

**“The impact of sustainable urban planning in the
redevelopment of the Agriculture Area in Sharjah” –
Khorfakkan**

تأثير التخطيط الحضري المستدام في إعادة تطوير المنطقة الزراعية في
امارة الشارقة - خورفكان

by

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of the requirements for the degree of
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ABSTRACT

Sharjah is one of the seven emirates of the UAE witnessing a massive change in terms of economic growth. Since the formation of the UAE in 1971, the government has developed residential neighborhoods to accommodate the growing needs of Emirati households.

In the cities, it is not an affair of bricks and mortar to improve the standards and quality of residential neighborhoods. Gratification of humans is achieved via various characteristics that involve exciting opportunities, transportation, patterns of land use, public spaces quality, population and convenience in access to all the necessities, and most importantly the fit with predominant cultural values and beliefs.

This research is a revitalization study of the area behind Souq Al Sharq in Khorfakkan. Using the behavioral mapping technique, along with face-to-face structured interviews with residents and survey, the study analyzed how the public areas in the selected case-study location in Khorfakkan are used by residents. Most critical is the finding that there is limited use of public areas, hence a low level of social interaction, in the area studied. Based on the reasons given by the interviewees for the limited use of public areas, this study concluded by making specific design and policy suggestions that Khorfakkan municipality can consider, to encourage residents to make the most use of the public areas, which the Department of Town Planning and Survey invests in to promote life for citizens full of quality and standards.

Sustainable development in the environment involves energy sources of renewable and non-renewable along with plant, human, animal fertilizer, pesticides and components of air. Urban planners are mostly the only specialties who consider all the factors for the sake of planning and management to be sustainable. The revitalization plan of the site is based on sustainable urban development that considers most of sustainability aspects. Its aims are promoting walkability, save energy, preserve native plants existed in the area and enhance social interaction.

الملخص

الشارقة هي إحدى الإمارات السبع في دولة الإمارات العربية المتحدة التي تشهد تغيراً هائلاً من حيث النمو الاقتصادي. منذ تشكيل دولة الإمارات العربية المتحدة في عام 1971، طورت الحكومة أحياء سكنية لاستيعاب الاحتياجات المتزايدة للأسر الإماراتية.

لم يعد تحسين جودة الأحياء السكنية في المدن مجرد مسألة طوب واسمنت. يرتبط رضا الإنسان بسمات مختلفة تتعلق بالنقل وجودة الأماكن العامة والفرص الترفيهية وأنماط استخدام الأراضي والكثافة السكانية وسهولة الوصول إلى جميع السلع والخدمات الأساسية، والأهم من ذلك الملاءمة مع القيم والمعتقدات الثقافية السائدة.

هذا البحث عبارة عن إعادة أحياء للمنطقة الواقعة خلف سوق الشرق في خورفكان. باستخدام تقنية رسم الخرائط، جنباً إلى جنب مع المقابلات المنظمة وجهاً لوجه مع السكان، خللت الدراسة كيفية استخدام السكان للأماكن العامة في مواقع دراسة الحالة المختارة في خورفكان. والأكثر أهمية هو اكتشاف أن هناك استخداماً محدوداً للمناطق العامة، وبالتالي انخفاض مستوى التفاعل الاجتماعي، في المنطقة المدروسة. بناءً على الأسباب التي قدمها الأشخاص الذين تمت مقابلتهم بشأن الاستخدام المحدود للأماكن العامة، لخصت هذه الدراسة إلى وضع مقترحات وسياسات وتصميم محدد يمكن لدائرة التخطيط والمساحة في خورفكان مراعاتها من أجل تشجيع السكان على الاستفادة القصوى من المناطق العامة التي تعيد تطويرها الحكومة والتي تستثمر في تعزيز مستوى الحياة للمواطنين.

التنمية المستدامة هي البيئة بمكوناتها البشرية والنباتية والحيوانية والأسمدة والهواء، بما في ذلك مصادر الطاقة المتجددة وغير المتجددة. المخططون الحضريون هم في الغالب التخصصات الوحيدة التي تأخذ في الاعتبار جميع العوامل عندما يتعلق الأمر بالتخطيط والإدارة المستدامين. تعتمد خطة تنشيط الموقع على التنمية الحضرية المستدامة التي تراعي معظم جوانب الاستدامة. تتمثل أهدافه في تعزيز إمكانية المشي وتوفير الطاقة والحفاظ على النباتات المحلية الموجودة في المنطقة. وتعزيز التفاعل الاجتماعي.

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1. CHAPTER 1: INTRODUCTION

1.1. INTRODUCTION

“Cities have the ability of providing everybody something, only because, and only when, if they are created by everybody” (Jacobs, 1962).

UAE has experienced massive urban growth during the last years. In development indices, the nation scores highly due to its robust social development, high per capita income, as well as rapid economic growth (Levy, 2016). Furthermore, sustainable urban development was defined by Wheeler (2003), in his book, as "the changes for the long-term improvement in the social and ecological health of towns and cities (Hall & Vredenburg, 2003)." Further, he mentioned the main characteristics and features of sustainable city by stating that: use of land in a concrete and efficacious manner; less use of automobile with ease of access; use of resource with efficiency; decrease in pollution and waste; natural systems' restoration; better way of housing along with peace environment of living; social ecology with good health; an economic sustainability, participation and involvement of community; and local culture and wisdom's preservation (McWilliams & Siegel, 2011). This concept has a main aim of achieving long-term stability in the economy and environment by incorporating the integration and acknowledgment of the three E's which are: Economic, Environmental, and Equity concerns throughout the process of decision-making (Semet & Routhier, 2016).

The investigation is being done in this report on the current situation of the agricultural land behind Al Sharq Old Souq in Khorfakkan in Sharjah, UAE. The report is a revitalization plan for the frames owned by local people to be completed during one academic semester by the student at the British University in Dubai who is doing Master of Urban Planning. The area has a significant location that let the owners to apply for a land-use transfer, from agricultural land

to mixed-use development, from the Khorfakkan Directorate of Town Planning and Survey. They wanted to develop their lands to serve the needs of the new population by providing commercial developments and recreational facilities like; cafes, restaurants, markets, and parks. Therefore, a master plan of the area should be provided based on an existing condition study to control transferring the land-use of the area to serve the public needs in all aspects.

This collection and analysis of data for the current conditions of Al Sharq Old Souq and the agricultural land behind was investigated in 2 phases: first is interviewing the various stakeholders in order to collect their opinions on challenges, issues, and opportunities. Second is the in-depth fieldwork and internet resources that is conducted the planning student for gathering data on its conditions of houses, population, economic life and infrastructure. This report is all about the farms area exclusively behind Al Sharq Old Souq. The reason behind its selection is to intensify the procedure of data gathering within the prescribed area. Many empty and agricultural lands have been found in the selected site through which new functions can be proposed in this report.

Agricultural lands behind Al Sharq Old Souq are an example of an important area in Khorfakkan that could be developed in economic, social, community facilities, transportation, and public realm aspects. To revitalize the ignored area of the city has become an area of interest for the government. Exploring the characteristics of community has been done with in-depth intensity in the report. It is exciting to explore the reason behind the change in community from a small heritage commercial market into the first destination for residents and visitors because of its heritage, commercial and entertainment attractions, as well as its ancient historical value. The market has emerged as one of the most important reason of attention for the tourists because of the attraction that is possess by the city. The eagerness of Highness, revival of the Ruler of Sharjah and market restoration, with its heritage assets represented in the old traditional shops

and professions, stems from the historical value and the important position of the market on the social and economic levels.

Today, the unique agricultural area behind the vital souq seeks challenges, opportunities, and thus, any revitalization plan will affect it.

Superimposition of new plans is considered as the classical method which is adopted by the government for the purpose of dealing with an underdeveloped area. Due to this, the total area of Sharjah has to be demolished. In the recent situation, new methods are being discovered by the government like revitalization plan of Urban. The basic encouragement that sustain the interest in this project for the degree of master was the mandate of the government, according to which instead of demolishing lands of agricultural, they wanted to rehabilitate them by preserving the agricultural and heritage aspect of it.

MOTIVATION

A world-renowned architect and urbanist Gehl stated: It has been observed that the public component of the lives have been disappeared as the society is getting more privatized with private cares, offices, homes, computers, shopping centers, and many others (1987, p.23). It has become essential to invite the cities for a gathering where every fellow citizens could meet with other and get interacted face to face so that could experience more sensibly and directly. Democratic and full life considers the public life that acquire good quality public spaces as the most important part. This statement underscores how critically important public spaces are in facilitating social relations, what Putnam (1960) termed social capital, in communities. Public spaces are vital assets for communities. People can benefit from public spaces in many ways such as recreation, social interaction, promoting health, aesthetics, and other benefits. Therefore, according to planners, public spaces within the city is considered as the main

characteristic of both livability and welfare. Creating a successful public space is a complex task since it depends on many factors including services and the provision of facilities for people.

Among the most populous city of the United Arab Emirates, Sharjah is the third one to provide public spaces is the task of multiple government institutions. The municipality provides community gardens in the center of each neighborhood. Developers such as Shurooq, which developed waterfronts, provide other facilities. Although there are areas in the city with more development density than others, public spaces are almost the same in terms of size and facilities provided.

Recently Khorfakkan Town Planning is planning to develop the area behind Souq Al Sharq to be a vibrant public space with community facilities that serve population needs. Souq Al Sharq market has a rich history and a social and commercial position due to its location that is near the port of KhorFakkan, which was a pivotal center in the commercial movement in the region and the entire Arabian Gulf. The market has become an attractive meeting place and the most popular destination and tourist attraction for the people and visitors of Khorfakkan, as it provides the visitor with optimal options to enjoy the fragrance of the past and the development and sophistication of the present, and it meets the needs of different age groups. Souq Al Sharq market has a rich history and a social and commercial position due to its location that is near the port of KhorFakkan, which was a pivotal center in the commercial movement in the region and the entire Arabian Gulf. The market has become an attractive meeting place and the most popular destination and tourist attraction for the people and visitors of Khorfakkan, as it provides the visitor with optimal options to enjoy the fragrance of the past and the development and sophistication of the present, and it meets the needs of different age groups.

The agricultural land behind Souq Al Sharq, the study area, is one of the areas that are planned to be a vibrant public space with community facilities that serve population needs. In addition, it is within the path that will link residential areas with Souq Al Sharq and Khorfakkan Corniche. Khorfakkan residents might define their different perception of what should be provided in the area of study. The researcher within an area of study, even though it is considered to be a major public space that serves Khorfakkan residents, has observed that a holistic study of the existing conditions is crucial to developing a revitalization plan. From a planning standpoint, such an area that will be a significant public realm should actively be used. In this context, the researcher considered the desire of residents to transfer the agricultural lands into commercial and public facilities as an incentive for development of a revitalization plan for the study area with sustainability. Therefore, there is a great need to study the existing conditions and residents' preferences for the facilities to be provided to enhance the recreational and economical value of the area. In this study, the gathered information after interpretation will investigate the practical implementation of the sustainable urban planning methods for development of this area. Additionally, the information that is attained by conducting research will also be helpful in future, if one could seek effort to improve further the sustainable urban planning for the public realm with community facilities and commercial developments.

RESEARCH QUESTION

Since the government is focusing on providing a better lifestyle and quality neighborhoods to its citizens, it becomes vital that we put more effort into understanding what makes Emirati neighborhoods do not function in the way that residents desire and understand the extent to which residents find their public spaces and community facilities unsuitable. The purpose of this project is to understand residents' needs at a deeper level through the perception of Khorfakkan residents to enhance the infrastructure of urban quality, natural, and social

environment. By considering the approaches of urban planning used by the government of Sharjah today, the research wishes to address two fundamental questions: How to develop a vibrant public realm behind Al Sharq Old Souq with preserving the nature and characteristics of the area? What type of community facilities and commercial developments would residents of Khorfakkan want the government or developers to provide to enhance the recreational and economical value of the area?

1.1. Aims and Objectives of the Research

The main theme of this research lies on attaining an urban framework that must be comprehensive, sustainable and strong. This can be done by enhancing the physical connectivity, visual, and goodness of all stakeholders along with their attitude in such areas either on the physiological or cultural or social or economic levels. This research aims to flourish the relation between the city level and neighborhood urban level. This will be investigated further by considering two scenarios which involves “the existing base case” and “the master plan which is optimized via mixed-mode method”.

The objective of this research is to provide depth and richness to the study area planning process from the collected data that answers the research question. In order to come to effective findings and conclusion about the significance of this project, the following objectives must be met:

- i. Build a vibrant community to enhance the life standards.
- ii. All facilities of community must be provided via creating a community center that is walkable and accessible for everyone.
- iii. Enhance the transportation and mobility system to encourage the project to be a focal area where it can be reached from several entry points making it centralized.

- iv. Shaded pedestrian and cycling lanes should be provided to protect people from sun and heat and increase vegetation in the area by preserving and planting native plants.

RESEARCH PLAN FOR THE STUDY

The total number of chapters will help in documenting the research plan with various phases in accordance with the aims and objectives that are already addressed. Chapter number 1 involves the brief introduction of the topic along with some background information of the research and the way to conduct the research. Chapter number 2 will involve all the literary resources related to sustainable urban planning and its impact on the economy, public realm, transportation and society's social aspects. Chapter number 3 will cover the documentation of the procedure for the systematic research required for dedicated research in the light of its aims and objectives. This chapter 3 will also exemplify the research methodology being used in this study to address the procedure of data gathered, interpretation, analysis and preliminary discussion in accordance with the aims and objectives that are already listed in chapter number 1.

CHAPTER 2: LITERATURE REVIEW

Literature Review

Urban Planning

A city is a place where people live to satisfy their purpose. It is an open social system, common wealth, and a common pool. This place influences people but it is a creation of an individual or a group. The city has an interest of public which is defined by four factors: (i) Public welfare, (ii) Public health, (iii) public morals, and (iv) public safety. Therefore, urban planning is considered a leg rest in the context of the city.

As described by the UN-Habitat that planning and designing of an urban area not only supports cities but also provide the guidelines to the relevant authorities that are viable with approaches being tested, and efficacious elements to support the growth of urban (UN-Habitat, 2012). The operational definition of urban planning is a systematic and collaborative process of mobilizing and using societies, humans, and material resources to address societal goals. Society has five goals clusters were urban planning addresses: political goals, economic goals, psychological goals, natural environmental goals, and built environment goals.

It has emerged as a challenge for humans to collaborate resources that are available with the population that has been grown exponentially in both urban and rural areas, even crossing regional limited areas. In the overall challenges, some may include material required for proper housing, approach to social facilities, and approach to proper healthcare, job opportunities, and proper way of disposing waste, adequate infrastructure, food quality and environmental reservation among all of the others. (Ahern, 2013).

Therefore, the process of urban planning is an open-ended ongoing process. The intelligence needed to make cities good places have to keep evolving. Information is the lifeblood of planning that has to be up to date, reliable, credible, and relevant. Since the process is adaptive,

dynamic, and open, we learn from all disciplines to understand how to make our cities better places. People think that planning is basically the allocation of uses over space because the land is the closest resource to our daily life than other resources. This is the first philosophy of planning that was built between the 1785 to 1900s era. It is known as physical environmental determinism. It means that the built environment is a source for people to achieve their goals. While the built environment influence and doesn't dictate the social behavior. Among the challenges, each of the results could be a significant consequence for the standards of quality of life of every individual, if the sufficient intercession is not attained by the mechanisms of urban planning. The concurrency in human activities and the consequence of taking decisions earlier made in the scenario of partial ignorance, these two things have created and enhanced the listed challenges.

Infrastructure Planning

It has been observed that cities around the globe spend billions of dollars to build their infrastructure to sustain and accommodate their population that keeps growing. As time goes on, challenges associated with the infrastructure arise that effects the millions of residents. The paper is going to discuss a number of infrastructure challenges that cities face.

1.1.1 Infrastructure Planning Challenges

City infrastructure faces various challenges, some of them can be resolved just by improving the management and maintenance procedure, and some can be resolved by expanding the projects, but the most significant ones are those through which the overall residents of the entire city has been affected and has the capability of affecting the operations of everyday and life of individuals residing in the area (Baez et al., 2010). Major challenges include environmental challenges, infrastructure management, and maintenance, cost recovery, lack of citizen oversight, inequity of access, affordability, poor governance, financial challenges, and consumerism. Such factors have the ability to completely cripple the city's infrastructure and affect the lives of every individual living or working in the city. Infrastructure is the core foundation for financial, social, and environmental development in cities. A blocked highway has the ability to disrupt operations for hundreds of people, governments, and local authorities working every day to develop the city. Some challenges cannot be resolved just by good management and require expansion of the already established infrastructure which also increases the maintenance and management cost associated with the project. Therefore, planners must consider every aspect before planning any new infrastructure project or maintaining those which already exist.

From a planning point of view, financial investment does remain a significant challenge in infrastructure development. Historically, governments have financed a significant share of their infrastructure at a regional level along with providing services that have been limited due to budgetary restrictions. Moreover, local institutions have not been able to supply loans required for long-term investment in infrastructure. Because of the accumulation of matters and uncompleted projects related to infrastructure that is required to be cleared, it is important to have collaboration with stakeholders in the private sector. There is a need for diversifying

sources that are available for funding by the means of developing of domestic and regional capital as well as markets for debt capital and increasing public-private partnerships (PPPs).

Public authorities and governments have now been turning increasingly towards PPPs for delivering services related to infrastructure that are efficient and cost-effective. PPPs could allow organizations working within the public sector for shortening delivery times, reducing risk opportunities, and attainment of improved value for money, and increasing innovation in providing infrastructure and services. These partnerships can allow companies in the private sector for applying their experience and skills for the development of infrastructure and mobilize finances and operations for the purpose of infrastructure investment in the long term. Companies working within the infrastructure development sector have now been finding it difficult for raising investment, as financial institutions have now restricted conditions towards specific sectors. As a result, long-term debt instruments can help towards reduction in debt costs for infrastructure development.

A lot of people around the globe confront the problem of how to access unaffordable infrastructure. This includes basic services of health care, education, water, electricity, and transportation services. The affordability factor is considered one of the most significant factors that affect the city's infrastructure development. Just like a household, cities have limited resources and funding that they must utilize in an effective manner in order to maintain and develop new infrastructure projects. On the other hand, cities face the dilemma of population explosion. These two factors lead to increase costs of services. Governments, planners, and stakeholders must address this problem in different ways (economically, socially, and politically) to provide affordable services to residents.

1.1.2 Natural and Built Environmental Impacts

Environmental factors and natural disasters are considered to have the most critical effect on any infrastructure. The Disasters that occurred naturally may involve heavy rains, tsunamis, and occurrence of irregular earthquakes, these all have the potential to completely disturb the life in the city. If the infrastructure is inefficient and not designed to handle such environmental impacts, it can have a devastating effect on the overall structures and can be the consequence of lots of deaths. Flooding and heavy rain can severely damage the sewerage system as well as affect the foundations of the building (Baez et al. 2010). Earthquakes have the potential to damage the roads, bridges, and underground sewage systems that can disrupt the lives of millions of people, and also affect the rescue efforts after the natural disaster. The most popular example can be taken from hurricane Katrina which resulted in the loss of more than 50 billion USD and took more than 50 lives (Pistrika&Jonkman 2010). The figure only reflects the losses suffered by the government and not by the citizens.

Other environmental factors which are not nature-driven also have the ability to affect the city's infrastructure. Excessive and poorly designed development can lead to various environmental factors, which can result in various environmental factors affecting the lives of people in the city (Baez et al. 2010). In China, pollution from factories and vehicles has made Shanghai as a city being most polluted in the entire world (Rosenzweig et al. 2011). This was a result of excessive developments which were done over vegetation and open land. This resulted in the emission of greenhouse gases with no available natural filtration system to clear out the air surrounding the city, which has resulted in the closing of highways, bridges, and roads. In the meanwhile, working on the development of new and maintenance of the current infrastructure of the city is also delayed on a regular basis. These environmental factors can slow down infrastructure development and also affect and damage the current projects.

1.1.3 Consumerism

Consumerism is considered one of the major factors that are challenging infrastructure projects around the globe. On one side, both government and privately developed infrastructure projects have the practice to purchase the raw material in excessive quantity in the initial phases of development so that they do not run into any shortages during the development phase, also because it eliminates the possibility of exceeding the budget if the prices for raw materials rise in the future (Russo & Quaglieri-Domínguez). This results in fast-paced development with little oversight that results in impractical structures and a shortage of raw materials in cities.

On the other side, people live in a culture of consumerism, but few of them understand the effects on each of them on the impact that it possesses on their lives in the long term. Consumerism leads to do fraud in land and resources, obesity, increased waste and excess pollution, inequity, and poverty. “The two absolute examples that are being attained from some resources involve the consumption of beef and sugar. Historically, the consumption of beef and sugar has been comparatively lower in history than today. In fact, during the colonial period, the plantations of sugar had been the major employer of slaves and emerged as a major contributor in a degrading environment, costs of health, increase in poverty, and all way of wealth i.e., diverted and wasted. Rainforests have to be cut down because of the rising of cattle, like some of the area of Amazon, instead of using them for providing food poor or local people, it's all done to serve the restaurants all around, such as KFC and McDonald's. In short, it is all done so that the producers would enjoy their needs.” (Shah, 2005)

It is too difficult to change the consumerism pathway. Our consumption behaviors are part of our lives that requires a massive effort of enlightenment and cultural repair to change.

1.1.4 Management and Maintenance

Management and maintenance are the core of any project. Since most infrastructure projects such as roads, bridges, and tunnels are designed to last for decades the cost of development is actually lower than the overall cost of maintenance and management. Before starting a new infrastructure project cities do a feasibility study that also considers the overall maintenance cost associated with the project through its life cycle (Shen et al. 2010). Some projects are solely postponed and rejected because it is realized that the government might not be able to fund the overall maintenance and management cost of the project in long term due to various reasons. Therefore, sustainable development has become more popular over the years when it comes to city-wide infrastructure projects. Governments impose tolls on highways to recover the cost of development and to reduce the pressure of maintenance funding by making its users pay for the operational costs of the project.

1.1.5 Competitiveness

Cities have been known to compete with other cities in the region and country. This is done for various reasons such as attracting outside businesses, improving their delivery system for their residents, and even just to come out as a better city, the competitiveness has the ability to affect the overall infrastructure projects' long-term maintenance and management. Local authorities spend a large amount of capital on projects that seem viable and are considered better than their neighboring cities. However, in the long term, they fail to keep the projects maintained and sustainability that adds to its overall.

Urban Planning History

Although planning policies seem to lack sustainable enterprises, new development in the planning of urban field focus on sustainable useful methods that address present and future societal goals. In the last decades of two, innovative planning and designing moves for urban have challenged the twentieth-century development directions that focus on land-use planning and built-environment design, integrating an innovative awareness of social, ecological, and economical issues. During the development, the efforts made in planning help lay the foundation for sustainability planning. (M. Wheeler, 2004)

Figure kk shows the urban planning trajectory started from 1785 up to date. Each of these paradigms determines the type of Urban planning education that planning schools taught. Each of the phases of planning has been raised by critical events that raised the awareness of the world about the need to rethink how we used the L.S.S to support our activities and our lives. According to Thomas kuhin in his book “The Structure of Scientific revolutions”, when a model doesn’t explain reality, then there is a need for a new shift.

The first phase was the urban design phase which started from 1785 to the 1900s. It was basically about land-use allocation. The philosophy of planning in this era is known as; physical-environmental determinism. In this era, an antithesis philosophy appeared which was Urban Possibilism. It means that the built environment is a resource for people to achieve their goals. The built environment influence doesn’t dictate, the social behavior. The second phase was about planning policy that appeared in the 1900s and ended in 1950. The philosophy of this era is known as “The Power Behind the Throne”. It means that politics is a superliner. Planners to be effective, must understand power. Analyzing policy is considered a foundation to assess its chances of effectiveness. Planners started to acknowledge that planning is more

than land use, planning is about knowing how to play politics, speak the political language, analyses and craft policies. In the 1950s, cities started to see how they use land and L.S.S to stimulate business development to create revenues to provide infrastructure and services. In this decade, planning philosophy was about economic development. It is called Smoke-Stack chasing era. Because cities wanted economic industries, they went after industries that polluted. Environmental planning philosophy appeared from the 1960s to 1970s. it appeared based on environmental pollution as a result of economic development. Planning schools and municipalities started to teach environmental planning in their curriculum. In 1963, Rachel Carson introduced her book “Silent Spring”. The book demonstrated how industry and pollution had influenced aquatic life in the great lakes between Canada and U.S. later in 1969, the U.S government passed the first omnibus legislation, the first environmental legislation in the world. Then, the Congress passed NEPA (“National Environmental Policy Act). This is the first law stated in the world as a result of advocacy pressure demonstrated by various groups including Rachel Carson. In 1985, European Union adopted SEA (Strategic Environmental Analysis). It is a version of NEPA.

On the other hand, environmental injustice thought exists in Social Planning Era from the 1980s to the 1990s. The issue became about ensuring that environmental problems that affect cities did not affect some groups more than others. The “Environmental Justice” concept is that no section of a community or a city should bear an unfair burden of environmental problems. Many concepts appeared in this era related to the environmental justice movement around the world. For example, NIMBY (NotIn My Back Yard). Environmentalists and planners started to use this term in the 1980s when black and Hispanic communities in the U.S started suing municipalities for being the bearers of most environmental burdens in cities. Another concept is LULU (Locally Unwanted Land Use). Every LULU will go to low-income people. This

injustice means that the pollution will be in these neighborhoods. Social Planning Era is all about how planners know how to deal with problems created as a result of environmental injustice e.g., LULUs.

This planning trajectory leads to the last planning development which is sustainable development that started in 1992 up to date. Under sustainability, planners must deal with everything. The essence of planning in sustainable development is how to protect the public interest. Sustainable Development Philosophy is based on Brundtland Commission. This model, which will be explained later, is based on 3-Es: Economy, Equity, and environment. The operational aspect of 3-Es is that our cities should grow economies with absolute respect for the environment because it is the basis of life and anthropogenic activities, and our plans should end for equity.

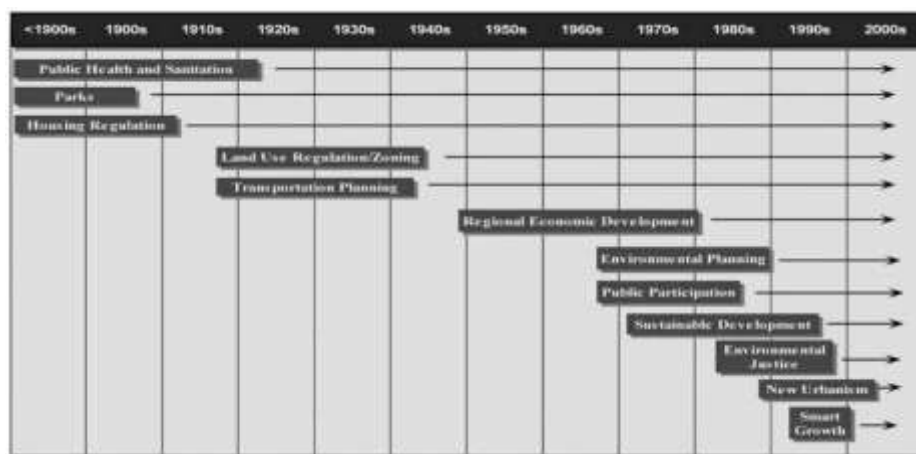


Figure (2.3.1). The evolving agenda of Urban Planning (Wheeler,2004)

Sustainable Urban Development

The growth of cities all over the world globe has been unparalleled. Approximately 1.5 M people are converting to as urban habitants every week. It is also predicted that, among the total population of the world, the urban habitants would be comprising of two-thirds by 2050.

This tells that there must be a need for sustainable developments to protect future generations' rights (Boström, Jönsson, Lockie, Mol, & Oosterveer, 2015).

1.1.6 Sustainable Urban Development Definitions

According to some accounts, sustainable development can be described under 200 definitions available (Wheeler & Beatley, 2014). However, the most often used definition was first proposed and defined in 1987 by 'Brutland Report' - 'Our Common Future'. It says Sustainable Development is the development based on conserving resources in ways that do not lead to the depletion of future assets to confirm the continuity of upcoming generations. This concept has a main aim of achieving long-term stability in the economy and environment by incorporating the integration and acknowledgment of the three E's which are: Economic, Environmental, and Equity concerns throughout the process of decision-making (Semet & Routhier, 2016). Furthermore, sustainable urban development was defined by Wheeler (2003), in his book, as "the changes for the long-term improvement in the social and ecological health of towns and cities (Hall & Vredenburg, 2003)." Further, he mentioned the main characteristics and features of sustainable city by stating that: use of land in a concrete and efficacious manner; less use of automobile with ease of access; use of resource with efficiency; decrease in pollution and waste; natural systems' restoration; better way of housing along with peace environment of living; social ecology with good health; an economic sustainability, participation and involvement of community; and local culture and wisdom's preservation (McWilliams & Siegel, 2011).

1.1.7 Sustainable Development and Cities

In considering any problem of the city within its entirety, it is important that the factors including economic, sociocultural, and environmental must be integrated with each other to establish a complex set having multiple relations, recalling it as a city (Omer, 2008). The

procedure of integrating subsystems of economic, physical, social and environmental to build up a city is the main theme of the sustainable development of urban areas.

Such kind of development is being made so that the adverse environmental related impact of industrialization can be cut down and ensure a healthy lifestyle for citizens now as well as for generations to come (Anderson, Allen, & Browne, 2005). Such cities are being built with an aim to reduce the usage of energy sources that belong to non-renewable like fossil fuels which involves coal, oil, and natural gas and working to shift to alternate sources like renewable energy sources (solar and hydropower) so that the toxic greenhouse gasses being released can be reduced (Matos & Hall, 2007). A sustainable urban city would be able to sustain itself without relying on the countryside and would reduce pollution which is particularly why such cities are also referred to as eco-cities. More than half of the contemporary of the world resides in an area of urban development which contributes largely to the deterioration of the environment. Therefore, to address this issue considering the annual increase in population as well, governments all around the world are considering the development of sustainable urban cities (Semet & Routhier, 2016).

1.1.8 Practical Implementation of Sustainable Cities by Planners

The key takeaways from *Green, Growing, and Just Cities* by Scott Campbell, were: how much damage has been done to the environment, how can we utilize the planner's triangle to achieve the sustainability, and how the planners can use their skills to achieve environment and social justice. The triangle represents the three fundamental criteria of planning that can be utilized to achieve sustainability, and solve the three types of conflicts. The priorities are protecting the environment, promoting energy growth, and advocating civil rights. In a hypothetical world, to

attain a balance among of all three goals, the planners would have to strive harder as shown in figure (2.4.4.1).

The conflict in property is represented by the triangle axis 1. This conflict arises from claiming the use of property and thus is established between the truth of equity and economy. While, the conflict in resources is represented by the triangle axis 2 which is among the protections of economy and environment. Regulations to exploit nature are completely restricted by the business, but consequently, regulations are essential to retain such assets for the demand of both present and future. Triangle Axis 3 shows the Conflict in development which occurs between the corners of social justice and environment retention. This conflict can become the most challenging part for sustainable development planning. Thinking of the way to enhance social justice and secure environment at the same time, either in a stable economy or not.

While, the key takeaways from the reading of “*The Planner’s Triangle Revisited: Sustainability and the Evolution of a Planning Ideal That Can’t Stand Still*” by Scott D. Campbel, was again how to utilize the planner’s triangle to achieve the sustainability in the environment, as this planning triangle can disrupt the state of equilibrium.

1.1.9 Perspectives to Conceptualize Sustainable Urban Development



Figure (2.4.4.1) : The triangle of conflict occurred in planning. Planners are being defined, implicitly, their position on the triangle. The evasive element of sustainable development leads one to the point. (Campbell, 1996a)

Although there are many different writers who wrote about sustainable urban development and who share a lot of common concerns in their writings, however, they had different perspectives and views on how they perceive urban development toward sustainability (Silvestre, 2015). These differences in writings are mainly due to the writers' backgrounds, for example, environmentalists, economists, and those whose concerns are in the ethical and moral dimensions of sustainable development.

Most of them agreed on the main goal of the sustainable urban development concept which engages cities' economic, environmental, and social aspects in decision-making processes. On the other hand, others believed that development sustainably is fundamentally unmatched with the ongoing economic standards and situations (Kaygusuz, 2012).

"Cities are indulging even faster than ever and faced unparalleled geography, Social, economic, and environmental challenges. It is the necessity of the world to develop urban areas in a sustainable manner. However, some areas because of lack of space and resources are not able to contribute to the development of a city in a sustainable manner (Anderson, Allen, & Browne, 2005). A team of multi stakeholders is important as it will assist in bridging the gap and plan strategies to transform the shape of urbanization and enable the cities to contribute towards the wellness, growth, and peace for all," said Alice Charles, Community Lead, Infrastructure, and Urban Development, World Economic Forum (Semet& Routhier, 2016).

As stated by Hazem Galal (Global Leader of Cities and Local Government at PwC, United Arab Emirates), "the evolution has been observed in the dynamics of urbanization and calls for a need to change from a method of as usual business to the highly cooperative one, allowing the

private sectors to recreate and redesign the transformation agendas for sustainable development of urban. (McWilliams & Siegel, 2011). The mutual action must be taken by both the government and private sectors in which they must prioritize and show the unique feature of cities, long term priorities and observed impact for successful attainment of sustainable development.”

The ‘Sustainable Cities book by Simon Joss (2015), states that government efficiency is the most important agency/factor in achieving sustainable development. “An extensive acknowledgement for a new rule need in governing the planning and development of urban. This is highly depend upon the greater demand of integrating scales and systems of urban with stakeholders so that strong relationship can be established which will be useful in decision making and policy development procedures (Kaygusuz, 2012).

1.1.10 Urban Sustainability Model

The propolis model, as shown in figure (2.4.5.1), has been developed in order to model urban sustainability. The model takes into account environmental, cultural, and economic developments in order to assess urban sustainability. Key indicators have been developed for the aforementioned dimensions of the sustainability model for the urban. The input data in the model consists of policy packages and GIS as well as a model database (Spiekermann& Wegener, 2003). This refers to data that has been getting enforced and takes into consideration the roads, regions, and populations while urban modeling. The lands used for transport as well as the indicator model then determine the success of urban sustainability. As a result of these inputs and behaviors, the results reveal how sustainable the inputs were and whether the behavior was aligned with the goals of sustainability or not. Even though this model is very systematic and takes into account input, behavior and output this model is still not very holistic

as there are many other factors affecting the success of urban sustainability (Spiekermann & Wegener, 2003). Some of these factors are uncontrollable and natural whereas the other factors are dependent on the behavior of the locals which can also to a certain extent not be controlled which is, therefore, the critique of this model despite its effectiveness.

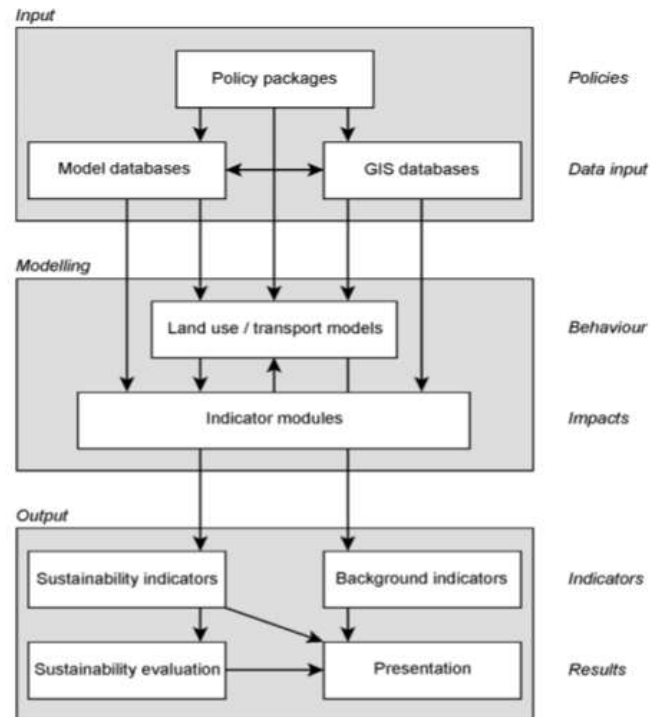


Figure (2.4.5.1) PROPOLIS Model (Spiekermann & Wegener, 2003)

1.1.11 Challenges in the Pathway to Urban Sustainability

According to Omer (2008), creating sustainable urban cities is not as easy as it seems because there are a number of things to take into account by the governments and regulatory bodies trying to implement this system. A sustainable urban city is not just a project but a way of life and a continual practice therefore it requires stringent implementation and governance in order for it to work as per planned (Wheeler, Clark, & Beebe, 2003). In addition to that, the role of the citizens would also play a huge role in the proliferation and sustainability of such a city. In addition to the attitude of the citizens living in these sustainable cities, their religious beliefs

and values would also essentially be contributing as leading role in the longevity of such cities, and their ability to survive sustainably (Wheeler & Beatley, 2014). Therefore, each of these factors that would be a pathway to urban sustainability will be discussed in detail as follows.

Cities consist of people, resources, and businesses and sustainable cities would also possess the same. Therefore, governance would have to be created for such cities that would overlook the practices, behaviors, and actions of people and businesses in the region as to whether they are sustainably implementing and carrying out day-to-day activities (McWilliams & Siegel, 2011). These governments would have to be very alert, stringent, and careful because the malpractice of any resident or business would destroy the efforts and investment made to keep the city green and have a zero-carbon footprint (Silvestre, 2015). The government would have to look at a number of aspects like creativity, economic development as well as societal development whilst making sure all these processes are coherent with sustainability. Most important they would have to look for geographical regions where this plan could be implemented considering the increased population growth finding land would be tough and would require deforestation which would defeat the purpose of sustainability itself (McWilliams & Siegel, 2011). Governance should also ensure the production of carbon or related activities should be eliminated instead of switching it to another region which is not a part of the sustainable city.

In addition to that, this would require trained personnel that have the due knowledge to manage such cities. This would not only require heavy investment but would be impossible to manage (Boström, Jönsson, Lockie, Mol, & Oosterveer, 2015). Moreover, there are always some loopholes in the governance because of which there can be malpractice as a result of bribery or corruption. This phenomenon is uncontrollable and can be a major challenge for a sustainable urban city (Wheeler & Beatley, 2014). In addition to that, urban sustainability refers to the means by which measurable environmental protection rights are presumed and safeguarded.

Therefore, the problem of measuring success would also be strenuous for the administration and government. Using economic resources and social dimensions such that there is equality is challenging and may not be easily accomplished therefore this also needs to be considered as a problem while governing in an urban sustainable setting (Hall & Vredenburg, 2003). Urban sustainability has three dimensions, namely environment, economy, and society and governing bodies would have to overlook all three of these dimensions.

A core aspect or challenging factor for the sustainable development of urban cities is the level of citizen participation (De Jong, Joss, Schraven, Zhan, & Weijnen, 2015). If locals fail to comply with the laws and standards of these high-maintenance cities, then it would be impossible for such cities to last long or serve the purpose of creation. In addition to the participation from the local actors, such cities would require locals to use technology and its advantages in order to curb the threat to the environment by using bicycles or vehicles that are zero carbon emission. They would also have to pay additional sums of money for buildings that are run through energy generated from solar or hydropower (Wheeler & Beatley, 2014). All of this would require heavy investment and these investments would not be possible for individuals lying on the extreme end of the income spectrum with little or no income. This means the opportunity for such people to reside in sustainable urban cities would be difficult and it would mean injustice (De Jong, Joss, Schraven, Zhan, & Weijnen, 2015). This is among the key challenges for planners and developers of urban sustainable cities because they would have to find a way to make it possible for individuals with all kinds of backgrounds to take advantage of such a city and are able to live in it (Boström, Jönsson, Lockie, Mol, & Oosterveer, 2015). Therefore, should operate in accordance to all paradigms and not just sustainability.

1.1.12 Example of Challenges

Many contradictions were found in urban sustainable development especially when coming to the implementation stage due to many different issues. For example, the Caribbean region faced many problems in applying sustainable development. Instead of having a history of urban life, still the management of urban has lacked a major role in the development guidelines. With confined resources, future planning will be vital for the region and then urban is explored as a choice. (Stacey Thomas, Challenge of Sustainable Urban Development in the Caribbean, 49th ISOCARP Congress 2013). The following table shows challenges that faced the Caribbean region in applying the urban sustainable development policy. See table (1)

Factor	Challenge to urban sustainability
Small Size	Limited space for expansion High competition between land uses Immediacy of interdependence in human-environment systems (provisioning services) Limited Resource base
Physical	Limited developable land (topographic constraints) Increased cost of infrastructure provision Low lying coastal zone Susceptibility to natural hazards (hurricanes/earthquakes/volcanic eruptions)
Demographic factors	Limited human resource base Small populations High urban growth rate Urban primacy Concentration of population in coastal zone Dis-economies of scale leading to high per capita costs for infrastructure and services Mobility explosion
Economic Factors	Small economies; limited fiscal base Dependence on external finance Growing middle class Dependence on natural resources for economic development High specialisation of production High dependence on energy imports

Table 1: Challenges to Urban Sustainability in the Caribbean Region

“The challenges faced in the three cities for developing it into an urban area in a sustainable manner are having driving forces along with worldly trends, yet, it varies from city to city because of institutional, historic, demographical, and cultural situations of each area of urban. The most important challenge is to align and make successful the meeting between the global

and local areas to discuss their strategies, driving forces, and actions required for developing Urban in a sustainable manner.” (Omer, 2008)

In-depth knowledge of social and economic activities basically depends on research, innovation, education, and innovative industries are also contributing in sustainable urban development process. Therefore, expertise, strong awareness and knowledge-based policies are needed for the success of any future sustainable urban development project or decision (Wheeler, Clark, & Beebe, 2003).

Road Map to Urban Sustainability

2.5.1 Public Space

“Public space is the platform to unfold the dramatic scenes of communal life” (Carr, Francis, G.Rivlin& M. Stone, 1992 : 3). Carr et al. (1992: 3) contend that spaces as a basic need of public can be used as medium for movement, junction for communication, and platform to plug and play and relaxed. It can have historical meaning and cultural significance. Regardless of the activity, public spaces are intended to be used freely in manner in which resources can be made available and personal needs are satisfying (Carr et al., 1992: 137). From an urban planning perspective, Gehl (2001: 10) defined public space as a space that has 3 functions of traditional nature: a place for meeting; a marketplace; and a space for traffic along with some desired changes in them through history, when implement. The publication of the “United Nations Educational, Scientific and Cultural Education” (UNESCO) article on "Inclusion Through Access to Public Space", (UNESCO, n.d.) defined the phrase “public space” as:

An area or space in a place which is easily accessible to all the communities without any discrimination of race, gender, culture, age, ethnicity, or socio-economic level. The areas that are considered as for public gatherings involve squares, plazas and parks. Some of the spaces for public are such spaces that connect areas like streets and sidewalks.

Planning, design, and educational organization, planning for Public Spaces (PPS) defines public spaces as “space where celebrations are arranged, economic dealings and exchanges are held, friends rush to meet each other, and thus, the culture is mixed. Adequate performance is achieved by the spaces than only the lives of public will use them as platform” (PPS, 2009).

Based on the literature discussed, the explanation of space for public in this research is a space that is accessible to all people and serves their needs. In light of the literature, there are many values attached to public spaces. The Moorabool Planning Scheme (MPS) argues that “the social, environmental, economic, and cultural wellbeing can be constructed in the various cities, towns, and communities by developing an environment based on quality standards” (MPS 2014, sec. 15: 1). The following sections will discuss the social, cultural, and economic values in detail.

According to Gehl (1987: 17), social value is: "... To be among others, observing others, getting instinct from others, suggesting to be positive, another option of being lonely. It is not about being with some specific people but with others nevertheless ". Rupa (2015: 5) defines social value as the value of being in interaction with the world being socialism and getting new experience as an opportunity to be with and observe others.

Regarding cultural value, Kraljik (2014: 19) in referencing Carr et al. (1992: 47) stated that: Historical areas are part of one's nation's pride and sense of belonging to which the feelings are simulated by every individual as it linked the past events. Life of a public is considered as a social binder in the space of the public depending on culture and history of society. Such values are hard to estimate but still the achievement of these values are important.

Carr et al. (1992: 19) provide the definition of a space for the public that, "it must be meaningful, democratic, and responsive". In addition, "such spaces are meaningful where everyone is allowed to establish relations between their private and personal lives, their area of living, and

the extensive world. In such places, people interact by discussing their social and physical content of life". (Carr et al., 1992: 20). Project for Public Spaces (PPS) declared that such places for the public are successful which have stated qualities "ease in access, activities there could engage people, comfortable environment with an overall good and positive picture; and lastly, it is a place to socialize so people may come here to meet and can take people with them to visit." (PPS, 2009). Figure (2.5.1) shows The Place Diagram as a tool developed by Project for Public Spaces (PPS) that helps people in assessing any public space. In the next section, the researcher will review different perspectives about the importance of facilities provided in public spaces.

“These necessary features that are designed to consider include light, sitting, street, water, scale, vegetation and trees, food stalls and triangulation. These characteristics of public areas will bring close to each other” (Whyte, 1980). Ghel (2011: 117) mentions the importance of facilities in public spaces and says that “In any newly developed area of residence, newsstands, mailboxes, restaurants, shops, sports and other facilities will make the individual to live and stay in the public environment.”



Figure (2.5.1). Place diagram tool to assess public space (PPS, 2009)

According to PPS (PPS, 2009) referencing their 1999 book “How to Turn a Place Around”, PPS has transformed the area of public into a vibrant community for living by determining 11 elements. Two of these elements highlight the importance of introducing facilities to transform public space into a vital place. The following two paragraphs are going to examine each of these two elements.

The first element is “Create a place, not a design”. Project for Public Spaces (PPS,2009) stated that with a single idea of design, it would be insufficient to establish an area. Transforming an area of public into a crucial public realm requires three main actions. First, introducing physical elements such as seating, cafes and landscaping must be inaugurated for making people feel relax and comfortable. Second, changing pedestrian circulation patterns. Third, the relation between the retail and activities in the area of public must be developed efficiently. This will create a comfortable picture of the place along with strong sense of relation within society.

While the other element is “Begin with the petunais: Quicker, Lighter, and Cheaper”. PPS(PPS,2009) talked about this element in terms of the complexity of public spaces that lies under the time it took to do everything in a public space. The best demonstration for the places is linked with short term innovations which can be first tested and then changed over many years. "Components such as outdoor cafes, art of the public, seating faculty, crosswalk stripes and pedestrian space, and gardens are the examples of short time improvements.” (PPS, 2009)

Many countries are making effort to enhance their public spaces and make them actively used by their residents. The next section will investigate case studies in different countries on transforming public spaces into vibrant spaces.

As a case study of redeveloping public spaces, startling work is done in Hamburg, Germany. Hamburg officials decided to redevelop HafenCity, a river island in Hamburg that fell into disuse in the 1990s. The redevelopment resulted in a mixed-use district that is home to 12,000 residents. It has a waterfront public space with transit routes, bike routes, route for water, and walking paths that are incorporated in both physical and functional ways. This resulted in an actively used public space which is considered a vital asset for safety (Pieprz, 2016).

Dennis Pieprz, a design principal at Sasaki Associates, visited HafenCity in 2016 and stated that “Suggestions were outlined in the area and as a consequence, this is a widespread expression of architecture and, maybe most desirable is the type and scale of the building. Thus, the public realm is considered as the most unifying component” (Pieprz, 2016). Pieprz mentioned as well

“Vasco Da Gama Platz is among the one of my most desirable places, a public place that is between the two edges of the waterfront which is on the island pier of the district as the centre-focussed. It is an energetic place to meet as it comprises workplaces, apartments, restaurants and local retailers”. See figure (2.5.2).



Figure (2.5.2). Vasco Da Gama Platz (Pieprz, 2016)

“Marco Polo Terraces are renowned for their lavish seating arrangements and area to gather and relax. It is designed informally to take benefit from the surrounding ways of movement, and adjacent canal systems. In fact, people feel excited in discovering new ways to reach the creative seating location”, See figure (2.5.3).



Figure (2.5.3). Marco Polo Terraces (Pieprz, 2016)

On BBC World Hacks there is a video presenting a case study on transforming streets into an active public space. It is about the simple receipt for a happy street. The case study is very interesting although it is not related to facilities in public spaces. It is still about creating public space but it creates a temporary public space from the street. A new idea has been introduced in Bristol by an English woman, Alice Ferguson, that has advocated a path to bring back the spirit of community to the streets of the city and keep fit the children and Youngers. She stated that closing the road for a couple of hours at a time so that the residents could give over the space to children. Their children were not interest to go outside and thus, were physically inactive. They saw a great place, the street, beyond their front doors immediately but they could not afford to use it. Her idea allows the government to make a study and figure out that their

children are more active and do 15 minutes of vigorous exercise than other neighborhoods. It was one simple change that allowed this idea to thrive. The same system is being used by the forty authorities for eight years. Being impressed, Toronto pilot this scheme and become the most recent city to do it (BBC world service, 2017).

1.1.13 Walkability

Walkability is acknowledged as a prior element in designing of a sustainable urban plan so that a healthy community can developed by establishing system of ease, convenient and secure pathways associated with all of the ages and capabilities. In this way, every individual can reach the destination by foot with ease. additionally, a plan is drafted name "Vision Zero" to prevent from both road accidents and injuries while safe, secure and equal access to all in the same time is enhanced.

While, using of impervious material could result as consequence of negative environmental impact, such are the measures that will be required to increase the user of sustainable technologies that paved in other to increase the outdoor comfort along with waking experience. It is observed by various researchers that parking lanes that are built in a parallel manner have exposed danger to lives of the pedestrians when they cross the roads. However, several accounts have been taken into consideration in order to acquire the required specifications of pathways like pathway measurement, furniture of Street, security, lighting system, sign boards, shades system, innovative ideas are at hand for public spaces to use the benches that are powered by solar along with wireless charging, automatic lighting system and systems to cool. There is some landscape furniture as well which supports the pedestrian to walk with ease, safe and comfortable environment (Gwilliam 2013).

1.1.14 Land-use

In establishing the environment, use of land is the basic pillar required for the purpose. It identifies the use of such locations and its type within societies and elaborates the restrictions for the surrounding people like neighborhoods, or people belonging to any commercial and industrial areas.

The urban with rarity and vehicle addiction are found disconnected with the infrastructure of both physical and social and create issues in social, economic and environmental matters. New developments must be implemented in the best suited places with reliability and sustainability by doing long term planning.

Societies with sustainable community criteria could have various ways to use land and actively depend on the vehicles. The health of the public is the major concern while linking the features of urban with pedestrianization. Walking would contribute to improve the wellbeing of humans and minimize the speed of vehicles to be used. Additionally, a planning strategy in which the requirements of the cyclists and pedestrians that maintain the quality of community along with the health of the public, requires parks, services and vehicles of high quality with manageable rates. Now, the idea of using transport by the pedestrians of urban has become essential while planning for urban because this can interlink the sustainability of urban with other agendas of society like socialism, standards of living, and a healthy lifestyle. Although, the lifestyle of every individual has completely transformed because of pandemic due to which the government and other decision makers have to be called for immediate actions for the sustainability of the community residing on the needs of humans. To conclude from previously conducted research, the basic function of the city is to explore the listed spaces: strengthening economy, enhancing socialism, and well-being of humans, public services, markets, places for tourists, schools, hub

of transport and other facilities of public, all must be integrated in secure and attentive environment so that life of community will be flourished and enjoyed by all (Telford 2001).

1.1.15 Transportation

Transportation is essential in heading towards sustainable development as it consumes such energy sources that will be depleted, habitats for humans and other living beings, excess carbon in the atmosphere and spare time of individuals (Goldman & Gorham, 2006).

a project was headed by OECD that focuses on "Environmentally Sustainable Transport (EST)". The meaning of sustainable transport is explored in this project as "environmental and public health is prevented from danger and the needs acquisition with (a) renewable energy resources usage below the regeneration rates, and (b) nonrenewable energy resources usage below the rates of renewable alternatives". For a sustainable system of transportation, the criteria to be adopted will be: predefined health standards for nitrogen oxides, ok particulates, ozone and noise; international criteria related to the emission of carbon dioxide; criteria to protect ecological and land systems in the urban areas. In the European Union, the council of transport ministers explored the more latest menacing of sustainable transportation in 2001, April. It was an action taken earlier by the Centre for Sustainable transport (CST) in Toronto where the system of sustainable transport possess: ✓ "needs of individuals and societies must be accessible and fulfilled safely in correspondence with the health of humans and environment and ensures equity among the generation ahead, ✓ affordable with efficiency in operation providing mode of transport and support economy with development of region, ✓ the waste and unwanted emissions must be restricted to some quantity in corresponding with the capability of planet to bear them, renewable energy resources usage below the regeneration rates, and, non-renewable energy resources usage below the rates of renewable alternatives in reducing the effect on land and noise generation.

According to Goldman and Gorham research, sustainable transportation is better served by organic transportation innovations. He highlighted four clusters of activity that sustainable transportation policy: Latest mobility (study about planning of activities on a daily basis), logistics of the city (study about goods' businesses), intelligent system management (study about the relation between infrastructure and institutions that control it) and accessibility (way of interaction between society and transport system).

It is interesting to mention the point of New institutional requirements. The principles mentioned in innovations challenge the traditional way that transportation agencies follow. Therefore, we need an evolution in the culture of the organization as the most effective way towards sustainable development. The goal of political and policy officials innovates to attain sustainability in transport, and the need to learn from failures.

Sustainable transportation network design depends on developing a mixed transportation network that consists of both public and private transportation modes that aims to achieve the sustainable transportation goals mentioned earlier. A well-connected and affordable public transportation system will encourage citizens to depend on public transport. The transportation elements upcoming advancement in the infrastructure of the city involves the roads, highways, public transit route, bike and pedestrian connection to support the appropriate use of land and urban areas; slow vehicles growth, expand the use of single person vehicles, and minimize pollution in air and emission of greenhouse gases. Therefore, according to Abu Dhabi Urban Street Design Manual (2007), sustainable street design should consider pedestrians, transit users, bicyclists, motor vehicles, and median. The following figure shows a sustainable street design and components.



Figure (2.5.3.1) street design components (ADUSDM 2007)

1.1.16 Urban Social Sustainability

As discussed earlier, sustainability consists of three pillars: environmental, economic, and social. Actually, Lack of attention has been given in addressing the dimensions of the social side of sustainability. The social dimension in planning urban areas plays a crucial role in sustainable development planning.

According to Yiftachel, O., & Hedgcock, D. (1993) article, Urban Social Sustainability means is the continuing ability of a city to function as a viable long-term setting for human interaction, communication, and cultural development. It includes three main dimensions' equity, community, and urbanity. Equity means social just and table community. The community emphasizes the sense of community and identity with the presence of social control and social interaction. Lastly, urbanity contradicts suburbanization. It is a recognition and valuing of

diversity incorporating values such as social accommodation, urban ambiance, and cultural relativity. While the reading shows the deficiency of urban planners to translate these aspects into policies that would effectively keep the enhancement of urban social sustainability, in my point of view, planning urban spaces shows the missing implementation of some of the urban social sustainability aspects which is the role of an urban planner.

1.1.17 Economics

To move toward sustainability, “natural laws” and “moral dimension of human activity” insights must address. According to Ruth,M (2006), it is important to note some conditions like efficacy and effectiveness are predefined when using the resources morally. I agree with the statement that the modern economy mostly relies on expertise and work for resolving the issues that are related with the sustainability achievement with proper amendment in methods and techniques. As Stephen M. Wheeler has put it, “The foremost values behind privatization of free market that promote development which include one's own choice, increase in consumption, efficacy, object oriented, and capitalism of usual resources. While, there must be some benefit in the growth of the economy with efficiency, these foremost values with other Es will replace the social equity and environmental protection.”

There are many tools presented in order to move toward sustainable economic. One of the reforms is stable economics. Under this economics, consumption and population of humans are measured at fixed levels of resources, meanwhile in material production, evolution in technology, moral and qualitative is observed instead of in quantitative measures. However, the concept do not fit with the current situation of material growth. The stable economy will always be an alternative to growth oriented private economics (Wheeler, 2004)

Another pragmatic approach is the discipline of environmental economics. Exploring the best way of utilizing the economy in minimizing the pollution, use of resources, and other production effects, amendments are required in economic tools like cost benefit procedure incorporated with the environment for betterment (Wheeler, 2004)

Among the economics, the foremost reform is ecological economics. The accessories and jargons of neo classical economics are being used in ecological economics, yet prefers to address human economy with ecological interactions. However, restorative economics is a type of natural privatization that uses the market power to restore environment rather exploiting it. In this procedure, higher amount of money may be required because of nonrenewable resources and waste departure and taxes to incorporate the environmental outwardness of productions. According to the “precautionary principle”, both corporate and government officials are warned against their effects of the actions to which they are not fully aware and are suggested to adopt such approach that is most sustainable along with being harmless (Wheeler, 2004).

According to Business Today Magazine, in terms of economic sustainability in Sweden, Economic sustainability demand the need of today investment for those of reap dividends in future generations. For instance, investing in solar energy panels is one of the step towards economic sustainability. “Investment in solar would pay off definitely in some years. So, investment in solar energy in Sweden is fully economical sustainable”. The minister of Sweden said (Das, 2015)

Introducing United Arab Emirates (UAE)

The UAE is situated in the region of southeastern that is located in Asian continent, and in the region of eastern that is located in Arabian Peninsula.

It is ignoring the north and northwest of the Arabian Gulf, restricting the Saudi Arabia Kingdom toward the west and south, and the Oman Sultanate toward the southeast. The United Arab

Emirates is a league of a various emirates that appeared after the association on the second of December 1971. The UAE contains seven emirates that have consistently grown and worth over the new years to become one of the most significant economies of Middle East. The 7 states that make up the UAE incorporate Ajman, Abu Dhabi, Ras al Khaimah, Fujairah, Sharjah, Umm al Quwain, and Dubai. The surmised region of the United Arab Emirates is 83,600 square kilometers. Its populace is 9,304,277 as indicated by the Federal Competitiveness and report by Statistics Authority on 31 December 2017.

The Majority of the land is covered with desert, yet it has a different ways of observance; there is, for instance, the Liwa Oasis, which is a characteristic desert enhanced by palm trees and possess high red sand ridges that stretch out toward the east interfacing it to Al Ain city which has an intermediate environment, and somewhat low stickiness, contrasted with different urban communities of the United Arab Emirates. There are additionally steep mountains and huge seaside fields See figure (2.6.1). (UAE Annual book,2018).

On 6 August 1966, the first class of Abu Dhabi Emirate chose Sheik Zayed bin Sultan Al Nahyan leader of the Emirate of Abu Dhabi. Right away, noticing the truth and probable eventual fate of his kin, he swore to endeavor to change their everyday environments, and, from now on, he committed his energy to the intellectual, innovative, political, and financial advancement of his country. To individuals, this was a propitious starting carrying with it trust and a promising future. He really focused on development projects, thus they started to construct public administrations divisions, street organizations, lodging projects, power and telecom lines, schools, and clinics.

His rule additionally denoted the start of the emirate's grants programs. Sheik Zayed bin Sultan Al Nahyan used to design, regulate, and circle back to all matters related with the improvement of the emirate down to the brief detail. This was the case on the grounds that the Emirate of

Abu Dhabi, at that point, needed many activities particularly those related with foundation and monetary turn of events. Taking into more concern his essential plan to progress the emirate from the setting up stage to thriving, he utilized all incomes, produced from raw petroleum extraction and exportation, in the improvement of the emirate. When the development of the United Arab Emirates was reported, on 2 December 1971, Sheik Zayed bin Sultan Al Nahyan was chosen President, and Sheik Rashid bin Saeed Al Maktoum was chosen Vice-President. On 3 November 2004, H.H. Sheik Khalifa bin Zayed Al Nahyan was chosen President of the United Arab Emirates following the death of his dad Sheik Zayed bin Sultan Al Nahyan, may Allah rest his spirit in harmony, on second of November 2004.

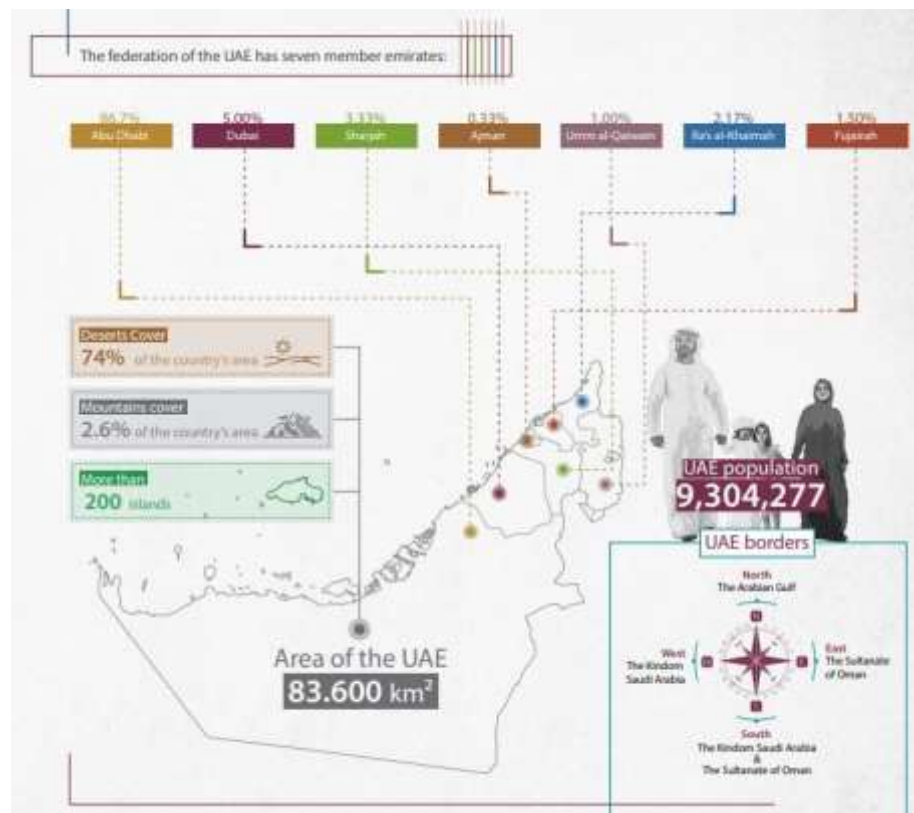


Figure (2.6.1) UAE Map (UAE Annual Book,2018)

The United Arab Emirates partakes in a steady economy, political framework, and speculation climate, which together empower monetary development. The nation's methodologies, conducive to monetary variety, made an adaptable economy and constant development. The

United Arab Emirates economy kept up with its high level situation as the second biggest economy in the Middle East. The United Arab Emirates keeps on being one of the main local hub for exchange, venture, and other monetary exercises.

The Planning for Development of Sharjah from 1968 To 2018

The UAE is hub to various imaginative changes in its metropolitan places driven by outside and inward factors attached to the political, social and monetary strength of the locale. The most recent fifty years have got critical improvement in SUP rehearses, especially in the last years. The progressions being referred to are an immediate reaction to the developing monetary reasonability of the district and the rising interest for land and fundamental products like respectable lodging. The review uncovered a few entrancing discoveries of Sharjah and The UAE district completely within the fifty-year limit demonstrated prior as examined beneath (Rizzo 2014). The progressions incorporate the presentation of the green construction laws in the UAE, Revision of the current corporate social obligation guideline, massive changes to the migration arrangements, and the common habitat. Looking back, Sharjah has developed from a hermitic locale in the UAE to the cusp of the meaning of the cutting edge metropolitan city with noteworthy framework and set up of metropolitan arranging frameworks. The presentation of the green construction regulations was quite possibly among the main accomplishment kept in the last 50 years as the UAE acclimated to the difficulties brought by urbanization. The area confronted unfriendly repercussions straightforwardly connected with fast urbanization and populace development, which undermined the solidness of the district. The presentation of those codes rose above the limits of the UAE as proven by the presentation of comparative guidelines in Qatar, Lebanon, and the Middle East (Olubunmi, Xia & Skitmore 2016). Presently,

the locale has far interesting green construction laws covering the UAE and the contiguous district that incorporates the ARZ BRS from the Green Building Council of Lebanese, the Estidama from the Planning Council of Abu Dhabi, the Global Sustainability Assessment System from the specialists of Qatari, lastly the guidelines by Dubai's Municipality green structure (Al-Sa'fat). Such changes flourished in the last years for a long time as the locale understood the significance of upgrading the assets accessible under its limits (Olubunmi, Xia & Skitmore 2016). Green structures are a demonstration of the responsibility of the public authority and the nearby position to supervise the presentation of measures that manage the development of business. The presentation of the green construction regulations tried to accomplish advantageous levels of the utilization of energy, water as well as different assets of remarkable development in population in an exponential manner. Moreover, the green structure has the ability to diminish the carbon impression of the metropolitan populace, among different types of contamination experienced in the area (Olubunmi, Xia, & Skitmore 2016). Such changes have additionally impacted the typical tasks of business elements working inside Sharjah and the more noteworthy UAE locale. One such change appears as reexamined corporate social obligations that apportions specific responsibilities regarding the utilization of the normal assets to the point of view and societal functional corporate orders in the area. At present, companies in activity in Sharjah should meet the edge of association and obligation to the neighborhood networks (Tsavdaridou & Metaxa 2015). The companies should take up the drive in exploring medical care, security, eco-accommodating arrangements, and long haul local area venture as a component of sustainable metropolitan planning that helps every investor. The rising impact of CSR programs ensures the proficient utilization of assets, protecting the interest of the nearby populace and working on the drawn out manageability of the locale being referred to. As per Malekpour, Brown, and de Haan (2015), one of the primary

explanations for the expansion in populace development throughout recent years is the movement strategies set up by the UAE and the neighborhood expert in Sharjah. The whole UAE as a nation works utilizing open migration strategies that energize the development of people across its line to explicit locales of financial practicality or metropolitan allure. The rising populace has prompted a critical blast in the development business as it battles to support the expanded interest for legitimate private and business structures (Shehu, Shehu and El Khatib 2018). The acknowledgment of the huge confound prompted the foundation of the Emirates Environmental Group (EEG) to additional the reasonable advancement objectives of the district. The EEG is a foremost non-government association with base camp in Dubai that promotes for relevant issues that incorporate waste administration, schooling, energy, and water preservation as well as the metropolitan environmental plan among others (Shehu, Shehu and El Khatib 2018). Moreover, the development of a dynamic common society is liable for the expanded number of vital changes in Sharjah to meet practical metropolitan arranging goals. Such gatherings were instrumental in advocating for further developed SUP drives that served the interest of Sharjah. Sharjah additionally faces a particular change that different urban communities on the planet probably will not consider the insight during typical tasks in that frame of mind of normal imperatives like the climate and the regular geography. The indigenous habitat around Sharjah and the UAE displays desert conditions that influence the construction and plan of structures that streamline the outrageous daylight and modest water reserves. Sharjah has broad development projects set up in accordance with the urbanization requests forced by the rising populace requests (Taleb&Taleb 2014). Looking back, the progressions in Sharjah over the most recent fifty years have consistently smoothed out with current SUP rehearses. The progressions to the development business as well as on the financial front are illustrative of the district's longing to match the metropolitan advancement in different region

of the world. The district is probably going to encounter expanded development to match the developing levels observe in other extraordinary metropolitan regions as depicted by Wei, Huang, Lam, and Yuan (2015). The pattern that remembers the expanded improvement of SUP for Sharjah is probably going to fill later on the establishment presented by mechanical advancement across different disciplines.

KhorFakkan background

KhorFakkan is a town has a place with the emirates of Sharjah, situated along the east shore of the United Arab Emirate, confronting the Gulf of Oman, and encompassed by the Emirates of Fujairah. It is the second biggest town on the east shore after Fujairah, set on the bay of KhorFakkan, which means “Creek of Two Jaws”. It is the site of Terminal belonging to KhorFakkan Container, the main remote ocean port in the locale and one of the significant holder ports in the Emirates. In 2019, its population was 39,515. See figure (2.8.1).

It is situated between the areas of Arabian sea and Al Shumayliyah Mountains, approaching height of 1,023 meters at Jebel al Hilqah. The bay has container ships which has a jetty that prevails wind at the terminal. Khor Fakkan is a domestic tourist spot due to its coral reefs that influences the enthusiasm of marine life and beaches of white sand. Therefore, tourism is well developed that attracts many divers. In the mountains of Khor Fakkan is an attractive place of Al Rifaisa Dam. It has been built over a village, so in case of low water level, the topmost area of the old houses will be seen easily. See figure (2.8.2).



Figure (2.8.1) location of khor Fakkan in UAE.



Figure (2.8.2) Khor Fakkan Port.

The environment of the area is affected by the area situated in the northern Indian district. Temperatures in the daytime temperatures to 18. Temperatures in the temperatures in the daytime temperatures to 18 degrees Celsius. Downpour is normal among January and March, and temperatures are supposed to arrive at 40 degrees in the colder time of year. (موثوق et al., 2022)

Khorfakkan has a long history of human settlement. There is proof of post openings from the wooden uprights of the customary barasti cabins known as Areesh, like those found at Tell

Abraq which dates from the third to first thousand years BC. [16] Excavations by a group from the Sharjah Archeological Museum have distinguished 34 graves and a settlement having a place with the early-mid second thousand years BC. These are grouped on rock outcrops disregarding the harbor.

Around 1500, Duarte Barbosa portrayed it as a town "around which are gardens and homesteads in bounty". The town was caught by the Portuguese Empire in the sixteenth hundred years by maritime commandant General Afonso de Albuquerque a while back, and was alluded to as Corfação. At the beginning of the sixteenth hundred years, it and its port were shielded by a wide walled belt confronting the land, shutting the canyon that, in the mountain range lined up with the coast, permits correspondence with the inside. In this stupendous design a solitary entryway was torn, shielded by a pinnacle. The troupe was answerable for shielding inevitable ancestral assaults. In 1737, long after the Portuguese had been removed from Arabia, the Persians again attacked KhorFakkan, for certain 5,000 men and 1,580 pony. In 1765 KhorFakkan had a place with a sheik of the Al Qasimi, Sharjah's decision family, as per the German voyager Carsten Niebuhr. There is a guide by the French map maker Rigobert Bonne dating to around 1770 that shows the Arabian Peninsula and the Persian Gulf and incorporates KhorFakkan. At the turn of the nineteenth 100 years, Lorimer takes note of that Khor Fakkan had around 5,000 date trees and was home to around 150 places of Naqbiyin and Arabicised Persians, adding up to exactly 800 individuals. The populace lived by development and pearling, and the town had seven shops. (John, 1915).

In view of Studio Costa Architecture, KhorFakkan Heritage Masterplan Development project given by Sharjah Institute for Heritage, different home zones existed in KhorFakkan included: The Heritage Village, the Core Area, the Sheik's Palace Area; the Fishermen's Village and the fringe of the old Souk on the "metropolitan side" of the ranches. Every one of these areas has

explicit qualities relating to different authentic periods. Since it is a critical beach front settlement, the inflow of multi-social individuals over the long run has lead for a trade of societies, thoughts, way of life and strategies (Studio Costa, 2017) see figure (2.8.3).



Figure (2.8.3) habitation zones exist in KhorFakkan. (Studio costa,2022)

Case Studies

2.9.1 Case Study 1: The City which is Sustainable in Dubai

The Sustainable and reliable City has a covered area of 46-hectare (113-acre) acquired by residential development in Dubai Land that was developed by Dubai-based Diamond Developers and opened in 2015. From Al Maktoum International Airport, Al Qudra Road is situated about twenty minutes from there, the city generates half of its own personal energy by using solar power panels and this will help in reducing the carbon footprint by presenting

transportation of various modes. Therefore, it is considered as the first Net Zero Energy city operated in Dubai.



Figure (2.9.1.1). Master plan of The Sustainable City in Dubai

The most unusual part of this project is that it addresses all three pillars of sustainability; it does not merely focus on the environmental component or water conservation, but integrates all three aspects holistically to create a new standard for residents.

The design is depending upon low-tech and energy with high efficiency that have been used since decades, for instance, solar energy that maximizes or minimizes heat collection and distribution depending on the time of year, as well as providing organic food to all residents that is being collected from its own farms and domes. To get to the heart of the city, every resident will reach their using their own cars on ring road. See figure (2.9.1.2).



Figure (2.9.1.2) The heart of The Sustainable City in Dubai

The Zones that are Mixed-Use forms a sustainable city that includes residential, schooling, commercial, farming, and spare time. This city has put all of the studies for the sustainability of socio economic, and environmental aspects in order to bring the environment into practice, With a population of 2,700 people.



Figure (2.9.1.3) The Elements of Dubai Sustainable City

The Elements of Sustainable City in Dubai:

- Residential Clusters

Residential area of 500 apartments and yard manors propelled by the metropolitan structure and legacy of Dubai's old 'Bastakya' area, comprising of a few metropolitan subjects at 3-and 4-room choices making them open to all, as well as Eco-resort of 143 cabins and individual units, exclusive practical inn and resort with a top notch spa community in the Sustainable City of Dubai is controlled by 600,000 square feet of sunlight based chargers put on the roof tops, everything being equal, to offer roughly 10 megawatts of peak solar production for usage within the city. Additionally, PV panels have been raised over the concealed car parks, fit for delivering 3MW of energy, enough to control road lighting, electric vehicle charging stations, the greywater treatment plant, and the metropolitan ranch, bringing about a decrease in energy use.



Figure (2.9.1.4) Public Space in Dubai Sustainable City

There is a 30 far reaching tree belt or a cradle zone on the fringe of the city comprising of roughly 2500 trees of a typical 10m level, in this manner, working on the microclimate through

sanitizing the air, making an agreeable breeze, and limiting the section of residue and contaminations while likewise decreasing the contamination from contiguous regions and streets.



Figure (2.9.1.5) Residential area in Dubai Sustainable City

- Mobility

The Sustainable City offers pedestrians with appropriate shaded places for strolling, running, and cycling, subsequently supporting and empowering a functioning way of life that relies on cars as little as possible. Additionally, occupants can utilize electric-fueled carriages and transports to get around the city, and they can get to all offices without strolling significant stretches in the sun or drive.



Figure (2.9.1.6). Pedestrian paths in Dubai Sustainable City

- Urban farming

Inhabitants approach a metropolitan homestead and outside permaculture gardens that navigate the length of the city, empowering open space access and cultivating a feeling of local area. This homestead has 11 nurseries spread more than 3000 square meters to give reasonable conditions to growing a scope of new production consistently, decreasing reliance on imported food. The 'green spine' utilizes reused greywater from the manors, which is treated in a site-claimed underground treatment office.

Metropolitan cultivating diminishes misfortune brought about by lengthy travel times, unseemly capacity, and decaying, as well as advancing nearby natural items inside the city and diminishing cargo outflows. See figure (2.9.1.7).



Figure (2.9.1.7) Urban farming in Dubai Sustainable City

- Community Services

On-site community facilities include an equestrian center, parks and gardens, clinics, banks, mosques, traditional souks, innovation centers, mixed-use space, retail outlets, Economical Engineering and Research Institute and Training Center for maintainable practices, school, and a guest community. Vacation destinations incorporate a Planetarium and a grass Amphitheater for facilitating occasions. See figure (2.9.1.8).



Figure (2.9.1.8) Community Services in Dubai Sustainable City

2.9.2 Case Study 2: District of Tomorrow in Dubai

The District of Tomorrow is a mixed income, age groups and land-use district studied by Students doing Master of Urban Planning at American University of Sharjah. A comprehensive master plan for Dubai Airport site as a new sustainable district studied on 2018, since the Dubai Civil Aviation Authority decided to relocate the air-port to the Jebel Ali area. The plan seeks to:

- Rise with striking plans to assist with molding improvement today and tomorrow;
- Give the premise to inhabitants, reliable and unsurprising area using navigation;
- Work with quality improvement all through Dubai;
- Give a "green print" for more practical development designs; and
- Expand on the thoughts and direction from the numerous members in the arranging system (HOD,2018)

The site is considered the heart of United Arab Emirates U.A.E since it is accessible by all emirates that give it the value of being the busiest international airport among all airports in

U.A.E. It is 5 km away from the city center located near Al Garhoud Bridge which means it is easily accessible. See figure (2.9.2.1) and figure (2.9.2.2).



Figure (2.9.2.1) Perspective view for Dubai International site.

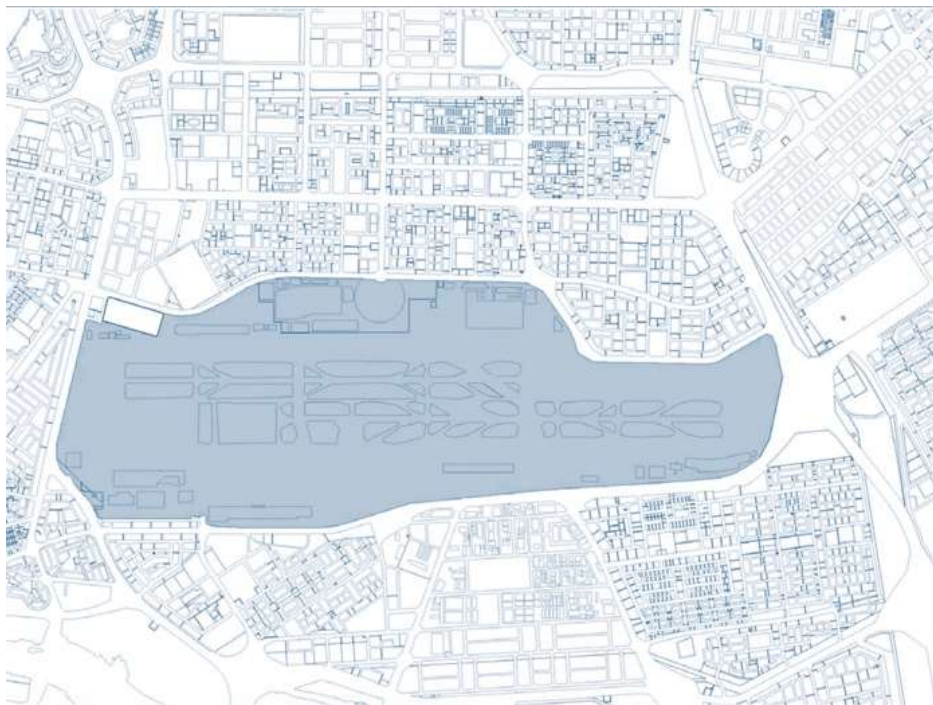


Figure (2.9.2.2). Dubai International Airport Map

District of Tomorrow is a stand-alone city that creates a vibrant mixed-use community and focuses on the recreation of Dubai's environment, while delivering all the amenities required

for achieving a high living standard. Its vision to transform the airport site into a mixed-use development that encourages social interaction, promotes health and provides a variety of open spaces and public facilities.

The elements of District of Tomorrow master plan

- **Land Use**

According to Dubai 2020 Master Plan, Dubai includes a significant limit inside the expansive furthest reaches of its current metropolitan region to help further development. There is a potential chance to work on the expense viability of further growth by promoting more sustainable balance of both urban infill and extension opportunities. These should be located to optimize the benefits of existing infrastructure investment, including metro transit services. (DUBAI 2020 MASTER PLAN, 2022)

There are opportunities to bring investment into area of economic decline through urban regeneration and the infill of vacant land. Redevelopment and infill within selected neighborhoods have the potential to bring new facilities, housing choices and economic investment to under-served areas. (HOD,2018)

The Land Use master plan a mixed-use development as shown in figure (2.9.2.3). Table 2 explains each type of land uses.

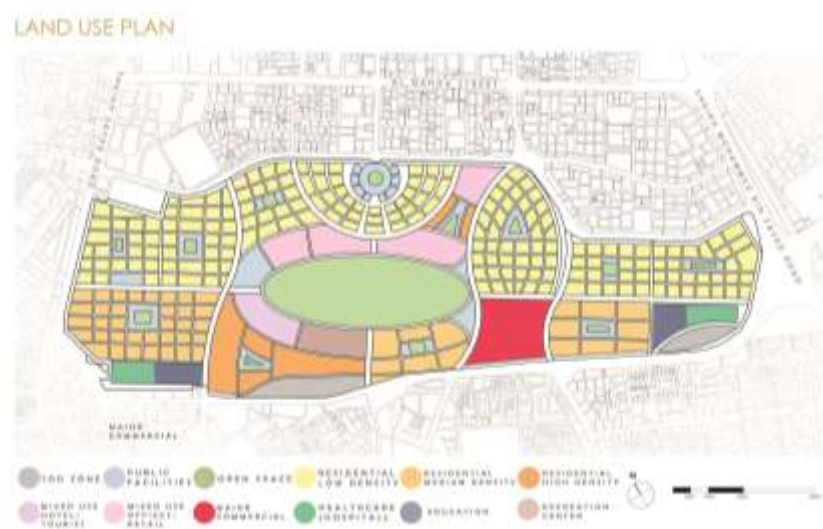


Figure (2.9.2.3) Land Use Master Plan

Land Use	Explanation
Residential Low Density	This category encompasses of Locale of Tomorrow Single family isolates private units in accordance to the Dubai 2020 land use zoning.
Residential Medium Density	This category encompasses the apartments, town houses, and complexes in a style apartment. It is with four to six story height limits.
Residential High Density	This class would apply to apartment complexes. It has a level constraint of 10 to 35 stories, contingent upon area and setting. Albeit this is a private zone, ground floor retail utilizes (with upper story lodging) might be suitable under particular conditions.
Mixed-use Offices / Retail	The plan is to distinguish the significant retail and administration centers that draw clients from across the city. These regions might incorporate high-thickness lodging, office improvement and district serving retail uses, for example, retail chains and specialty stores.
Mixed-use Hotel / Tourist	This category applies to hotels, museums and tourists' destinations.
Major Commercial	This class is for higher-influence business exercises that wouldn't be viable with private purposes or that have locational needs (like facing

	along roads or other significant roads) that are conducive to blended use advancement.
Healthcare	This category includes hospitals, medical complexes and medical centers.
Education	This class distinguishes land and offices involved by schools and colleges, schools and kindergartens
Recreational Center	This category applies to all leisure facilities such as sport clubs, playing fields and skating rings.
TOD	Travel situated improvement, or TOD, incorporates a combination of lodging, office, retail as well as different conveniences coordinated into a walkable area and situated close to quality public transportation.
Public Facilities	This class recognizes enormous freely claimed non-perk properties, including state funded schools, city offices, arenas and government offices.
Open Space	This class applies to long-lasting open space expected for sporting or asset preservation utilizes. Involved for neighborhood, local area and territorial parks and scenic routes.

Table 2, Explanation of land uses at District of Tomorrow

- **Transportation Network**

According to (HOD,2018), The District of Tomorrow transportation network consist of both public and private transportation modes. Through the well-connected hybrid tram system, we expect that at least 60% of the residents within the city to completely depend on public transport. The transportation component guides future improvement of the city's streets and interstates, public travel frameworks, and bicycle and person on foot organizations to help the city's ideal land utilizes and metropolitan structure; eases back the development of vehicle miles voyaged: differentiates away from the utilization of single inhabitation vehicles; and lessens air contamination and ozone harming substances. The point is to accomplish a reasonable and effective transportation framework for Dubai's growing population and their related needs. The following map shows the hierarchy of roads within The District of Tomorrow.



- **The Tram System**

A tram system has been incorporated into the design of the redevelopment of the existing airport. The system will cover a significant number of areas within the site. The aim is to provide public transportation that minimizes its negative effect on the environment. The tram system is basically a vehicle that moves along the track by using electrical energy. The system is designed to intersect the urban areas in order to be within a walkable distance, the stations are also placed close to the existing metro stations, in order to have a well-integrated network of public transportation. The tram system will also add value to the surrounding areas, individuals will prefer living or working in areas close to the tram system, in order to use a more affordable means of transportation. Unlike metro lines and monorails, the tram system does not require heavy infrastructure works to operate the system, the system requires light infrastructure work with a rail line that could move along the road network, or it could intersect it without significantly affecting the roads existing structure. A common issue in parts of urban areas is noise pollution, due to traffic and/or public transportation. Trams will transport individuals without causing loud sounds that could have potential in affecting human sociological and biological health. The following map represents tram line in the district of tomorrow.



Figure (2.9.2.5) Tram Line Map

- **Distribution of Districts, Communities and Neighborhoods**

Regions with extraordinary capabilities and personalities, the locale have forever been perceived as significant resources in Dubai's range of structures and character. This venture centers around locale structures and it also perceives the significance of the area and its significance to the prosperity of the residents and the financial matters of the local area.

This project creates new mixed-use districts, which capitalize on a tram line station and its location within the city. It likewise frames the rules for new imaginative expressions uses, nearby serving retail, business and a wide assortment of private purposes in an example that upholds pedestrian connected to the cable car line travel a valuable open door. The two regions gain by the pioneering areas to create and oversee offices and to plan and carry out Transit Demand Management projects to essentially diminish vehicle trips.

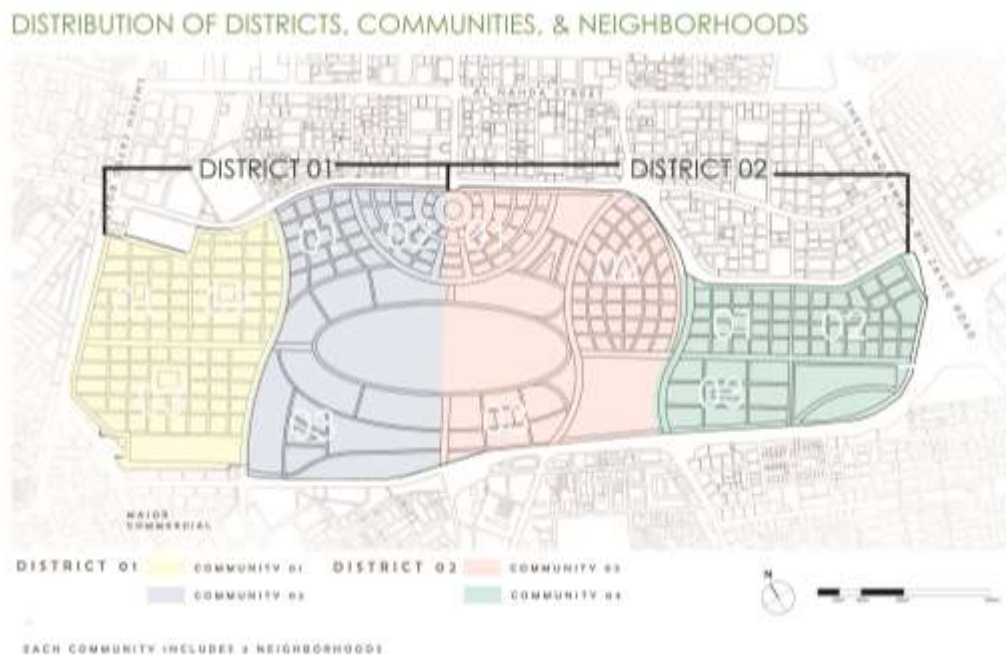


Figure (2.9.2.6) Distribution of Districts, Communities and Neighborhoods Map

Local area characterizes and ties everybody together. Comprised of different establishments and individuals who play out various jobs and obligations, a local area is, consequently, key to life in human culture. Living locally of some sort is a significant piece of one's life. The

sensation of local area exists all over the place and in various structures - from metropolitan networks situated in a major city to little, affectionate country ones, or in the middle between. Additionally, a local area is basically a gathering residing in a spot represented by comparable regulations, who share normal freedoms, honors, and interests. Living locally frequently provides individuals with a conviction that all is good and permits them to carry on with life socially with a feeling of having a place. One contacts a local area in the midst of satisfaction and trouble, and for schooling, clinical help, monetary assistance, security, and social diversion. The venture suggests that areas ought to be with simple strolling admittance to day to day needs. It likewise looks to make an ideal exhibit of nearby administrations inside existing regions and encourage new neighborhood serving retail in regions inside the area. In addition, it supports availability between and among private areas and close by streets through the arrangement on common walkways, scenic routes, courts, bicycle ways and open space.

Parks and Open spaces

The district park is the most suitable element to process within the project because this would help to identify and serve the different levels of facilities, proposed and current communities. It will adapt to the existing buildings and facilities that are already allocated within the area. The plan has twelve neighborhoods and each will have one central.

Focal Park offers the city the chance to make a recreation area with a geologically focal area for the task inside another metropolitan region centered on cable car line station. The enormous Memorial Park will have extra detached and dynamic entertainment space and become a travel served area for the city occasions and festivities. It also offers to serve the area around the districts which lacks such kinds of large parks.

It should include a variety of green areas, pedestrian walkways, children's playgrounds, and some sport facilities. Principally provide for organized formal sport and recreation for surrounding neighborhoods. District parks accommodate areas with grassy land for usual sports, unusual active recreation, larger passive leisure areas and may contain hard surface

multi-use courts. District parks are significant in the urban landscape. Community buildings and facilities may be located within the park. District parks also serve preservation and environmental management purposes and can include areas with natural or native vegetation and water bodies of undeveloped land. The District of Tomorrow proposed one central huge park which represents 2 district park areas combined together, each of 500,000-meter square. Comprise small recreational spaces within five minutes walking time. Sites should provide quiet, intimate and naturally shaded spaces, be conveniently located and have frontage to a residential street. May include playgrounds (5,000-7,000 residents) for recreation and sport activities of the young people in the residential community. It is provided with one or some of the following sports fields' football, volley ball, basketball and handball. See figure (2.9.2.7).



Figure (2.9.2.7) Parks and Open Spaces Map

- **Community Facilities**

The intent of this chapter is to inform the standards and provisions required for community facilities at the urban management phase of Dubai 2020. These should be also adopted in the preparation of master planning and/or detail planning of any urban development project. The Dubai Municipality's community facilities standards are intended to be applied to the District of Tomorrow master plan. The standards encompass educational facilities, health care, religious facilities, civic, municipal and recreational facilities and local level commercial facilities. The standards were established to ensure all District of Tomorrow residents are provided with adequate levels of community facilities and services, and to ensure appropriate land is reserved for these facilities.

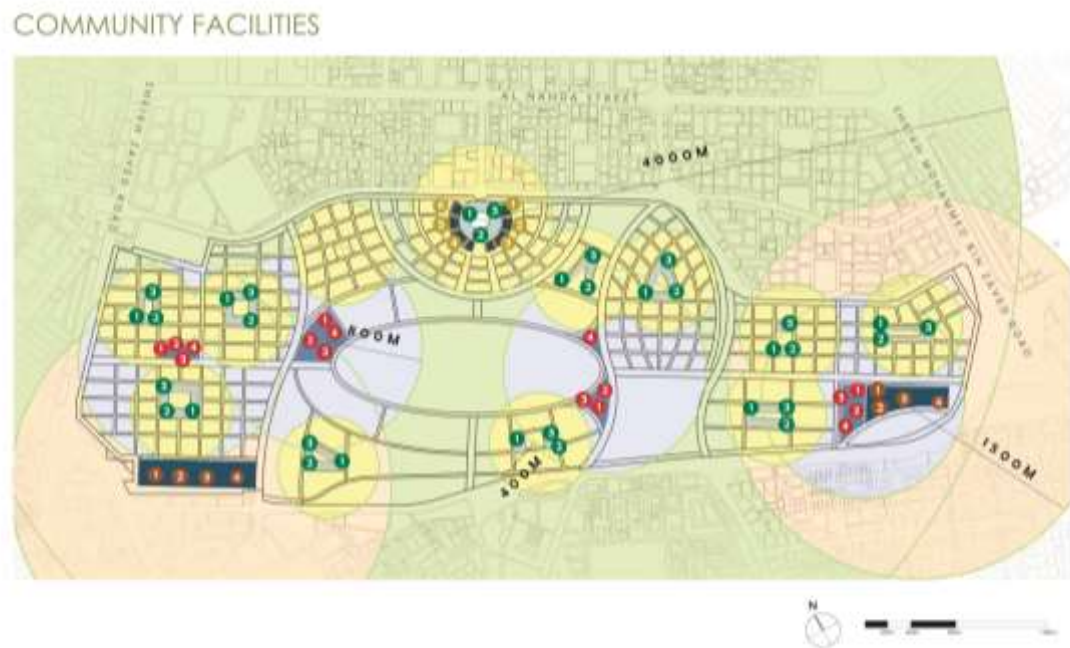


Figure (2.9.2.8) Community Facilities Map

2.9.3 Comparison between Case Studies

The following table is a comparison between the two case studies mentioned early: Dubai Sustainable city and the District of Tomorrow. The comparison is based on Aims, weaknesses and gaps and main findings. See table (3)

Research title	The Sustainable City in Dubai	District of Tomorrow
Author	Diamond Developers	American University of Sharjah Master of Urban Planning students
Aims	<ul style="list-style-type: none"> The designers of Dubai Sustainable City wanted to create a project that would make the city a locale leader in eco-tourism as well as environmental preservation and awareness, the city generates half of its own personal energy by using solar power panels and this will help in reducing the carbon footprint by presenting transportation of various modes. It is Dubai's first operational Net Zero Energy city. The design is depending upon low-tech and energy with high efficiency that have been used since decades, for instance, solar energy that maximizes or minimizes heat collection and distribution depending on the time of year, as well as providing organic food to all residents that is being collected from its own farms and domes. To get to the heart of the city, every resident will reach their using their own cars on ring road. 	<ul style="list-style-type: none"> The designers of District of Tomorrow wanted to offer various open spaces and greenery for promoting walkability and social interaction. Promote people to use public transportation to encourage them to live an active lifestyle. To develop a mixed-use and transit-oriented development with allocating infrastructure utilities near proximity and within walking distance. Increase the value of surrounded lands. It will help the surrounded metropolitan areas to grow faster.
Weaknesses and gap	<ul style="list-style-type: none"> The contextual investigation depends on a gated neighborhood with only one section and exit. Practical people group, as per LEED, ought not to be fenced and ought to be appropriately associated with the encompassing metropolitan setting. There is only one form of residential unit in the current design: detached villas with two primary sizes of 300 and 500 square meters. There is limited opportunity for variety and social interaction between the many classes as a result of this. 	<ul style="list-style-type: none"> It could create more traffic instead of easing the traffic and making it smooth. High budget spends going to be needed to create this big project. Limited expansion for futuristic goals. The project will be surrounded by residential areas only. It might have a negative impact on the area (gas pipe lines, electricity cables). For how long it has been there.

	<ul style="list-style-type: none"> • Fossil fuel cars could have been prevented from entering the Sustainable City of Dubai in order to achieve the goal of a livable car-free city. As a result, standardized underground parking must be implemented. • The presence of the services area on the other side led to a discrepancy in the distance between it and the villas, as it is close to some villas and far from others, it would have been better to put it in the middle to be close to everyone. 	<ul style="list-style-type: none"> • Less efficiency in optimizing public transportation.
Main findings	<ul style="list-style-type: none"> • After offering convenient and clean modes of mobility in the community, the primary strategies and points of urban sustainability, such as a car-free neighborhood, should be introduced. Dedicated routes and storage should be incorporated with cycling amenities. The purpose of identifying street sections should be to provide people with a walkable neighborhood via shaded pedestrian routes. Reducing the parking footprint and enhancing green space are also important. • The most important part in this project is that it addresses all three pillars of sustainability; it does not merely focus on the environmental component or water conservation, but integrates all three aspects holistically to create a new standard for residents. 	<ul style="list-style-type: none"> • A new project that will help to boost the local area economy and thrive the local community. • Attraction of public and private investors and providing job opportunities. • Benefit from the existing infrastructure. Cost efficient, there is no need for new infrastructure. • Emerging of new strings to follow into positive direction to create stronger base for future projects that will be created after this first string.

Table (3), Comparison between the two case studies

Conclusive Remarks

According to U.A.E book 2018, “The targets of "The UAE Strategy for looking forward to the Future", which is the obligation of the Ministry of Cabinet Affairs and Future, are to figure opportunities and difficulties in all imperative areas of the United Arab Emirates, to break down them, and to foster long haul plans empowering activity at each level which would get results that serve the interests of the United Arab Emirates.” (U.A.E book, 2018).

The city of Sharjah is one of the cities in the region characterized by the abundance of various natural asset stores that help the economy while empowering business undertaking. The region is encountering a steady degree of harmony and settlement added to expand government inclusion through regulation and different types of exercising its power. The public authority is ceaselessly captivating in exercises that keep up with the solidness of the area while controlling different parts of society and economy that improve the personal satisfaction. Such contributions have brought by increased frequency of providing public and social facilities and developing in infrastructure that categorize urbanization. Such directions have increased residential areas, business entrepreneur, and potential settlers. Recently, implementing initiatives in planning of urban development in all aspects in the region that promotes effective and efficient plans. Ultimately, urban planning principles ensures the long-term stability in all aspects of planning in Sharjah.

CHAPTER 3: METHODOLOGY

Methodology

Under social sciences, quantitative research has been widely applied by researchers, as it allows to eliminate bias, detach emotional connection and be uninvolved with the participants (Shannon-Baker, 2016). On the other hand, qualitative research which is interpretive in nature is value oriented and is free of time and context limitations (Hesse-Biber, 2010). In this research, a mixed research methodology is selected to address the research aim (Johnson and Onwuegbuzie, 2004). Mixed research is done to overcome the limitations of applying either one of qualitative or quantitative approaches. It offers the researcher the benefit of applying multiple design choices to avail the research aim.

Approaches to Studying the Public Realm and Social Change

This section looks at ways of studying the effect of physical aspects of the public spaces on behavior and perception of the residents which in turn affect the social, recreational and economical aspects of the neighborhood. One way of studying the physical aspect of than area is by studying its public realm. Public realm includes all open spaces that provided for everyone. “The public spaces are considered as the extent to which the greatness of city is measured” (John Ruskin as cited by Bain 1955)

Why study the quality of public realm matter? It is not difficult to underestimate the significant effect of environmental factors and the nature of those environmental factors, have on our regular routines. The spaces around us shape our lives, and everybody has a stake in this. According to Bain (1955), the public domain can make fantastic spots to live, work, and play; fortify local area association; support better ways of life; foster neighborhood economies; advance metropolitan example that are less subject to petroleum products. Whether in the

nursery, at home, or on Central Avenue, individuals like to feel shielded and safeguarded. We appreciate space that are scaled fittingly for use by individuals, deciphering them comfortable, cozy, or safe.

The work of Copenhagen-based Gehl Architects has distinguished between necessary, social and optional activities (Bain, 1955). Optional activities are very dependent on the quality of the space, and in a good physical environment, a wide array of optional activities can occur. People chose to stroll, sit, play, and eat. The attractiveness of optional trips is key to successful public space. Successful place making takes advantage of the opportunities specific to particular site and the potential of each site to contribute to the public realm. Depending on the needs of the neighborhood, this may mean creating new spaces for community activates, bringing out the identity of the neighborhood, or making enticing places that encourage people to walk from a place to place. Quality, security, comfort, and intriguing objections are among the elements that decide how individuals decided to move around the city. Favoring the car, a way for movement has led to spread-out destinations that make walking and bicycling impractical. Streets have been meeting place throughout history. Even with addition of vehicles into cities, many streets are still at the heart of civic life. Expanding the physical space available for public life is a critical opportunity in dense urban neighborhood. There are many types of spaces that bring people together. Good public spaces can make neighborhood safe as well.

Previous Research methods on Public Realm

Appleyard (1981) considered roads to be the most fundamental space forever. He imagined a few positive jobs: the road as a safe-haven (walking area), a reasonable climate, a local area, a friendly region, a spot for play and learning. A green and wonderful land and a 'special notable spot' A specific point that appeared to excite Appleyard's consideration was the adjustment of inhabitant's social connection as impacted by the degree of traffic.

"Individuals have consistently lived on roads. They have been the spots where youngsters originally found out about the world, where neighbors met, the social habitats of towns and urban areas, the mobilizing focuses for revolts, the locations of suppression. The road has forever been the location of this contention, among living and access, among occupant and explorer, between road life and the danger of death" (Appleyard, 1981)

In his book *Livable Streets*, Appleyard (1981) dealt with the traffic impact upon the lives of local residents. He intended to describe the residential life on streets with differing traffic patterns and to identify methods to improve the quality of life on residential streets. The first section of the book, 'Living with Traffic' is the most relevant to this study. In this section, Appleyard discusses residential life on the street of San Francisco. He classified traffic flows in the streets and measured residents' contentment in terms of noise level, neighborhood feeling, ease of parking, and safety for children. Specifically, he researched three unique roads in San Francisco that were decided to be all around as indistinguishable as conceivable in each aspect with the exception of one - how much traffic on every road. The review had the option to show that simply the simple presence of vehicles, with their suggested parts of risk, clamor, and contamination, smashes the personal satisfaction in areas. It soon becomes clear in the book that happiness is difficult to measure and that many variables often cannot be identified or controlled, but it is equally obvious that the volume of traffic flow on a street is an important and pervasive factor.

Appleyard was perhaps the earliest individual to utilize picture planning, an examination device for looking at specific transportation and arranging issues, while concentrating on road bearableness.

For example, one outline conveys the social cooperations on the 3 distinct roads, with each line meaning a one of a kind association between one individual in the city and another. There

are many less lines on the vigorously traffic road rather than the moderate or the light traffic road, which obviously has significantly more interconnections. This outline additionally incorporates bunches of little dabs that show where individuals actually accumulate. Thus, it shows how on the intensely traffic road, there are a lot more modest number of spots and there are just a small bunch of where individuals would assemble on this road.

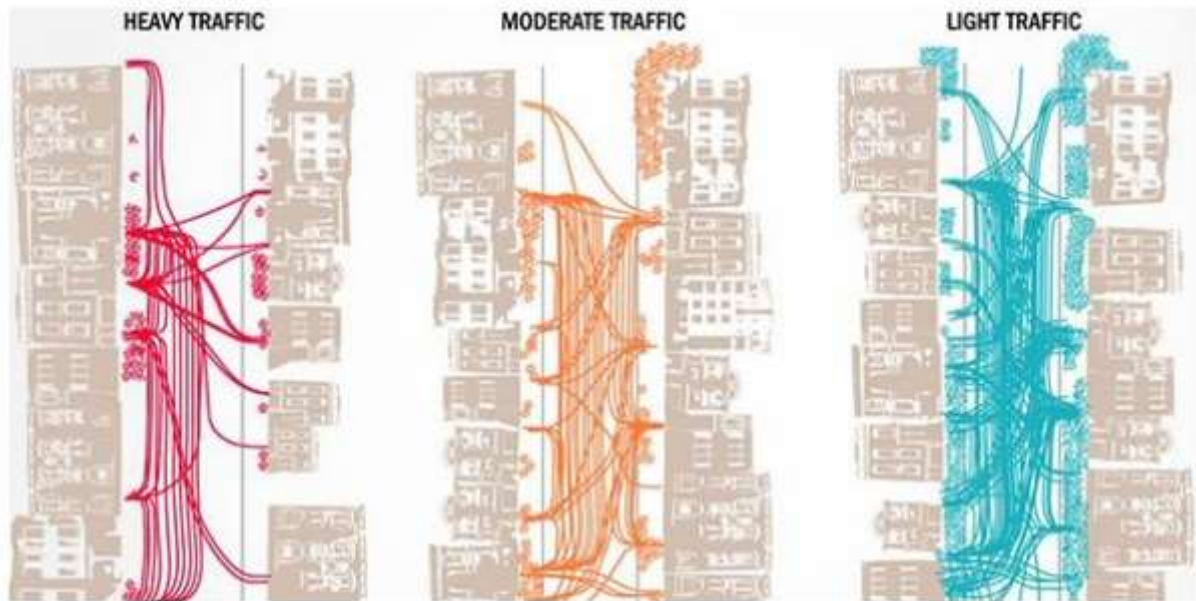


Figure (3.3.1) Effect of Traffic on Social Interactions

Another way to evaluate a public space could be by evaluating their urban design qualities. Urban design depends on features that are physical and distinctive from them. They mirror the overall manner by which individuals see and collaborate with the climate. These metropolitan plan characteristics are unique in relation to characteristics like feeling of solace, feeling that everything is safe and secure, and level of interest that reflect how an individual respond to a place.

Urban design quality can be measured using the audit instrument developed by Ewing et al. (2005). The instrument was utilized to assess the Form-Based codes, and it was conjectured that utilization of the codes can possibly make a walkable metropolitan road. Results support

the speculation; an investigation of 30 Form-Based codes uncovered the highlights managed by the codes made similar metropolitan plan characteristics and elements viewed on noteworthy roads known as walkable and liked by clients. A study of roads worked by the use of the codes showed the codes have a more noteworthy potential to make walkable roads on the off chance that they manage countless elements and control the recurrence of the highlights inside an assigned length of road. Results likewise propose codes are bound to find success assuming most of the directed highlights are connected to the metropolitan plan characteristics of imageability, intricacy, and human scale.

Mehta (2009, 2008, 2007) looked at social interactions on the street and the quality of the public realm. Developing Appleyard's method and using Ewing's tool, he documents the physical attributes of the public realm. He uses the 'walk-by' to observe and record how the public realm is used. He produces behavioral maps of people activities as shown in Figure (3.3.2). He interviews users of the public realm to understand their perceptions and motivations. He also does a statistical analysis of his observations.

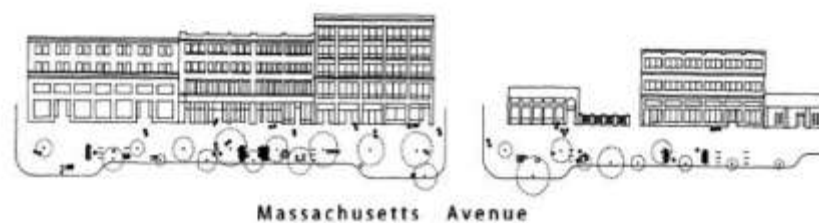


Figure (3.3.2): Behavioral Map by Mehta (2009)

This study uses the method originally developed by Donald Appleyard and further developed by Vikas Mehta. Appleyard (1981) studied the social impact on traffic and layout of neighborhood in San Francisco, and devised sensitive tools for the analysis of peoples' perceptions of the environment. Mehta (2009, 2008, 2007) has published three articles that look at social interactions on the street and the standards of public realm. He documents the physical

characteristics of the public realm. He uses the ‘walk-by’ method to observe and record how the public realm is used. He interviews users of the public realm to understand their perceptions and motivations. I will use these methods for my study.

Identifying Study Area

The unit of study for this research was the agricultural lands owned by public local residents located behind Al Sharq Old Souq in Khorfakkan. Based on the needs to improve the recreational and economical value of this area, owners applied at Directorate of Town Planning and Survey for transferring the land-use of their lands. The study is about revitalizing this area to satisfy public needs. The study area is located behind Al Sharq Old Souq. This market is considered an attractive meeting place and the most popular destination and tourist attraction for the people and visitors of Khorfakkan, as it provides the visitor with optimal options to enjoy the fragrance of the past and the development and sophistication of the present, and it meets the needs of different age groups. The area is located between the residential areas and the public corniche which is near to Khorfakkan port. See figure

QUALITATIVE METHODS

In qualitative research, there are four types of methods that are applied, which includes interview, focus group, observations, and self-reporting (Lewis, 2015). In this research, the research method chosen includes formal and unstructured interviews and walk-by observation. The sample selected under qualitative formal interviews includes the officials from departments concerning Sharjah building and neighborhood development, including the municipality and Directorate of Town Planning and Survey. The interviews will be conducted to review the current public spaces development system, along with the processes, codes, tools and permits involved. It will also assess and review the violations received by the authorities and recorded

by 'Building Inspection Department of Sharjah. In addition, unstructured interviews will be conducted with the residents of Khorfakkan to highlight their needs in such important area that be a vital public realm for khorfakkan city. The qualitative interviews will be applied in conjunction with the quantitative research to further explore the scope of the research. The results will be qualitatively analyzed to explore the reasons behind the need of revitalization of the agricultural lands. Unstructured interviews will be conducted with random residents from four Emirati neighborhoods in Khorfakkan, most of them are the owners of these agricultural lands selected for this research. Given the wide area coverage, a sample size of 25 residents is identified for the data collection. However, the size may vary as it is dependent on the acceptance of the residents to participate in the interviews. The residents will be consulted on the issues they consider leads them to change or modify the land-use of their properties, which may violate the local building code. The opinions shared by the residents will be closely examined qualitatively against the factors raised by the government officials, leading to strategizing effective recommendations to develop a sustainable revitalization plan in this area. In qualitative research, the data analysis process initiates with the data collection as it requires a hand-on approach to understand the data (Plano Clark and Creswell, 2007). In this research, the qualitative analysis comprises of examining the responses from the officials of Directorate of Town Planning and Survey in Khorfakkan. A total of 4 Government officials were approached to participate in this research. On the other hand, the data gathered from the unstructured interviews conducted with the residents will be first converted into quantitative data and analyzed using statistical software. The data collected from the residents will be analyzed and reviewed. Any non-statistical data collected from the survey will be reviewed qualitatively. At the end, a cross examination will be made between the survey and interview

results, to develop the recommendation for the development of the agricultural lands in Khorfakkan.

Supportive to the qualitative interviews, the researcher includes focus group (brainstorming) sessions with the concerned authority officials of Khorfakkan under Emirati neighborhood development to understand and identify residents' needs. Focus group is a group session that allows the participants to interact and discuss over an issue/problem, thereby developing creative solutions to address the issue (Guest, Namey and Mitchell, 2013). In this research, with the participants identified as government officials, the sample size is selected as 5 per group.

The focus group was organized in three sessions:

- 1) A small-scale focus group with officials from DTSP (Directorate of Town Planning and Survey) and random sample of citizens who live in the residential neighborhoods of Khorfakkan. (Organizer)
- 2) Large scale focus group with officials from the governmental authorities related to planning, infrastructure and housing. (Participants)
- 3) small scale focus group with Senior Emirati citizens.

Each session was conducted for 60 minutes with the first session held in an office room and the second held in an event Hall. Each participant in the two sessions were explained about the aim of the discussion and the problem, and were encouraged to share suggestions to overcome the issue. While creativity will be encouraged, however, caution was taken to avoid criticism. The suggestions received from the session will be paired with the interview responses to support the recommendations. Additionally, planning student used walk-by observation through walking inside and around the study area to observe its cultural, social and economic characteristics.

While the qualitative research approach acquires the less aspects of quantification, the quantitative approach covers the statistical or tangible changes of economic and social impacts of sustainable urban development for a public space.

Finding out the preferable facilities to be provided behind Al Sharq Old Souq by Khorfakkan residents to enhance the recreational and economical value of the study area require a specific method. The research conducted a quantitative approach used questionnaire survey and desktop research to satisfy the research objective. Using questionnaire survey helped to gather the required information from Khorfakkan residents. Nomothetic research was undertaken through surveying a specific number of people and the findings from it was inferred to all Khorfakkan residents. The sample of population in this study was defined through the accessible population by the researcher. Therefore, a snowball sampling was used for this study to engage 42 residents of Khorfakkan. The age of people surveyed started from 15 years old. The researcher designs a questionnaire of eight questions including scenario questions using Likert scales. (See appendix)

Data collected from 42 copies of questionnaire survey was analyzed based on different age groups indicated in survey questions. Age groups were 15 to 24, 25 to 44, 45 to 64 and 65 and more. Survey data was summarized quantitatively using pie charts and bar charts. The main aim of this survey was to find out the importance of different facilities that residents would like to be added behind Al Sharq Old Souq. Desktop research was used to develop insights and definitions.

Quantitative examination is fundamental for giving an expansive base of understanding on which commonly a final course action is suggested. Information gathered through researcher observations and the unstructured surveys will be used to establish an understanding of residents' needs in the selected area.

CHAPTER 4: Survey Findings and Discussion

4.1 Findings from Survey Questionnaire

The findings of this research are presented in this chapter in response to the survey questionnaire. This questionnaire was developed by the researcher to find out what facilities Khorfakkan residents would like to be provided by the municipality. The goal of this step was to enhance the recreational and economical value of the area behind Al Sharq Old Souq. The survey resulted in 42 responses being returned from khorfakkan residents.

In response to the first question of the survey, it was found that 66% of the respondents use car to get to Al Sharq Old Souq while the rest of them depend on walking. The next question asked the residents how often they face problems when they reach the area. As shown in figure (4.6.1), the most frequent problems faced by Khorfakkan residents was the lack of community facilities and the lack of commercial developments with percentage of 92% and 86% respectively. The next two problems most frequently faced were the lack of place to sit and the lack of recreational amenities and hotels with percentage of 81% for both of them. In Addition, the figure (3.6.1) shows that 76% of the respondents were having a hard time to find a parking in this area.

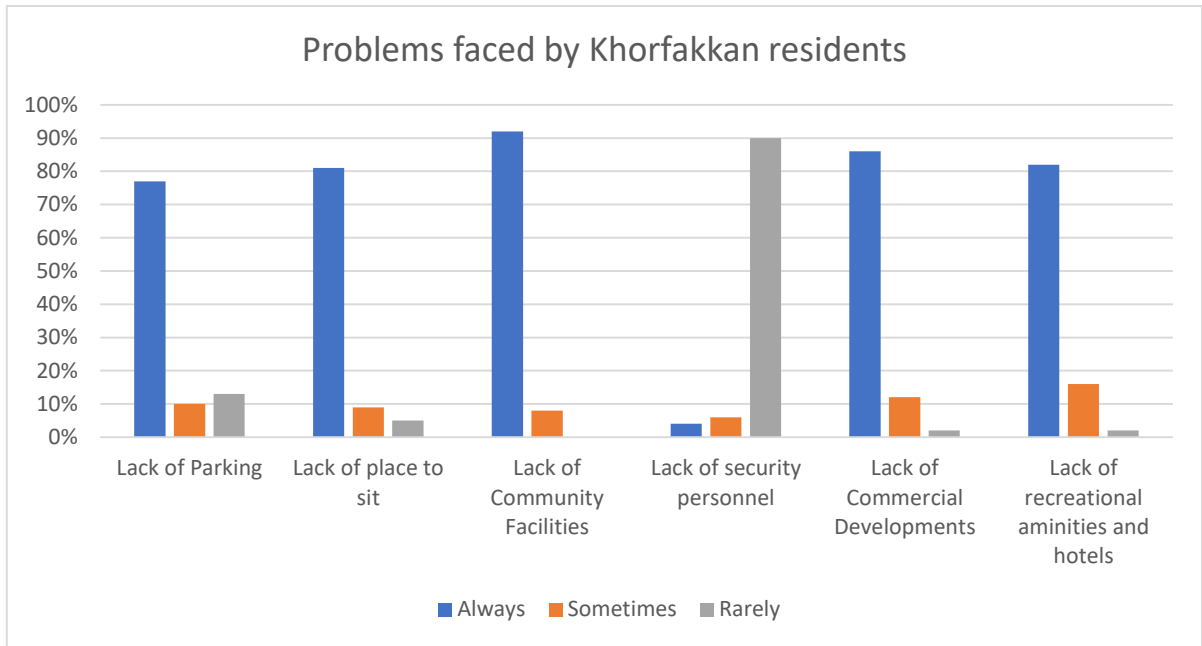


Figure (4.6.1) Problems faced by Khorfakkan residents.

The frequency of the area use is presented through a pie chart indicated in figure (4.6.2). It shows that 84%, which is most of Khorfakkan residents have never gone to the area. Only a small portion of 2% of the residents is going behind Al Sharq Old Souq.

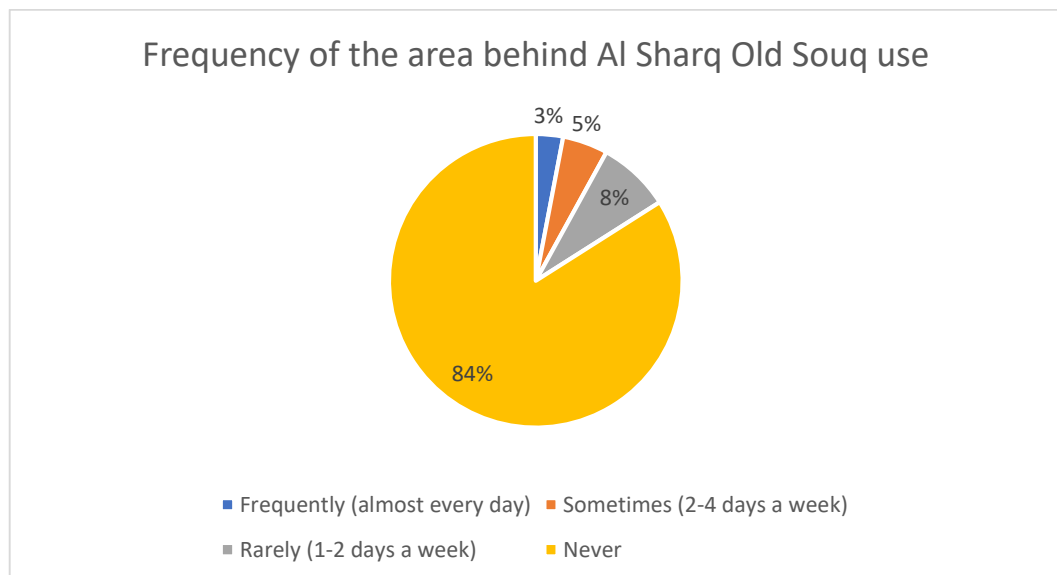


Figure (4.6.2), Frequency of the area behind Al Sharq Old Souq use.

To keep the array of activities done by Khorfakkan residents manageable, we provided them a list of activities and asked how often they practice these activities. Respondents were not restricted to the specified activities since there was a place to mention others. A percentage analysis, presented in figure (4.6.3), is used to display the results. We can infer from the bar chart that none of the respondents were selling and buying goods at the area. In addition, the top three activities by frequency of choice are meditation, enjoying nature, relaxation and sports since there are two playgrounds.

Respondents were asked to rate the amenities existed behind Al Sharq Old Souq. The results are shown as a bar chart in figure (4.6.4). All respondents, as we can interpret from the figure (4.6.4), rated parking, community center, play spaces for children and bicycle and jogging track as poor. This was followed by several amenities that got a poor rate by more than 50% of the respondents. Those amenities were public open space, cafes and restaurants and recreational facilities. However, only two amenities were rated as good by most of the respondents, which are landscaping (64%) and markets that exist in al Sharq Old Souq near the site (24%).

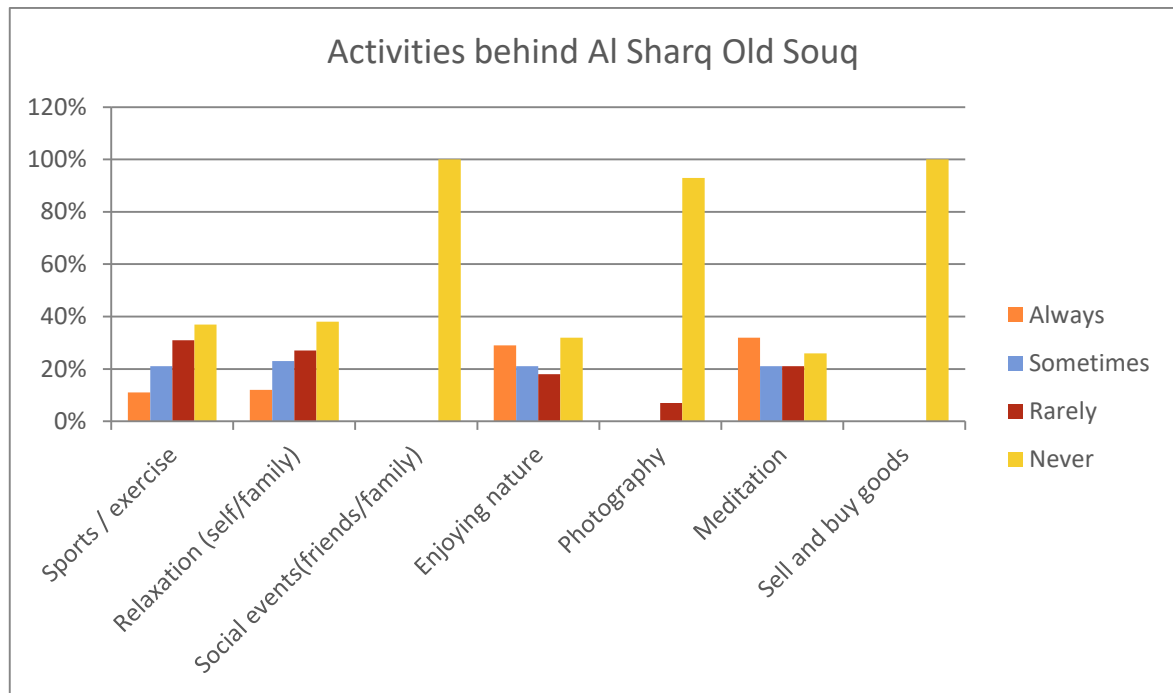


Figure (4.6.3) Percentage of activities at behind Al Sharq Old Souq.

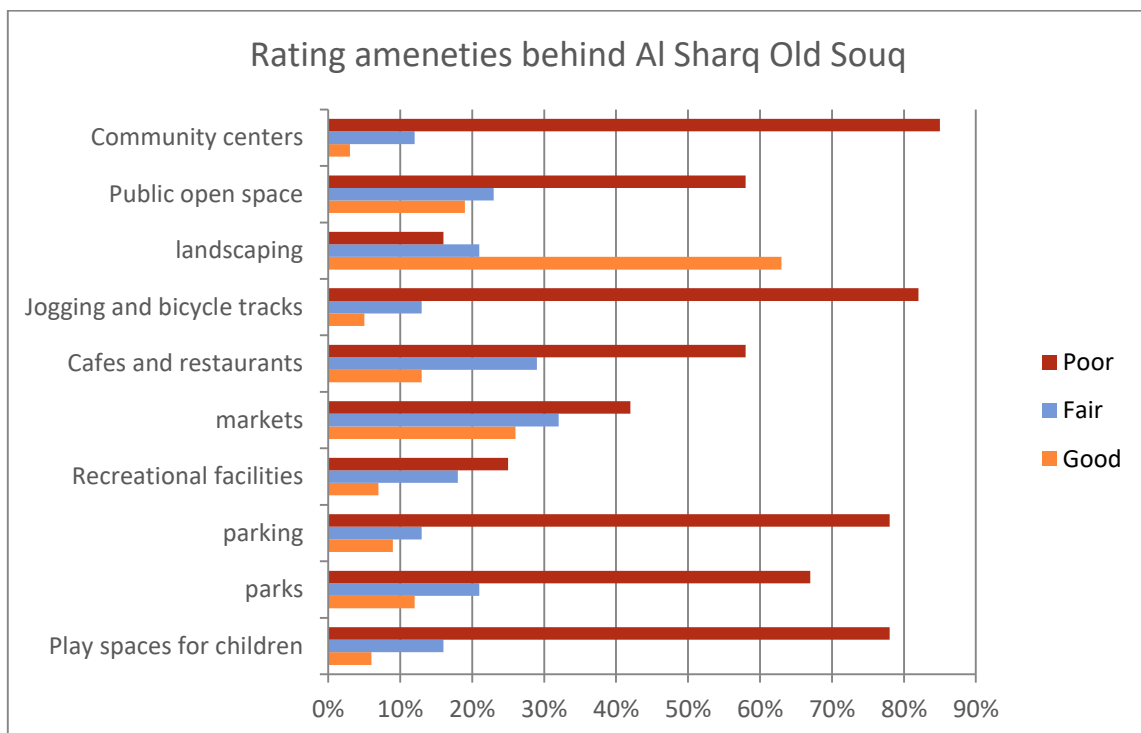


Figure (4.6.4) Rating amenities behind Al Sharq Old Souq.

For further information, the respondents were asked to list specific services that they would like the municipality to provide to make the area more enjoyable. The question was responded by

various participants as the following. Seven of the respondents suggested enhancing the area by organizing planting and providing landscape. The next most frequent response claimed that the sand in the area impedes people from walking. The last comment was made by three of the respondents suggesting the municipality to provide Majlis for locals and community center that enhance social communication.

4.2 Discussion of findings

The data from this study confirmed the researcher's observations that the area has not been used actively by Khorfakkan residents. Moreover, many facilities should be provided and enhanced to make such public realm more enjoyable.

The responses of the first question were really impressive, the researcher did not expect that most of Khorfakkan residents have depended on the car to get to the area. The main reason of this issue was the lack of pedestrian paths that allow the residents to cross the road safely. It was interesting to note that the researcher ran into unscheduled conversation with three Khorfakkan residents. The resident stated that the area now has natural plants and rarely people went there. In their point of view, the site located in a significant area in Khorfakkan which should developed to enhance its recreational and economical value.

Third question also agreed with the researcher's observations by revealing that most of Khorfakkan residents have rarely gone to the area behind Al Sharq Old Souq for several factors. The first factor was presented in the discussion of the first question, which was the lack of pedestrian paths and facilities. The other two factors will be mentioned in the discussion of the following two questions.

Question five presented that the activities that people could do at the area are rare. Question six revealed that only landscape and parking amenities were rated mostly as good while all other facilities were mostly rated poor to fair. The unscheduled conversation with one of Khorfakkan residents also confirmed the proportion of the rating system. In addition, one of the respondents stated “why would residents go to behind Al Sharq Old Souq if there is lack of many facilities even the basic ones like park, benches, and washrooms.” Therefore, this is considered as a second factor for the lack of people at the area.

The last factor could be defined in the responses of the seven question that was about listing specific services to be provided at the area. It was interesting to discover many things, which the researcher did not think about them. These factors, admitted by some of the participants, were: people nowadays suffer from the lack of social interaction and providing a community center or majlis will play a crucial role in improving social communication between residents. The data from this study emphasized the researcher’s observations about the lack of people and facilities at the area behind Al Sharq Old Souq. In addition, it suggests that the presence of good facilities will enhance its activity and conviviality. Therefore, it confirms to what have been discussed in the Literature Review that the presence of facilities and pedestrian paths access are considered as major aspects to make public spaces actively used by people and get its benefits. It emphasizes the argument of Ghel (2011: 117) that “In new area residential, letter drops, magazine kiosks, cafés, shops and sports offices should expect the job of satisfactory affections for the person to be in and remain in the public climate.”

CHAPTER 5: Interview Results and Discussion

5.1 Introduction

The study led and introduced in the previous piece of this dissertation conferred basic information and the fundamental of a rejuvenation plan of the area behind Al Sharq Old Souq. The consequences of the review cycle made an establishment for conversations with specialists and people in, important, influential places. The said people gave criticism on the recommended renewal concentrate on in view of how they might interpret their necessities and their experience on Al Sharq Old Souq region in Khorfakkan. The ramifications of the recommended renewal plan would by and large bring about a positive result for Sharjah with specific monetary, social and sporting improvement. A portion of the comments presented on the recommended plan showed a need to study and propose a recovery plan for further developed opportunities to effectively meet their objective goals. The general topic from the meeting is that it is fundamental that such rejuvenation plan connecting all partners, use existing assets, exploring on the ongoing practices, lastly, executing supportable standards will get ideal results.

5.2 Interview Results and Analysis

Interview 1

The main respondent of the screening, Engineer Ayman Al Naqbi (the administrator of directorate of town arranging and overview in Khofakkan), avowed that the mission to foster framework and conveniences in Khorfakkan is a continuous journey joined by concentrates on hoping to work on Khorfakkan's ongoing standing. The chairman indicated that Khorfakkan Government's vision regarding the area behind Al Sharq Old Souq is developing the area with preserving the agricultural nature to be the recreational greenery heart of Khorfakkan. He suggested providing wide shaded pedestrian paths between farms and utilizing these farms

economically by allowing owners to sell goods within their lands. The chairman supported providing facilities, restaurants and cafes that serves economic, social and recreational needs of the area while promoting walkability within the site through providing parking lots at specific points. See figure (5.2.1)

Public-private Participation Policy (PPP), as mentioned by Engineer Ayman Al Naqbi, is a significant policy that allows the cooperation between public and private sectors to meet Khorfakkan residents' needs. The chairman also indicated that sustainable urban planning principles should be implemented in the revitalization plan of the area and the government should participate in it as a supervisory body. The Directorate of Town Planning and Survey should facilitate the efforts of stakeholders, provide economic incentives regarding these private owned-farms and set the appropriate guidelines for the revitalization planning process.



Figure (5.2.1). Engineer Ayman Al Naqbi revitalization plan proposal.

Interview 2

The next interviewee was Engineer Ali Masoud Al Naqbi who is the Project Manager in the Directorate of Town Planning and Survey in Khorfakkan. The engineer focused on the development plan of the area should be based on preserving the natural farms nature of the site. His vision was inspired by Al Ain Oasis since Khorfakkan residents are so curious regarding this significant site. He suggested providing internal paved lightened paths between the farms with providing multi activities and restaurants between palm trees. He recommended utilizing the valley view strip with cafes to benefit from the natural view of the valley.

5.3 Conclusive Remarks

The overall vision from the interview entails a support for the rehabilitation process for the area behind Al Sharq Old Souq. The responses from the interviews suggest that the revitalization process for the area will certainly improve the recreational, economic and social aspects for the foreseeable future in its treasure to meet residents' needs. Most of the responses repeated their support for the land-use introduction transformed to ensure land optimization to allow for the economic and recreational development. Another theme is the provision of community facilities, pedestrian paths and restaurants where both the state and local authority could announce rules to ensure suitable guidelines for the developing process. The ideal approach is to involve stakeholders in the planning process and based on their responses, the suggested revitalization plan has a prominent chance of emerging a successful sustainable plan barring necessary additions and modifications.

CHAPTER 6: Proposed Revitalization Plan

6.1 Vision

The revitalization plan of the area behind Al Sharq Old Souq aims to build a vibrant public space that encourages the residents to interact and socialize by creating affordable public spaces. Moreover, the public realm within the neighborhood lacks several essential elements which emphasizes the need to integrate green spaces and open spaces such as parks, plazas, hotel and playground.

Also, provide a vibrant commercial strip within the area to encourage the economic status. The redevelopment plan consists of providing all community facilities by creating a community center that is walkable and accessible for everyone.

Enhance transportation and mobility system to encourage the project to be a focal area where it can be reached from several entry points making it centralized. Shaded pedestrian and cycling lanes should be provided to protect people from sun and heat and increase vegetation in the area by preserving and planting native plants.



Figure (6.2.1), proposed Land Use plan.

6.2 Proposed Land Use Plan

Figure (6.2.1). shows the proposed land use plan for the area.

6.3 Economic Proposal

As presented in Land Use Plan, there are three typologies of commercial activities have been developed in the proposal. all typologies are within walking distance as per standard.

Strategy 1: Enhance the commercial aspect

First strategy is to enhance and develop commercial activities in Al Sharq area. This strategy will prevent the phenomenon of crossing the street by providing the commercial activities within the area. The researcher proposed some commercial activities inside the area figure (6.2.1) to ensure providing the needs for the residents and make the area more vibrant and give the opportunity for the residents to find new job next to their homes.

Strategy 2: Introduce Mixed use development

The second strategy is to introduce mixed use development inside the area next to the main streets as it shown in figure (6.3.1). Those developments will provide G+1 commercial development.



Figure. (6.3.1) Retails proposal in alsharq area

Strategy 3: establish new traditional souq

The third strategy is to establish new traditional souk that is affordable and targeting the low-income people. The souq location as it shown in figure (6.3.2) will be next to main road to be visible for the visitors.



Figure (6.3.2). Souq Proposal

6.4 Community Facilities Proposal

The proposal responds to Khorfakkan residents' needs of community facilities in the area as shown figure (6.4.1). The proposal provides all community facilities in the center of the area by creating community center that is walkable and accessible for everyone.

The community center fulfills of all needs of the residents that we take in our consideration.

Moreover, based on the best practices of similar areas, the community facilities will be a vibrant place and no car access. The facilities the researcher provides in the area are the following:

Recreational center for people to give them the opportunity to have healthy lifestyle and using it for their free time. The recreational center located next to the park to encourage people to work outdoor.

A handcraft Centre has been introducing to develop their skills and start their own home business in the area.

Kids club to enhance social and physical activities and provide free time for parents to encourage different social activities.

Masjid which functions as the center community empowerment, reacting as cultural center for Muslims to gather and enhance social communication.

Museum that functions as conservation and documentation of cultural and historical Memories.

Additional to the hotel's which has a heritage design that consists of a ground floor and a first floor and contains a system of villas and rooms to suit all segments of society and tourists, and the presence of a hotel in this area will make a big difference, especially since there is only one hotel in this area, which is insufficient for tourists, and the hotel enjoys a special location opposite the port of Khorfakkan, which all ships with tourists on board reach.



Figure. (6.4.1). Community facilities plan

6.5 Accessibility and infrastructure Proposal

Accessibility is an important spatial characteristic and a significant link between transportation and land-use accordingly, accessibility plays an important role in urban planning for any area. accessibility is estimated by means and amenities of infrastructure, which describes the performance of the road network.

Infrastructure proposal

There are two types of roads that have been established in the proposal figure(6.5.1), the main street (ring road around the total area) and the secondary streets between the buildings. the secondary street also called home zones. the home zone is a residing road, which is planned primarily to address the issues of walkers, cyclists, kids and clients and where the speed and predominance of the vehicles is decreased, while the main street consists of pedestrian side, cycling tracks to encourage the walkability, and side parking. figure (6.5.2).



Figure. (6.5.1). Proposed Road Map





Figure. (6.5.2) secondary street

Due to the lack of infrastructure in the area and the rainwater pools that appeared in the rainy weather, each proposal of the roads will contain a storm water drainage system that collects the rainwater pools in the area and delivers it to the area park and the trees in the streets. fig.(6.5.3)

The employs recycled greywater from the hotel, which is treated in a site-owned subterranean treatment facility.

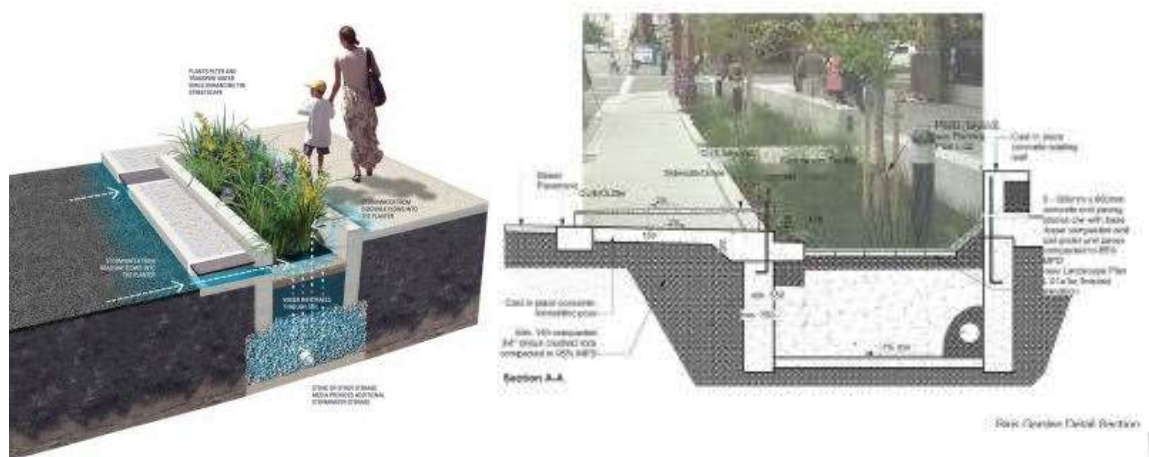


Figure. (6.5.3) Storm water drainage system section

6.5 SOLAR ENERGY

A solar panel is an installation of photovoltaic cells set in a framework, Solar panels generate direct current electricity using sunlight as a source of energy, A photovoltaic system's arrays provide solar energy to electrical equipment.

Solar cells orientation:

According to Dewa, the optimum orientation for fixed solar cells in the UAE all year round is in the south and the optimal inclination is about 24 degrees.

The main types of solar panels:

- **Monocrystalline**
- **Polycrystalline**
- **Thin Film**

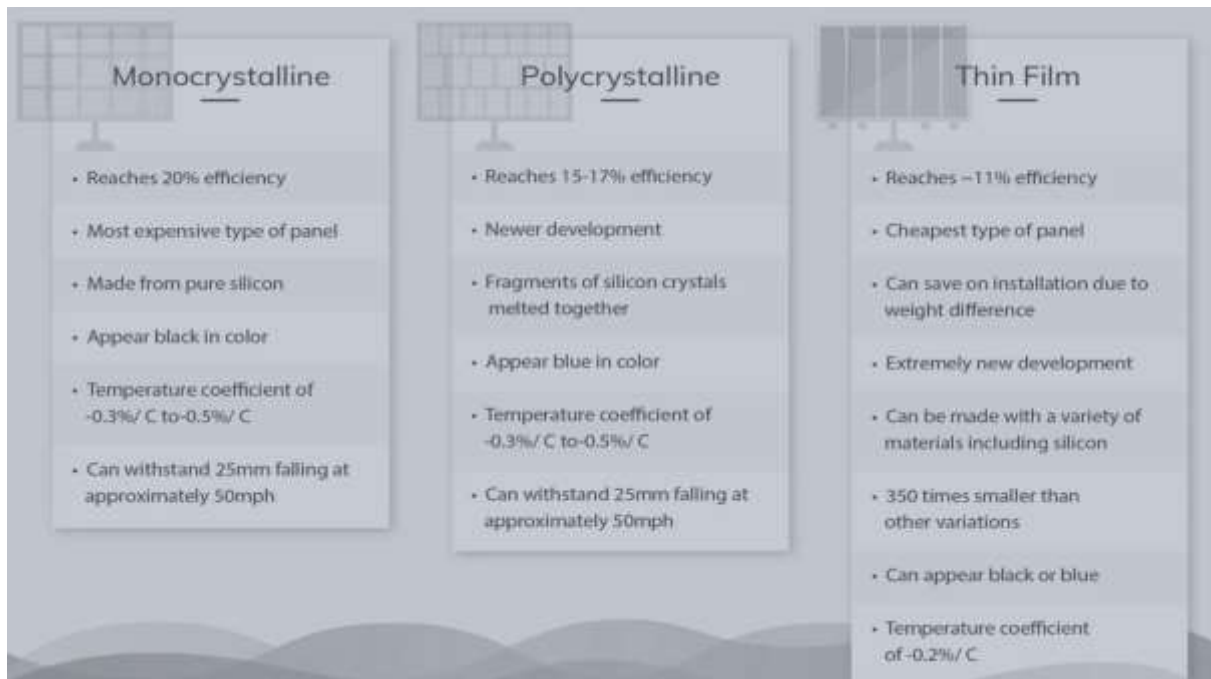


Figure. (6.5.4) The main types of solar panels

Since The most efficient solar panel is the monocrystalline solar panel, these panels can reach over 20 percent efficiency despite it is more expensive than other types, they generate more power than the other types, not only because of their efficiency but because they come in higher wattage modules with more than 300 watts of power capacity.

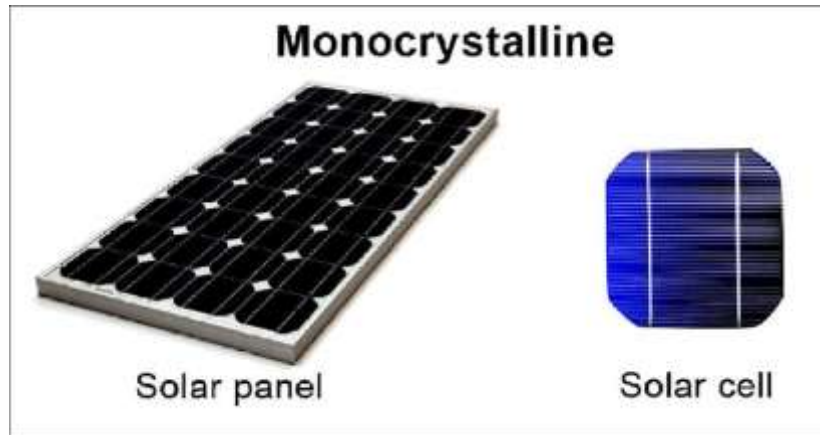


Figure. (6.5.5) Monocrystalline

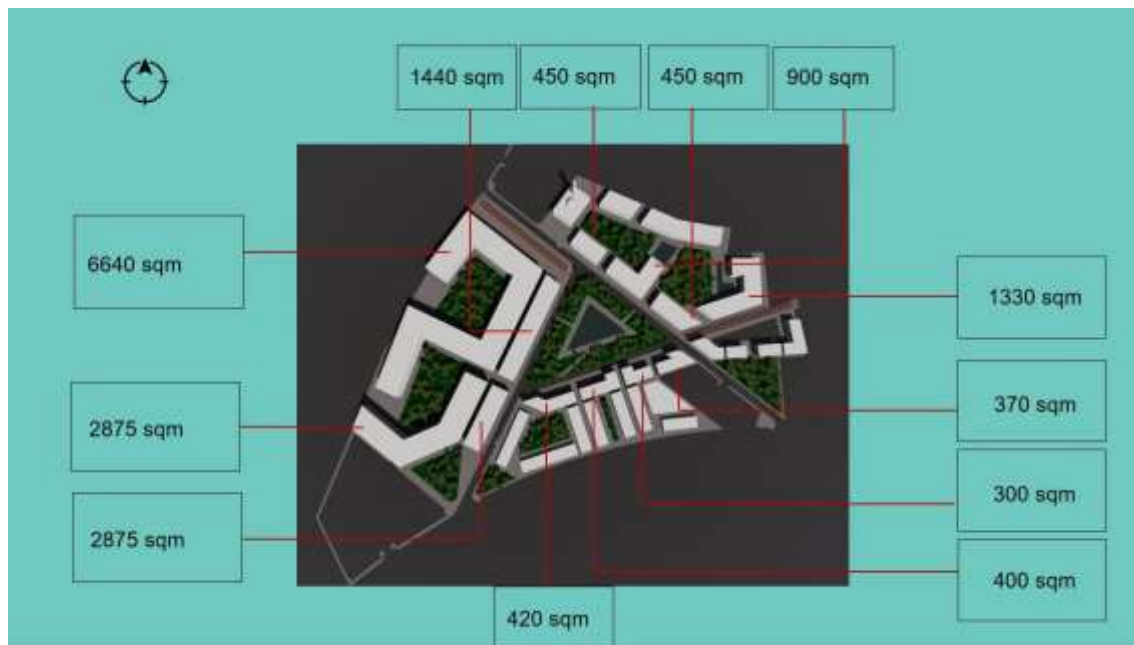


Figure. (6.5.6) Total Roof area

Total Roof area = 18030 m² covering 30% with PV panels
 (1.2 m x 1 m) Monocrystalline 18% efficiency) this is equal to 4500 panel.
 $18030 \times 0.3 = 5400$
 $5400 / 1.2 = 4500$ panel

Annual PV energy	2273291 kWh
Spec. annual yield	1683.92 kWh/kWp
Performance ratio	85.56 %

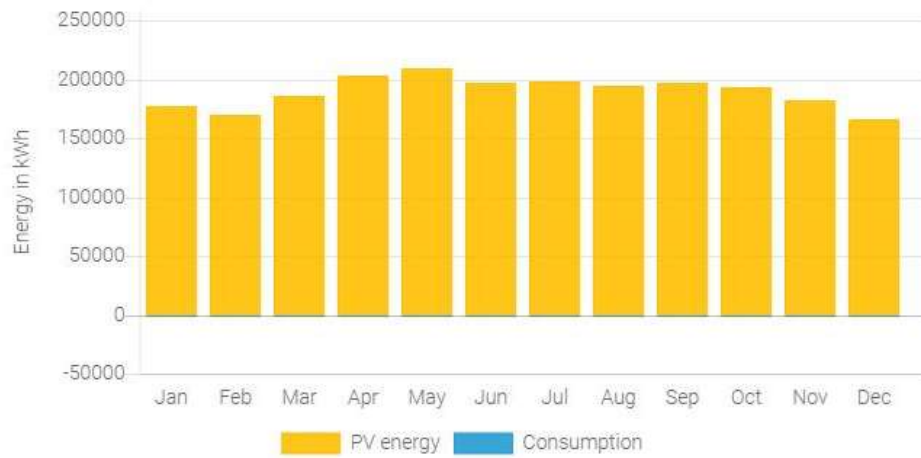


Figure. (6.5.7) Annual PV energy

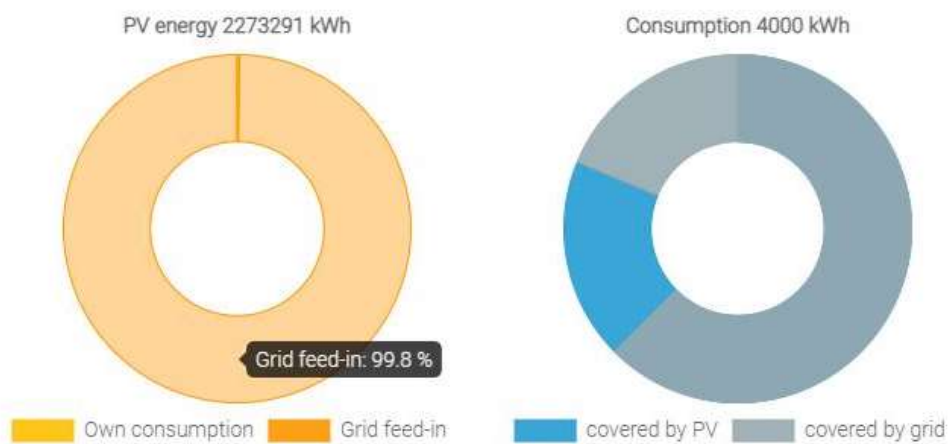


Figure. (6.5.8) PV energy & Consumption

LEED v4 for BD+C: New Construction and Major Renovation Project Checklist				Project Name: Revitalization Plan for the area behind Al Sharq Old Souq in Kharfakkan Date: 16/06/2022			
Integrative Process				1			
Location and Transportation				16			
LEED for Neighbourhood Development Location	10	10	10	10	10	10	10
Sensitive Land Protection	1	1	1	1	1	1	1
High Priority Site	2	2	2	2	2	2	2
Surrounding Density and Diverse Use	5	5	5	5	5	5	5
Access to Quality Transit	5	5	5	5	5	5	5
Bicycle Facilities	1	1	1	1	1	1	1
Reduced Parking Footprint	1	1	1	1	1	1	1
Green Vehicles	1	1	1	1	1	1	1
Sustainable Sites				10			
Construction Activity Pollution Prevention	Required	Required	Required	Required	Required	Required	Required
Site Assessment	1	1	1	1	1	1	1
Site Development - Protect or Restore Habitat	2	2	2	2	2	2	2
Open Space	1	1	1	1	1	1	1
Runoff Management	2	2	2	2	2	2	2
Heat Island Reduction	2	2	2	2	2	2	2
Light Pollution Reduction	1	1	1	1	1	1	1
Water Efficiency				11			
Outdoor Water Use Reduction	Required	Required	Required	Required	Required	Required	Required
Indoor Water Use Reduction	Required	Required	Required	Required	Required	Required	Required
Building-Level Water Metering	Required	Required	Required	Required	Required	Required	Required
Outdoor Water Use Reduction	2	2	2	2	2	2	2
Indoor Water Use Reduction	2	2	2	2	2	2	2
Cooling Tower Water Use	2	2	2	2	2	2	2
Water Metering	1	1	1	1	1	1	1
Energy and Atmosphere				33			
Fundamental Commissioning and Verification	Required	Required	Required	Required	Required	Required	Required
Minimum Energy Performance	Required	Required	Required	Required	Required	Required	Required
Building-Level Energy Metering	Required	Required	Required	Required	Required	Required	Required
Fundamental Refrigerant Management	Required	Required	Required	Required	Required	Required	Required
Enhanced Commissioning	5	5	5	5	5	5	5
Optimize Energy Performance	16	16	16	16	16	16	16
Advanced Energy Metering	1	1	1	1	1	1	1
Renewable Assessment	2	2	2	2	2	2	2
Renewable Energy Production	3	3	3	3	3	3	3
Enhanced Refrigerant Management	1	1	1	1	1	1	1
Green Power and Carbon Offsets	2	2	2	2	2	2	2
Materials and Resources				13			
Storage and Collection of Recyclables	Required	Required	Required	Required	Required	Required	Required
Construction and Demolition Waste Management Planning	Required	Required	Required	Required	Required	Required	Required
Building Life-Cycle (Product Reduction)	2	2	2	2	2	2	2
Building Product Disclosure and Optimization - Environmental Product Declarations	2	2	2	2	2	2	2
Building Product Disclosure and Optimization - Sourcing of Raw Materials	2	2	2	2	2	2	2
Building Product Disclosure and Optimization - Material Ingredients	2	2	2	2	2	2	2
Construction and Demolition Waste Management	2	2	2	2	2	2	2
Indoor Environmental Quality				10			
Minimum Indoor Air Quality Performance	Required	Required	Required	Required	Required	Required	Required
Environmental Tobacco Smoke Control	Required	Required	Required	Required	Required	Required	Required
Enhanced Indoor Air Quality Strategies	2	2	2	2	2	2	2
Low-Emitting Materials	2	2	2	2	2	2	2
Construction Indoor Air Quality Management Plan	1	1	1	1	1	1	1
Indoor Air Quality Assessment	2	2	2	2	2	2	2
Thermal Comfort	1	1	1	1	1	1	1
Interior Lighting	2	2	2	2	2	2	2
Daylight	3	3	3	3	3	3	3
Quality Views	1	1	1	1	1	1	1
Acoustic Performance	1	1	1	1	1	1	1
Innovation				6			
Innovation	5	5	5	5	5	5	5
LEED Accredited Professional	1	1	1	1	1	1	1
Regional Priority				4			
Regional Priority Specific Credit	1	1	1	1	1	1	1
Regional Priority Specific Credit	1	1	1	1	1	1	1
Regional Priority Specific Credit	1	1	1	1	1	1	1
Regional Priority Specific Credit	1	1	1	1	1	1	1
TOTALS				Possible Points: 110			
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110							

Figure. (6.5.9) LEED schedule building

LEED® FOR NEIGHBORHOOD DEVELOPMENT				110 TOTAL POINTS POSSIBLE			
SMART LOCATION & LINKAGE				27 POSSIBLE POINTS			
PREREQ 1	Smart Location	REG					
PREREQ 2	Imperiled Species and Ecological Communities	REG					
PREREQ 3	Wetland and Water Body Conservation	REG					
PREREQ 4	Agricultural Land Conservation	REG					
PREREQ 5	Floodplain Avoidance	REG					
CREDIT 1	Preferred Location		●●●●●●●●				
CREDIT 2	Brownfield Redevelopment		●●				
CREDIT 3	Locations w/ Reduced Automobile Dependence		●●●●●●●●				
CREDIT 4	Bicycle Network and Storage		●				
CREDIT 5	Housing and Jobs Proximity		●●●				
CREDIT 6	Slope Slope Protection		●				
CREDIT 7	Site Design for Habitat/Wetland & Water Body Conservation		●				
CREDIT 8	Restoration of Habitat/Wetlands and Water Bodies		●				
CREDIT 9	Long-Term Curbside Mgmt. of Habitat/Wetlands & Water Bodies		●				
NEIGHBORHOOD PATTERN & DESIGN				44 POSSIBLE POINTS			
PREREQ 1	Walkable Streets	REG					
PREREQ 2	Compact Development	REG					
PREREQ 3	Connected and Open Community	REG					
CREDIT 1	Walkable Streets		●●●●●●●●				
CREDIT 2	Compact Development		●●●●●●				
CREDIT 3	Mixed-Use Neighborhood Centers		●●●●				
CREDIT 4	Mixed-Income Diverse Communities		●●●●●●				
CREDIT 5	Reduced Parking Footprint		●				
CREDIT 6	Street Network		●●				
CREDIT 7	Transit Facilities		●				
CREDIT 8	Transportation Demand Management		●●				
CREDIT 9	Access to Civic and Public Spaces		●				
CREDIT 10	Access to Recreation Facilities		●				
CREDIT 11	Walkability and Universal Design		●				
CREDIT 12	Community Outreach and Involvement		●●				
CREDIT 13	Local Food Production		●				
CREDIT 14	Tree-Lined and Shaded Streets		●●				
CREDIT 15	Neighborhood Schools		●				
GREEN INFRASTRUCTURE & BUILDINGS				30 POSSIBLE POINTS			
PREREQ 1	Certified Green Building	REG					
PREREQ 2	Minimum Building Energy Efficiency	REG					
PREREQ 3	Minimum Building Water Efficiency	REG					
PREREQ 4	Construction Activity Pollution Prevention	REG					
CREDIT 1	Certified Green Buildings		●●●●●				
CREDIT 2	Building Energy Efficiency		●●				
CREDIT 3	Building Water Efficiency		●				
CREDIT 4	Water-Efficient Landscaping		●				
CREDIT 5	Existing Building Use		●				
CREDIT 6	Historic Resource Preservation and Adaptive Reuse		●				
CREDIT 7	Minimized Site Disturbance in Design and Construction		●				
CREDIT 8	Stormwater Management		●●●●				
CREDIT 9	Heat Island Reduction		●				
CREDIT 10	Solar Orientation		●				
CREDIT 11	On-Site Renewable Energy Sources		●●●				
CREDIT 12	District Heating and Cooling		●●				
CREDIT 13	Infrastructure Energy Efficiency		●				
CREDIT 14	Wastewater Management		●●				
CREDIT 15	Recycled Content in Infrastructure		●				
CREDIT 16	Solid Waste Management Infrastructure		●				
CREDIT 17	Light Pollution Reduction		●				
INNOVATION & DESIGN PROCESS				6 POSSIBLE POINTS			
CREDIT 1	Innovation and Exemplary Performance		●●●●●				
CREDIT 2	LEED Accredited Professional		●				
REGIONAL PRIORITY CREDIT				4 POSSIBLE POINTS			
CREDIT 1	Regional Priority		●●●●				

Figure. (6.5.10) LEED for neighborhood development

There are five main elements in LEED for neighborhood development schedule (Smart location & linkage, Neighborhood pattern & design, green infrastructure & buildings, Innovation & design process, regional priority credit)

Smart location & linkage

I got 10 point from (preferred location) because geographically, the position is crucial because it is situated between residential areas and the public corniche, which is close to Khorfakkan port, it attracts tourists and visitors, the total area for the site is around 92140 M2, the study area is an expansion of the old Souq Sharq project, which is located just behind the area, also a shaded walkway was provided to connect the two areas.

Also 7 points from (location w/reduced automobile dependence) and one point from (bicycle network) because in my (Accessibility and infrastructure Proposal) part. figure (6.5.2). There are two types of roads has been established in the proposal figure(6.5.1),the main street(ring road around the total area)and the secondary streets between the buildings .the secondary street also called home zones.the home zone is a residing road ,which is planned primarily to address the issues of walkers ,cyclists ,kids and clients and where the speed and predominance of the vehicles is decreased,while the main street is consist of pedestrian side ,cycling tracks to encourage the walkability,and side parking.

Addition to a 3 points from (housing add jobs proximity) because in my (Economic Proposal) part, ensure providing the needs for the residents and make the area more vibrant and give the opportunity for the residents to find new job next to their homes by providing commercial centers, kiosks and the hotel, which allows creating new job opportunities after reviving the degraded agricultural area.



Figure. (6.5.11) site plan



Figure. (6.5.12) sun bath

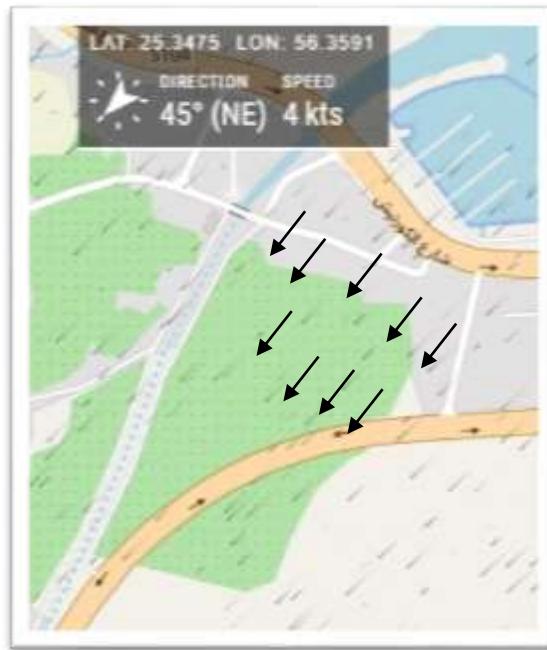


Figure. (6.5.13) wind direction

Neighborhood pattern & design

I achieved 12 points from (walkable streets) & 2 points from (street network) because in my (Accessibility and infrastructure Proposal) part. figure (6.5.2). There are two types of roads that have been established in the proposal figure(6.5.1), the main street (ring road around the total area) and the secondary streets between the buildings. the secondary street also called home zones. the home zone is a residing road, which is planned primarily to address the issues of walkers, cyclists, kids and clients and where the speed and predominance of the vehicles is decreased, while the main street consists of pedestrian side, cycling tracks to encourage the walkability, and side parking.

In addition to 6 points from (compact development), 4 points from (mixed-use neighborhood centers) and 7 points from (mixed-income diverse communities) because in my (Economic Proposal) part, I mention that introduce mixed use development inside the area next to the main streets as it shown in figure (6.3.1). Those developments will provide G+1 commercial development. And area as shown figure (6.4.1). The proposal provides all community facilities in the center of the area by creating community center that is walkable and accessible for everyone.

Also, from (community outreach and involvement) I got 2 points because in my (Proposal for Public Realm) part, majls and a community Park, the characteristic of this type of park is that it responds to the need of women in the area to make the park only for women to interact and act freely in a public space and watch their children safely in private park figure (6.6.4). Taking the advantage of some empty plots to spread out parks with the existing native plants over the site. Those parks will give the children the opportunity to play in a safe place.

Green infrastructure & buildings

I got 4 point from (stormwater management) , 2 points from (wastewater management) and one point from (building water efficiency) Due to the lack of infrastructure in the area and the rainwater pools that appeared in the rainy weather.each proposal of the roads will contain storm water drainage system that collect the rainwater pools in the area and deliver it to the area park and the trees in the streets.fig.(6.5.3)

The employs recycled greywater from the hotel, which is treated in a site-owned subterranean treatment facility.

Also, one point from (water-efficient landscaping) because in my (Proposal for Public Realm) part, Figure (6.6.1), show the proposal presents the provision of water fountains in three zone.

Addition to 2 points from (building energy efficiency), one point from (solar orientation) and 3 points from (on-site renewable energy sources) because in (solar energy) part I mention Solar cells orientation: According to Dewa, the optimum orientation for fixed solar cells in the UAE all year round is in the south and the optimal inclination is about 24 degrees.

The most efficient solar panel is the monocrystalline solar panel, these panels can reach over 20 percent efficiency despite it is more expensive than other types, they generate more power than the other types, not only because of their efficiency but because they come in higher wattage modules with more than 300 watts of power capacity.

Regarding to LEED schedule building & LEED for neighborhood development schedule I achieve from LEED schedule building 43 points which is rated as certified, and from LEED for neighborhood development schedule I achieved 67 points which is rated as Gold.

6.6 Proposal for Public Realm

The "public domain" comprises fundamentally of the freely claimed road privileges of-way and other freely available open spaces like parks, squares, courts, yards, and back streets. Public domain can assume a crucial part in impacting socio-behaviorism as well as articulating relations in encountering and recognizing metropolitan personalities of the conditions. It fills in as the "living room" for local area life spots where individuals meet, cooperate, and wait. Figure (6.6.1), shows proposed public realm Map.



Figure. (6.6.1) Public realm Map

There are 2 strategies have been followed in the proposal. Strategy I: Provide different categories of open spaces. The proposal responds to the public realm issues

In the neighborhood by providing three types of public spaces. The three types are center plaza, neighborhood parks and community parks as shown in the figure (6.6.2). Plaza located in the community center near to Al Sharq Old Souq.

Neighborhood Park with its native plant's nature serve as a social and recreational focal point for residents. Ripe market and community events could be held in the neighborhood park. The goal is to create a huge breathable space accessible and walkable for the residents. Neighborhood Park will support local businesses, giving them platform to sell their handcrafted products to residents and tourists visiting as a result of the handcraft center.



Figure. (6.6.2) Center plaza



Figure. (6.6.3) Neighborhood parks

A Community Park with 2,049m² located in the center of the existing low-income residential area. The characteristic of this type of park is that it responds to the need of women in the area

to make the park only for women to interact and act freely in a public space and watch their children safely in private park figure (6.6.4). Taking the advantage of some empty plots to spread out parks with the existing native plants over the site. Those parks will give the children the opportunity to play in a safe place with no Car access.



Figure. (6.6.4) Community parks

7.1. Master Plan proposal

The revitalization plan of the area behind Al Sharq Old Souq provides all needed activities by the area residents by Building a vibrant public space that encourages the residents to interact and socialize by creating affordable public spaces ,Improving public realm by integrating green spaces and open spaces such as parks, plazas, and playgrounds, providing a vibrant commercial strip within the area to encourage the economic status ,providing all community facilities needed by the residents .including

a community center that is walkable and accessible for everyone, enhance transportation and mobility system to encourage the project to be a focal area where it can be reached from several entry points making it centralized, providing Shaded pedestrian and cycling lanes should be provided to protect people from sun and heat, increasing vegetation in the area by preserving and planting native plants, creating energy efficient project by using the sun power through solar panels.

Figure (6.7.1) below presents the proposed master plan for the site. The following figure (6.7.2) shows the perspective view for the master plan.



Figure (6.7.1), Proposed master plan for the agriculture land in khor Fakkan.



Figure (6.7.2), Masjid which functions as the center community empowerment, reacting as cultural center for Muslims to gather and enhance social communication.



Figure (6.7.3), Main Plaza which is considered as the main focal point of the project that connect all the different activities together.





Figure (6.7.2) Perspective view for the master plan



Figure (6.7.3) Master plan proposal with the existing surrounding lands

8.1. Comparison between existing and proposed land

A comparison of the existing agriculture area with the proposed master plan in term of Positives and Negatives is presented in the table 4 below.

	Positive points	Negative points
Existing Agriculture area	<ol style="list-style-type: none"> 1. The location is near souq sharq which considered as an attractive meeting place and the most popular destination and tourist attraction for the people and visitors of Khorfakkan. 2. The area is located between the residential areas and the public corniche which is near to Khorfakkan port. 	<ol style="list-style-type: none"> 1. Lack of public areas. 2. Lack of community services in the area. 3. Poor infrastructure system which includes less parking's, less walkable areas. 4. A shortage of hotels in the area, which causes that tourists go to other areas such as Fujairah.
Proposed Master Plan	<ol style="list-style-type: none"> 1. Build a vibrant public space that encourages the residents to interact and socialize by creating affordable public spaces. 2. Improve public realm by integrate green spaces and open spaces such as parks, plazas, and playgrounds. 3. provide a vibrant commercial strip within the area to encourage the economic status. 4. providing all community facilities needed by the residents. Including a community center that is walkable and accessible for everyone. 	<ol style="list-style-type: none"> 1. Less car access to the area could create more traffic instead of easing the traffic and making it smooth. 2. Less efficiency in optimizing public transportation. 3. High budget spends going to be needed to create this big project. 4. There is only no form of residential units in the current design.

	<ol style="list-style-type: none"> 5. Enhance transportation and mobility system to encourage the project to be a focal area where it can be reached from several entry points making it centralized. 6. Shaded pedestrian and cycling lanes should be provided to protect people from sun and heat. 7. Increase vegetation in the area by preserving and planting native plants. 8. Create energy efficient project by using the sun power through solar panels. 	
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Table 4, Comparison between existing and proposed land

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8. Appendix

Dear Khorfakkan residents:

Please take a few minutes to help me fill out this short survey. The survey is to find out what facilities you would like the municipality to provide in order to make the area behind Al Sharq Old Souq has more recreational and economical value for you and other people. The information you provide will be used only for education purposes, and it will be confidential. The survey is for my research course at the British University in Dubai. Please fill and return the survey immediately. I appreciate your help.

1. What is the easiest way for you to get to Al Sharq Old Souq from your home?

Car____ Bicycle____ Foot/walk____ other (describe) ____

2. When you get to the area behind Al Sharq Old Souq, how often do you face these problems?

Problem	Always	Sometimes	Rarely
Lack of parking	_____	_____	_____
Lack of place to sit	_____	_____	_____
Lack of community facilities	_____	_____	_____
Lack of security personnel	_____	_____	_____
Lack of commercial developments	_____	_____	_____
Lack of recreational amenities	_____	_____	_____
Others (list)	_____		

3. How often do you go to the area behind Al Sharq Old Souq?

Frequently (almost every day) _____

Sometimes (2-4 days a week) _____

Rarely (1-2 days a week) _____

Never _____

4. How often do you need to go to a public space?

Frequently (almost every day) _____

Sometimes (2-4 days a week) _____

Rarely (1-2 days a week) _____

Never _____

5. How often do you do these activities at the agricultural lands behind Al Sharq Old Souq?

Problem	Always	Sometimes	Rarely	Never
Sports / exercise	_____	_____	_____	_____
Relaxation (self/family)	_____	_____	_____	_____
Social events(friends/family)	_____	_____	_____	_____
Enjoying nature	_____	_____	_____	_____
Photography	_____	_____	_____	_____
Meditation	_____	_____	_____	_____
Sell and buy goods	_____	_____	_____	_____
Others (please specify)	_____			

6. Give us your view (rating) on these amenities in Khorfakkan City public spaces

Problem	Good	Fair	Poor
Play spaces for children	_____	_____	_____
parks	_____	_____	_____
parking	_____	_____	_____
Recreational facilities	_____	_____	_____
markets	_____	_____	_____
Cafes and restaurants	_____	_____	_____
Jogging and bicycle tracks	_____	_____	_____
landscaping	_____	_____	_____
Public open space	_____	_____	_____
Community centers	_____	_____	_____

7. List any specific things that you would like the municipality to provide or do to make the area behind Al Sharq Old Souq more enjoyable for you?

8. Please mark (x) your answer:

a. I am: Male____ Female____ Married____ Not married____

Local____ Non local____

b. My age group is: (15 – 24 years) ____ (25 – 44) ____ (45 – 64) ____ (65 +) ____

9. I have lived in Khorfakkan for ____ years and ____ months

10. Please write any brief comment you may have about the area behind Al Sharq Old Souq

Thank you for your time and help