministry of Tourism, 2007

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Duqm Tourism Zone Project (English), Daewoo Shipbuilding & Marine Engineering Co. Ltd., Ministry of Tourism, 2007

Master Plan: North Batinah Region 2025 - Choosing Wealth, Quality & Diversity - Base Document (English), Port of Sohar, Project Team Port of Rotterdam, Sohar Industrial Port Company, Muscat Branch Office, Ministry of Transport & Communications, 2007

The Environment and the Investment Opportunities in the Tourism Sector in Al Wusta Region (Arabic), Economic Research Service, Oman Chamber of Commerce and Industry, 2008

The Future Industrial Strategy for the Sultanate (Arabic), N/A, Ministry of Commerce and Industry, 2008

Study and Preparation of a Master Plan for the Development of Khawr Al-Batah at Sur, Oman - Final Land Use Strategy Report (English), dar al-handasah shair and partners and Sama Dubai, SCTP, 2008

Aflaj Oman in the World Heritage List (English, Arabic), N/A, Ministry of Regional Municipalities and Water Resources, 2008

Report on the Salvage Archaeological Project at Bandar Jissah, Oman (English), Gregory L. Possehl, PhD - University of Pennsylvania, USA, Ministry of Tourism, 2009

Al-Jabal Al-Akhdar, Land Use Concept and Phase 1 Tourism Projects (English), Knut Lohrer, Ministry of Tourism, 2009

Comprehensive Master Plan for Al Batinah Coastal Area, Phase 1 Final Report: Analysis and Assessment of Study Area (English), HMR Consultants, SCTP, 2010

Market Study for the Proposed Industrial Area at Duqum Town, Al Wusta Region, SCTP, 2010

Local Economic Development Strategy (English), Leading Point Management Advisory Services, Ministry of Regional Municipalities and Water Resources, 2010

Oman Needs Analysis - Action Plan, Ministry of Tourism, 2011

The Study of Social and Economic Dimensions of Tourism Development in Niyaba Al Jabal Al Akhdar (Arabic), SQU Research Group and Ministry of Tourism, Ministry of Tourism, 2011

The Oman Ports' 50 Year Master Plan - Revised Proposal for Services (English), ARUP, Ministry of Transport & Communications, 2011

Mutrah Redevelopment and Masterplan (Stage 2 Reports and Working Papers), NORPLAN A/S, WSP and German University of Technology, Muscat Municipality and Haya Water, 2011.

Comprehensive Master Plan for Al Batinah Coastal Area, HMR Consultants, LEA, Perkins and Will, Supreme Council for Planning, 2013

Study of Muscat by ETH Zurich, Roger Diener et al, editors, ETH Studio Basel, 2013

Research into the rural-urban interface at Fanja, Prof Dr Sonja Nebel, Aurel von Richthofen, editors, in 'Towards sustainable urbanisation patterns in Oman', research project by German University of Technology and Sultan Qaboos University funded by The Research Council of Oman, Muscat 2013.

Curriculum Vitae

Rashid Saleh Muftah Al-Hinai

P.O. Box: 230, P.C: 612, Bahla, Oman

A highly motivated spatial and environmental planner and civil engineer. Capable of leading and working with multidisciplinary team and enjoying a sociable and responsible personality.

PERSONAL DATA:

Gender: Male

Telephone: (+ 968) 99322284

Nationality: Omani

E-mail: althahib@gmail.com
rashidh@omantourism.gov.om

Date of Birth: 12 January 1980

Language: Arabic/English

EDUCATION:

2013-2018 Doctor of Engineering Sciences Candidate, Spatial Planning,
Vienna University of Technology. Austria

2005-2007 MSc. with (Merit) in Environmental Monitoring and Assessment,
Coventry University, UK

1998- 2005 BSc. in Civil Engineering, Sultan Qaboos University, Oman

WORK EXPERIENCE:

Jan 2009 till now: Town Planning Specialist in Ministry of Tourism (Oman)

Dec 2006 to Dec 2008: Project Manager in Al-Oqair Fort Construction Co. (Oman)

PUBLICATION:

Al-hinai, R., Al-Futaisi A., Al-Jamra, A. (2007). "Aspects of Cationic Dye Molecule Adsorption to Palygorskite" Desalination, 214 (1-3): 327-342

Available online at <

<http://www.sciencedirect.com/science/article/pii/S0011916407003724> >

WORKSHOPS AND CONFERENCES:

- Third Global Geo-tourism Conference (Muscat- Oman) 30 Oct -1 Nov 2011
- Second International Conference on Coastal Zone Engineering and Management (Muscat, Oman), 1-3 November 2010
- 4th International Conference on Responsible Tourism (Muscat, Oman) 10-12 October 2010

- Urban Drainage, Sewerage and Irrigation Conference (Muscat, Oman), 26-27 September 2010.
- 9th Gulf Water Conference (Muscat- Oman), 22-25 March 2010.
- Workshop on Awareness and Information System for Environmental Disasters and Crisis in the Gulf Countries (Muscat, Oman), 1-2 February 2010.
- LEED Green Associate Training for Building Design and Construction (Muscat, Oman), 11-12 October 2009.
- National Capacity Building Workshop on Integrated Environmental Assessment and State of the Environment Reporting for Sultanate of Oman (Muscat, Oman), 21-24 June 2009.
- Annual Conference of International Association for Impact Assessment “IAIA’09 – Impact Assessment and Human Well-Being” (Accra, Ghana), 17-22 May 2009.

Capabilities and Skills:

- Reviewing designs, plans and drawings of the projects.
Following up and supervising the existing projects.
- Carrying out quantity surveys and estimating the cost of the projects components
- Reviewing engineering designs, plans and drawings related to tourism complexes and projects based on ministry of tourism guidelines.
- Preparing tender documents for consultancy services related to tourism projects
- Preparing terms of reference and tender documents for environmental and social studies related to tourism projects.
- Carrying out field surveys to identify spatial, environmental and social impact/problems and suggest appropriate solutions or remediation procedure.
- Represent the ministry on technical meetings with investors, clients, consultants and other stakeholders.