

UNIVERSITY OF BAHRAIN



A Qualitative Investigation of Social Sustainability in New Bahraini Neighbourhoods

A thesis submitted in partial fulfilment of the requirements for the degree
of Master of Architecture (Urban Design).

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Abstract

The well-being of a community's residents depends extensively on social sustainability of their neighbourhood, which may be effectively attained by the careful deployment of pedestrian-friendly infrastructure and cultivation of distinct urban characteristics. In the mid-1950s, Bahrain's government implemented multiple urban expansion plans to accommodate its growing population and manage their geographic dispersion across the country by creating new neighbourhoods and dense network of highway infrastructure. However, most of the dredging and urbanisation has been done in the northern part of the main island, particularly in Muharraq Governorate. The dramatic urban revolution was argued to have disturbed pedestrianisation and the urban characteristics which enable daily activities, and other attractions which stimulate social interaction within the neighbourhood.

Few studies have examined pedestrianisation in cities, however further study is imperative to focus on neighbourhoods. This study aims to examine the relationship between social sustainability and pedestrianisation in newly developed neighbourhoods in Bahrain. The research will specifically focus on the relationship between urban design elements and the social dynamics within the study area. The research employed a qualitative methodology, based on adapting case studies strategy as the primary approach. Data collection was conducted via interviews and observations. A total of four case studies were carefully chosen and observed throughout the Muharraq governorate. Additionally, a comprehensive set of 40 interviews was done to get deeper insights into the intricate dynamics between the neighbourhood and its people.

The findings of the study demonstrate that pedestrianisation has a significant role in influencing social sustainability within the study area. The outcomes indicate that the implementation of pedestrianisation in the areas of study was insufficient. The existing street design prioritizes vehicular traffic above pedestrian movement, hence underscoring the significance of enhancing the liveability of streets. The results also indicate that the absence of social infrastructure has a negative impact on the walkability of the community. Additionally, closeness and accessibility of social infrastructure have a significant role in promoting pedestrianisation and fostering social interactions. The studied areas revealed a noticeable absence of urban green spaces, which had a discernible effect on both the quality of life and the vibrancy of the streets. The results indicate that the implementation of a linear master planning concept in the design of neighbourhoods has led to a perceived sense of isolation and hindered

pedestrian mobility when it comes to performing everyday activities on foot.

The study recommends conducting a correlational investigation between the pre-existing and recently developed residential areas to elaborate shortcomings in their design. The research proposes the integration of social factors as a fundamental aspect of urban character to foster socially sustainable communities. The primary recommendation of this research is to prioritise the public's rights to accessibility in shared public spaces within communities and to acknowledge urban green spaces as viable solutions to a range of urban challenges, including enhancing the quality of life, promoting walkability, and improving the liveability and vitality of streets.

Dedication

This thesis is devoted to my father and brother Sameer who both have been a consistent source of support and encouragement throughout my studies and life's obstacles. This work is also in dedication to my teachers who have always been my support and guide in the right direction.

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List of Terminologies

Girgaoon - a celebration for young children celebrated during Ramadan where girls are dressed in their best jalabeeyas (traditional colourful dresses) while the boys in their best thoubas (long white dress) and go door-to-door asking for sweets from their neighbours (Naar, 2020)

Liveability - a suitability of a place as a permanent residence (Petrovič & Murgaš, 2021)

Majlis - sitting places where people gather to discuss news and issues, receive guests, socialize, and be entertained (UNESCO)

Pedestrianisation - practice of restricting the access of vehicles to a street or larger space formerly reserved for people who are walking (Jackson, 1986)

Public amenity - a useful feature or facility of a place that can be used by anyone (Little Real Estate, 2018)

Public facility - any improvement to a street, plaza, or pedestrian space including furniture, decor, park, parking facility, recreational facility, etc. designed and dedicated to be used by the public (Law Insider)

Public services - resources offered by an organization, usually a government agency, intended to support a community's residents (Indeed Editorial Team, 2022)

Quality of life - the ideal standard of health, comfort, and happiness (Oxford University Press)

Social infrastructure – structures such as libraries, public parks, sports centre schools, and others that facilitate social connections (Latham & Layton, 2019)

Social life - human's socializing tendencies (McKenzie, 2004)

Social sustainability – the ability of structures to support current and future generations in creating healthy and liveable communities that are equitable, diverse, connected, and democratic and that provide a good quality of life (ADEC Innovations)

Taraweeh - a Sunnah or voluntary prayer that is performed during the month of Ramadan after the Isha prayer and before the Witr prayer (Islamic Relief Australia, 2023)

Vitality - physical or mental vigour; the ability to survive or the continuance of a life of meaning; the power to thrive or develop (Bengi, 2017)

Walkable neighbourhood – a neighbourhood that is suitable and safe for walking around (Oxford University Press)

Well-being - part of the quality of life, which means how fulfilled one feels with one's life and surroundings (Sirgy et al., 2008)

List of Abbreviations

CCs	Community Centres
GCC	Gulf Co-operation Council
NW	Neighbourhood Walkability
ODR	Outdoor Recreation
PA	Participant from Amwaj
PD	Participant from Dilmunia
PDM	Participant from Diyar Al Muharraq
PF	Public Facilities
PNH	Participant from New Hidd
PPP	Public-Private Partnership
PS	Public Services
QoL	Quality of Life
SIP	Social Infrastructure Planning
UQoL	Urban Quality of Life
UGS	Urban Green Spaces
USA	United States of America
UVM	Urban Vulnerability Matrix

Chapter One

Introduction to the Study

1.1. Introduction

During the urbanization revolutions of the last century, people's lifestyle demands, immigration, and city populations have escalated. Which has resulted in the birth of megacities with massive populations and a troubled social life (Iranmanesh, 2008). Rapid urbanization is perceived as creating a new social order in which traditional bonds of community shared space, tight family ties, and mutual religious and moral beliefs are being supplanted by isolation, independence, and competitiveness (Cohen, 2006). The move to industrial cities and the advent of digital media and online communities were two events that have impacted this trend (Farahani, 2014). These trends are more visible in new neighbourhoods and are a vital consideration in achieving socially sustainable communities.

Sustainability is a top priority in urban and architectural design: Numerous diverse aspects (economic, environmental, and social) are concurrently defined while pursuing divergent and competing agendas. Since metropolitan and architectural projects are complex, heterogeneous, and potentially energy extensive, one must address a wide range of issues during the design phase. It is critical to grasp the nature of the challenges and identify the factors that must be considered and translate into design strategies, as well as the key actors and how much value can be generated through the alignment process. Social sustainability and a healthy social life are significant concepts in the urbanism literature, while discussing physical designs and their influence upon people's socializing tendencies. Social sustainability is a community's common interest, whereas social life

is people's socializing tendencies (McKenzie, 2004). Human well-being and essential human needs, such as adaptation and growth, are addressed in social sustainability policies to enhance human existence (Lami & Mecca, 2021).

The degree to which individuals are content with their immediate surrounding environment may sometimes be gauged by looking at how engaged they are in their communities' lifestyles (Iranmanesh, 2008). Public life and the neighbourhood's surroundings have been intertwined in the past (Grydehoj, 2015). With changes in the requirements of its citizens changed, historic districts have expanded consequently. Necessitating the fact that the needs of residents should be met within the bounds of the neighbourhood and by the links that they have formed with nearby towns. Traditional communities had frequent socializing and a feeling of communal harmony among the residents.

Urban and architectural spaces are essential elements for developing and accomplishing social sustainability since human activities happen in places and areas with opportunities for interaction (Lami & Mecca, 2021). It is important to consider social sustainability at the neighbourhood level, as neighbourhoods are the bridges that link dwellings to the rest of the city. Moreover, a neighbourhood's social life serves as the counterpart to personal and city-wide life of its residents (Farahani, 2014). Residential connections to the community, neighbourhood social engagement, and residential contentment are all part of social sustainability (Kotulla et al., 2019).

Bahrain is one of these countries which have seen drastic changes in its urban structure and morphology (Shubbar & Furlan, 2019). Which as a result, has stressed the housing market. Government bodies have undertaken several initiatives since the 1950s to accommodate Bahrain's

rapidly expanding population and plan its spread, such as building many new cities to cope with the accommodation demands. Several development typologies have been tested in pursuit of the best-suited dwelling for the contemporary Bahraini family, progressively creating a unique urban environment (Saraiva et al., 2017). With these new neighbourhoods there arises a need to study the social life in them to ensure that social sustainability is achieved. Grydehoj (2015) states that contemporary residential societies require open spaces that accommodate users from different backgrounds and, more importantly, dedicated spaces needed for social life.

Traditionally, Bahrain's social life was distinctive and attractive. There has been no mention of division or discrimination in public participation and social cooperation since a very long time. Residents used to meet and discuss their everyday lives, and seek possible solutions of their economic and social problems and support human rights and improve societal relations (El-Ghonaimy & Al-Haddad, 2019). Historically as per Bahrain's socio-cultural setting, the home and neighbourhood are crucial building components for the society's identity. "Social life" has been widely discussed, but few empirical studies have focused and examined neighbourhood pedestrianisation to study daily social activities through the perspective of social sustainability. Social sustainability remains the most neglected aspect of sustainable development studies.

1.2. Research Problem

Growing housing demand in Bahrain prompted government bodies in the mid-1950s to implement various plans to accommodate the country's ever-expanding population and manage its geographic dispersion over

several new neighbourhoods and cities, resulting in the creation of new urban environments. However, the social life of these neighbourhoods has been significantly affected due to the negligence of several urban characters. When a city, particularly in developing countries, experiences rapid expansion, people's social lives are often overlooked (Iranmanesh, 2008). In Bahrain, public open spaces are usually privatized and become inaccessible to a majority of the people (Ansari, 2009).

The social life of residential areas is an integral part of human existence and is socially enriching and valuable. In contrast, today's new residential zones are driven by economics and lack attention to social life (Dousti et al., 2018). People are more concerned with outwardly looks of the societies and residential units rather than appropriate locations of them (Aelbrecht, 2010). "Social life" has been widely discussed, but few empirical studies have examined neighbourhood pedestrianisation to study daily social activity through the perspective of social sustainability.

New Bahrain neighbourhoods have limited pedestrianisation considerations (Soliman, 2014). The most fundamental principle while designing new communities should be pedestrianisation; without integrating this principle, no sustainable technology initiatives will fully succeed (Parhizgar, 2013). Social sustainability is the most neglected sustainable development factor. The literature review reveals the importance of numerous urban design considerations to cater to social sustainability, but consideration of an individuals' well-being through pedestrianisation and social interaction is prioritized in it (Ghahramanpouri et al., 2017). A few vital studies have focused on how people interact with each other when living in communal settings (Farahani, 2014). However, little consideration has been paid to neighbourhood design and availability of shops, utilities and other attractions that encourage walking, have affected social interaction in communities (Wood et al., 2010).

Furthermore, it was found that when conducting studies usually, either specific behaviours or individual factors are analysed; however, both aspects are rarely recorded simultaneously. According to observers and critics of the cities, the community's commercialization, cleanliness, and fortification efforts have resulted in the marginalization of a great deal of the population. This discourse upon public space has not given attention to how more minor well-known sections of the neighbourhood impact people's lives daily, even though this is an essential factor.

Additionally, when emphasis is placed on the deteriorative and unfavourable features of changing public spaces it not only often over shadows the conversations and the functions of everyday life but also the effective forms of social interaction and involvement. The bridge that most likely plays a significant role in building neighbourhoods that are socially sustainable is the casual, fleeting social contact in public places. There is a need for further research on typical everyday spaces, such as the main streets of neighbourhoods to study the casual social connections and activities that make the streets impactful and appealing for pedestrianisation. This research is vital because there is a dire need for additional research on the social life of new neighbourhoods which elaborates the urban characters responsible for social sustainability and its relationship with pedestrianisation.

1.3. Research Question, Aims, and Objectives

This study aims to better understand social sustainability in Bahrain's new neighbourhoods by examining the impact of pedestrianisation on social life. While focusing on Bahrain's new neighbourhoods and exploring the link between urban characteristics of contemporary design and a social

life that is vital to Bahrain's cultural identity, the research aspires to meet the following goal and objectives.

Aims

The research aims to investigate the relationship between social sustainability and pedestrianisation in newly developed residential areas in Bahrain.

Objectives

1. To investigate the impact of pedestrianisation on social life in new neighbourhoods
2. To study the urban design characteristics that enhance social sustainability
3. To propose recommendations for the design of a new neighbourhood that would enable socially sustainable urban environments in Bahrain

Research Question

The research question investigates the association between pedestrianisation and social sustainability by focusing on the characteristics of urban design and the social process that produces it. Addressing the aims will help to elaborate the following key research question:

What is the relationship between pedestrianisation and social sustainability? And what urban design approaches can enhance social sustainability in new neighbourhoods in Bahrain?

According to the theories gathered from relevant literature, the variables used for this study are pedestrianisation (Iranmanesh, 2008), social sustainability (Saraiva et al., 2017), and social life (El-Ghonaimy & AL-Haddad, 2019). In addition to pedestrianisation, the application of

urban characters responsible for socially sustainable communities in designing new residential areas will also be analysed.

1.4. Scope and Limitations

The scope of the study is focusing on one pillar of sustainability, which is the social aspect. The study does not explore environmental, political, cultural, economic, or any other kind of sustainability. The study only looks at four places as its case studies. The study was conducted during the month of Ramadan, so there were fewer people in the case study locations. The observation was only done from March to April. The interview questions did not specifically include people with special needs.

1.5. Research Significance

Social life, according to most urban researchers, is critical to achieving long-term social sustainability of communities (McKenzie, 2004). Public spaces in cities and neighbourhoods play an essential role in fostering social interaction. Good public spaces in cities are where people may meet and socialize. The "life between buildings" has been defined as all that takes place in public places between buildings, including sitting, conversing, strolling, cycling, jogging, and playing (Gehl, 1987). Living in architectural terms means being multifaceted, with the ability to create, modify, and sustain an organized structure of many elements placed in precise configurations (Bhat, 2014). Conversely, being socially alive is defined as the ability of a person to interact with others in various ways in a given setting (Farahani, 2014).

According to Grydehoj (2015), social life can be achieved when people can relate to one another in those places, and creating social life in new urban spaces is problematic because it does not show any signs of

human values. In contrast, Karimnia (2012) emphasizes the community's interrelationship that connects the neighbourhood while establishing social life. Instead, Grydehoj (2015) claims new residential societies require open spaces that accommodate users from different backgrounds and, most importantly, open spaces needed for social life. Furthermore, Gehl and Svarre (2013) argue that to have a social life, one must participate in public activities in high-quality public areas.

Knowing the public realm necessitates an awareness of communal places. Sociability is one of the public space's key roles, and studying social behaviour sheds new light on how people use public space. Mehta (2019) argues that seeing the variety and creative chaos in public areas such as parks and plazas promotes one's personal development. Because having many places of social engagement in cities can be considered a luxury, since people will once again have channels to experience variety and order. The disorder that does not damage people but rather enriches and matures them is one of the great promises of city life.

Neighbourhoods must be sociable to perform various cultural, economic, and civic functions (Nettle, 2015). Urbanists have expressed concern about the erosion of social life in modern urban civilizations, notably in North America, due to a culture of private lives, individual luxuries, and a disrupted work home balance (Dempsey et al., 2012). This lack of social connections has been linked to many societal issues.

The "learning of cosmopolitanism" takes place in public open spaces like pedestrian friendly streets, according to Lofland (1998), who adds another dimension of tolerance. Crowhurst-Lennard and Lennard (1987, 1995) compiled a list of social roles offered by communal places by including writings from architecture, urban design, sociology, psychology, psychiatry, and political science. These design efforts have resulted in

improved social competency, and better interpersonal communication skills. People are also being pushed to act ethically.

Pedestrianisation has become the primary type of social space for a good portion of the population on a planet which is becoming increasingly urbanized. Typologically, the walkways are a universal place, despite their multiple uses and purposes. It is no secret that walkways are a perfect emblem of public open space, both physically and symbolically; in certain cities, streets account for more than half of all land used for public purposes (Mehta, 2019). Moreover, for many city dwellers, pedestrianisation symbolizes the great outdoors (Jacobs, 1993). Wood et al. (2010) further argues that walkways, streets, and other pedestrian-friendly physical elements are the most common kind of social spaces in cities across the globe. Their basic layout accommodates various cultural, social, economic, and political uses.

The key benefits of urban social life are closeness, accessibility, and encounters on the street. Endorsing and advocating for pedestrianisation is still relevant today, despite the emergence of various new models and types of urbanizations. Most cities across the globe have a few primary streets that serve as the foundation for important civic, cultural, and economic structures and places and a wealth of municipal history. Many communities have found that revitalizing these avenues is a simple way to reclaim their image and a sense of self identity. A neighbourhoods' commercial street (sometimes known as a "major street," "high street," or something similar) is another typical street type that meets the standard requirements of modern neighbourhoods (Mehta, 2019).

Reviving these commercial streets means building accessible city centres where neighbours can interact and help strengthen social relations and a sense of fellowship, where residents can encounter strangers as part

of their typical day. They also contribute to the local economy, decrease vehicle dependency, and promotes healthy activities by allowing people to walk to their destinations. Additionally, they contribute to social sustainability by advocating social equity, justice, and social rights among the residents when they use their neighbourhoods' surrounding areas (McKenzie, 2004). Physical facilities should be available to all residents to create an equal and healthy community. As public space in cities shrinks or becomes private due to security concerns, the main street provides an open territory that is an essential quality of public space in an era where our needs for leisure and information aren't easily satisfied (Mehta, 2019).

The study primarily focuses upon creation of new neighbourhoods as the study demonstrates the essential urban characters needed by occupants and the humane design strategies that can facilitate the life and vitality of urban spaces which will also benefit future communities even after years have passed. How these urban characters ultimately impact the general social sustainability of neighbourhoods is what this research hopes to add to the existing knowledge gap within urban social sustainability studies. Moreover, in the long run, the research will highlight and stress the importance of social sustainability and provide a guideline for a practitioner to achieve sustainability goals.

1.6. The Study Setting

Cities across the globe are facing numerous economic, social, and environmental problems which have risen due to the expanding economies, cities, and populations, as well as their increased demands and modern ways of life. In the past three decades, cities in the Gulf area have seen significant transformations as they have transitioned from endogenous to exogenous forms of urbanization, resulting in a wide range of new

architectural styles and internal organizational systems. Historical influences on the urban design in Bahrain were due to community organization and a subsistence economy based upon farming, pearl diving, and fishing. But when oil reserves were first discovered and then it was extracted, the first transition toward an exogenous form occurred. As its assets grew, the monarchy instituted a generous welfare programme, distinguishing itself as a prominent player in the urban development. Current events we are experiencing a second phase of "homogeneity" because of globalization (Hamouche, 2004).

With roughly 700 square kilometres of land, the Kingdom of Bahrain is a small nation with a privileged position in the Arabian Gulf. Comprised of 36 islands in total, with Manama as the significant island in this archipelago (Shubbar & Furlan, 2019). Before the discovery of oil in 1932, Bahrain's economy relied heavily on agriculture, fishing, pearling, and shipbuilding because the country is surrounded by sea on all sides and fertile soil and several sweet water springs. After the discovery, the country's primary source of revenue shifted to oil and natural gas (Kubaisy & Falah, 2006). The urban design of Bahrain's two major cities, Muharraq and Manama, mirrors the phases. When seen through the lens of the endogenous-exogenous paradigm, it sparks a discussion about what it will take for historic cities to thrive and provides a theoretical foundation for how management and planning should proceed (Nabi & Noor, 2012).

Since early 1920s, modernization activities ushered in the remodelling of pre-existing urban infrastructure and the creation of brand-new, state-of-the-art structures. In the 1930s, corniche roads were built, and in 1942, a causeway with a swing bridge connected the historic cities of Muharraq and Manama. The natural barrier that separated the ancient Muharraq town, constructed in Bu Maher, from the main island to the north

was destroyed in the 1950s and 1960s as the land was reclaimed surrounding Muharraq town. However, with the introduction of "modern" planning concepts and the exodus of the city's wealthier citizens to new suburban projects in places with easier access by automobiles, the old cities have been neglected and facing decay since the last 50 years. For instance, a new master plan in the early 1970s cut through the old town's historic fabric by inserting major roadways across them (Whelan, 1983).

In Bahrain, the physical urban environment consists of four main parts: buildings, streets and cul-de-sacs, the Fareej (neighbourhood), and the town as a whole (El-Ghonaimy & Al-Haddad, 2019). This research studies the neighbourhood because it has a strong psychological and geographical impact. Moreover, the study settings describe the primary site of Muharraq as it was the capital of Bahrain in the 19th century. Muharraq retains a huge part of the historic Arab city's beauty thanks to its low-rise structures, narrow streets and small alleys, and excellent historical buildings in the classical Arab-Gulf style of architecture. Until the relocation of the reigning family of Bahrain to Muharraq in 1810, it was a relatively unimportant town. During this period, Bahrain assumed its current role as a major international commercial hub connecting Asia, India, and Europe and as a pearling centre. This consequently significantly impacted the history and culture of the nation as a whole and Muharraq in particular.

Muharraq has undergone massive transformation throughout history and this statement can be further supported by the study of East, F., & East, M. (1915) whom state that its development can be categorized into five phases. This research has selected Muharraq as a study setting because it is the most diverse governorate among all the governorates in Bahrain. The research seeks to navigate the old areas of Muharraq in the literature to

understand the urban characteristics of old Bahraini neighbourhoods and perform a qualitative study to investigate new Bahraini neighbourhoods of Muharraq. Most of Muharraq's urban fabric from period before the nation shifted its economy to one dependent on oil is still in place today (Rashidi, 2019). As a direct result of this change, massive urban renewal projects and land reclamation initiatives were undertaken. Before the discovery of the oil, the urban core and the seashore had extensive spatial and functional interactions. For example, the city's streets were set out in a crosshatch pattern at right angles to one another, with the palaces of the city's rulers situated at the highest point in the centre (Hamouche, 2004). Examples of this kind of urban planning may be seen in the traditional Islamic towns of mediaeval Morocco, Algeria, and Saudi Arabia.

In addition to destroying and abandoning ancient structures, the new roadways cut off specific neighbourhoods and allowed insensitive high-rises to spring up in their place. Furthermore, the lack of investment in the ancient city's infrastructure caused a decline in the quality of life (QoL) there (East & East, 1915). But the survival of ancient urban architecture is being seriously threatened by the remodelling of traditional residences and the development of new structures to offer low-cost accommodation for the poor and middle classes in Bahrain (East & East, 1915).

Research gap: A city is a collection of structures and public areas where people live, work, play, learn, and socialise. From a psychological standpoint, locals include loved ones, close friends, and colleagues. In many cases, the happiness of the locals is determined by their mental state. A neighbourhood's nature and social network may be inferred partly from the kinds of activities on the sidewalk and in the streets. Usually, these characteristics convince potential residents and investors that the Fareej is a good spot to settle down (Shubbar & Furlan, 2019). Therefore it is

impossible to claim social sustainability from just a single discipline of study since it is intrinsically multidisciplinary (Peters, 2016). This research studies social sustainability from both urban and sociological perspectives. The study will elaborate on various physical urban characters contributing to achieving urban social sustainability and their relationship with a sociological perspective.

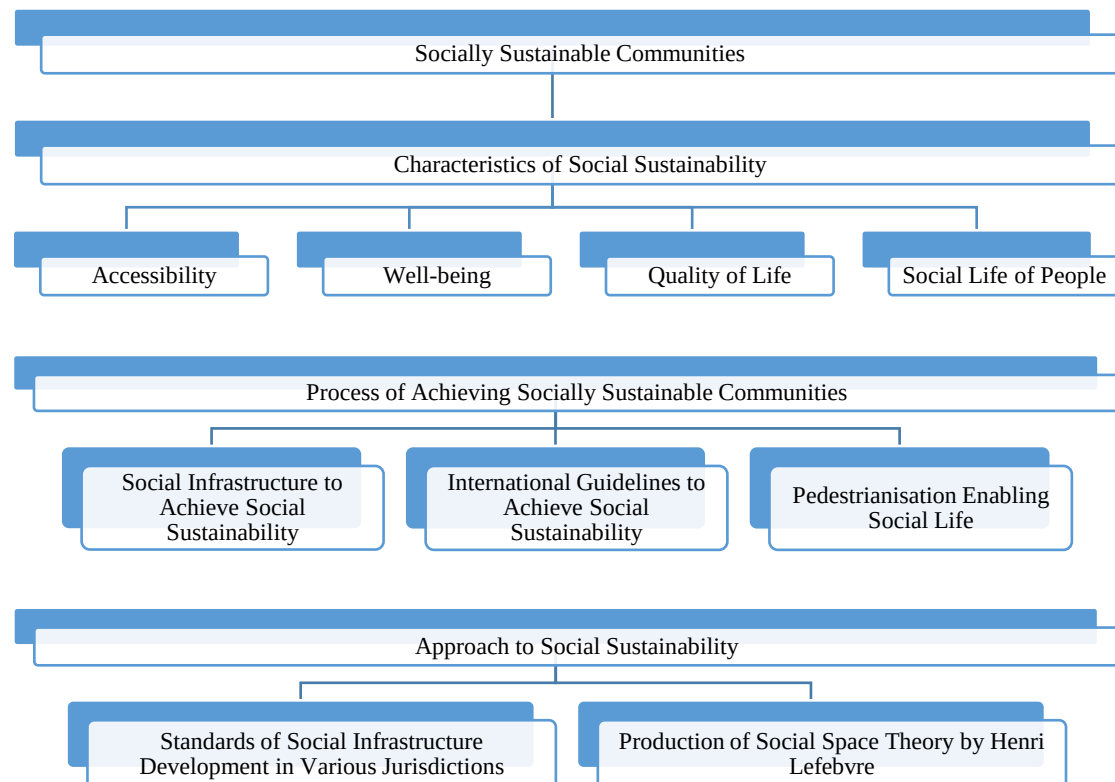
Efforts were undertaken to ensure the growth process's sustainability environmentally, economically, and socially within the framework of Bahrain's National Vision 2030. The government of Bahrain has set out this national vision to safeguard the future of the Bahraini people. Therefore, it dedicated itself to a strategic planning process to ascertain and comprehend the nation's possibilities and constraints, formulate policies, and identify concrete initiatives that will help acknowledge these strategic goals. As a result, many different types of organisations and government bodies work together throughout development process to ensure sustainability along the many dimensions (Bahrain.bh, 2008).

Chapter Two

Literature Review

2.1. Introduction

This chapter comprises of a review of the studies related to the research. There are seven main topics that are discussed; they are Social Sustainability, Socially Sustainable Communities, Characteristics of Social Sustainability, Process of Achieving Socially Sustainable Communities, Approach to Social Sustainability, Urban Elements of Socially Sustainable Communities, Social Sustainability in the Context of Bahraini Neighbourhoods. All the topics lead us to the research gap, and hence, in the last section, the researcher has developed research questions and interview questions based on the variables analysed throughout the Literature Review. A graphic organiser of the literature is in Figure 2.1.



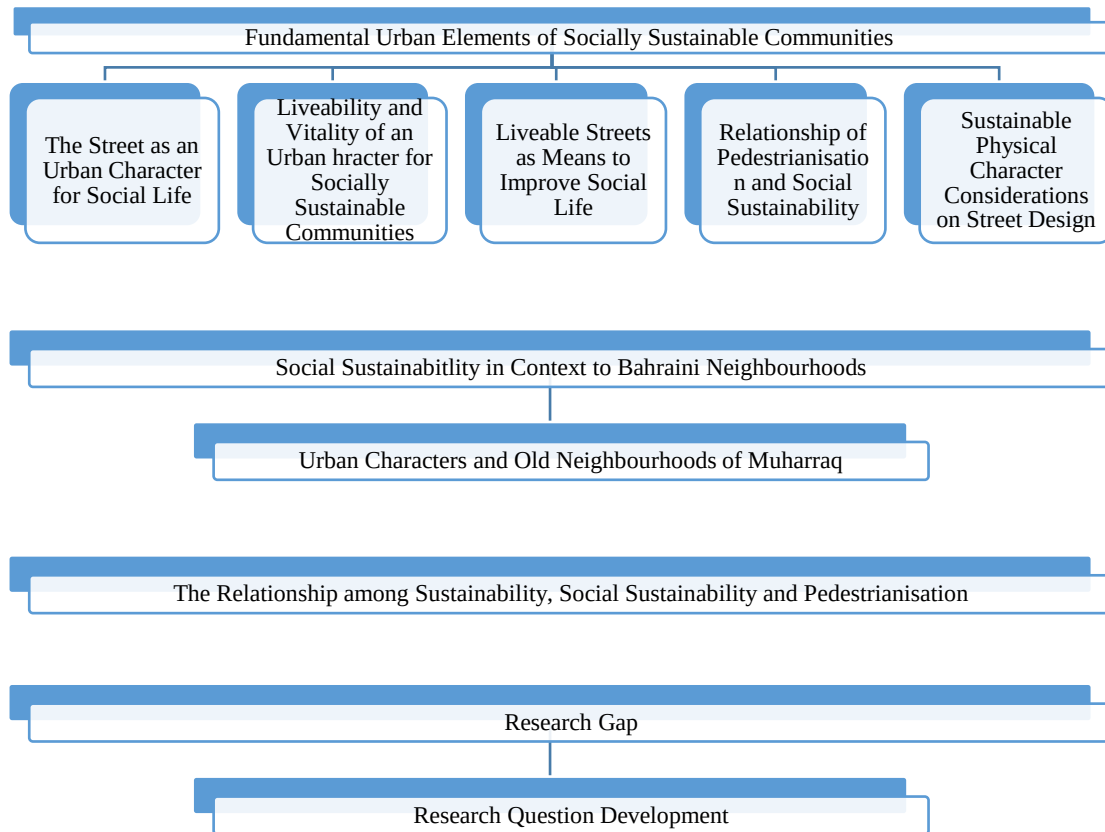


Figure 2.1: Organisation of the Literature Review (Akram)

2.2. Social Sustainability

This literature review discusses various urban characteristics integral to people's social life and eventually enable social sustainability in urban design. The phrase "social sustainability" has many meanings, although it often refers to sustainability's social aspects. The social objectives of sustainability plans are meant to be obligatory in this context (Partridge, 2005). However, Maloutas (2003) claims that the social aspect was seen as a supporting tool for sustainable development rather than an integral part of such discussions. In doing so, it weakened the social foundation and reduced social cohesion. This point of view is derived from the environmental pillar's prescriptive importance (Davidson, 2009). Researchers then acknowledged the fundamental importance of social dimensions and tried to explain social sustainability apart from

sustainability in the aspects of the environment or economy through the second interpretation (McKenzie, 2004). It led to sustainability being "re-socialized" and ultimately the social part of sustainable development being seen as the aim (Maloutas, 2003).

According to Dempsey et al. (2011), several definitions of social sustainability have been used in urban discussions in various contexts. Meanwhile, McKenzie (2004) argues that the existing social sustainability concepts are either based on the circumstances or the principles and measurement frameworks. The Brundtland Report, *Our Common Future*, published in 1987, refers to sustainability as a foundation for social sustainability research that satisfies present needs without compromising the future generations' ability to satisfy their own needs (Keeble, 1988). Following the meaning above, Landorf (2011) argues that the report has no concrete recommendation in the study, which notes that social sustainability aims to maintain the environment through growth in the economy and the reduction of poverty. Vallance et al. (2011) claims that the line of thinking, shown in the current writings on sustainability, links different physical elements to social sustainability. On the other hand, Littig & Grießler (2005) further adds that social sustainability is a broad, complex notion, with a fundamental problem of determining the social objectives of sustainable development. Thus, there is no agreement on how these aims are described.

According to Vallance et al. (2011), there is a need to think of social sustainability in terms of the following three aspects: "development sustainability," "bridge sustainability," and "maintenance sustainability," each of which makes it possible for structures to be modified to meet the changing requirements. These typologies have been proposed after evaluating the studies of three different authors, Sachs, Godscalk, and Chiu.

According to Sachs (1999), many components, including social homogeneity, access to goods and services, equal incomes, and employment and education, are part of social sustainability and of sustainable development. Sachs emphasized the significance of "political sustainability" based on democracy, human rights, and institutional control, as well as "cultural sustainability," which calls for a balance between externally forced change and internal continuity and progress. While, Godschalk (2004) used a very different approach and aimed at highlighting how different facets of social sustainability may agree or disagree with each other (Kohon, 2018). Godschalk (2004) added a "liveability" component to social sustainability to Campbell's (1996) threefold urban planning factors of "resource," "development," and "property" issues (Carmona et al., 2003). There are several ways that urban planning considerations such as economic development, environmental protection, and equality might be at odds with inhabitants' desire for liveable communities.

2.3. Socially Sustainable Communities

Despite current European policy emphasizing "sustainable communities" and social cohesiveness, there has been minimal theoretical discussion on how to define socially sustainable cities or communities, a case of what might be characterized as a policies overriding studies (Casey, 1968). The literature provides abundant definitions of social sustainability (Chiu, 2003). For example, the concept of Bramley et al. (2010) that two primary factors comprise social sustainability—accessibility (social fairness) and experience outcomes—are beneficial (sustainability of community). Several factors, such as attachment to and pride in one's neighbourhood, communication, safety, the quality of one's immediate

surroundings, a sense of belonging at home, stability, and engagement in civic life are cited as examples of experiential outcomes related to urban form. (Kytä et al., 2016). Similarly, several previous EU projects, such as the Aalborg Charter and Agenda 21, are referenced in the so-called "Bristol Accord," which outlines a uniform European tactic to develop sustainable societies. Here, people's ideal workplace and residence are defined as sustainable communities. While being environmentally conscious, they help maintain a high standard of living for both present and future residents. They are well-planned, constructed, and operated to ensure the safety and inclusiveness of the communities they serve (Office of the Deputy Prime Minister, 2005).

According to Yiftachel & Hedgcock (1993), a city's continuing ability to work as a viable setting for the long-haul for communication and cultural development is considered sustainable. In contrast, Caulfield et al. (2001) explains that a city's social sustainability is the enhancement in the living standard for all the members of society due to the developments (and growth) aligned with the peaceful progression of the civil society. Thereby creating conditions that allow and even encourage the peaceful coexistence of people of various backgrounds.

As per the common European approach, designing for urban social sustainability is based on the requirements of the present and future inhabitants. There is a common belief that these establishments are welcoming, well-designed, well-built, and well-functioning, focusing on equitable opportunity for everyone (Yıldız et al., 2020). While Bramley et al. (2009) refers to the social sustainability of urbanity, an appealing public realm, affordable shelter, access to quality local goods and services, sustainable urban design, communities, and convenient walkways are some of the physical aspects that link with sustainability.

The study by Forrest & Kearns (2001) examines 'neighbourhood' from contemporary viewpoints. The neighbourhood as a 'community'—the local realm of friendships and casual acquaintances—is a significant part of our daily life. The neighbourhood is a 'context', especially in the negative sense of social repute, labelling, poor health, and aberrant social norms and behaviour as reactions to social exclusion (Farahani, 2014). In contrast, the neighbourhood as a 'commodity', a sphere of protection and security, is marketed as a gated enclave. It is local cohesiveness amid societal fragmentation and relates to the neighbourhood as a 'consumption' niche (Forrest & Kearns, 2001).

Similarly, Eizenberg & Jabareen (2017) argues that one of the fundamental pillars of socially sustainable community framework's fundamental pillars is the idea of safety. This notion focuses on the rights of vulnerable people to be protected and safe. Understanding the social and spatial characteristics of vulnerability in a city and neighbourhood is vital for managing risks and achieving beyond the guidelines for disadvantaged populations. Urban Vulnerability Matrix (UVM) is a paradigm for analysing socio-spatial vulnerability distribution and adaptive mechanisms. Its results may help a city, its neighbourhoods, and other social groups analyse hazards and uncertainties (Jabareen, 2020). Bramley & Power (2009) further emphasize that one foundational notion of social sustainability in the local setting is equality and safety in the community and the long-term viability of that community. The more sophisticated segmentation of communities is consumption habits and lifestyle groupings because consumption will affect the role of equality. It underscores the necessity to include social value in a broader examination of human, cultural, and economic capital within a neighbourhood resources and interactions assessment (Forrest & Kearns, 2001).

Eizenberg & Jabareen (2017) emphasizes the importance of variety in preserving the sustainability of society. In comparison, Dempsey et al. (2012) mentioned education, training, intergenerational equity, civic engagement, well-being, QoL, community, social inclusion, social capital, safety, mixed tenure, equitable income distribution, social order, social networks, community cohesiveness, and social capital. Dempsey et al. (2012) also emphasized importance of place attachment and the resilience of the local community. Other researchers have discussed comparable or identical aspects but in somewhat different ways. Forrest & Kearns (2001) argue that the sustainability of a community includes a variety of social behaviours: communication between neighbours, the existence of local formal and informal unified organizations, the comparative cohesion of the community in terms of the population of residents and the amount of residential turnover, the weight of trust across the community, and a positive sense of identification with the community (Jackson, 2003). All people demand social, economic, and environmental justice, regardless of origin, race, gender, country, colour, minority, citizenship status, or existing or emerging civilization. Climate change and environmental concerns need everyone, including future generations, to be treated equally.

One of the best examples of socially sustainable communities is Howard Garden City. The establishment of several small well-planned communities that would mix the conveniences of urban living with easy access to the natural characteristic of rural surroundings was Howard's response to the connected issues of rural depopulation and the out-of-control expansion of large towns and cities (Bagheri, 2020). The main components of Howard's plan were: (1) acquisition of a sizable tract of agricultural land enclosed by a ring fence; (2) design of a small town

2.4. Characteristics of Social Sustainability

According to Eizenberg & Jabareen (2017), equity or justice are essential characteristics of social sustainability. While O'Brien et al. (2004) argues that in the social sustainability paradigm, fairness and justice help people feel less isolated from the surroundings, so they care more about environmental challenges. Therefore, in addition to combating climate change, equity comprises of social and economic justice, equality, and sustainability. Similarly, Dempsey et al. (2012) states that when it comes to social, economic, and political participation, the term "social equity" refers to the idea that resources should be distributed equally and that discriminatory behaviours should be avoided. Eizenberg & Jabareen (2017) further elaborates on the concept of equity in three critical dimensions: redistribution, recognition, and participation.

2.4.1. Accessibility

Among the characteristics of social sustainability, the most important factor is accessibility, as it paves the way for reaching further characteristics of social sustainability; therefore, this research is focused on accessibility. The literature shows the importance of accessibility from various sources.

The term "accessibility" describes the ease with which people with different impairments may enter and move about in public areas. For a city, accessibility means things like good traffic flow, well-designed public transportation with proper stops, and pedestrian-friendly streets (Kozlova & Kozlov, 2018). Due to the importance of a public space's liveliness for its people, it is essential to appropriately examine, analyse, and enhance accessibility for citizens of all ages and different physical abilities (Stauskis & Eckardt, 2011). Samer Touqan, projects director at Dewan, said in a 2018 roundtable held by *Middle East Architect* and *Commercial*

Interior Design that when talking about disability, it's only people in wheelchairs that are considered; those with other disabilities such as visual and hearing impairments are neglected when it comes to design (Alsammarae, 2018).

Bigdeli Rad et al. (2013) justifies that connectivity is associated with circulation and spatial linkages, while access is related to the visibility of the place and how we can approach it, which might impact the space's function and safety. Accessibility, mobility, special social groups such as children and seniors in diverse areas, ample parking, and a sound transit system are all vital. Talen (2016) suggests that better and more accessible public spaces may stimulate social contact, leading to a better community. Interactions with other factors and indirect effects are expected along the route.

Moreover, participation and inclusion from a wide range of stakeholders—the public included—is essential to achieving social sustainability (Rogers et al., 2013). Dempsey discusses the importance of communal sustainability and access equity as social components of sustainability in an urban context (Dempsey et al., 2011). This research mainly focuses on achieving social sustainability on the accessibility aspect, with the Kingdom of Bahrain as the setting.

2.4.2. Well-being

An individual's level of happiness is "a product of the real circumstances of [their] existence and what they create of those situations," according to the renowned philosopher and psychologist Martin Seligman (Michalos, 2008). This concept is extremely close to that known as "subjective well-being," which is defined as "the degree to which an individual is content with his or her life and feels more positive than negative affect on a day-to-day basis" (Diener, 1984). However, a person's

mental and physical health and their standard of living is also included in our definition of well-being (Danna & Griffin, 1999). Sirgy et al. (2008) refers to well-being as part of the QoL, which means how fulfilled one feels with one's life; it includes feelings of joy and contentment. Conversely Bramley et al. claims that well-being is not a component of social sustainability but rather, as a facilitated consequence, is more beneficial. This research postulates that the two facets of social sustainability may mediate the connection between the environment and happiness. In this case, researchers operationalized well-being as a sum of people's levels of contentment, life satisfaction, and physical health (Kyttä et al., 2016).

In the Millennium Ecosystems Assessment, the necessities for a happy life, health, excellent social ties, freedom, choice, and security were all included as components of human well-being (Benoît et al., 2013). The state of humanity's well-being is a central overarching idea that includes many indicators of long-term social viability. Well-being is sometimes used synonymously with phrases like QoL, the standard of living, welfare, human development, life satisfaction, happiness, and usefulness (Colantonio et al., 2009). Across the social sciences, especially in economics, psychology, and sociology, a plethora of research attempts have been made to provide a more holistic definition of well-being (Watson, 2018). Hedonic and eudemonic well-being are essential concepts from the current literature (Ryan & Deci, 2001).

Well-being design must be apprehended before instructing the factors contributing to the concept. Well-being design is a notion that does not aim to create aesthetical objects. The intent is to have a broader perception of complex activities and how they can be decrypted to serve human life healthily (Keinonen et al., 2013). The constructed environment and its design are part of human lives; since they are surrounded by these objects and interact with them directly or indirectly. In this manner, social

sustainability provides people with a better place for well-being (Peterman, 2021). Social sustainability leads to human well-being or happiness. Researchers and experts who have contributed to the field use the terms well-being and happiness in journals, scientific literature, and general discussion (Desmet & Pohlmeier, 2013).

According to Colantonio et al. (2009), the following ten dimensions and policy areas make up social sustainability: demographic shifts; education; employment; health; housing and environmental health; identity; participation; social capital; social mixing; and QoL.

2.4.3. Quality of Life

The term "quality of life" refers to an abstract notion with various applications in diverse fields such as philosophy, sociology, politics, ecology, and medicine. It mainly relates to people and communities' overall happiness but has diverse meanings depending on the field of study. QoL, well-being, contentment, and happiness are all interconnected concepts that may be difficult to disentangle. "Goodness of life" and thriving in one's given setting are common definitions of QoL. "An individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" is how the WHO defines quality of life. It is a multifaceted notion influenced by a person's physical condition, psychological state, independence, social ties, and relationships to conspicuous characteristics of their surroundings. Raphael et al. (2001) defines it as "the degree to which a person enjoys the important possibilities of his/her life," where possibilities are the interplay between personal and environmental elements based on life's chances and constraints. Ontario Social Development Council (1997) defines quality of life as "the product of the interplay among social, health, economic and environmental conditions

which affect human and social development.” Cella & Nowinski (2002) defines it as physical, functional, social, and emotional well-being, not environmental quality. Ventegodt et al. 2003 describe quality of life as the depth of one's life, linking subjective and objective factors. Economist Amartya Sen emphasises the freedom-centred view of QoL, which emphasises choices rather than resources or income. These viewpoints demonstrate diverse aspects underpinning quality of life rather than the mainstream concept.

According to “Urban Quality of Life: Domains, Dimensions and Indicators for Indian Cities,” the urban quality of life (UQoL) is made up of three parts— Intersection of People, Space, and Opinion. QoL is used to describe an individual's experience. QoL describes the objective circumstances of one's daily existence, and "perception" describes how one feels about those situations. Material living condition, health, education, social relationships, natural environment, recreation, economic security, infrastructure and mobility, safety and security, governance and rights, work-life balance, and overall life satisfaction are the 12 dimensions that determine UQoL and their respective weights. These dimensions may be further classified into main, secondary, and tertiary dimensions/needs according to the number of indices they appear in.

2.4.4. Social Life of People

The spirit of the public space as a phenomenon is destroyed by the publics’ neglect to the intended use of these areas. A public place is a gathering place available to the public at large (Carr & Francis, 2007). Accessibility, comfort, and appropriate seating and resting areas are all essential factors in how frequently people utilize public places (Kozlova & Kozlov, 2018). "Public" refers to the residents of a particular area, or a

larger metropolitan area, or all who reside in a country (Stauskis & Eckardt, 2011). The word "public" encompasses various characteristics and aspects of social existence. First and foremost, it means being near other people (Gofman, 2000).

According to Berman Marshal (1999), the social life in public spaces is of importance because it reflects the opportunities and constraints faced by people of varying socioeconomic statuses as they attempt to go about their daily lives. Secondly, the term “social life” may be used to describe an externally focused type of publicness which involves addressing the people and including them in debates regarding the issues of concern to a community. Finally, it involves personal participations in public arenas or via technological intermediaries. Kurt Iveson (1999) claims that two characteristics of openness may entail one’s ability to claim or a sense of belonging, and it might include individuals’ negotiation and compromise with one another. Thirdly, anything vital to the society might be considered public or what Marres (2012) terms as "matters of concern". Fourthly, publicness alludes to the concept of public provisioning, which is the sharing of resources for the benefit of the public or specific groups. To summarize, the idea of publicness is that the public sphere, and publicness in general, is not a one-dimensional idea. It however is more than just the inverse of "private" (Carr & Francis, 2007).

According to Jane Jacobs's critical work "The death and life of great American cities" (1961), sociable interactions keep a city alive and thriving. Therefore, instead of basing city design on abstract ideas, planners should consider how residents interact with one another and their built environment to foster thriving communities (Jacobs, 1961b).

It is important to remember that people's needs may be better met through better public space design. One primary goal of a well-designed public space is to accommodate the requirements of its users and the

activities they engage in. The now-famous Maslow's pyramid of needs describes hierarchy of humans' needs, from the simplest (satiating one's hunger) to the most complicated (assurance of security and feeling of communal belonging etc.). Based on this, we can claim that (i) accessibility, (ii) equality, and (iii) safety are crucial features of public spaces (Jalaladdini & Oktay, 2012).

After the fundamental physiological demands, Maslow emphasizes protection and security. In broad terms, they include (i) protection against physical harm (from natural or artificial catastrophes, diseases, or accidents) and (ii) peace of mind (being in certain control over one's surroundings, privacy, and protection from being socially or physically lost). According to (Cozens, 2011 and Carmona et al., 2003), the existence and intensity of social interactions and their consequences in the form of specific publicly recognized behaviour patterns might be used to assess the vibrancy or defectiveness of a public area (Stauskis & Eckardt, 2011). Studies by Bigdeli Rad et al. (2013) highlight crucial aspects for social interaction in public areas, such as sociality, use, engagement, access, linkage, comfort and appearance. Stauskis & Eckardt (2011) claim that an urban square's spatial layout considerably influences the intensity and freedom of social interactions in these areas. Other physical aspects facilitating human interaction are out of the users' hands. For example, sidewalk width and ample benches are physical qualities supporting human activities on streets and other public areas. Prominent public or private bodies can manage both (Mehta & Bosson, 2010).

These designs vary by nation and geographical location, ethnicity, and culture; they may vary even within the same city. Nevertheless, an existing community's characteristics, moulded largely by the natural and urban environment, crucially influences the norms and customs which govern its members' interactions among one another (Stauskis & Eckardt, 2011).

The physical characteristics of any given public space, regardless of how it was planned, built, paved, painted, or arranged landscape-wise, is merely an outer shell, which is then "dressed" by an architect who is familiar with the fundamental norms of everyday social interactions (Stauskis & Eckardt, 2011).

2.5. Process of Achieving Socially Sustainable Communities

Alberti et al. (2008) claims that the topics of creating sustainable human spaces, addresses what kind of physical spaces people want to create. With urban sustainability and risk management in mind, urban form is critical. Therefore, rethinking the city's urban form as a notion of risk mitigation and adaptability is necessary. Many experts believe that the modern city's layout is the root of the planet's environmental problems. Similarly, a study by Y. R. Jabareen (2006) presents a conceptual analysis approach to social sustainability. In this approach, which is based on grounded theory, the core ideas of phenomena are generated, identified, and traced to build the theoretical framework for that phenomenon and present typologies to explore how urban design influences risky behaviours and mitigation measures (Eizenberg & Jabareen, 2017). These topologies may promote neighbourly and communal social characteristics, including the feeling of association and a healthy community, while upholding the environmental mission of advocating changes for neighbourhoods and communities.

- The term "compactness" refers to the proximity of intra city areas and implies that future urban growth should happen near present infrastructure.

- Sustainable transportation encourages further sustainability by reducing traffic and trips, and by promoting pedestral travel.
- The consumption of energy, materials, and land for housing; urban infrastructure and transportation is directly related to density, which is the population-to-land-area ratio.
- "Mixed Land Uses" refers to various useful land applications, including residential, institutional, commercial, industrial, and transportation.
- Diverse housing styles, densities, and household sizes, as well as diverse ages, cultural backgrounds, and income levels, are all facilitated by further diversification of metropolitan areas. However, when the built environment is homogeneous rather than diversified, the city loses its ability to function as a living place. Additionally, the lack of diversity leads to more cars on the roads and consequently an increase in pollution.
- The passive solar design employs detailed planning and design approaches to decrease energy consumption and maximize passive energy.
- Many elements of the urban environment are favourably affected by greening, or adding natural elements into the city, including biodiversity, human habitation, the city's climate, economic attractiveness, and community pride.
- Numerous sites are not suitable for their initial purpose and may be utilized for other uses, such as brownfields, referred to as "renewal and utilization."
- While most of these elements may be connected to solid design criteria, these principles may favour unsustainable results. Gentrification has been fuelled by urban jargon like "walkability," "liveability," and other such concepts, which have become

catchphrases for achieving a desired urban atmosphere (Eizenberg & Jabareen, 2017).

Another study by Kytä et al. (2016) elaborates on the importance of density by performing a location-based methodology to study social sustainability as it enables walkable distances for residents to access their daily utilities. Similarly, Jones & Mean (2010) further states that along with mix land use, connectivity, configuration and layout, design quality, and housing form, residential and building density are commonly mentioned as a component of sustainable urban form. The two most important aspects of the urban social sustainability debate are future goals and processes (Partridge, 2005).

As important as physical settings/characteristics may be in attaining social sustainability, they alone cannot be relied upon to provide urban communities capability to become sustainable (Ghahramanpouri et al., 2017). Social sustainability needs other features, such as structures and processes that form within the public and guarantee that its demands are met, which are constantly evolving (Peters, 2016). Vallance et al. (2011) maintains that one should view social sustainability's mechanisms in terms of the three aspects: “development sustainability,” “bridge sustainability,” and “maintenance sustainability.” It also stresses that improving the lives of those living now must not come at the price of those living in the future (Partridge, 2005).

Thereby, the conclusion is that social sustainability is a multifaceted idea. It considers and connects psychological well-being with the surrounding physical environment. Thereby, physical form, street layout, neighbourhood densities, active and passive design techniques, local contexts, etc., play a vital role in developing socially sustainable cities.

2.5.1. Social Infrastructure to Achieve Social Sustainability

According to Northern Gold Coast (2011) harmonised social infrastructure strategy in the urban planning context, the notion of social infrastructure is expanded to include features that have an observable and beneficial effect on the lives of the community's residents. In other words, it represents the presence or absence of resources that contribute to the establishment, growth, and upkeep of a high living standard.

Latham & Layton (2019) claim that social infrastructure is vital to designing a healthy community and sustainable living environment. Social infrastructure is necessary to meet fundamental community requirements and improve QoL, equality, stability, and social well-being. Additionally, it boosts personal and corporate capital. While recognizing the varying levels of social infrastructure, prior research shows that the infrastructure provided at neighbourhood and local levels affects the well-being of residents and influences the whole neighbourhood's sustainability (Yigitcanlar et al., 2011). Communities tend to highly value their social infrastructure since it consists of the facilities and programmes that residents and local groups rely on to foster a positive environment (Parr, 2008). Components of urban social infrastructure can be classified into three broad classes according to the needs of a city's residents (Office of Urban Management, 2007):

- Social facilities hosting various services, such as community centres (CCs), religious venues, medical centres, and hospitals.
- Social services useful to the community such as educational institutes, day care services, libraries, and opportunities to learn new skills and participate in recreational and sports activities.
- Supportive physical infrastructure, such as facilities for pedestrians, bicycles, special needs, sports, leisure and retail contribute to the locals' health, happiness and satisfaction.

Montgomery (2013) claims that cities can potentially bring joy to their residents. Even in economic downturns, people's QoL might be enhanced by modifying urban form and structure. Similarly, sociologist Klinenberg (2019) claims that many physical and institutional infrastructures are necessary to grow and preserve social ties. One may use this to support the need for social infrastructure. In other words, in defence of the value of public spaces like parks, schools, libraries, sports centres, and CCs in fostering a thriving urban community. These spots are significant because they allow people from different backgrounds to interact with one another and form bonds with the neighbours and city dwellers. Latham & Layton (2009) further adds to the character of the happy city through the possibility of financial gains, exciting and challenging building designs, and of easy access to cultural facilities.

Moreover, there may also be spots where one can meet people and develop meaningful relationships. The social networks that connect individuals and offer critical resources in times of crisis which plays an important role by supporting one another financially regardless of the countries' economic situation. Elghomy explains the same social bond in al fraeej where neighbourhoods urban character facilitated the social bond due to which people were able to share their social and economic issues.

Schools, libraries, sporting fields, playgrounds, parks, and swimming pools are all essential public institutions. Walkways, courtyards, and communal gardens that encourage public interaction are also included. Religious structures, as well as farmers' and flea markets that operate on a regular schedule, serve as social infrastructures because they provide the community a space to congregate and interact. The commercial sector may play a significant role in a community's social infrastructure (B. E. Klinenberg, 2019).

Investment in social infrastructure yields social and economic benefits, as highlighted by Casey (2005); this provides a compelling argument in favour of factoring in social infrastructure needs wherever possible. City dwellers are deprived of the simplest of urban life's pleasures such as a stroll through friendly streets, a spot to rest and chat with neighbours, a view of grass or water or falling leaves (Montgomery, 2013). From a societal perspective, a strong community and high QoL result from a well-developed social infrastructure, which attracts foreign investment and spurs economic expansion (Casey, 2005). Usually, the primary role of what is considered social infrastructure is not to encourage social interaction; instead, the facilitation of sociality is crucial to the success of its primary function. Furthermore, social infrastructures may solidify ties within groups and might orient individuals towards engaging across differences (Latham & Layton, 2019). Expanding on the ideas of earlier authors like Putnam (2000), who argued that a society's civic infrastructure is fostered by casual social networks, and Oldenberg's (1989) research on inclusively sociable venues like restaurants, hair salons, cafes, diners, and stores for fostering a sense of communal relationship.

2.5.2. International Guidelines to Achieve Social Sustainability

The Planning Institute of Australia's National Award for Planning Excellence in Social and Community-Based Planning 2007 was earned by OUM's South East Queensland (SEQ) Plan Implementation Guideline No. 5: Social Infrastructure Planning (SIP) (Yigitcanlar et al., 2011). Below are the strategies followed by SEQ:

- Societies with a strong identity and sense of place, and access to various comprehensive facilities which fulfil diverse communal

needs, will be achieved by optimising access to suitable social infrastructure.

- SIP provides a four-stage guideline for social infrastructure planning: profiling, analysis and evaluation, solution selection and implementation, and monitoring. This method may be adjusted to each SEQ council's strategic planning framework and management structure. This approach may be utilized with various catchment size hierarchies. These include a neighbourhood of up to 3,000 residents, a local level of 5,000 to 10,000 residents, a district level of 20,000 to 30,000 residents, or a higher-order structure of local government regions and sub-regional levels.
- The SIP Guidelines include public involvement in their capacity-building approach to implementation. Stakeholders might impact planning procedures and results. In this method, stakeholder engagement is key to effective integrated planning because of their contribution to social infrastructure planning and execution. These help in incorporating local knowledge and beliefs (Office of Urban Management, 2007).
- It has been shown that the adequate seating is a significant factor in retaining people in public areas and, by extension, encouraging social behaviour (Whyt, 1999).
- Pleasant weather, such as temperature, sunshine, and shade, are vital in encouraging outdoor recreation (ODR), according to research on the impact of environmental elements on human behaviour (Mehta & Bosson, 2010).

2.5.3. Pedestrianisation Enabling Social Life

A study by Bramley & Power (2009) presents the impact of residential density on social sustainability and shows a strong connection

between pedestrianisation and social sustainability in various aspects. The research links population density to social benefits. Recent research shows that the probability of use of local services and amenities in population dense regions is higher. Denser populations have lower car ownership and usage. Nearby services were more likely to be utilized via walking or bike, whereas distant services were reached by car. Some residents used public transportation or other services to get to and from work (Dempsey et al., 2012). These findings are further supported by Barton et al. (2003)

The urban design movement, New Urbanism born in the 1980s in the United States, rooted for walkable neighbourhoods and foster social life through a sense of community (Farahani, 2014). Theoretically, mixed-use and pedestrian-oriented neighbourhood designs promote building of social capital (Leyden, 2015). Older cities and rural villages tend to have what is known as "traditional" or "complete" neighbourhoods (Duany et al., 2004). Sociable persons prefer walkable communities over walkable places, fostering sociability (Leyden, 2015). Farahani (2014) argues that the qualities which encourage people to walk or to participate in stationary activities are important in providing possibilities for social contact in public settings.

Fear of crime and the ability to deal with social problems have been connected to a sense of belonging to one's neighbourhood and the people who live there. Additionally, providing social support, which is linked to physical activity, strengthening social networks, and fostering community bonds directly and indirectly improves health (Wood et al., 2010).

The pedestal route is an aspect of community planning that demands much attention. Unstructured exercise benefits people's health helps integrate the city's underprivileged residents, and strengthens feelings of belonging (Jackson, 2003). Additionally, city design is increasingly

important to allow people to socialize, interact, and experience the world via human senses (Gehl & Svarre, 2013).

Gehl (2011) presents a unique and humane strategy focused on walkable streets to provide a public arena for social interaction and communication. Similarly, Iranmanesh (2008) shows that urban places with pedestrianisation have enabled people to socialize, and most importantly, it is the essential strategy to achieving social sustainability. Forsyth (2015) claims that pedestrianisation targets several activities; people walking to places, exercise, socializing or enjoying the outdoors. Mehta (2019) has a similar argument as Gehl (2011) that integrating sociable streets in neighbourhoods promotes a variety of activities, including socializing, daily and infrequent shopping, eating, loitering, celebrating, and protesting. Therefore, such streets are an essential element of every desirable mixed-use neighbourhood and, by extension, any desirable city. In contrast, Juaneé and Cilliers (2015) stresses the significance of management of urban green spaces (UGS) that can elevate urban social life and the desire to access these places, while pedestrianisation remains the fundamental urban character that makes places assemble and sociable (Yassin, 2019).

2.6. Approach to Social Sustainability

Socialization boundaries, the limits of ecology, and equality are the three forms of social sustainability (Ghahramanpouri et al., 2017). These forms were considered when housing in Hong Kong was designed. However, this three-way construct roughly corresponds to what Vallance et al. (2011) proposed. Vallance et al. (2011) clearly differentiated between what Chiu calls "social norms," "social preconditions for sustainable development," and "equitable distribution of resources and opportunities."

According to Chiu, both social constraints and concerns about equality tend to be ignored. Vallance et al. (2011) argues that both of these echo with the ideals of sustainable development by the World Conference on Environment and Development.

These authors tried to define social sustainability by pointing out different ways to look at and understand it. On the other hand, the typologies of Vallance et al. (2011) simplify and explain social sustainability concisely.

Social sustainability demands a more profound dimension than these prominent and influential social justice concepts. It differs from social justice by focusing on the future, and sustainability relates to future and current concerns. Social sustainability demands not only a fair society in the present but also institutions and procedures that ensure a fair society for future generations (Partridge, 2005). Repetto (1986) argues that social sustainability means our activities now should not hinder our ability to maintain or increase our standard of living in the future. Our economic systems should be constructed to survive off our resources while conserving and increasing that asset base for future generations. Lami & Mecca (2021) stressed the need to interpret social sustainability as a mix of social notions in which essential requirements like housing, health care, social justice, and equality are met with the addition of new concepts such as a sense of peace, happiness, and satisfaction with one's lot in life.

Similarly, Ghahramanpouri et al. (2017) states that humans are at the centre of the social sustainability concept's definition, while Vallance et al. (2011) argues that excessive dependence on "objective data" and "scientific evidence" should be avoided to change the way people think about biophysical environmental issues. Instead, environmental scientists work with social scientists to discover how people understand and care about their surroundings and the world around them (Ghahramanpouri et al.,

2017). Technological and scientific factors of the sustainability essentials must be improved with dialogues considering our daily individual and corporate experiences (Cameron et al., 2007). It will enable institutions to make decisions and act by allowing the communication of theoretical questions regarding the nature of the world and the issues that arise in ordinary, local settings which support maintenance sustainability (Vallance et al., 2011).

This humans-prioritized, context-aware maintenance of sustainability expands to understanding, what lifestyles people seek to preserve or improve and why there is a rejection of environment friendly practices (Riordan & Jaeger, 2001). Assefa and Frostell (2007) recognize the stress between doing what is environmentally friendly and doing what people have always done, what people find readily accessible, or what they enjoy. Even if the facts regarding environmental disasters speak for themselves, sustainability advocates should analyse why individuals oppose change, even when there is a dire need for it, and try to understand how technical components of sustainability affect daily life.

Bahrain's National Plan 2030 outlines the following key strategies:

- To better focus and coordinate the development
- To limit land speculation
- To secure the nation's resources
- To safeguard ecologically and historically significant sites
- To streamline the country's transportation network
- To guarantee the public's right to enjoy the country's parks and waterfronts freely.

Changing urban fabrics and the architectural vocabulary deteriorated the social life in Bahraini communities, says El-Ghonaimy (2019).

2.6.1. Standards of Social Infrastructure Development in Various Jurisdictions

The Saguaro Seminar: Civic Engagement in America, based out of Harvard's John F. Kennedy School of Government, created a Social Capital Benchmark Survey for use in the USA. From July through November of 2000, researchers in 40 different American areas used random-digit dialling calls to conduct a 26-minute poll. The following aspects of social capital were quantified by this study (Casey, 1968):

- Trust
- Diversity of friendships
- Political Participation
- Civic leadership and associated involvement
- Informal socialising
- Giving and volunteering
- Faith-based engagement
- A healthy economy

While Vancouver's city plan does not set any hard and fast social infrastructure rules, it shows how social sustainability concepts may be used at neighbourhood-level community interactions. Included among the guiding ideas utilized to shape individual community plans were:

- Establishment of neighbourhood centres
- Community housing
- Distinct neighbourhood character
- A sense of community
- Convenient community-based services
- Promoting safety
- Addressing housing costs
- Arts and culture

- New and varied public places
- A thriving economy and jobs closer to home
- Prioritising transit, walking and biking
- Clean air and water
- A vibrant central area
- Decision-makers
- Financial accountability

Moreover, the social infrastructure scheme of the Gulf Co-operation Council (GCC) countries aims to include the private sector. These countries have allocated more than \$121 billion for housing, education, and healthcare projects. The main factors for developing social infrastructure are the increasing population, changing economic trends, and digitalization. As a result, public-private partnership (PPP) started in the Gulf states. PPP allows risk division and promotes innovation and employing advanced techniques in the facilities (Mashreq, 2022).

The Kingdom of Bahrain developed a Government Action Plan (2019-2022) to provide the necessary services to the citizens. The main objectives of the plan are as follows (Bahrain.bh, 2022):

- To invest in citizens by developing and qualifying government services in education, health, and other aspects
- Establish safe and secure societies
- Promote sustainable development to achieve fiscal balance and economic growth
- Invest in the private sector to allow their contribution to national development.
- To utilize the resources in an optimally.
- Support equality and family stability to sustain social and economic factors.
- Invest in development projects and infrastructures.

- Promote and support the role of women, youth, and sports in government initiatives.

2.6.2. Production of Social Space Theory by Henri Lefebvre

Henri Lefebvre advanced from metaphysical and ideological space issues to household and city life. He strives to connect theory and practice, the mental and social, and philosophy and reality. Lefebvre examines a variety of spatial interactions between the body (subject) and the mirror (object) (Fuchs, 2019).

- Symmetry (in the sense of planes and axes): reflection and replication; asymmetry concerning symmetry.
- Reflections, flatness against depth, visibility versus invisibility, and opacity versus translucence; are all the concepts at play in mirages and their consequences.
- Thirdly, language as "reflection," with its well-known antonyms, connoting and connoted (or, what imparts value and what has value imparted upon it) and refraction via conversation.
- Self-awareness, other-awareness, body-awareness, and the awareness of being and becoming other (alienation)
- Time is the relationship between repetition and differentiation that is instantaneous (immediately experienced, and so blind and unconscious).
- Two opposing forces determine space (imaginary and actual, created and produced, material and social, setting and transition, immediate and mediated, connection and isolation)

2.7. Urban Elements of Socially Sustainable Communities

Modern architecture and urbanization were criticized in the 1960s for disregarding social demands and marginalizing human connections. Jacobs (1961) and Gehl (1987) are two very influential writers in the field of public life studies (Farahani, 2014). According to Putnam (2000), "The Death and Life of Great American Cities," a book by Jane Jacobs, was the first to use the word "public life". People residing in areas with frequent informal interactions are less likely to commit crime, the children are safer, and adults are happier with their physical surroundings (Jacobs, 1961). Kotulla et al. (2019) states that residential commitment to the neighbourhood, neighbourhood social interaction, and resident fulfilment falls under social sustainability.

A study by Akinci et al. (2021) claims that individual behaviour is greatly influenced by the physical characteristics of one's surroundings from a socio-ecological framework. Some environmental qualities may encourage ODR, while others might be discouraged or even prevented by other qualities. Klinenberg (2019) argues that physical and institutional infrastructures are fundamental to establishing and preserving social connections. Y. R. Jabareen (2006) states that the design and size of a sustainable urban setup must enable walking, cycling, and efficient public transportation, and its compactness must stimulate social interactions. While Ceylan & Soygeniş (2019) claims that these measures may not create a socially sustainable built environment, rather they might support a community's social life, boost social interaction, perform educational activities, and add safety and security in the constructed environment. Moreover, society supports equality and diversity depending on the local context, the designers' approach, and the design subject. Social inclusion

and belonging contribute to a comprehensive understanding of social sustainability's theoretical components (Kohon, 2018).

Additionally, the study by Amin (2008) claims that enhancing the public areas of a city to be more dynamic and inclusive would promote democracy with a massive leap. Individuals enter public spaces as legitimate citizens, assured to avail the means of life, communication, and advancement. Similarly, open spaces should be publicly accessible where people go with their rights as citizens (Carr & Francis, 2007). Moreover, Carr (2007) claims that the four main elements of public spaces are accessibility, usability, control, and ownership, which must be considered while designing public places for social life. Among these elements, accessibility is prioritized; several studies have shown that the areas which are merely accessible to people and not governed by them are not genuinely public (Charles, 2007).

Regarding public spaces as an urban character for social life, sometimes conflicts among people from different backgrounds occur in them (Amin, 2008). Worpole and Knox have also explored that public space may operate as a "social glue" in certain places. In contrast, in other places society is stratified, with some groups enjoying privileges over others.

Latham & Layton (2019) claims that social life is the establishment of various physical infrastructures, including libraries, parks, and sports centres, schools. And this network of venues, amenities, institutions, and organizations which facilitate social connections is known as social infrastructure. Similarly, Klinenberg (2019) adds that physical and institutional infrastructures are fundamental to establishing and preserving social connections. In these places, individuals may meet and socialize with others who live in the same neighbourhoods and cities. On the other hand, Amin (2008) claims that a public place's ambience, beauty and

architecture, history and legacy, and visual culture determine public social life performances as well as urban public culture's definition and objectives. Finally, a study by Talen (2016) states that social goals can help achieve social life and elaborates the concept of community with two components: social contact and psychological and emotional reactions. Each has been studied extensively. In the last 30 years, researchers have built on each other's notions and meanings, so our understanding of community and neighbourhood social life is now complex.

Manama is the nexus of Bahrain's deep and ingrained history, making the city famous worldwide for its reputation as a cultural mecca. Many of Manama's historical districts have seen their culture and history erode due to urbanization, which is unfortunate. The city's formerly robust social life is eroding as people move away from their lasting traditions and cultural anchors, tearing apart the city's fabric. Manama's historic districts and communities are suffering from a shortage of gathering places and community hubs, making it difficult to bring back the city's rich cultural history and traditions.

2.7.1. The Street as an Urban Character for Social Life

Regarding public space design, Caroline et al. (2007) states that places which generate interest, engagement and a sense of comfort attract and retain more visitors. As shown by surveys and eyewitness reports, people are eager for and appreciate unique events and activities in downtowns and surrounding areas. Strange and unusual occurrences, such as impromptu "street entertainment," tend to attract attention and establish a location's character. Mehta & Bosson (2010) further elaborates that people are inclined to stick around if there are appropriate places to sit, mainly if they are being protected against the elements. People can see the city's bustle and activity on the sidewalks and stores when they go along the Great

Street. Traditional streets like Melaka's Jonker Street effectively showcase local culture, lifestyle, knowledge, and craftsmanship, which boosts the street's vibrancy, captivates curiosity, inspires pride, and brings people together (Ab Rahman et al., 2018). An excellent street welcomes its visitors. Jacobs recommended three elements of a good neighbourhood street. First, the public and private areas must be separate. A good roadway balancing private and public spaces. Second, Jacobs emphasises the “natural owners” “eyes on the street.” This may be done by increasing active building frontages along urban streets, where residents and strangers will look out for one another. This is called "social monitoring." Third, the walkway must have frequent users for more eyes on the street (Jacobs, 1961). Successful urban life for the residents’ results from well-designed and well-managed areas, which improve the QoL in the public sphere (Jalaladdini & Oktay, 2012).

Public life in cities takes many shapes and forms. As such, urban public spaces must be flexible enough to accommodate a wide variety of user behaviours, facility uses, and event types, including those that occur daily as well as those that occur less frequently but are nonetheless significant to the lives of their residents (Jalaladdini & Oktay, 2012). The marketplace, street vendors, storefronts, and cafés on the sidewalk are all examples of the public world and semi-public places that offer the topography for social interaction and a large portion of the city commerce (Montgomery, 1998).

One can follow Gehl's advice and learn a lot about others’ habits, routines, and ways of life just by meeting with them. Interactions in the urban setting are classified as low-density interactions because they rely primarily on sight and sound to convey meaning. Users learn from each other about the outside world by having short talks, thereby increasing interaction density (Gehl, 2003).

Social interaction includes social networks and neighbourly emotional assistance. Strong social ties involve exchanging services or products, whereas weak ones involve casual pleasantries (Talen, 2016). Rahmatabadi et al. (2011) claims that urban design connects people, places, mobility, urban form, and nature to the built environment. Urban design combines place-making, environmental responsibility, social equality, and commercial feasibility to build great and unique locations. While Holland et al. (2007) further adds that urban design combines planning, transportation, architectural design, engineering, landscape, and economics. It brings these and other threads to create a vision for a place and deploy the resources and talents required to realize it. Montgomery's (2013) claim is that humans are similar to birds in that we need flight in the form of walking. To recharge, social interaction is essential. Having something beautiful to look at is vital. Interaction with the natural world is necessary. Most importantly, we do not have to feel like outsiders. We must have a shared sense of parity.

According to Amin (2008), urban sociality is dependent on and intertwined with the creation and distribution of physical objects. Amin's ideas are instructive because they show how the creation and preservation of trust are crucial to the operation of public and communal spaces. Moreover, it relates to issues of controlling the balance between freedom and constraints in particular locations (Franck & Stevens, 2007). Amin's reasoning carries weight since it highlights the "surplus" value of the virtues that might result from such material supply; for example, via the common usage of social infrastructure, one can identify characteristics of civil culture, tolerance, and community life. Latham & Layton (2019) further adds that the concept of social surplus provides a means of articulating the belief that trust and an appreciation for the diversity of the

environment may grow through daily, practical social interactions in a shared place.

While designing for social interaction at the neighbourhood setting, it is vital to know the diversity of residents and their interests when analysing the functional patterns that emerge from their interactions in open public spaces (Stauskis & Eckardt, 2011). By putting on what can be termed as "social performances" for residents and tourists alike, community organizations "pre-present" themselves to the public and get feedback from an audience which includes sceptics, critics, and fans. While the public may cheer on some endeavours (a lack of criticism is frequently seen as encouragement), others are received with unequivocal disapproval and condemnation. One social group (say, teens) must reach a consensus or tacit agreement with other groups to keep performing ("the show must go on") (e.g., the older residents). For instance, rollerblades may be tolerated without comment in a residential neighbourhood, but they may be the subject of complaints in the middle of a pedestrian shopping district (Stauskis & Eckardt, 2011).

The Kingdom of Bahrain has undertaken multiple initiatives to promote pedestrian activity. These include the development of various walking tracks and public recreational areas throughout the country. The new neighbourhoods contain dedicated walking areas. However, the harsh climate discourages walking activities. People usually walk in the evening and early morning (Silva, 2018). However, the development of spaces allocated specifically for pedestrian activity depicts that the Kingdom of Bahrain does not have a street pattern that allows walkability (Al Khalifa, 2015). Furthermore, the pavements do not facilitate pedestrian movement due to their discontinuity and various elements obstructing them (Davis, 2017).

However, the newly developed urban areas, such as Diyar Al Muharraq, try to promote and advertise walkable neighbourhoods. Thereby, this research aims to analyse pedestrianisation in newly developed urban areas. There exists a gap in the literature regarding the pedestrianisation of urban areas in the Kingdom of Bahrain. The researches that discuss the walkability aspects tend to focus on the traditional regions of Manama and Muharraq. This research aims to analyse and discuss the modern infrastructure trends and urban design features in the recently developed urban areas of the Kingdom of Bahrain.

2.7.2. Liveability and Vitality of an Urban Character for Socially Sustainable Communities

Petrovič & Murgaš (2021) elaborates that the concept of liveability is a place's suitability as a permanent residence. While Sena Işıklar (2017), on the other hand, explains that an individuals' chances of survival in metropolitan areas are directly tied to their resourcefulness. Lynch and Jacobs characterize these desires as "essential" factors. Physical or mental vigour; the ability to survive or the continuance of a life of meaning; the power to thrive or develop are all definitions that may be found in dictionaries under the heading "vitality". In contrast, Petrovič & Murgaš (2021) explains that when internal and external factors come together, one gets liveability, also known as habitability.

According to Veenhoven (2013), "Liveability outlines the fundamental conditions of a decent living for the inhabitants of cities, regions, and communities, including their physical and mental well-being". In contrast, vitality is referred to as the extent to which the characteristics of spaces affects the functions, biological needs, and capacities of humans. Lynch (1981) recognizes it as urban design's performance dimension.

Moreover, Veenhoven (2013) differentiates "liveability of surroundings" (he sometimes uses the word liveability) and "life-ability of the individual" in his famous fourfold matrix of four aspects of life. It is more accurate to separate four factors:

- Liveability of the environment
- Life-ability of the person
- Utility of life for the environment
- Appreciation of life by the person

Since it is impossible to add up values for such characteristics, summing them up is not possible. How long and content a person's life is the most significant accessible indicator (Veenhoven, 2013).

On the other hand, Kozaryn (2012) examines the notion of liveability and defines it as an objective component of QoL. Therefore, liveability is not restricted to discussions about urban settings. However, vitality is evaluated by the interactions between people on the streets. Jacobs (1961) emphasizes people and their relationships rather than infrastructure. Liveability is the sum of a place's technological equipment, social interactions, and environmental features. A restricted concept of liveability is presented here. "School" is technological equipment. Thus, it is part of liveability. "Education" is a demographic feature, not technical equipment.

Consequently, it is part of liveability in a larger sense (Petrovič & Murgaš, 2021). "Liveability" indexes rate cities. Webster defines liveability as "human-friendly". Liveability is the QoL or well-being of the citizens. Various individuals have different definitions of "liveability" (Kozaryn, 2012). Sena Işıklar (2017) further elaborates on Jacobs's idea of vitality that to promote personal and social life, environments must be as dynamic as their inhabitants. The definition of a thriving city includes elements like a wide range of spatial patterns and the separation of various types of activity into different time slots (Azizi,

2016). How socially thriving is a city is referred to as "vitality". According to Montgomery's (1998) definition, it is the existence of vibrant street life, as well as the volume of foot traffic at various times of day and night, the many celebrations and cultural events held throughout the year, and the overall sense of activity in a given area.

From the above-referenced paraphrases of Lynch's and Jacobs' descriptions, the characteristics that contribute to cities' vitality are categorized as below. These titles were selected for inclusion (Sena Işıklar, 2017):

- Social interaction
- The safety and belongingness of a person towards the space
- Availability of various necessities in city quarters and proportionate distribution of spatial practices in the schedule
- Active use of open, semi-open, or closed spaces, where a person can satisfy their needs, realize daily life practices, ergonomic conditions, and flexibility of units according to the needs of the era
- Providing a criterion for satisfying the visual needs
- The ability of residents to access social networks

The term "vitality" also refers to a city's sheer strength in urban literature. Level of activity, use, interaction, and representation, all contribute to a sense of vitality (Azizi, 2016). A city's raw force and energy must be focused and channelled towards a goal to become vital. Charles (2000) argues that vitality is a descriptive term for a wide range of behaviours that are neither good nor harmful in and of themselves. Vitality, concerned with the long-haul sustainability, self-sufficiency, adaptation, and self-regeneration, requires that activity, usage, and interaction be directed toward a list of aims and objectives to have any significant, beneficial influence. The health of a society may be gauged by looking at

factors like how often people interact with one another and what kind of relationships they have (Manzini, 2007).

Nonetheless, Azizi (2016) maintains that viability is preoccupied with long-term independence, equivalence, and convergence and that genuine growth is determined by the expansion, improvement, and depth of the whole society, which is not a binary property but rather a progressive property of matter according to its degree of wholeness, harmony, and structural coherence. According to this assumption, the liveability of urban life is an unfolding structure that cannot be created through issuing detailed instructions, establishing a moral code, or using technology to present knowledge (Yassin, 2019). Instead, the structure of urban life is an emergent property of vital aspects. The complexities, tensions, and ambiguity inherent in this diversity ultimately lead us to autopoiesis of bare life. Thus, instead of technical imitation, which contributes to the homogeneity of representations, which should be called muted brilliance, many human behavioural activities should be based on confidence in the soul via the growth of virtue and knowledge (Skalicky & Čerpes, 2019).

In today's age of information technology, the mass media, particularly cinema, may be utilized more critically, not to replicate the illusions of cities but to show that reality was an illusion all along (Kotulla et al., 2019). Pedestrianisation, less traffic, decreased automobile parking, and the paving of bike lanes was also shown to increase vitality in Gehl's study (Gehl, 2003). Pedestrian activity and other determinants of urban vitality are positively correlated with constructed environment factors that can be sensed to quantify Jacobs's conditions for urban vitality (Sung&Lee, 2015). This finding lends some empirical support to Jacob's design theory in the residential neighbourhood setting (Delclòs, 2019).

2.7.3. Liveable Streets as Means to Improve Social Life

A study by Mehta (2019) used mixed-methods research to find that the commercial streets' social life relies on a connection between the physical layout, behavioural environment elements, and places with meanings for the corporate community. Automobile dependence, large-scale planning, and highly rationalized, specialized operations limited social life among buildings during the fast urban expansion. Jacobs demanded a shift in the social life of the city. Jacobs emphasized high-density neighbourhoods, diverse uses of land, and public spaces for city life. Cities' physical structure could foster community and vitality (Jacobs, J 1961). Jan Gehl's 1971 book "Life Between Buildings" emphasized urban activity and how the constructed environment may stimulate public social life, particularly in city centres. The author criticized the disregard of the human factor in urban planning, car-filled cities, and the lack of pedestrian oriented surroundings, which are negatively affecting city life (Gehl, J 1987) (Farahani, 2014).

Residents' well-being, as well as a sense of security and safety, depends on neighbourhoods' social life. Psychological advantages may be derived from living in a neighbourhood where residents feel a strong belonging (Farahani, 2014). According to research conducted by Ross & Jang (2014), social bonds with one's neighbours helps reduce feelings of dread and distrust in the neighbourhood.

Neighbourhoods have both residential and commercial areas, which offer a social life. Neighbourhood centres and streets used for commerce are social hubs (Farahani, 2014). A neighbourhood's commercial street is like a town's main street. Main streets stimulate economic activity, interactions, and community (Mehta, 2019). The three social objectives of community, social equity, and the concept of the common good are used to

assess new urbanism concepts. These goals are considered to be elements of social change.

An example of communities having lively streets and high social interaction is the twin cities of Manama and Muharraq. During the pre-oil period, fishing, pearling, and agriculture served as the primary sources of income. Therefore, the boundaries of the properties were marked by the presence of water channels. These water channels separated the agricultural plots and were later developed into roads. The hot and humid climatic conditions determined the layout of the streets. They were oriented to provide shade and allow wind circulation. The streets were irregular, generally narrow, but wider in certain areas, such as marketplaces, and shaded by fabric (Elscheshtawy, 2008). These streets or alleyways were used by pedestrians or their riding animals, such as donkeys (Yarwood, 2011). The traditional and organic layout of streets made them the core of activities. They served as means of strong social ties and promoted public interactions.

Finlay and Kobayashi (2018) emphasize the importance of the neighbourhood's social life because it can eventually lead to people's well-being, especially in the case of older people, without it they can feel isolated. Additionally, inclusion in social relations has been highlighted as a critical component of social sustainability (Kohon, 2018). However, among the sustainable developments, social sustainability remains the most neglected of these aspects (Ghahramanpouri et al., 2017).

2.7.4. Relationship of Pedestrianisation and Social Sustainability

The most fundamental principle in designing new neighbourhoods should be pedestrianisation. Without integrating this principle, no sustainable development initiative will succeed (Parhizgar, 2013).

Careri (2002) argues that walking was the first "aesthetic act, entering the domains of chaos. Building an order on which to create the architecture of placed objects" that allowed early humans to "live in the world." Jackson (1986) emphasises the importance of walkways that are not only transitional features. They give rise to new spatial configurations, bringing novel modes of social interaction and habitation. Furthermore, the author argued, "roads no longer only lead to places, they are places," which has since become a quotable phrase. The point is to highlight walking as a kind of artistic expression that can be used to describe and transform urban areas that, by their very nature, still want an explanation, calling for meaning to be crammed into them rather than objects (Careri, 2002). Pedestrian zones are spaces in a city or town where vehicular traffic is restricted or prohibited. The term "pedestrianisation" refers to the practice of restricting vehicles on streets or larger spaces which once were for pedestrians (Jackson, 1986).

In addition to Jackson's (1986) definition, pedestrianisations' history may be traced back to at least Kurt Lewin. He came up with the idea of "hodological space" (Hodologischer Raum). This theory of human behaviour does not see people as autonomous entities but as embedded parts of their larger social and physical context. Vargiu (2019) explains that Jackson's idea of hodological spaces is discrete and qualitative spaces organized into 'regions' whose meaning depends on the degree of psychic investment in terms of interpretation, emotions, expectations, and aspirations noted by Besse (2010). However, hodological space is intimately connected to the human body and integral to well-being. Luca Vargiu (2019) argues that the body is fundamentally something to be "lived and not understood".

Academics agree that walkability is crucial to cities' success and residents' well-being (Frank et al., 2010). It is a crucial component of the

built environment that improves liveability and helps people make better use of and reap the benefits of urban life (Blecic et al., 2017)

Increasing a community's walkability may benefit people's habits and practices in terms of environmental sustainability. According to interdisciplinary research (Cerin et al., 2009), a walkable environment promotes healthier lives, which is good for both people and the planet. Walking is a simple and low-cost exercise that positively affects people of all ages. Walking and bicycling regularly also help reduce automobile use, reducing emissions of dangerous gases (Shafray & Kim, 2017). Further study by Marselle et al. (2013) demonstrates the positive impact of group walks in natural settings on participants' emotional and mental well-being. Besse (2010), referring to the same issue, notes that the artistic perspective helps comprehend the "dimension of the sensitive and emotive experience of walking," while Besse emphasises walking as the "basic or foundational moment" of the physical experience of the environment. The notion of a "walkable city," as advocated by proponents of the "new urbanism" movement, has gained traction as a viable strategy for revitalizing older, more established cities (Speck, 2012).

The amount and diversity of roadways on the urban-rural periphery often aren't the issue. Instead, the issue is with the quality of these places, particularly the poor pedestrian experience they provide owing to a lack of and disregard for pedestrian-friendly spatial qualities and features in the built environment (Blecic et al., 2017).

Historically, these locations have served as venues for various social, civic, economic, and political activities (Mehta, 2019). The goal of urban "regeneration" is to make cities more liveable for as many people as possible by prioritising their ability to walk (Delso et al., 2017).

A sustainable city's critical capabilities includes accommodation of individuals of varying ages, genders, residential areas, socioeconomic

levels, and personal skills to access valued destinations and places "on their own" by foot (Blecic et al., 2017). It is a must-have for cities to function and for individuals to make the most of their advantages, so it is no surprise that it improves people's QoL (Rauktiene et al., 2018).

Modernist urban planning prioritises vehicles over people. Urban engineers adopt various traffic patterns to increase efficiency. Pedestrian circulation is more crucial than vehicle circulation for urban life (Rogers et al., 2013). Trancik (1986) defines 'lost space' opposed to a defined or enclosed space by evaluating the meaning and usage of urban spaces in the contemporary metropolis. Jalaluddin & Oktay (2012) stresses the flaws with the modernist approach, which does not consider pedestrians in the design of the city and label these places as unwanted urban regions, requiring redesigning of spaces that don't add positive elements to the surroundings or the people using them.

This approach has impacted the historical neighbourhoods of Manama and Muharraq and, therefore, the urban fabric of ancient Bahrain. The passageways, which were meant for pedestrian traffic, were suddenly flooded with autos. Overcrowded automobiles blocking the walkways since there weren't enough parking spaces. Locals in urban culture rely on cars rather than walking or public transit ('Kanoos', a Traditional Urban Neighbourhood in Manama City: An Approach to Promote Urban Regeneration and Enhance Liveability).

The alteration of lively and pedestrian-friendly streets into vehicle-oriented ones can be seen in the city of Muharraq in the Kingdom of Bahrain. Though Manama and Muharraq appeared to be twin cities, the latter took precedence due to its location. The defensive location of Muharraq on the north-eastern tip controlled the marine trades in the Arabian Gulf. The city of Muharraq has undergone many adjustments and refinements. The city's urban development was based on tribal and kinship

norms (Al Nabi, 2012). The city was divided into nineteen zones shaped by the tribal grouping. These zones were termed Furqan (singular Fareeq). They were named either by tribal names or by the crafts that the people performed, such as ship owners, traders, and pearl divers. The city flourished upon pearling and fishing activities. The street pattern of the traditional city is an essential element and serves as an identity of the region. The streets connected the souq (marketplace), seafronts and commercial districts. They depicted an organic pattern with the palaces on the highest point in the city's heart, surrounded by the tribal areas (AlSulaiti, 2009). They served as spaces for interaction, activities, and social services.

However, modernization and rapid urbanization have altered the traditional urban fabric of the city. The roads were modified to accommodate motor vehicles. The introverted nature of the city was replaced with an extrovert design. The deterioration of the traditional fabric resulted in the loss of traditional forms, the replacement of Bahraini residents by expatriates, heavy traffic, a shortage of parking spaces, and a loss of street social values (AlSulaiti, 2009). The streets that were dedicated to pedestrian activities were invaded by cars. Moreover, the parked cars at the sides of the roads or over pavements due to the lack of parking spaces further hindered pedestrian movement (Shubbar & Furlan, 2019). Additionally, the easy access to the sea has been eliminated by land reclamation (Rashidi, 2019).

The government has exerted efforts to preserve the heritage and cultural identity. The traditional buildings have been renovated, and open spaces have been redesigned. These efforts have been fruitful to some extent, yet they cannot develop the same locality and sense of the neighbourhood as the traditional ones. For example, the Siyadi house was

preserved, but parking lot adjacent to it diminishes its visual appeal (Alraouf, 2014).

2.7.5. Sustainable Physical Character Considerations on Street Design

Historically, road lanes that are 11 to 13 feet wide have been used to create more space for vehicles, especially in high-speed areas. Lane widths of 10 feet are suitable for urban areas and have a positive impact on safety without impacting traffic operations. Narrower roads cause slower driving speeds, which lessen accidents (NACTO). NACTO recommends a road design that is illustrated in Figure 2.4. If car lanes are narrowed, there would be space for bicycle lanes.

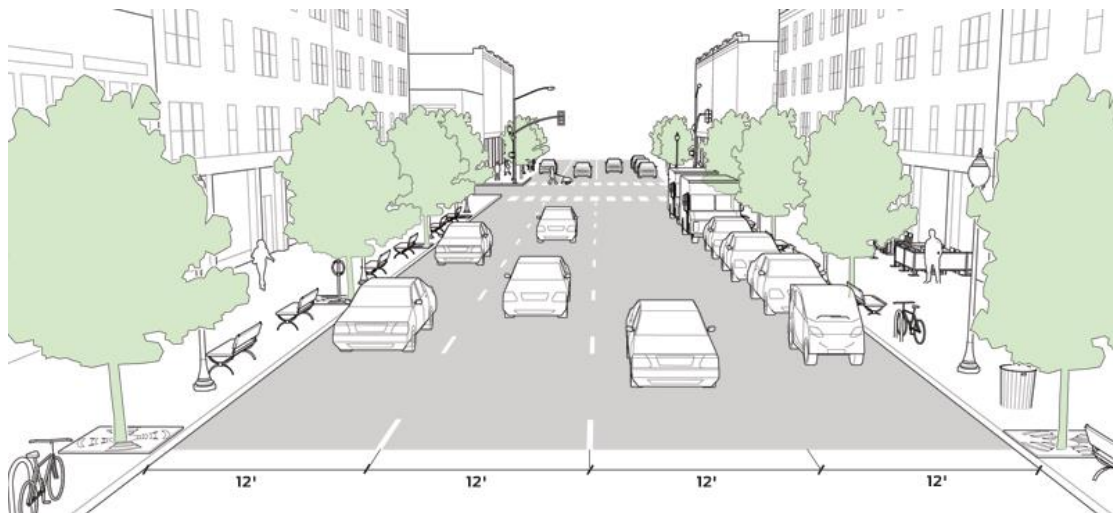


Figure 2.3: Existing Lane Widths in the USA (NACTO, n.d.)



Figure 2.4: NACTO's Recommended Redesign for Road Lanes (NACTO, n.d.)

The American Association of State Highway and Transportation Officials (2018) stated in their “Policy on Geometric Design of Highways and Streets” that the ideal sidewalk width is 5 feet with 4 feet as the minimum and that lane widths ranges from 10 to 12 feet. Figure 2.5 illustrates a road design with ideal measurements (HDR, Inc.).

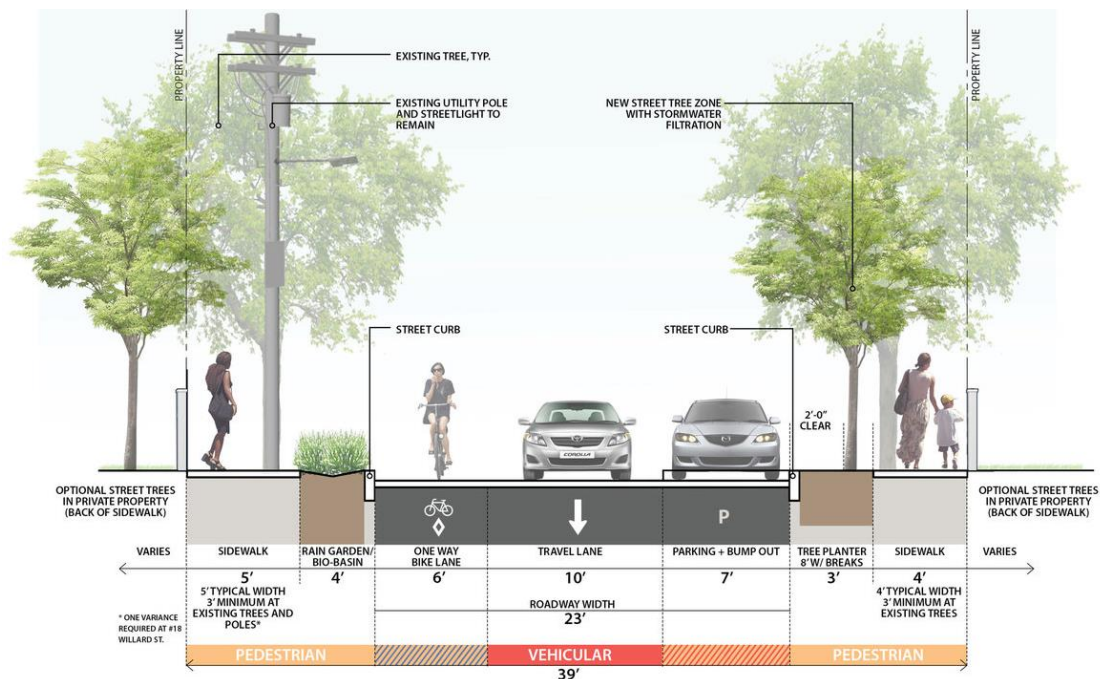


Figure 2.5: Example of a Road Design with Ideal Dimensions (HDR Inc., n.d.)

Street furniture create an environment for people to rest, sit, eat, and interact. Such areas would be very crucial to the elderly, those with limited mobility, and adults who have little children. In addition to their functional aspect, urban furnishings such as benches and tables in parks and squares can also support social sustainability as they make the street a pleasant space for drawing people together.

Pieces of furniture that are placed on streets are seating facilities; waste receptacles; signages; lighting fixtures; fountains; bollards, which are vertical barriers the prevent vehicles from crossing into boundary of the pedestrian areas; and public art.

2.8. Social Sustainability in the Context of Bahraini Neighbourhoods

According to the widely accepted definition of social sustainability, the social aspect was seen as a supporting tool for sustainable development rather than an integral part of such discussions (Vallance et al. 2011). In doing so, it weakened social foundations. Therefore, the study by Shubbar & Furlan (2019) claims that the discovery of oil resources in the late 1930s prompted huge population and urbanization growth in the Gulf area. The discovery has completely changed the cities' economies, making them heavily reliant on the commodity. This shift in demand has resulted in a dramatic alteration to the urban landscape, necessitating the addition of buildings inside the city boundaries (Nabi & Noor, 2012). There has been a mass exodus of residents from older, more established communities to recently established urban hubs seeking better economic opportunities. As a result, abandonment and neglect have caused significant harm to these

historically significant areas and negatively impacted the social aspects of Bahraini neighbourhoods (El-Ghonaimy & Al-Haddad, 2019).

The literature delves further into how old neighbourhoods of Bahrain, especially Manama's historic district and its urban characteristics, were responsible for the social life of Bahrain, leading to socially sustainable neighbourhoods. Shubbar & Furlan (2019) further claims that Kanoo is the oldest neighbourhood of Bahrain with an area of 23 acres near Manama Souq in the centre of Manama. It is near historical neighbourhoods that comprised Manama's centre before the 20th century. The neighbourhood's many religions and doctrines coexisted in amicable ties. Love, tolerance, and collaboration in joys and sorrows helped Bahrain economically, politically, and culturally. Mosques, Majlis, congregational halls, sikka (narrow alleyways), and traditional qahwa (café) were popular socializing spots. These informal social areas of neighbourhoods, as discussed in section 2.1, were responsible for socially sustainable neighbourhoods as they provide accessibility, equality, and liveability to the community (Vallance et al. 2011).

Similarly, El-Ghonaimy & Al-Haddad (2019) explains that Al-Fareej, a small urban region, was studied because of its social life in historical areas. Al-Fareej means a tiny neighbourhood (Saraiva et al., 2017). A Fareej's positive social role led to considering and studying its relevance. The homogeneous interweaving of diverse religions, cultures, and beliefs. All these characteristics lead to social sustainability, as mentioned by Vallance et al. (2011). At the same time, Shubbar & Furlan (2019) investigated the old Bahraini neighbourhood of Bab Al Bahrain and explained that vehicles, worker bicycles, and foot traffic are the primary modes of site access. Bus stations serve as the primary hubs for public transportation in Manama. They tend to be clustered around the city's periphery due to the congestion caused by the tight streets in the historical

district (Kubaisy & Falah, 2006). Since it is an older metropolis, it was not built with cars in mind but instead walkers and bikes. Thus, the neighbourhood has the concept of pedestrianisation, and until today this urban character is well-used and brings multicultural people together (Shubbar & Furlan, 2019).

Bahrain's social life has remained unique and good via public engagement and social collaboration without ethnic or racial prejudice. Since the inception of the community inhabitants have used non-stereotypical gatherings to agree on daily routine, norms, living, and inherited socioeconomic codes (Kubaisy & Falah, 2006). Their varied but robust content supported their life quality. The first, al-Fareej was a famous cultural centre in Manama, promoting culture and arts. Manama region often offered arts and other classes. The second was community gathering facilities, where members assemble for group activities, information, moral support, and other objectives (Mohannadi et al., 2018). Some were available to the entire community and some for specific groups. Third, al-Fareej was organized by private, government-sponsored, or activist-run residences. "Al-Fareej" was the old city's node, according to scholars (El-Ghonaimy & Al-Haddad, 2019).

Since the 1960s, Bahrain's government implemented several schemes in response to the increasing need for residential space due to rapid population growth. Slowly but surely, a new urban environment took shape; one comprised of a wide range of experimental housing types that sought the ideal home for the contemporary Bahraini family. Shubbar & Furlan (2019) claims that old Bahraini neighbourhoods had a lively street urban character that was a major binding force for the success of some significant neighbourhoods. The essence of streets was responsible for enabling accessibility and strong social cohesion. Similar claims have been made by Saraiva et al. (2017) that old Bahraini homes had traditional

characteristics that enabled social sustainability. However, due to globalization, those characters have faded, taking away the social meaning of Bahraini society.

2.8.1. Urban Characters and Old Neighbourhoods of Muharraq

Muharraq was Bahrain's capital in the 19th century and still possesses the beauty of an ancient Arabian city with its buildings of few storeys, narrow streets, and small lanes (Rashidi, 2019). Muharraq was a little town until the royal family moved there in 1810. Bahrain was a key pearling centre and a port on the Far East-India-Europe trade route (East & East, 1915). The geographical location affected the country's culture and legacy, especially of Muharraq. The limits of these traditional regions were defined with ancient people's descriptions and data from building permission records, which aided in comprehending the town's overarching social urban fabric (Rashidi, 2019).

Several maps of Muharraq's urban layout have been uncovered throughout the literature research. Those of Muharraq's two forts and churches date to 1635 as shown in Figure 2.6, but an accurate topographic map was not created until 1817 and was not refined much until 1825. If one looks at these maps closely, one can see how much of the old city layout still exists in the modern city (Rashidi, 2019). The layout of the town's streets is a crucial factor in determining the town's historical authenticity. Although the ancient literature lacks exact and thorough descriptions, it offered substantial insight into urban traits (Ministry of Municipalities Affairs & Agriculture, 2006). The map below shows the old Muharraq and its linkage.

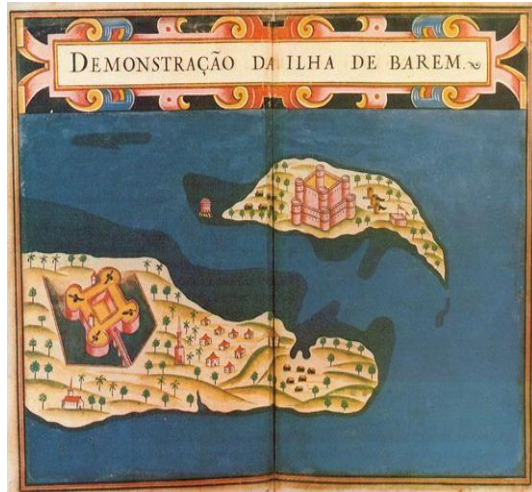


Figure 2.6: The old Muharraq fort (Walls, 1990 as cited in Chapter 2: Town of Muharraq, n.d.)

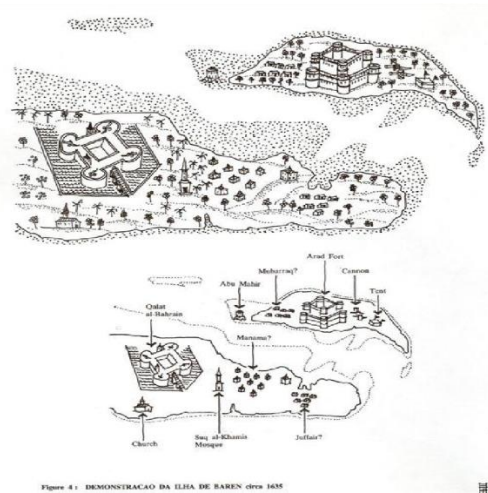


Figure 4: DEMONSTRAÇÃO DA ILHA DE BAREM circa 1635



Figure 2.7: The urban development of Muharraq (Jarman, 1996 as cited in Chapter 2: Town of Muharraq, n.d.)

Most of the city's urban fabric from before the country's economy shift to oil is still intact in Muharraq (Rashidi, 2019). Since then, there has been extensive urban redevelopment and land reclamation (East & East, 1915). There was a high degree of spatial and functional interaction between the urban fabric and the shoreline in the pre-oil period. The streets of the city were in a vertical crisscross layout, with the rulers' palaces located at the highest point in the middle and the ethnic neighbourhoods radiating out from there (Hamouche, 2004). The mediaeval Islamic cities in Morocco, Algeria, and Saudi Arabia are excellent examples of this kind of urban design.

Olsen (2002) claims that the old neighbourhoods of Muharraq used to hold outstanding intangible characteristics of social life in different forms and activities of the community that, according to Maloutas (2003), are the re-socialized characters for socially sustainable communities. This social life included social gatherings at different times, weddings (where there are long-standing rituals), and festivals (where there are customs around the harvesting of pearls). During the pearling season, when divers came to the shore, they would sing songs called "Fujiri" or "Naham," and these songs are still performed today at the House of Musicians. These vocalists have managed to keep the traditional components intact from their earliest versions. Similarly, the ancient singing custom known as "Girgaon" is still widely practised today. During the holy month of Ramadan, youngsters go door-to-door singing and, in return, get treats. Moreover, the traditional goodbye song "Al Wida" is still sung by many after Ramadan (East & East, 1915).

As a result of this shift in urbanization, the old grid of perpendicular streets was eventually replaced by a new shoreline that ran parallel to the old coastline and served as the significant spine along which new activity centred (East & East, 1915). As time passed, new cities emerged and eventually merged with the older ones (Mandeel, 1999). New highways and cities sprawl gradually, engulfing the rural landscape. The semi-circular shapes prioritized in the town plans constructed around the traditional regions effectively bridged the gaps between Muharraq's historical neighbourhoods (East & East, 1915). In the 1950s and 1960s, new constructions on the reclaimed lands beyond the waterfronts caused a considerable loss of touch between the traditional urban fabrics and the sea front owing to the encapsulation of contemporary urban structure, generating an actual conventional fabric rupture (Rashidi, 2019). When the

island of Muharraq was enlarged by land reclamation, the historic district lost its direct access to the sea. There is a sizable road on the island's recently reclaimed western side. One of the few positive outcomes of the reclamation was that it enabled building of the current road network without harming the old fabric (East & East, 1915). However, at the same time, it disturbed the social values of the site and its people (Rashidi, 2019).

In the 1970s Muharraq had room for growth only in the northeast and along the coast up to the settlement of Busaiteen. In many ways, the city's location has ensured that it maintains a relatively regular geometric shape. This may have caused the city's slower development compared to Manama (State of Bahrain, 1975). As a result, the whole perimeter of Muharraq and large portions of its east, south, and west were designated for reclamation in the 1980s (Ministry of Housing and Planning, 2000). Aside from the Bu Maher Islands and Hidd on Muharraq Island, the land was reclaimed in the outlying settlements of Busaiteen, Dair, Samaheej, Galali, and Arad. Eventually, roadways and ring roads were built to connect the reclaimed regions (East & East, 1915).

As Muharraq's urbanization patterns have shifted in recent years, the city's urban fabric, architectural history, and traditional values have all suffered (Rashidi, 2019). With the deterioration of residential properties, uneven distribution of traditional fabric and form, and the influx of low-wage, expatriate labourers and unplanned use of land are all significant issues for Muharraq town. Congestion, lack of parking, and subpar amenities worsens the problems (Buhaimed, 1987). Rashidi (2019) further claims that this will destroy Muharraq's traditional architecture and urban form. The wants and inclinations of the citizens have changed due to the impact of modernization on society. The morphology of Muharraq, in turn, affects these modifications.

Additionally, negligent landscape design, complex pavement, and street furniture around critical structures and urban areas have resulted in diminished value and aesthetic appeal of the city's infrastructure (Ministry of Municipalities Affairs & Agriculture, 2006).

2.9. The Relationship among Sustainability, Social Sustainability and Pedestrianisation

Sustainability is the capability of being maintained at length without being interrupted or weakened (Merriam-Webster, Incorporated). Its forms include environmental sustainability, social sustainability, economic sustainability, and cultural sustainability (Meadowcroft, 2024). Social sustainability is a process for creating a sustainable environment that facilitates the well-being of its inhabitants as a community (ADEC Innovations). Improved pedestrianisation is an important factor that enables community residents to have more social interactions, to have spaces for local businesses, and to have less emissions for a healthier environment (Anciaes & Jones, 2022). This shows that pedestrianisation affects social sustainability, economic sustainability, and environmental sustainability.

2.10. Research Gap

There are limited investigations on the connection between pedestrianisation and social sustainability and limited inquiries on the urban design approaches, which could enhance social life in new neighbourhoods. The study shows the theoretical framework for the study, which is the basis for selecting the case studies that will be stated in Chapter Three. will elaborate on various physical urban characters contributing to

achieving urban social sustainability and their relationship with a sociological perspective.

Efforts were undertaken to guarantee the growth process's environmental, economic, and social sustainability within Bahrain's National Vision 2030. The government of Bahrain has set out this national vision to safeguard the future of its citizens. Therefore, it is dedicated to strategic planning to ascertain and comprehend the nation's possibilities and constraints, formulate policies, and identify concrete initiatives to help acknowledge these strategic goals. Various organizations and government bodies worked together throughout development to ensure sustainability along many dimensions. (Bahrain.bh, 2008).

A city is a collection of structures and public areas where people live, work, play, learn, and socialize. From a psychological standpoint, this group includes loved ones, close friends, and colleagues. In many cases, the happiness of the locals is determined by their mental state. The nature and social network of a neighbourhood may be inferred in part from the kinds of activities on the sidewalk and in the street. In many cases, these characteristics convince potential residents and investors that Fareej is an excellent spot to settle down (Shubbar & Furlan, 2019). Therefore, it is impossible to claim social sustainability as a single discipline of study since it is intrinsically multidisciplinary (Peters, 2016). This research studies social sustainability from both urban and sociological perspectives.

2.11. Research Question Development

The literature review reveals the importance of numerous urban design considerations to cater for social sustainability, but the respect for individuals' well-being through pedestrianisation and social interaction is

prioritized (Ghahramanpouri et al., 2017). It has been indicated by the literature review that to promote pedestrianisation, accessibility must be provided to the community (Eizenberg & Jabareen, 2017). Additionally, urban characteristics, such as lively streets, public amenities, variety, and the incorporation of informal spaces that attract the residents and enable the community's well-being, must be considered (Yassin, 2019). Whyte (1980), in the book “The Social Life of Small Urban Spaces,” explores the many aspects of urban life and how they interact with the people that inhabit them. He looks at everything, from how much open space is used to sit in a plaza to how the sun, wind, trees, and water interact to how men and women choose and use urban space differently. According to his observations, 'people attract people', he coined the phrase while reflecting on the phenomenon. Table 2.1 shows the theoretical framework for the study, which is the basis for selecting the case studies that will be stated in Chapter Three. It is a framework of the important variables from the literature that must be integrated to create socially sustainable neighbourhoods; therefore, the interview questions are based on these variables, which is discussed later in Chapter Three.

There are limited investigations on the relationship between pedestrianisation and social sustainability and limited inquiries on the urban design approaches that could enhance social life in new neighbourhoods. Therefore, this research will answer the research question:

What is the relationship between pedestrianisation and social sustainability? And what urban design approaches can enhance social sustainability in new neighbourhoods in Bahrain?

Table 2.1: Important variables to study social sustainability

No.	References	Description	Urban variable with social sustainability
1	Death and life of great American cities by Jane Jacob	Jacobs' "eyes on the street" premise sound apparent, but she argues that the key to city safety is having busy streets so that people are interested in monitoring the street for pleasure. As with many such concepts, however, it cannot be "planned" in a linear fashion; rather, it requires a complex interweaving of factors such as street width, building edges, service variety, public policy, etc. (Jacob,1961).	• Accessibility • Lively streets • Services • Variety • Diversity • Scale • Buildings and their relationship to people
2	The social life of small urban spaces by William H. Whyte	Whyte's "The Social Life of Small Urban Spaces" is an insightful, observant look at how the physical layout of a place may affect people's interactions with one another, both positively and negatively (Whyte,1980)	• Outdoor seating • Accessibility to public plazas • Steps as inviter and barriers • Effective capacities • Informal gathering spaces • Street as the right to walk
3	Happy City by Charles Montgomery	The 2013 book "Happy City" details the ways in which proper city design may improve residents' health and happiness in metropolitan areas. These blinks shed light on the unseen elements that may create or break city life, such as the roots of urban sprawl, common architectural	• Equity • Accessibility • Mobility • Social interaction

		mistakes, and initiatives to get people out of their houses and interact with one another and with nature (Montgomery, 2013).	• Urban patterns for people • Social life • Well-being of Communities
4	Tactile urbanism by mike Lydon &Anthony Garcia	The authors begin with a history of Tactical Urbanism and its role in social, political, and urban planning movements. Then, a complete series of case studies, including guerrilla navigation signs in Raleigh and pavement, turned into parks in San Francisco, highlighting the range and scalability of tactical urbanism initiatives. The book also includes a toolbox for conceptualising, planning, and executing initiatives depending on local requirements and obstacles (Lydon & Garcia, 2015).	• Urban patterns • Amenities for social infrastructure • Neighbourhood gathering spaces • Inspiring residential spaces
5	Walkable city rules by Jeff Speck	“Walkable City Rules” is a guide to changing cities now. The 101 regulations are practical and engaging—worded for planning instruction discussions, illustrated for visualisation, and crammed with specifics and statistics. The 19 chapters address marketing walkability, getting parking right, avoiding automobiles, developing pleasant spaces and exciting destinations, and doing it now (Speck, 2018).	• Walking as social life medium • Walkability for communities' livelihood • Equity • Right to public spaces • Accessibility • Well-being of Communities

Chapter Three

Methods and Procedures

3.1. Introduction

This chapter intends to explain the research technique used to study social sustainability in Bahrain's new neighbourhoods by examining the impact of pedestrianisation on social life. Focusing on Bahrain's new neighbourhoods and exploring the relationship between the urban characteristics of contemporary design and social life vital to Bahrain's cultural identity. Muharraq governorate is selected as a case as it is one of the oldest islands in Bahrain which hosts major cultural, architectural, and traditional traits of urban development (Rashidi, 2019). Moreover, Muharraq is an island that has undergone significant reclamation and expansion due to its geographical location (Hakim, 2007).

The chapter is broken down into five parts, the first of which provides an overview of the research's methodology and explains why a qualitative approach based mainly on the case study technique was chosen. The second part of this chapter introduces the study's contexts and explains why Muharraq Governorate and four case studies within it were chosen. Data collection is discussed in detail in this chapter's third part, which details the methods and resources used in the process. The fourth part details the researcher's approach to data analysis. Finally, the fifth section consists of the pilot studies performed to check the validity and reliability of the method selected.

The main research question's relationship to the interview questions listed in the Data Gathering Techniques section is the focus on the main

variables of the research, which are pedestrianisation, urban characters, and social sustainability, all of which are in the literature review.

3.2. Research Design

The impact of pedestrianisation on social space is less of an issue of quantity than quality (Soliman, 2014). The Kingdom of Bahrain possessed rich cultural and social values in the urban layout. However, due to urbanization, the traditional fabric has deteriorated. The lively and socially rich streets have been overtaken by motor vehicles. However, the Kingdom of Bahrain is trying to reintroduce these values in the new urban developments. Therefore, this research seeks to study and analyse the pedestrianisation of recently built urban developments in Bahrain.

The study aims to be exploratory and address the recent Bahraini neighbourhoods. To illustrate the complex socioeconomic process that led to its creation, including urbanization, land reclamation, social infrastructure, ease of access, public realm, street culture, and a variety of users. The research question investigates the connection between pedestrianisation and social sustainability by focusing on the characteristics of urban design and the social process that produce it. Addressing these characteristics will help to answer the following key research question:

What is the relationship between pedestrianisation and social sustainability? And what urban design approaches can enhance social sustainability in new neighbourhoods in Bahrain?

Mason claims that qualitative research allows us to delve deeper into social processes, institutions, discourses, and relationships. Qualitative research allows analysing the meanings, texture, and weave of daily life, perceptions, experiences, and imaginations of the participants of the

research, and much more. (Mason 2002). Denzin and Lincoln (1994) also support this viewpoint. The authors describe it as multi-method, interpretive, and naturalistic. Professional qualitative researchers observe human beings in their natural settings to understand how humans interact with their physical environment and how as a designer they can facilitate their physical environment so it can be utilized. Mason's (2002) definition of qualitative research as exploratory, adjustable, driven by data and sensitive to context lends credence to this view. Similar points were made by Creswell (2003): qualitative research is comprehensive, interpretative, context-dependent (when the researcher visits the place), and emergent (rather than refigured).

The Kingdom of Bahrain is an archipelago of 33 small islands at low altitudes above sea level. From June through September, temperatures are mostly over 110°F. From November through May, temperatures are pleasant, falling in the range of 55°-85°F. The land along the northern and northwestern coasts of Bahrain has a decreasing cultivation of date palms, alfalfa, and vegetables. There is a north-south plateau surrounded by overhanging cliffs slanting into the sea. The ground is hard and infertile until spring when greenery appears in the desert following the winter rains (Bahrain geography, maps, climate..., n.d.)

Most of the dredging and establishment of new urban areas has been done on the northern shore and has altered the form of Muharraq. Recently developed urban areas include Diyar Al Muharraq, New Hidd, Amwaj islands, and Dilmunia (El-Kholei et al., 2019). For this study, four urban developments were selected from the Muharraq Governorate. They were selected because they are newly developed areas created in the past 15-20 years. Older settlements were not considered as this research aims to assess

the recent urban developments. The areas undertaken for this study are as follows:

Table 3.1: The selected case studies

Case Study Areas	Date Of Development	No. Of Islands	Population	Sites selected
Diyar Al Muharraq	2015	Seven	Not yet fully occupied	Al Noor & Al Sherooq, Deraat Al Oyun, Jewaan
Amwaj Island	2004	Nine	10,000	Noor Amwaj, Road 57111, Al Zahi
Dilmunia	2015	Five	Not yet fully occupied	Sea front houses, Essence of Dilmunia, The Canal View
New Hidd	2013		14,000	Road 1117, Road 942, Road 927



Figure 3.1: Map of the Case Studies (Adopted from Google Maps, n.d.)

The case studies of the research were chosen based on the following criteria:

- Muharraq governorate has gone through the most land reclamation, and significant urban developments have been witnessed over the years. Moreover, it consists of newly developed neighbourhoods, the main areas of this study.
- According to Lofland (1984), authors already acquainted with the setting and its inhabitants may "create the required meaningful relationship between the interpersonal and emotional, on the one hand, and the rigorous intellectual process to come." Therefore, the accessibility of the site to the researchers speeds up the process of verifying the responses provided by the respondents.
- The new residential areas in the Muharraq governorate are well known.
- The continuous construction work in the area and the creation of many residential communities on waterfronts make them inaccessible on the physical, visual, and symbolic levels that require investigation regarding social sustainability.

3.3. Research Method and Data Gathering Techniques

The research adopts a qualitative case study method using in-depth interviews and participant observations to collect primary data from them. Interviews are conducted to determine and analyse residents' experiences in the areas of study. Simultaneously, participant observation aims to collect qualitative data to address the behavioural patterns of the users towards the areas under study. An open-ended, semi-structured type of interview was chosen based on recommendation from the literature review,

which showed that urban ethnographic studies are best performed using interviews (Corbin, 2003).

3.3.1. The Case Study as Qualitative Approach

This research has implemented a case study as the primary research method as it is frequently used in urban design to investigate a wide variety of problems, such as investigating urban behaviours in the political sphere, neighbourhoods, and beyond, and presenting examples of quality standards in physical development (Birch, 2012). Issues central to case-study research in urban design include identifying factors to be considered in constructing urban public policies, describing the judgement processes in urban planning, and giving examples of what the researchers call guidelines, often with a focus on urban design or physical development (Yin, 2014).

To improve generalisation from the data, this study uses multiple case study designs to investigate trends, pattern variations, and notable examples of patterns to strike a balance (geographic, size, etc.) among shown patterns and provide more sufficient descriptions and explanations of quantum events (Stake, 2006). “America's Waterfront Revival: Port Authorities and Urban Redevelopment” (2009) and “Major League Winners: Using Sports and Cultural Centres as Tools for Economic Development” (2010) are examples. Brown gives four examples and Rosentraub, five, to illustrate post-industrial urban growth. The authors used academic materials, personal interviews, and experiences to develop their subjects.

Collecting primary descriptive data, constructing a timeline, and identifying significant players and activities will help paint a picture or tell a narrative about each case. Censuses, carefully designed surveys, participant observation, in-depth interviews, a thorough examination of

primary and secondary sources, extensive fieldwork, and mapping and spatial analysis using GIS or other techniques are some possible sources of information (Birch, 2012).

As Birch (2012) mentioned, the value of case-based research becomes apparent with enough time for the results to be disseminated and implemented. The results may be divided into two categories: (1) the practical use of the new information and (2) the impetus for further study. Numerous fields show evidence of the new information being put into practice. Jane Jacobs's "Death and Life of Great American Cities" (1961), an analysis of successes in urban design, focused on New York City (primarily Greenwich Village), and William H. Whyte's (1980) "Social Life of Small Urban Spaces," a study of public plazas in New York City, attracted a large audience and transformed city planning practices in New York and beyond. Because of Whyte's research, numerous municipalities revised their public plaza regulations in New York City (Kayden, 1996). Therefore, this method will describe the current phenomena, answer the research question, and further provide an urban approach that can be utilised in creating socially sustainable neighbourhoods across Bahrain.

3.3.2. Data Gathering Techniques

The primary data-gathering techniques used in this study are open-ended, semi-structured interviews and participant observations. In qualitative research, interviews play a crucial role. Interviews are a prominent data collection and research tool for various reasons. They are most effective when highly customised information is required or when more investigation might reveal relevant elements. They are a practical choice in cases with few potential responses, and a high response rate requirement (Solomon et al., 2004). Furthermore, Collis & Hussey (2003)

elaborates that the primary benefit of interviews is that they provide a thorough analysis and description of a research topic without restricting the breadth of the study or the honesty of the participants' answers. The in-depth interview questions are divided into three sections to achieve the study's objectives (section 1.3).

The data gathering of interviews was difficult as the accessibility to participants from Muharraq and new neighbourhoods was challenging. To reach the maximum number of participants, a Google form was created mentioning a brief introduction of the research and how the participants' contributions will be beneficial, then inquiring about their fluency in English, their consent, and their preferred medium for the interview, and contact details. The next step was contacting the participants to schedule a call. Finally, all the participants for on call interviews were selected. Therefore, all the interviews were done via WhatsApp calls and recorded using an iPhone with their consent. The recordings were stored on the for-data redundancy. After the qualitative data was gathered, it was organized for the case study. The qualitative data from Diyar Al Muharraq was coded as participants PDM1 to PDM10. The data from Dilmunia was coded as participants PD11 to PD20. The participants from Amwaj were coded as participants PA21 to PA30, and, lastly, the New Hidd coded as participants PNH31 to PNH40

Table 3.2: Code of the participants

Code	Case Study	Number of Participants
PDM	Participant from Diyar Al Muharraq	PDM1- PDM10
PD	Participant from Dilmunia	PD11-PD 20
PA	Participant from Amwaj	PA21- PA30
PNH	Participant from New Hidd	PNH31- PNH40

Relationship of the Questionnaire with the Research Objectives

The research question would be expounded through sub-questions that construct the interview questionnaire. For Objective 1, Questions 1 to 5 explore about the facilitating factors of pedestrianization. For Objective 2, Questions 6 to 10 seek how urban characters enhance social sustainability. For Objective 3, Questions 11 to 15 draw recommendations for designing neighbourhoods. The questions tackle the leading factor of each objective and are expected to generate themes to understand the phenomena.

Interview Questions

Objective 1. To investigate the impact of pedestrianisation on social life in new neighbourhoods.

1. What were the social characteristics of the neighbourhoods when you moved here?
2. Do you usually go for a walk around the neighbourhood, perform errands by walking? Explain.
3. Do you know your neighbours? How did you first get acquainted with them?
4. By what means do you socialize with your neighbours?
5. How often do you interact with people on the streets or within the shared public space in your neighbourhood that you know or have recently become acquainted to?

Objective 2. To study the urban design characteristics that enhance social sustainability.

6. What are your opinions about how the walkways and cycling tracks in your neighbourhood are designed? Do you think they are easy to reach and use by your family members?

7. Do you believe if utilities were at walking distance, it will build the habit of walking around?
8. In your neighbourhood, what places attracts you due to their design for conducting outdoor activities and do you utilize them?
9. What are your views on the connectivity of your neighbourhood with surrounding areas?
10. Do you think there are some missing design elements in the neighbourhood that you believe are necessary?
11. Do you believe street furniture is an important character and can enhance streets' usability? And in what ways can it improve usability? Diverse usability.

Objective 3. To propose recommendations for designing new neighbourhoods enabling socially sustainable urban environments in Bahrain.

12. What kind of social activities would you like to indulge in? And is there any such activity currently available?
13. What services, amenities and designs will be needed to fulfil residents' needs in the coming years?
14. Do you think the current neighbourhood design is safe and accessible to all age groups? And does it provide social rights such as safety, accessibility, green spaces, and seating near the sea area?
15. Do you think accessibility to social gatherings and interactions in your neighbourhood can be enhanced? How?

Observation:

The researcher started observing all four case studies simultaneously throughout the week from the 19th of March to the 8th of April 2023. Each

case was observed three times a week for two hours. The selection of days was decided as suitable to the researcher but considering that it included one weekday and two from weekend to better understand the case. Each case study was observed at three different locations. This was done to investigate the urban character and social sustainability. The observation started Amwaj on Sunday, 19th March, from 4.00 pm to 6.00 pm. The second visit was performed on Thursday, 23 March, from 6.00 pm to 8.00 pm and on Friday, 24 March, from 2.00 to 4.00 pm. The observations were recorded by taking field notes and photos and data was collected within the schedules. As the name suggests, the practice of structured observation is very organized. It generally attempts to account for other factors, such as time of day, day of the week, season, location, and so on. In most cases, a timetable is used to keep track of observations made during a structured observation. Scheduled activities and their respective recording methods are specified (Byrne, 2021). Furthermore, Whyte (1980) suggests that observation of behavioural patterns and urban map study should be the fundamental approach to research methodology. Modan (2007) claims that participant observation is one type of qualitative research observation, along with ethnography and fieldwork. Observational research uses multiple sites. Therefore, observational data is supportive or corroborative.

3.3.3. Study Sample

The research sample targets adult residents of Bahrain, specifically those living in new neighbourhoods within the Muharraq governorate. The sample size to interview is 40 Bahraini families divided among four new neighbourhoods of the Muharraq government. Participants should be well situated to reflect the study subject since the "depth" of data is more critical than the frequency (O'Reilly and Parker, 2012). According to Cresswell

(2007), a minimum sample size of between 5 and 25 interviews is needed for semi-structured, in-depth interviews when doing research with a diverse population (Cresswell, 2007). Moreover, sample size further depends on the saturation point, as Saunders (2012) explains; if the data generates repetitive results, it indicates that the sample is adequate.

Morse (2000) correctly notes that the scope of the study, the subject, the data quality, and the study design affect sample size in qualitative research projects.

3.4. Data Analysis Procedure

As mentioned above, this research follows a case study strategy with a qualitative approach. The data collection approach includes interviews, site visits for observation, photos, and map studies, all analysed and written up using an inductive method. The data analysis procedure has been systematically organized and aligned with the objectives and research question from the beginning. Thematic analysis techniques were adopted to study the gathered data. Gathering information, analysing it, and concluding is not linear but circular. Analysis and interpretation started on the initial field trip itself. Transcribing the semi-structured and informal interviews was the first step in the analytic process. The second steps included coding the emerging themes, filtering the excessive data interview question themes, and finally relating them with the objectives.

3.4.1. Interview Analysis

Analysing the data gathered from the semi-structured interview was performed in an organised manner. First, the researcher chose to transcribe all the interview questions using Otter.ai, and later the transcriptions were

proofread. The second step for data analysis was performed using Miro board. All the qualitative data was imported and later separated based on the case studies. Further, the qualitative data were categorised based on the emerging themes and their relationship with the objectives. The Miro board was used to generate diagrams and pie charts according to the findings. Finally, the researcher used a method wherein all the compiled data from each location for a given day will be in a single document. The transcriptions and the data analysis performed in Miro were revised and read many times, at which time the overarching themes for each study component will be determined.

3.4.2. Participant Observation Data Analysis

Site visits and observations were conducted with thematic analysis as mentioned in Table 3. These significant themes will further help identify the approaches and urban characters that will help answer the research question. At this point, common themes and underlying urban patterns will start to emerge from the many interviews and field notes.

Table 3.3: Site visit schedule

Site Visit Schedule				
Objective 1: To investigate the impact of pedestrianisation on social life in new neighbourhoods.				
No. of visits				Map of site
Day				
Location				
Time				
Available functions				
No. of people				
Weather conditions				

Land use				
Theme Level Of Street Liveability	Observation Criteria S, W, F			Reference For Evaluation
Presence of parks				Project for Public Spaces (PPS) outlines four major quality requirements a space must have for liveability, which are categorised as follows, since liveability determines the quality of life. These criteria apply to the evaluation of any kind of public space, including streets, playgrounds, and plazas: ease of access, pleasant atmosphere, good company, many Functions (Yassin, 2019).
Presence of plazas				
Ease of access				
Greenery				
Design elements				
Mosque				
Level of street vitality	Strong, fair, weak	Strong, fair, weak	Strong, fair, weak	Reference For Evaluation
Level of inclusivity				Vitality According to Gehl, Montgomery, the vibrancy of a street is the outward sign of the social interactions that take place there, and this vibrancy is shown by the fact that people of all ages and backgrounds spend time on the street at all hours of the day. Thus, the liveliness of a street is measured by the volume and duration of people engaged in sedentary or slow-moving activities. Since the availability of data has increased in recent years, several empirical studies have been done to define the meaning and metrics of a thriving city's streets. It is the intensity of the immobile and slow-moving activities that creates the foundation for life on the streets. The more people on the street, the livelier it is.
Movement level				
Variety of activities				
Level of interaction	Strong, fair, weak	Strong, fair, weak	Strong, fair, weak	Reference For Evaluation
People clusters				Clusters, as opposed to uniform distribution in seemingly stagnant activity might be an indicator of the presence of such an impact (Whyte, 1990).
Variety of activities				
Street furniture occupancy				
Level of greenery	Strong, fair, weak	Strong, fair, weak	Strong, fair, weak	Reference For Evaluation

Variety of plantation				There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element (Ghel,2010).
Availability of green surfaces				
Availability of natural shading				

3.5. Pilot Study

As a warm-up for the primary research and to ensure the interview questions are practical, the researcher conducted a pilot study to assess the feasibility of the selected methods. Crucially, the pilot study enables the researcher to put into practice the interview methods, as well as alter or get ideas gleaned from previous interviews that were used for this study (Majid et al., 2017). To test the research technique within the considered setting, a pilot study was conducted from the 15th of February to the 6th of March 2023. This pilot aimed to assess the viability and reliability of the chosen approaches. The pilot study's purpose was to ensure that the questions are well-suited to the study's objectives and provide the researcher with preliminary feedback on the study's potential success. Also, it helped the researcher practise conducting in-depth, semi-structured interviews and develop trusting relationships with the interviewees. Critically, the pilot study lets researchers practise interview techniques and get a feel for how conversations tend to go (Jacob & Furgerson, 2012). A set of nineteen core questions were examined and participants were asked more in-depth questions to get to the bottom of any points that needed explaining.

As part of the pilot study, there were six semi-structured interviews: four with residents of new neighbourhoods, Diyar al Muharraq, Amwaj, Dilmunia, and New Hidd, and two staff members from the University of Bahrain who are also residents of new neighbourhoods of Muharraq. Thus, these participants' feedback was considered to get their academic opinion.

Several shared residential public spaces and neighbourhood social areas were observed, and visual approaches were used and piloted for this study.

All the interviews were conducted through WhatsApp calls. Each interviewee was asked for their consent, and the researcher received permission from interviewee before proceeding. A built-in smartphone recorder was used to record the interviews. Each interview averaged around 45 minutes. Taking everyone's schedules into account, the interview duration should not exceed 90 minutes (Jacob & Furgerson, 2012). It was observed that even when factoring in time for small talk, each session exceeded the allotted amount of time.

When the pilot study was finished, the next step was transcribing the interviews, organising the data, and coding the results. There is no denying that the pilot study helped perfect methods before the primary research phase began. Because of the pilot research, two adjustments were made.

1. First, the amount of time consumed for each participant was realised. Therefore, it was decided to create a time limit for each question.
2. Second, the pilot study allowed for the development of a more thorough interview guide. The problems discovered in the pilot research necessitated further adjustments, such as the repetitive themes in question. Consequently, after revising, two questions of the interview were aligned to the target objective and two questions with similar themes were merged to ensure high-quality data and in-depth participant replies. Hence, 15 free-form questions were finalised and added to the main study's interview schedule to maximise the questions' potential for clarifying the participants' actual experiences.

3.5.1. Synchronic Reliability

Synchronous reliability looks at the consistency between observations made at about the same intervals (Kirk & Miller, 1986). Synchronous reliability seldom requires repeated observations of the same phenomena. Instead, it focuses on details relevant to the investigation. This study's results show synchronic reliability in both interviews and observations.

The researcher used two procedures to demonstrate reliability. The first was to record the data in a table to give a general review of the data-gathering procedure and an updated assessment of the outcomes as they came in. Using a table for data recording allowed the researcher to swiftly evaluate the findings based on each responder's records and realise the progress of the investigation.

The table helps in creating the study parameters' conclusion. Data triangulation was used to determine reliability. The study used theoretical triangulation, in which other studies in the same field were analysed and provided as a literature review to back up the data gathering and the claims on the outcomes of the analysis process. Moreover, the reliability metrics associated to data triangulation gave an exhaustive grasp of the study goals, giving a more trustworthy validation to the research. The table below shows the similarity within the data gathered.

Table 3.4: Reliability of Objective 1 Questions

Reliability Of Interview Questions: Objectives To investigate the impact of pedestrianisation on social life in new neighbourhoods						
Interview Question	Int:1	Int:2	Int:3	Int:4	Int:5	Int:6
What were the social characteristics of the neighbourhoods when you moved here?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
Do you usually go for a walk around the neighbourhood, perform errands by walking? Explain	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant

Do you believe that spaces provide utilities at walking distance, it will build the habit of walking around?	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant
Do you know your neighbours? How did you first get acquainted with them?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
By what means do you socialize with your neighbours?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
How often do you interact with people on the streets or within the shared public space in your neighbourhood that you know or have recently become acquainted with?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
Do you believe the utilities are at walking distance? Will it build the habit of walking around?	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant

Table 3.5: Reliability of Objective 2 Questions

Reliability Of Interview Questions: Objectives To study the urban design characteristics that enhance social sustainability.						
Interview Question	Int:1	Int:2	Int:3	Int:4	Int:5	Int:6
What are your opinions about the design of walkways and cycling tracks in your neighbourhood? Do you think they are easy to reach and use by your family members?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
What kind of social activities would you like to indulge in? And is there any such activity available currently?	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant
In your neighbourhood, what places attracts you in terms of the design to conduct outdoor activities and do you utilize them?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
What are your views on the connectivity of your neighbourhood with the surrounding areas?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
Do you think there are some missing design elements in the neighbourhood that you believe are necessary?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant

Do you think street design and street furniture is essential in current times? What kind of design and activities do you believe the street must have.	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition
Do you believe street furniture is an important character and can enhance streets' usability? And in what ways can it improve usability?	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition	unclear/ irrelevant/ repetition

Table 3.6: Reliability of Objective 3 Questions

Reliability Of Interview Questions: Objectives To propose recommendations for designing a new neighbourhood enabling socially sustainable urban environments in Bahrain.						
Interview Question	Int:1	Int:2	Int:3	Int:4	Int:5	Int:6
What services, amenities and designs are needed to fulfil residents' needs in the coming years?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
Do you think the current neighbourhood design is safe and accessible for all age groups? And does it provide social rights?	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant	Clarity/ irrelevant
Do you think the current neighbourhood design is safe and accessible for all age groups? And does it provide social rights such as safety, accessibility, plantation, and seating near the sea area?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant
Do you think accessibility to social gatherings and interactions in your neighbourhood should be enhanced? How?	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant	Clarity/ relevant

Final List of Questions

Interview Questions

Objective 1. To investigate the impact of pedestrianisation on social life in new neighbourhoods.

1. What were the social characteristics of the neighbourhoods when you moved here?
2. Do you usually go for a walk around the neighbourhood, perform errands by walking? Explain
3. Do you know your neighbours? How did you first get acquainted?
4. By what means do you socialize with your neighbours?
5. How often do you interact with people on the streets or within the shared public space in your neighbourhood that you know or have recently become acquainted with?

Objective 2. To study the urban design characteristics that enhance social sustainability.

6. What are your opinions about the design of walkways and cycling tracks in your neighbourhood? Do you think they are easy to reach and use by your family members?
7. Do you believe the utilities are at a walking distance, will it build the habit of walking around?
8. In your neighbourhood, what places attracts you in terms of the design to conduct outdoor activities and do you utilize them?
9. What are your views on the connectivity of your neighbourhood with surrounding areas?
10. Do you think there are some missing design elements in the neighbourhood that you believe are necessary?

11. Do you believe street furniture is an important character and can enhance streets' usability? And in what ways can it improve usability?

Objective 3. To propose recommendations for designing a new neighbourhood enabling socially sustainable urban environments in Bahrain.

12. What kind of social activities would you like to indulge in? And is there any such activity currently available?
13. What services, amenities and designs will be needed to fulfil residents' needs in the coming years?
14. Do you think the current neighbourhood design is safe and accessible for all age groups? And does it provide social rights such as safety, accessibility, plantation, and seating near the sea area?
15. Do you think accessibility to social gatherings and interactions in your neighbourhood should be enhanced? How?

3.5.2. Validity of the Study

Data binding and incorporating several sample groups into the strategy were used to guarantee the validity of the results of this study. It investigated the relationship between pedestrianisation and social sustainability and what urban design approaches can enhance social sustainability in new neighbourhoods of Bahrain. To avoid bias, the sample was split among four groups. Residents from Diyar al Muharraq, Amwaj, Dilmunia, and New Hidd were randomly selected.

The study included a larger sample size and variety to minimize bias to a single outcome. According to an InterQ Research, the ideal sample

size for a qualitative study is 30. A sample larger than that will better represent the population and will therefore provide more accurate results (Andrade, 2020).

Another strategy used to ensure that respondents' preconceptions did not skew the results was to limit the research background, research problem and other research details that would lead them to the answers. All these measures confirmed the trustworthiness of the qualitative study and helped prove the validity of the findings. Additionally, a specialist assessed the questionnaire to confirm its validity.

Chapter Four

Results and Findings

4.1. Introduction

This chapter presents the findings from the interviews and observations gathered from four case studies. The findings are divided into three objectives, and a synopsis of each objective is provided. Each objective has set semi-structured interview questions that are interrelated with all the objectives. The chapter will present the findings based on the emerging themes. The chapter is sectioned into three parts. The first section is this introduction. The second section presents the findings of the semi-structured interviews. Which shows the qualitative data in a simplified theme. The third section contains the findings of the observations and investigates the research's aim. The observations in this section have used the site visit schedule, photos, and explanations.

4.2. Interview Findings

This section consists of the findings gathered from 40 in-depth, unstructured interviews with the residents of four neighbourhoods. The quality and diversity of the data gathered is more important than the quantity. The study has also reached data saturations so that no new results are obtained if more interviews were conducted. The researcher has categorized the data according to emerging themes.

4.2.1. Objective 1

To Investigate the Impact of Pedestrianisation on Social Life in New Neighbourhoods

- **Social Attachment with Muharraq**

The first question inquired the participants about the neighbourhood's social characteristics when they moved there. It was essential to investigate and identify any missing characteristics. The findings indicate that the social aspects of the neighbourhood, which the people were expecting to find, were lacking. Most of the participants' main concern was maintaining their social attachment with Muharraq since they are known as Muharraqis, which is an emerging theme. They expressed their keenness to stay within Muharraq. Participant PNH34 mentioned a saying that, Muharraqis are like fish which will die if removed from the sea.

PNH37 claimed, *"We are born here; and want to be buried here."*

PDM1 said that she's seeking a husband who is from Muharraq because she's attached to its culture.

- **Physical Aspects and their Social Characters**

The importance of the mosque and its social attributes were demonstrated in the findings since most of the participants complained about the absence of a mosque and due to which, the neighbourhoods' social bond is compromised.

PDM7, PDM8, PDM10, PD14, PD16, PD18, PA21, PNH33, and PNH36 emphasised the importance of public services (PS) and amenities—which are another identified theme—such as schools, malls, safety, security, and utilities at walking distance. These participants also complained that many promises were made in the beginning of the project. However, years have passed, and the area development is slow. PDM1, PDM2, PDM6, PDM7, PDM8, and PDM10 claimed that it took three years to complete one Mosque which has just recently been accessible to the neighbourhood. PDM1 clarified that services were promised before they

moved to Diyar Al Muharraq, but 3 years after moving in, they still don't have the promised amenities.

PNH33 also has similar assertions that it took six years, for the completion of the neighbourhoods' pavement, and the residents constructed the sidewalks themselves, which resulted in sidewalks different from one another. Participants, PDM1, PA23, PA30, PNH31 and PNH32, mentioned the QoL and UGS. The researcher further inquired about these participants' perception of QoL, and participants often mentioned the peace, calmness, and happiness in their environment.

The findings from this section show that people had hopes based on the promises made by the concerned authorities, but even after years, people still need the social characteristics which made a neighbourhood a place to live a quality life. The table below can further help understand what social characters were available which most attracted the residents when they moved, and it shows that participants are aware of the importance of physical aspects and their contribution to the social character of the neighbourhood, which are yet scarce in new neighbourhoods.

Table 4.1: The Social Characters of the Neighbourhood

Relationship with the Social Characters of the Neighbourhood	Emerging Themes and Its Relationship with the Social Characters of the Neighbourhood				
	Attachment to place to have sense of belonging and attachment was the prominent social characters identified	Public services, amenities, and access to sea are contributors to social infrastructure of neighbourhood and their absence leads to absence in social characters of neighbourhood	Mosques contributing in enabling the prominent social character that Muharraq is known for.	Intangible attribute of neighbourhood that is fundamental to social characters being the social right of residents	Creating walkable neighbourhood and facilities at walking distance is contributing to social life of neighbourhoods and it remains an important feature in modern lifestyle yet is missing.
	Attachment to Muharraq	Physical features	Importance of mosque	Quality of life	Walkability
PDM1	x		x	x	x
PDM2	x		x		
PDM3	x				x

Relationship with the Social Characters of the Neighbourhood	Emerging Themes and Its Relationship with the Social Characters of the Neighbourhood				
	Attachment to place to have sense of belonging and attachment was the prominent social characters identified	Public services, amenities, and access to sea are contributors to social infrastructure of neighbourhood and their absence leads to absence in social characters of neighbourhood	Mosques contributing in enabling the prominent social character that Muharraq is known for.	Intangible attribute of neighbourhood that is fundamental to social characters being the social right of residents	Creating walkable neighbourhood and facilities at walking distance is contributing to social life of neighbourhoods and it remains an important feature in modern lifestyle yet is missing.
	Attachment to Muharraq	Physical features	Importance of mosque	Quality of life	Walkability
PDM4	x				x
PDM5					
PDM6	x		x		
PDM7	x	x	x		x
PDM8	x	x	x		
PDM9	x				x
PDM10	x	x	x		x
PD11	x	x			x
PD12	x				
PD13	x	x			
PD14		x			
PD15		x			
PD16		x			
PD17		x			
PD18		x			
PD19		x			
PD20					
PA21	x	x			x
PA22	x	x			x
PA23	x			x	x
PA24	x				x
PA25	x				x
PA26		x			x
PA27					x
PA28		x			
PA29		x			x
PA30				x	
PNH31	x			x	
PNH32	x			x	x
PNH33	x	x			x
PNH34	x				
PNH35	x				

Relationship with the Social Characters of the Neighbourhood	Emerging Themes and Its Relationship with the Social Characters of the Neighbourhood				
	Attachment to place to have sense of belonging and attachment was the prominent social characters identified	Public services, amenities, and access to sea are contributors to social infrastructure of neighbourhood and their absence leads to absence in social characters of neighbourhood	Mosques contributing in enabling the prominent social character that Muharraq is known for.	Intangible attribute of neighbourhood that is fundamental to social characters being the social right of residents	Creating walkable neighbourhood and facilities at walking distance is contributing to social life of neighbourhoods and it remains an important feature in modern lifestyle yet is missing.
	Attachment to Muharraq	Physical features	Importance of mosque	Quality of life	Walkability
PNH36	x	x			
PNH37	x				x
PNH38	x				x
PNH39	x				
PNH40	x				x

- **Walkability around the Neighbourhood**

After investigating the social characteristics, the researcher questioned the participants about their walking routines and experience of walking around.

Interview questions aimed to understand people's pedestal movements, what encourages them, and how it impacts their social life. And, ultimately, the social sustainability of neighbourhoods. The findings gave diverse outcomes; therefore, the results are demonstrated based on the emerging themes.

- **Neighbourhood character's impact on pedestrianisation**

Participants PDM1, PDM2, PDM6, PDM7, PDM10 of Diyar al Muharraq and PD11, PD12, PD13, PD15, and PD20, of Dilmunia. The findings show residents' dissatisfaction with the neighbourhood walkability (NW) by asserting that although there are walkways, walking alone in the neighbourhood is a scary feeling. Moreover, stray dogs are a

central issue in the neighbourhood that restrict waking, and walking in the street is sometimes tricky. Apart from these concerns, findings also demonstrated limitations in walking due to lack of scenery and errands at walking distance which would encourage neighbours to walk. PDM1 explained that they stopped walking after doing it once because they don't see another person walking and stray dogs scared them, and there is also no scenery while walking.

Similarly, PDM2 said in their 3 years of living there, they have not seen anyone walking outside, which makes them afraid to go out.

The findings have also shown that few participants do not walk as they are not physically active. For example, PD17 said he is not a walking person, and the researcher further followed up the question that if there was anything that would encourage him to? While some participants were not able to walk due to working hours but sometimes to run errands. The participants showed uncertainty. The findings gathered from interviews, predominantly from the New Hidd neighbourhood, showed the scarcity of infrastructure to enable walking. PNH31, PNH32, PNH33, PNH34, PNH36, PNH37, PNH38, and PNH40 emphasised that the walkways and even the streets need to be adequately paved and, in some cases, still ought to be completed while residents inhabit the area. PNH32 highlighted the issue that the pavement is so uneven that it's difficult to walk, especially for their kids.

These findings are significant as they serve the primary research objective, which investigates the impact of walking and social life. Hence, the findings established how the neighbourhood connection weakens due to weak walkability and currently, the new neighbourhoods' NW is compromised.

- **Diverse Walking Patterns Relationship with Neighbourhood Characters**

The findings have shown different walking patterns among the participants, depending primarily on the neighbourhood characters serving as facilitators. The table below shows the following walking patterns have emerged from the findings:

Table 4.2: Current Walking Patterns

Current Walking Patterns			
Character Lacking	Stimulating View UGS	Lack of public services Lack of Accessibility	Lack of proper shaded walkways
Assessment	Exercise and fitness	Running errands	Leisure walks
PDM1			
PDM2			
PDM3	x		x
PDM4			
PDM5	x		x
PDM6			
PDM7			
PDM8	x		x
PDM9			
PDM10			
PD11			
PD12			
PD13			
PD14	x		x
PD15			
PD16	x		x
PD17			
PD18	x		x
PD19	x		
PD20			
PA21	x		

Character Lacking	Stimulating View UGS	Lack of public services Lack of Accessibility	Lack of proper shaded walkways
Assessment	Exercise and fitness	Running errands	Leisure walks
PA22	x		x
PA23	x		
PA24		x	x
PA25		x	x
PA26		x	x
PA27		x	x
PA28		x	x
PA29	x		
PA30	x	x	x
PNH31			
PNH32			
PNH33			
PNH34			
PNH35			
PNH36			
PNH37			
PNH38			
PNH39			
PNH40			

The findings showed relative dissatisfaction while walking due to lack of views, shaded areas, and UGS. Moreover, conducting errands is also impossible as services are out of walking distance. On the other hand, PDM3, PDM5, PDM8, PD14, PD16, PD18, PA22, PA24, and PA29 said walking involves fitness and leisure but not performing errands. After further exploring the follow-up question about their experience while walking, the findings show that participants have a pleasant experience. At this point, the researcher needed to comprehend what character stimulated their leisure walking; therefore, on inquiring about their neighbourhood's precise location, the researcher found that due to the difference in

neighbourhood facilities, this group of participants had different experiences compared to participants in Group 1. Participants PDM3, PDM5, and PDM8 are from Baraha, the neighbourhood in Diyar Al Muharraq which has seafront villas, which is a reason for them to take leisure walks.

The researcher investigated their walking experience with follow-up questions, and the results show that PA25, PA26, PA27, PA28, and PA30 enjoy their walks due to the UGS and socially active neighbourhood. Their leisure walk includes walking with a friend to the Lagoon and nearby services for groceries. PDM4, PDM6, and PDM9 highlighted that Dragon Mall is a centre of attraction and having it at walking distance encourages them to walk, and, similarly, PA23 had the same opinion that having a point of attraction encouraged walking. The findings in this section show that pedestrianisation in neighbourhoods also decreases due to the scarcity of social character.

- **Proximity as a Facilitator for Walking, Social Bonding, and Sustainable Communities**

The above section showed the walking patterns based on neighbourhood characters. While findings also show walking patterns are further impacted by the proximity of services and accessibility to services are the theme gathered findings.

The results from the findings demonstrate that participants PDM3, PDM6, PDM7, PDM8, PDM9, PDM10, PD12, PD13, PD14, PD16, PD17, PD20, PA22, PA23, PA25, PA26, PA30, PNH31, PNH33, PNH37, and PNH38 strongly agree that the facilities' services and amenities must be at walking proximity. It is one of the main characters which encourages walking. The theme that also emerged from the findings is that having the services in proximity helps build social bonds among the neighbours.

PDM3 explained the availability of amenities in the Noor and Sherooq neighbourhoods, creating a lively environment throughout the day. Similarly, PDM6 stated their neighbourhood doesn't have a cold store or commercial area, so they go to Noor and Sherooq to buy food, and they see people strolling and unaccompanied kids going to the cold store there.

The above statement also indicates that having services in walking proximity and people walking limits car speeds and car usage. Upon inquiring about the advantages of having amenities at a walking distance, apart from having walking habits, PDM3, PDM6, PDM7, PDM8, PDM9, PDM10, PD12, PD13, PD14, PD16, PD17, PD20, PA22, PA23, PA25, PA26, PA30, PNH31, PNH33, PNH37 and PNH38 expressed their concern about having sustainable neighbourhoods as promised by the authorities.

- **Importance of Accessibility**

The other emerging theme was the significance of accessibility, the ability to walk to specific locations regardless of how close the facility is. Findings show that PDM2, PDM5, PD19, PA27, PA28, PA29, and PNH32 explained that regardless of having some amenities in walking distance, they cannot walk due to wider roads that are difficult to cross. PDM2 said it's difficult to walk to Dragon Mall even if it's just about 200 meters from their house, especially on weekends when foreigners drive fast in the area.

The findings show the new neighbourhoods lack accessibility.

- **Impact of Culture and weather Conditions on Walking**

Participants PDM1, PDM2, PD11, PD12, PD15, PD18 and PA21 showed uncertainty with distance-related walking habits due to people's attachments to and strong habitual use of cars to perform errands. On the other hand, findings from PA24, PNH34, PNH35, PNH36, PNH39, and PNH40 also showed uncertainty, but their reasons were related to culture.

They added that some people have a cultural habit of walking and performing errands by walking no matter the distance.

A minor number of participants also stressed the weather as a factor to impact walkability. Pleasant weather encourages people to walk, while hot summers, especially in Bahrain, limit walking.

Table 4.3: Emerging Themes Through Walking Pattern of Neighbourhood and Its Relation to Social Life

Participants	Emerging Themes Through Walking Pattern Of Neighbourhood And Its Relation To Social Life			
	Proximity, a facilitator for walking	Accessibility to improve walkability	Culture stimulating walking habits	Impact of Weather on walkability
PDM1				x
PDM2		x		x
PDM3	x			
PDM4				
PDM5		x		
PDM6	x			
PDM7	x			
PDM8	x			
PDM9	x			
PDM10				
PD11				x
PD12	x			x
PD13	x			
PD14	x			
PD15				x
PD16	x			
PD17	x			
PD18				x
PD19		x		
PD20	x			
PA21				x
PA22	x			
PA23	x			
PA24			x	
PA25	x			
PA26	x			
PA27		x		
PA28		x		
PA29		x		
PA30	x			
PNH31	x			

Participants	Emerging Themes Through Walking Pattern Of Neighbourhood And Its Relation To Social Life			
	Proximity, a facilitator for walking	Accessibility to improve walkability	Culture stimulating walking habits	Impact of Weather on walkability
PNH32		x		
PNH33	x			
PNH34			x	
PNH35			x	
PNH36			x	
PNH37	x			
PNH38	x			
PNH39			x	
PNH40				

- **Social Encounters**

This section is a follow-up to Objective 1. It consists of four questions designed to investigate the first encounters between neighbours, the means of socializing, and the relationship between the street and shared public spaces with social acquaintances. Findings from these questions will further help in understanding the role of streets and shared public spaces in new neighbourhoods.

This investigates if people know their neighbours and what neighbourhood characteristics facilitate social acquaintances. The findings have provided that streets are the notable characteristics of the neighbourhood where most social encounters occur. Participants PDM1, PDM4, PDM8, PDM9, PDM10, PD17, PD18, PD19, PD20, PA23, PA27, PNH31, PNH32, PNH35, PNH37, and PNH40 explained that initial greeting from the street led to their neighbourhood social bonding, while PDM3, PD16, PA21, PA22, PA23, PA24, PA25, PA26, PA30, PNH36, and PNH38 share their experience of first meeting up at PS and amenities. PDM3 said their son goes to the Canadian school next to them, so they have met his friend's mother who is their neighbour, which was only found out because their children are schoolmates.

The researcher further questioned the participant: Is there any specific reason you believe you were never acquainted as neighbours?

The participant replied their neighbourhood is very quiet with few people outside. Most houses are like summer houses, so the people don't mostly live there, making parents afraid to go out and let their kids out.

This indicates that new neighbourhoods do not have street characters and shared spaces. Findings also showed that PDM3, PD11, PD12, PD13, and DP14 have similar experiences living in new neighbourhoods that they do not know their neighbours at all and, especially, the participants from Dilmunia, PD11 to PD14, explained that due to the concept of privacy in these neighbourhoods, there is very little acquaintance in the street and shared spaces.

On the other hand, a few participants said their first meeting was at a real-estate agent's office, and they bought the houses together. Very few participants, PD19, PA29 and PA30, show the importance of leisure spaces such as public pool and public Majlis where people make social encounter as neighbours.

- **Digital spaces and public services as medium of socializing**

It is essential identify the medium for socialization of residents in new neighbourhoods. Three significant themes emerged from the participants' replies: digital socializing, public amenities and services medium of socializing, and indoor socializing.

The findings have highlighted a significant emerging theme of digital socializing. Participants PDM1, PDM2, PDM4, PDM5, PDM7, PDM8, PDM10, PD15, PA21, PA24, PA26, PA28, PNH31, PNH33, PNH35, and PNH36 instantly answered WhatsApp as medium a of socializing. It is used to discuss the problems in the neighbourhood and sometimes to announce events such as Girgaon and other cultural events. The findings have

shown the significance of technology in a new neighbourhood. However, the problem persists as these technologies are used by the residents personally and not delivered and managed by the concerned authorities.

The “Proximity as a Facilitator for Walking, Social Bonding, and Sustainable Communities” section shows the importance of PS and amenities as social encounters, the findings have also established the use of public amenities and services as a medium of socializing. PDM3, PDM4 and PDM8 from Diyar al Muharraaq told that they usually socialize by taking their kids to the Noor and Sherooq playground where other mothers from surrounding neighbourhoods also gather. At the same time, PA21, PA22, PA23, PA25, PA26, PA28, PA29, and PA30 use services in their building and the cafes at the lagoon. The findings from the “Diverse Walking Patterns Relationship with Neighbourhood Characters” section highlights the walkable character of Amwaj being well recognised and utilised in the neighbourhood. The findings also confirm walking as a medium of socializing in Amwaj. Most participants from Amwaj, PA21, PA23, PA25, PA26, and PA28, have said they go on walks with their neighbours for leisure or fitness.

On the other hand, participants PDM3, PD16, PD18, PD19, PD20, PA21, P23, PA28, PNH35, PNH36, PNH37, PNH38, and PNH40 prefer indoor socializing. The researcher inquired about the particular reason for indoor socialising, and found that apart from traditional mediums for women, due to the unavailability of outdoor social spaces, people prefer to use indoor spaces. Additionally, it was found that people cannot socialize due to cultural differences, PDM7, PDM8, PDM9, PD11, PD12, PD13, PD14, and PD15 explained that socializing with neighbours is difficult due to different cultures. The findings from Objective 1 shows active pedestrianisation and correct application of urban features are key to

ensuring the long-term social life and well-being of a neighbourhood's residents.

4.2.2. Objective 2

To Study the Urban Design Characteristics That Enhance Social Sustainability

- **Design of Walking and Cycling Tracks and Their Reachability**

When asked about the walkway and cycling track design and their reachability, most participants were dissatisfied. Table 4.3 shows the findings of interviews and their level of satisfaction.

Table 4.4: Assessment of Walkway Design

Assessment of Walkway Design			
Emerging Themes	Stimulating View UGS Proximity Accessibility	Lack of View Lack of UGS Lack of Proximity Lack of Accessibility	No Tracks at all
Assessment	Well Designed	Basic Design	Not Designed
PDM1		X	
PDM2		X	
PDM3	X		
PDM4	X		
PDM5	X		
PDM6		X	
PDM7		X	
PDM8	X		
PDM9		X	
PDM10	X		
PD11		X	
PD12		X	
PD13		X	
PD14		X	
PD15		X	

Emerging Themes	Stimulating View UGS Proximity Accessibility	Lack of View Lack of UGS Lack of Proximity Lack of Accessibility	No Tracks at all
Assessment	Well Designed	Basic Design	Not Designed
PD16		x	
PD17	x	x	
PD18		x	
PD19		x	
PD20		x	
PA21		x	
PA22		x	
PA23	x		
PA24	x		
PA25	x	x	
PA26		x	
PA27	x		
PA28		x	
PA29	x		
PA30	x		
PNH31			x
PNH32			x
PNH33			x
PNH34			x
PNH35			x
PNH36			x
PNH37			x
PNH38			x
PNH39			x
PNH40			x

The findings from PNH31 to PNH40 showed that there are no walkways at all for walking, they have to drive to Khalifah Park to walk. They also mentioned that they do not even have a sidewalk around the neighbourhood to walk to their neighbour's house or the grocery store making daily activities challenging. Even for basic errands, one has to take the car. The findings also highlight the concept of paying and driving to

walk. PDM1 was shocked by the concept of driving to walk and paying for it despite the 2030 vision of sustainable communities.

The findings indicate that the strategy adopted to encourage walking is not aligned with sustainable communities. Driving to walk is a trend due to the lack of facilities in neighbourhoods, and paying to walk is a rising trend due to privatisation.

- **Neighbourhoods Connectivity**

When questioning about reachability within the neighbourhood by walking, cycling, and car and to the surrounding areas, most participants showed mixed views. Participants PDM6, PDM7, PDM8, PDM9, PD13, PD17, PD18, PD20, PA22, PA25, PA26, PA27, and PA28 said that the reachability by walking and cycling is fair and not well connected due to wider interjections in the case of Diyar al Muharraq and discontinued pathways in Amwaj and Dilmunia. At the same time, the PDM1, PDM2, PD11, PD12, PD13, PD14, PD15, PD16, PA21, PNH31, PNH32, PNH33, PNH34, PNH35, PNH6, PNH37, PNH38, PNH39, and PNH40 claimed that the connectivity is weak due to breakage in tracks and lack of walkways and cycling tracks. In contrast, a few participants say the connectivity is strong.

The findings demonstrate that reachability of neighbourhood by car is relatively better, and PDM2, PDM3, PDM4, PDM6, PDM10, PD13, PD16, PD17, PD18, PD20, PA22, PA23, PA24, PNH35, PNH36, PNH37, and PNH40 claimed strong connectivity by car inside the neighbourhood and to the surrounding areas as well. Moreover, participants added that moving anywhere in Muharraq is much more accessible by car all the areas are well connected, and there are shortcuts. However, PDM1, PDM5, PDM7, PDM8, PDM9, PD12, PD15, PD19, PA26, PA27, PA25, PNH38, and PNH39 said it is not very well connected due to only one exit and entrance

point in Diyar al Muharraq and Dilmunia. That could be a problem in the coming years as these areas are an attraction for outsiders.

- **Outdoor Spaces Design and Its Usability**

The researcher further investigated the outdoor urban characters' availability and their usability. Findings show that most people claimed the unavailability of such designed spaces within the neighbourhoods that would enable ODR. The outdoor spaces are primarily at the entrance to attract outsiders, so residents feel uncomfortable using them. The outdoor spaces are mostly malls, as highlighted by far less than half of the participants who use nearby malls for ODR organised by the authorities. Participants PDM1 to PDM10 mentioned a park at the entrance of Diyar Al Muharraq, which serves all the neighbourhoods within Diyar, but due to the local crowd and its location at the main entrance mostly crowded by visitors. However, entrance fees are also a drawback. While PD11 to PD20 mentioned that the Dilmunia Mall is where they used to have activities, but now it is dull. Similarly, PA21 to PA30 claimed that there are places in Amwaj that are empty lands near beaches where people often make bonfires in cold weather, but it is not due to the design but merely due to the sea. On the other hand, PNH31 to PNH34 also claimed a similar view of the lack of outdoor space where they have to drive to Khalifah Park.

- **Landscape as Missing Design Elements**

The researcher investigated the missing design elements that, according to the participants, are necessary for contemporary living and new neighbourhoods. Landscape design elements are the emerging theme in the interviewee's replies. The finding shows that most of the participants frequently complained about the landscaping missing design elements. Various elements of the landscape were prioritised by the participants, the

main one being the green areas. PDM1, PDM5, PDM6, PDM7, PDM8, PDM9, PDM10, PD11, PD12, PD13, PD14, PD15, PD16, PD17, PD19, PNH31, PNH32, PNH33, PNH34, PNH35, PNH36, PNH37, PNH38, PNH39, and PNH40 mentioned the deficiency of UGS.

Table 4.5: Missing Elements in the New Neighbourhoods

Participants	Missing Elements in the New Neighbourhoods		
	Fountains Gazebo Seating Greenery	Food trucks Seating Shaded areas	Kid' s area Adult areas
	Landscape Elements	Beach Design	Public Park
PDM1	x		
PDM2		x	
PDM3		x	
PDM4		x	
PDM5	x		
PDM6	x		
PDM7	x		
PDM8	x	x	x
PDM9	x		x
PDM10	x		
PD11	x		
PD12	x		
PD13	x		
PD14	x	x	
PD15	x		
PD16	x		
PD17	x		
PD18			x
PD19	x		x
PD20		x	x
PA21	x		
PA22	x		
PA23	x		
PA24			
PA25		x	x
PA26		x	x
PA27	x	x	x
PA28	x		
PA29	x		
PA30			x
PNH31	x	x	

Participants	Missing Elements in the New Neighbourhoods		
	Fountains Gazebo Seating Greenery	Food trucks Seating Shaded areas	Kid' s area Adult areas
	Landscape Elements	Beach Design	Public Park
PNH32	X		
PNH33	X	X	
PNH34	X		
PNH35			X
PNH36	X		
PNH37	X	X	X
PNH38	X	X	X
PNH39	X	X	
PNH40	X	X	

Apart from UGS, the second prioritised element was shading in streets. PDM1, PDM5, PDM6, and PDM7 claimed that due to the low-rise area, there is not enough shading from the buildings; therefore, natural shading is needed. While PDM8, PD11, PD15, PD16, PD17, PNH31, PNH32 and PNH35 mentioned the water fountains in Bahrain used to be available, but now they have completely disappeared. On the other hand, a few of the participants mentioned the lack of a beach while living on the island; such a design around the beach would be needed to facilitate its use. Table 4.5 shows the participants' response with respect to the missing elements.

- **Importance of Street Design and Street Furniture**

The findings in this section show the importance of street design and street furniture regardless of modern lifestyle. Majority of the participants highlighted the significance of street design while the remaining minority said it is unimportant as the current generation is different, and they prefer to avoid sitting in the streets. The results are further catalysed based on neighbourhoods to understand the missing elements of current street

design. Findings show that participants PDM2, PDM5, PDM6, PDM8, and PDM9 complained that speeding cars and honking in the streets makes the street unsafe for kids. While PD11 to PD20 claimed the street design and roads are similar, with no difference, making it dull. In Amwaj, PA20, PA24, PA26, PA27, and PA28 raised the issue of car parking and streets being occupied by cars. A similar problem was raised by the residents of New Hidd, PNH31 to PNH40, that the streets are designed for cars and not human use. PNH35 claimed New Hidd as the *city of cars*.

After looking into the current circumstances, the researcher further inquired about the suggestion and considerations for street furniture and street design. The findings suggest that placing street furniture with considerations of its location and orientation is more critical than just random placement. PDM1, PDM8, PDM9, PD15, PD20, PA27, PA30, and PNH37 explained the importance of orientation and location of the street furniture with usability. They explained that street furniture often has random locations and orientations, which does not consider the user's view. PDM1 and PA27 suggested that facing the street furniture towards an exciting view and in groups helps enhance usability and social interactions. The findings also show street signage as a missing element and must be correctly implemented. PD20, PA21, PA26, PA27, PA30, PNH37, and PNH38 mentioned that due to the unavailability of signboards, people often park in streets where it is prohibited.

The other significant suggestion to enhance street usability was the digitalisation of streets. PDM1, PDM9, PD16, PD20, PA27, PA30, and PNH37 mentioned that adding Wi-Fi in the streets for the neighbours can encourage people to come out; moreover, adding street furniture with charging facilities for laptops and mobiles is essential nowadays. The emerging themes from findings from the participants show how street design and street furniture need hierarchical connectivity with various

usability and neighbourhood systems. The diagram below shows the connectivity and its relationship with usability.

- **Street Design and Its Usability**

When participants were inquired in what ways the street design and street furniture can enhance street usability, the image below shows the emerging themes which came forward:

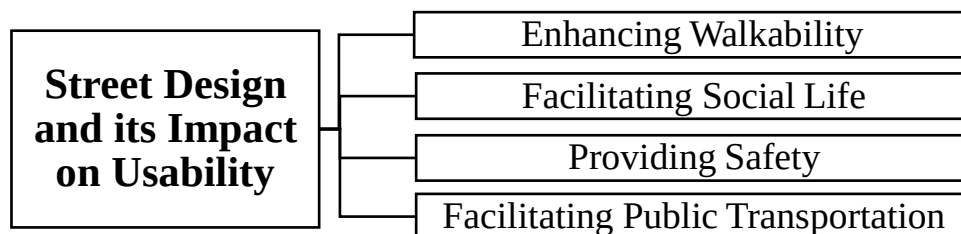


Figure 4.1: Street and its Relationship with Usability (Akram)

4.2.3. Objective 3

To propose recommendations for designing a new neighbourhood enabling socially sustainable urban environments in Bahrain

- **Outdoor Social Places**

Upon inquiring about the potential social activities that the neighbourhood needs, the findings have shown three emerging themes: outdoor public spaces, CCs, and digital socialising, which most participants have mentioned. Among these three themes, two are further catalysed into particular social activities that participants have mentioned and are categorised under each theme.

Participants PDM1, PDM2, PDM3, PDM4, PDM7, PDM9, PDM10, PD11, PD15, PA24, and PA25 mentioned sports and fitness as a medium

of social activities, especially for kids. Participants mentioned that the neighbourhood has no such activities that kids can actively participate and experience. The participants referred to the recently built Busaiteen's outdoor gym facilities and wished to have something similar in the neighbourhood. PDM1, PDM2, PDM3, PDM4, PDM7, PDM9, PDM10, PD13, PD14, PD16, PA27, PA30 and PNH32 said there is a need for cultural festivals to be organised within outdoor spaces. On this, PDM1 said during Ramadan, they had Girgaoon but didn't have an outdoor gathering space for kids.

Furthermore, PDM5, PDM8, PD12, PD19, PA21, PA23, PNH34, PNH35, PNH36, PNH38, and PNH39 requested UGS where the neighbourhood can also organise farmers' markets weekly as this is a trend in the southern side. On the other hand, a few participants also mentioned the need for beachside social activities. They mentioned that the beach sites are currently abandoned and have no facilities that enable gatherings.

PDM10 and PD15 highlighted the importance of musical events, and PD18 and PA25 wanted outdoor exhibitions for home businesses.

Community Centres (CCs)

Many participants mentioned the importance of CCs with courtyards and various social activities. PDM2, PDM3, PDM6, PDM7, PDM8, and PD14 said there should be art centres for kids to learn different arts as well as for mothers to indulge in. PA22, PA23, PNH31, and PNH37 also mentioned the need for social clubs where adults can gather. PNH31, PNH32, PNH34, and PNH37 mentioned that since women cannot socialise in outdoor spaces comfortably, there should be centres with courtyards where they can be comfortable.

Digital Socialising

PD13, PD15, PD16, PA21, PA23, and PNH31 highlighted the importance of digital platforms in socialising. On further inquiring how digital socialising can be used, participants mentioned having a dedicated app or groups for each neighbourhood where they can meet and greet each other and plan a meet-up.

Table 4.6: Social Activities

Participants	Social Activities									
	Outdoor Gym Facilities	Outdoor Cultural Activities	Multi-Purpose UGS	Musical Events Exhibitions	Social Clubs	Kids Art Spaces	Courtyards For Ladies	Dedicated apps	Personalized	WhatsApp Group
	Outdoor Social Spaces				Community Centre			Digital Socializing		
PDM1	X	X								
PDM2	X	X				X				
PDM3	X	X				X				
PDM4	X									
PDM5			X							
PDM6						X				
PDM7	X	X				X				
PDM8			X			X				
PDM9	X	X								
PDM10	X	X		X						
PD11										
PD12			X							
PD13		X				X		X		
PD14		X								
PD15	X			X				X		
PD16		X						X		
PD17										
PD18				X						
PD19			X							
PD20										
PA21			X			X		X		
PA22										
PA23			X			X		X		
PA24										

Participants	Social Activities											
	Outdoor Gym Facilities	Outdoor Cultural Activities	Multi-Purpose UGS	Musical Events Exhibitions	Social Clubs	Kids Art Spaces	Courtyards For Ladies	Dedicated apps Personalized WhatsApp Group				
	Outdoor Social Spaces				Community Centre			Digital Socializing				
PA25	X			X								
PA26												
PA27		X										
PA28												
PA29												
PA30		X										
PNH31						X	X					
PNH32		X			X							
PNH33												
PNH34	X				X							
PNH35	X						X					
PNH36	X											
PNH37					X		X					
PNH38	X						X					
PNH39	X											
PNH40												

- **Services, Amenities and Design for Future Neighbourhoods**

The findings indicate that each area has similar services, amenities, and design needs. Participants PDM2 to PDM10 mentioned the need for public parks and a small cluster of commercial areas in each neighbourhood that has basic utilities such as grocery store, laundry, pharmacy, and a bakery. P5, P6, and P8 also mentioned the need for a petrol station. Participants from Dilmunia, PD11 to PD20, highly emphasised hospitals and pharmacies. They also expressed the need for commercial spaces at walking distance. On the other hand, participants from Amwaj, PA21 to PA30, complained that Amwaj receives visitors from outside and that there must be surveillance. They also mentioned the need for a mosque

and better internet connection. PA21 was expecting multiple Internet providers, but there was only Newton.

Findings from New Hidd have greatly emphasised the importance of public parks and complained about privatisation. However, participants PNH31 to PNH40 have mentioned that, apart from houses and tall buildings, there is nothing in the neighbourhood; PNH36 said that the government projects include PF, but in new private developments, there are just buildings, no outside spaces.

- **Social Rights of Neighbourhood**

The researcher inquired about social rights such as safety, availability and accessibility to the plantation and sea area. The findings reveal that most of the people claim that their neighbourhood is safe since Bahrain in general is a safe place, but when it comes to child safety in the streets, they are not safe. The table below shows participants dissatisfaction with plantation and accessibility to sea area.

Table 4.7: Social rights assessment

Assessment Of Social Rights				
Emerging Themes	Privatized beach areas Lack of infrastructure at existing seaside	Basic level of plantation Lack of maintenance	Bahrain as a safe place to live	Streets for cars Lack of kids play area Wider roads and streets
Rights	Accessibility to sea	Accessibility to UGS	Safety	Safety of kids
PDM1	x	x	x	
PDM2		x	x	x
PDM3	x		x	x
PDM4			x	
PDM5			x	
PDM6			x	x
PDM7			x	

Emerging Themes	Privatized beach areas Lack of infrastructure at existing seaside	Basic level of plantation Lack of maintenance	Bahrain as a safe place to live	Streets for cars Lack of kids play area Wider roads and streets
Rights	Accessibility to sea	Accessibility to UGS	Safety	Safety of kids
PDM8			X	
PDM9			X	
PDM10			X	X
PD11			X	
PD12			X	
PD13			X	
PD14			X	
PD15			X	
PD16			X	
PD17			X	
PD18			X	
PD19		X	X	
PD20		X	X	
PA21	X	X	X	
PA22	X	X	X	X
PA23	X	X	X	
PA24	X	X	X	
PA25	X	X	X	
PA26		X	X	
PA27			X	
PA28		X	X	
PA29			X	
PA30			X	
PNH31			X	
PNH32			X	
PNH33			X	
PNH34			X	
PNH35			X	
PNH36			X	
PNH37			X	
PNH38			X	
PNH39			X	
PNH40			X	

Upon inquiring about accessibility to the sea area, PDM1, PDM2, PDM4, PDM6, PDM7, PDM8, PDM9, and PDM10 said they do not have any accessibility to the sea. They further claimed that the sea opposite to Dragon Mall is restricted area and walking is prohibited, and strict security surveillance exists. PDM1, PDM2, PDM4, and PDM7 further added that due to privatisation, people must pay to access the main beach in Marssai, while the sea is prohibited for walking around. On the other hand, PD11 to PD19 said they have accessibility to the sea area as their homes are on seafront. On this, PD11 said their house was bought with sea accessibility. It was not given as their social right. Other houses in lower prices don't have sea front.

- **Accessibility to Social Gatherings**

The researcher investigated the relationship between accessibility, social interaction, and the driving factors that can be enhanced. Findings have highlighted the emerging theme point of an attraction along with the most frequently mentioned themes, gathering at walking distance and using digital media. Less than half of the participants said the neighbourhood should have attractive places to encourage people to socialise. Such places can then be known for the activities they provide. Far less than half of participants mentioned that social gatherings must be organised at walking distance to avoid the parking issue. Moreover, they should prioritise the neighbours first, then the outsiders. Digital socialising was mentioned by a few of the participants who said there should be announcements on digital media.

4.3. Observations

This section presents the researcher's observation of four case studies that have been recorded by taking site visit notes and photography and making a schedule of site visits with themes based on the objectives. Below are the themes that the researcher has gathered from the observations.

4.3.1. Objective 1

To Investigate the Impact of Pedestrianisation on Social Life in New Neighbourhoods

- **Diyar al Muharraq**

To investigate Objective 1, the researcher started the observation from the pedestrianisation pattern of case studies and factors affecting pedestrianisation and, ultimately, social life. In Diyar Al Muharraq, the individuals' usage of neighbourhoods varied between the time and days of the week. The first site observation was performed in Noor and Sherooq neighbourhood on Tuesday, 21st of March, from 4.00-5.00 pm. It demonstrated that the neighbourhood's central area, Noor Plaza, is socially active. The plaza includes a grocery store, laundry, salon, cafeteria, car rental, and mosque. The researcher observed that due to all these facilities available in the neighbourhood's central location, most notably the mosque, these factors facilitate social life. People leave the mosque in groups while talking and waving at each other and kids running freely to the park opposite of the mosque gave a lively feeling to the neighbourhood streets.

Moreover, due to public facilities (PF) and amenities within walking distance, kids from surrounding houses walked comfortably to the grocery store without anyone accompanying them. The other significant observation of the site visit revealed that the cars' speed was slow due to pedestrianisation, and there were fewer car parks outside the plaza,

indicating the area's walkability pattern. Finally, a significant element observed was the presence of a water fountain and its usability as a seating area.

A group of three young men above 18 were seated around the fountain. After asking their permission, the researcher asked if they live nearby. They said they live just behind the park, and that they were returning from tuition, which is in Sherooq, so they usually stop by the fountain to grab a bite together on their way back because it is a perfect place near their home, and the weather is pleasant.

This shows the significance of the fountain as a design element and its influence on human behaviour. These boys also walk daily to their tuition and hang out at the plaza to grab something to eat and talk to their friends. This socialising shows how the availability of services at a walking distance creates QoL and facilitates social bonding among the neighbours. The second and third visits to Noor and Sherooq showed the same socialising pattern of people taking their clothes from the laundry and walking home. Also, kids play in the playground and cross the street to access the nearby grocery store. In fact, during weekends, the nearby park was occupied by more kids.

The second neighbourhood for observation chosen was Derat Al Oyun; the first visit was done on the 28th of March, Tuesday, 4.00 pm - 5.00 pm. It was observed that there were very few people on the streets and mainly around the mosque along with adults, few kids were playing in the street, and it was noticed that every passing car honked at those kids to get them aside. The researcher inquired the parents about reason for the kids' playing in the street. They replied that there is no nearby playground, and the one available in Noor and Sherooq is relatively far, and they cannot cross the road. The residents lived in the neighbourhood for the past three years, yet a park is not available. This indicates that the PS and other PF

were not ready when people started living. The researcher repeated the observation on weekends and observed pedestrianisation at 2.00 pm. Parents gathered at the bus stop to receive their kids. The researcher observed kids aged 12 to 15, yet their parents had to accompany them for safety. The observation on Thursday and Friday also showed similar findings. The only difference was that on weekends, the neighbourhood



Figure 4.2: Neighbourhood street design without proper sidewalks and greenery (Akram)

surrounding area was crowded due to the outside visitors of Dragon Mall and Souq Baraha.

The third neighbourhood was the Jewaan which was observed on Tuesday, 4th of April, from 4.00 pm to 5.00 pm. It was observed that the neighbourhood was fully occupied as outside each house, there were two or three parked cars. The observation showed very few pedestrians walking towards Dragon Mall since it is the nearest service to the neighbourhood. There was no mosque yet nor any other services. On the second and third visit, it was observed that kids were playing in empty lands.

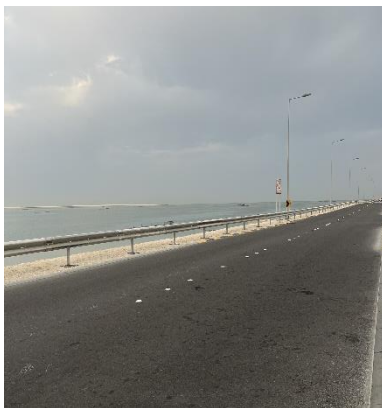
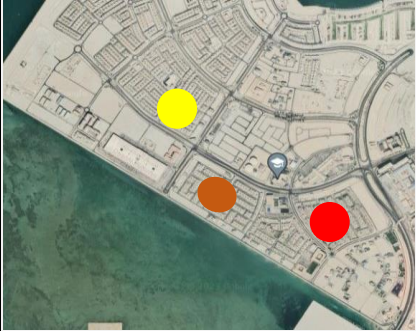


Figure 4.3: The inaccessibility to sea area (Akram)



Figure 4.4: The sidewalks designed for cars (Akram)

Table 4.8: The site visit observation schedule in Diyar Al Muharraaq

Observation 1: Diyar al Muharraaq				
Objective 1: Relationship of Pedestrianisation and Social Life				
No. of visits	3	3	3	Map of site
Day	Tuesday Thursday Friday	Tuesday Thursday Friday	Tuesday Thursday Friday	 Figure 4.5: Diyar Al Muharraaq Plan (Adopted from Google Maps, n.d.)
Location	Al Noor Al Sherroq	Deraat Al Oyun	Jewaan	
Time	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	
Available functions	Kids play area, shops, seating,	Mosque	houses	
No. of people	15-20 30-35 30- 35	5-6 8-10 10-13	4-5 6-9 11-14	
Weather conditions	Cloudy Cloudy Sunny	Sunny Sunny Windy with clouds	Sunny Sunny Sunny	
Land use	Public services	Public services	Public services	
Theme Level Of Street Liveability	Observation Criteria S, W, F			Reference For Evaluation
Presence of parks	Strong	Weak	Weak	Project for Public Spaces (PPS) outlines four major quality requirements a space for liveability must have, which are categorised as follows, since liveability determines the QoL. These criteria apply to the evaluation of any kind of public space, including streets, playgrounds, and plazas: ease of access, pleasant atmosphere, good company, many functions (Yassin,2019).
Presence of plazas	Strong	Weak	Weak	
Ease of access	Strong	Fair	Weak	
Greenery	Strong	Fair	Weak	
Design elements	Strong	Fair	Fair	
Mosque	Strong	Strong	weak	
Level of street vitality	Strong	F	F	Reference For Evaluation

Level of inclusivity	Strong	Fair	weak	Vitality according to Gehl, Montgomery, the vibrancy of a street is the outward sign of the social interactions that take place there, and this vibrancy is shown by the fact that people of all ages and backgrounds spend time on the street at all hours of the day. Thus, the liveliness of a street is measured by the volume and duration of people engaged in sedentary or slow-moving activities. Since the availability of data has increased in recent years, a number of empirical studies were conducted to define the meaning and metrics of a thriving city's streets better. It is the intensity of the immobile and slow-moving activities that creates the foundation for life on the streets. The more people on the street, the livelier it is.
Movement level	Fair	Weak	Weak	
Variety of activities	Strong	Weak	Weak	
Level of interaction	M	M	F	Reference For Evaluation
People clusters	Fair	Weak	Weak	Clusters, as opposed to uniform distribution, in seemingly stagnant activity might be an indicator of the presence of such an impact (Whyte, 1990).
Variety of activities	Strong	Weak	Weak	
Street furniture occupancy	Fair	Weak	Weak	
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Fair	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element. (Gehl, 2010)
Availability of green surfaces	Fair	Weak	Weak	
Availability of natural shading	Fair	Weak	weak	

- **Dilmunia**

Three neighbourhoods of Dilmunia were observed, including front sea housing, the Essence of Dilmunia, and the Canal View apartments. The observation started on Monday, 20th of March, from 4.00 pm to 6.00 pm, from the sea view housing neighbourhood. The project is still under construction as most pavements are still incomplete. The researcher

observed the whole neighbourhood but could not see pedestrians. Even the vehicle flow was significantly less, and after spending an hour, a couple and their dog were walking towards the Mall of Dilmunia. The second visit was conducted in the weekend to observe pedestrians and other social life characteristics further, but the second and third visits also showed the same results. There were very few pedestrians and cyclists, and they also came out of their houses after cleaning the cars. Below are the images showing the lack of stimulation and green areas.



Figure 4.6: The lack of stimulating view (Akram)



Figure 4.7: The incomplete design (Akram)

The observation of the second neighbourhood, the Essence of Dilmunia, was started on the 27th of March, Monday, 4.00 pm - 6.00 pm. Due to the proximity to the Mall of Dilmunia, pedestrians and cyclists were observed around the neighbourhood. Most of the people were walking along with their pets towards the Dilmunia. After spending an hour observing pedestrian flow towards the mall, the researcher also noticed that people mostly use the outdoor courtyard area of the mall by walking, some sitting with laptops, and some near the canal edge. While inside the mall, it was only a little crowded at the weekend.

When the observation was repeated on weekends, the same pattern was observed with the crowd inside the mall, and the mall courtyard area was also occupied. The researcher inquired two ladies sitting on the canal side if they were Dilmunia residents, and they said they were from seafront housing. Since they only have a few activities around their neighbourhood, they usually visit the Mall of Dilmunia. The researcher further inquired about the journey medium, and they responded by car because crossing the road at weekends is sometimes tricky and it's not a walking distance. The images below show the neighbourhood access to Mall of Dilmunia.

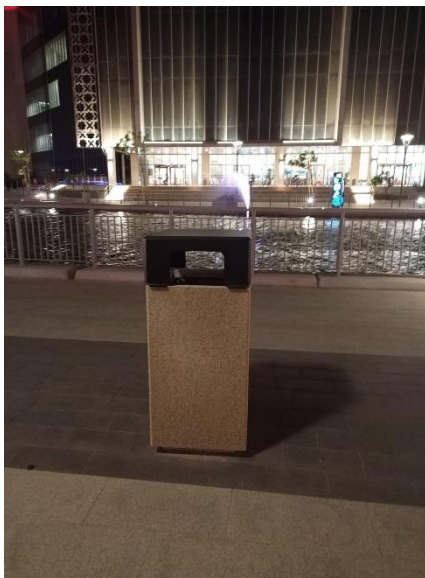


Figure 4.8: The walkways near Mall of Dilmunia (Akram)

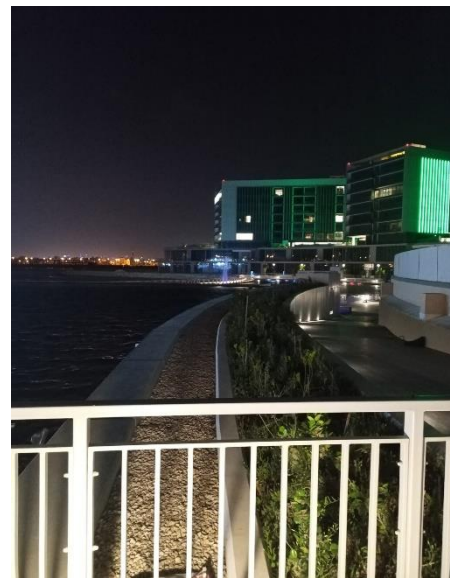


Figure 4.9: The access from neighbourhood to Mall of Dilmunia (Akram)

The third neighbourhood, the canal view near the mall, was observed on 3rd April, Monday, from 4.00 pm to 6.00 pm. Compared to the essence of Dilmunia, the canal view could be more populated, as observed in three visits. People were all observed walking around the canal within the canal view facility. On weekends the canal view walkway was occupied by nearby residents. There were few facilities and services apart from walking.

The observations from Dilmunia also show that pedestrianisation occurs when PS, amenities, and outdoor designs are available, creating a social life. New neighbourhoods should have these facilities, and, people here move towards the point of attraction, which is the Mall of Dilmunia.

Table 4.9: Site visit observation schedule in Dilmunia

Observation 2: Dilmunia				
Objective 1: Relationship of Pedestrianisation and Social Life				
No. of visits	3	3	3	Map of site
Day	Monday Thursday Saturday	Monday Thursday Saturday	Monday Thursday Saturday	 Figure 4.10: Dilmunia Plan (Adopted from Google Maps, n.d.)
Location	Sea front houses	Essence of Dilmunia	The canal view	
Time	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	
Available functions	Houses	Outdoor canal seating	Walkways	
No. of people	2-4 1-3 5-7	Less crowded Crowded Crowded	3-4 1-3 2-4	
Weather conditions	Rainy Rainy cloudy	Sunny Sunny Sunny	Sunny Sunny Sunny	
Land use	Residential	Residential	Residential	
Theme Level Of Street Liveability	Observation Criteria S, W, F			Reference For Evaluation
parks	Weak	Fair	Weak	Project for Public Spaces (PPS) outlines four major quality requirements a space for liveability must have, which are categorised as follows, since liveability determines the QoL. These criteria apply to the evaluation of any kind of public space,
plazas	Weak	Strong	Strong	
Ease of access	Fair	Fair	Fair	
Greenery	Weak	Weak	Weak	
Design elements	Weak	Fair	Fair	

Mosque	Weak	Weak	Weak	including streets, playgrounds, and plazas: ease of access, pleasant atmosphere, good company, many functions (Yassin,2019).
Level of street vitality	Strong	F	F	Reference For Evaluation
Level of inclusivity	Weak	Fair	weak	Vitality according to Gehl, Montgomery, the vibrancy of a street is the outward sign of the social interactions that take place there, and this vibrancy is shown by the fact that people of all ages and backgrounds spend time on the street at all hours of the day. Thus, the liveliness of a street is measured by the volume and duration of people engaged in sedentary or slow-moving activities. Since the availability of data has increased in recent years, a number of empirical studies have been done to define the meaning and metrics of a thriving city's streets better. It is the intensity of the immobile and slow-moving activities that creates the foundation for life on the streets. The more people on the street, the livelier it is.
Movement level	Weak	Fair	Weak	
Variety of activities	Weak	Fair	Weak	
Level of interaction	M	M	F	Reference For Evaluation
People clusters	Weak	Fair	Weak	Clusters, as opposed to uniform distribution, in seemingly stagnant activity might be an indicator of the presence of such an impact (whyte, 1990).
Variety of activities	Weak	Strong	Weak	
Street furniture occupancy	Weak	Weak	Weak	
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Weak	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element. Ghel,2010)
Availability of green surfaces	Weak	Weak	Weak	
Availability of natural shading	Weak	Weak	weak	

- **Amwaj**

The observation was conducted in Amwaj in three neighbourhoods: Al Zahi, Noor Amwaj, and the neighbourhood on the road 57111. The observation started from Al Zahi on Sunday, 19th March, from 4.00 pm to 6.00 pm. The first thing observed was pedestrianisation on the street. Although it was pretty warm, residents were walking with their pets. It was also seen that a few pedestrians had grocery bags indicating they were running errands by walking. However, the shortcoming observed in the pedestrian pattern was that inside the neighbourhood, the sidewalks needed to be improved, which made the pedestrians walk on the street and created difficulty for cars. The following observation was of pedestrians walking through the empty unpaved plot to access the sea. The observation of the second and third visits also showed the same pattern, but since the visits were at weekends, it was noticed that outsiders crowded the Amwaj main entrance. Additionally, it was noticed that people often drive to Amwaj to walk. Images below shows the neighbourhood being relatively green.

The second neighbourhood, Noor Amwaj, was observed on the 26th of March, Monday from 4.00 pm to 6.00 pm. The pedestrianisation in this neighbourhood was less than in Al Zahi. Many vacant lands along with haphazard car parks and no sidewalks were observed. The researcher only noticed people coming from surrounding buildings and getting in cars. The second and third visits on weekends showed relatively active pedestrianisation. People in groups of three and four walking towards the main road were noticed. The researcher did not come across any activities since there were no PS and amenities.

The third neighbourhood was observed on the road 57111 on the 2nd of April from 4.00 pm to 6.00 pm. It was noticed that since the neighbourhood faces the main road, there are sidewalks that had active pedestrianisation. The sidewalks also have a few green patches, along with

a plantation, where a group of workers were seated underneath the shade of trees. It was observed that after an hour, the pedestrian flow increased, and people from surrounding areas accessed the walkways easily. This observation indicates that crossing the road in Amwaj is more accessible due to the narrow roads being pedestrian-friendly.

Below are the images shows the entrance road being relatively narrow and availability of side walk.



Figure 4.11: Amwaj Roads with Sidewalk (Akram)



Figure 4.12: Main entrance of Amwaj (Akram)

Table 4.10: Site visit observation schedule in Amwaj

Observation 3: Amwaj				
Objective 1: Relationship of Pedestrianisation and Social Life				
No. of visits	3	3	3	Map of site
Day	Sunday Thursday Friday	Tuesday Thursday Friday	Tuesday Thursday Friday	
Location	Noor Amwaj	Road 57111	Al Zahi	
Time	4.00-5.00pm 6.00-8.00pm 2.00-4.00pm	4.00-5.00pm 6.00-8.00pm 2.00-4.00pm	4.00-5.00pm 6.00-8.00pm 2.00-4.00pm	
Available functions	Houses Walkways	Buildings Walkways	Houses	
No. of people	10-17	7-10	7-9	

	21-24 20-26	23-26 19-22	19-23 23-26	 Al zahi  Road 57111  Noor Amwaj
Weather conditions	Sunny Sunny Windy	Sunny Sunny Sunny	Cloudy Cloudy Cloudy	
Land use	Residential	Residential	Residential	 Figure 4.13: Amwaj Plan (Adopted from Google Maps, n.d.)
Theme Level Of Street Liveability	Observation Criteria S, W, F			Reference For Evaluation
Presence of parks	Weak	Fair	Weak	Project for Public Spaces (PPS) outlines four major quality requirements a space for liveability must have, which are categorised as follows, since liveability determines the QoL. These criteria apply to the evaluation of any kind of public space, including streets, playgrounds, and plazas: ease of access, pleasant atmosphere, good company, many functions (Yassin,2019).
Presence of plazas	Weak	Weak	Weak	
Ease of access	strong	Strong	Strong	
Greenery	Fair	Fair	Fair	
Design elements	weak	Weak	Weak	
Mosque	none	None	None	
Level of street vitality	Strong	F	F	Reference For Evaluation
Level of inclusivity	Fair	Fair	Fair	Vitality according to Gehl, Montgomery, the vibrancy of a street is the outward sign of the social interactions that take place there, and this vibrancy is shown by the fact that people of all ages and backgrounds spend time on the street at all hours of the day. Thus, the liveliness of a street is measured by the volume and duration of people engaged in sedentary or slow-moving activities. Since the availability of data has increased in recent years, a
Movement level	Strong	FAIR	FAIR	
Variety of activities	Weak	Weak	Weak	

				number of empirical studies have been done to define the meaning and metrics of a thriving city's streets better. It is the intensity of the immobile and slow-moving activities that creates the foundation for life on the streets. The more people on the street, the livelier it is.
Level of interaction	M	M	F	Reference For Evaluation
People clusters	Fair	Weak	Weak	Clusters, as opposed to uniform distribution, in seemingly stagnant activity might be an indicator of the presence of such an impact (Whyte, 1990).
Variety of activities	WEAK	Weak	Weak	
Street furniture occupancy	Weak	Fair	Fair	
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Fair	Fair	Fair	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element. (Ghel,2010)
Availability of green surfaces	Fair	Fair	Fair	
Availability of natural shading	Fair	Fair	Fair	

- **New Hidd**

Three neighbourhoods were observed in New Hidd, including Road 1117, Road 942, and Road 947. The observation was conducted in New Hidd on Wednesday, 22nd of March, from 6.00 pm to 8.00 pm, starting from the neighbourhood at Road 1117. The researcher observed that the project was unfinished as the pavements, roads, and sidewalks were all under construction, as shown in the image. The researcher walked around to see how and where the pedestrian flow goes. First, it was seen that a few kids were walking towards the nearby grocery store, and as it was time for the Maghrib, a few pedestrians were walking towards the mosque. The distance from the grocery store towards the mosque was about 300 meters.

That was difficult to walk around as there was no sidewalk, no walkways, and even the roads were bumpy. The researcher waited outside the mosque to observe people going to their homes and noticed that most people were getting into cars while a few were walking. There were a few kids playing in an empty land next to the grocery store. The researcher inquired about the reason for playing in the sand. They replied that they do not have a park anywhere nearby. Their parents do not allow them to go farther due to traffic; and they are afraid to cross roads. One kid added that his mother keeps an eye on him from the balcony while they play. On the second and third visits, car congestion in streets without pedestrians was the same.

The second neighbourhood was observed on Wednesday, 29th of March, from 6.00 pm to 8.00 pm. The pedestrian pattern was that more people were walking towards the mosques due to the proximity of mosques. The street condition was better, yet the sidewalk and walkways were missing. After the prayer ended, the streets were again empty of pedestrians with cars only. The observation was repeated on weekends, and it was noticed that, the streets were crowded with cars parked in the middle of the road. People were only seen in the street when getting out of cars and getting in. Apart from this, there was no social life and no pedestrian flow. After some time, the researcher changed location and observed the sea view next to the road. It was observed that a few people were walking next to the sea even though there was no proper pavement to walk on. The researcher inquired after taking permission about their experience of walking. They replied it's okay since they have the sea. It's not a safe, walkable area, though, as anyone can fall down.

The third neighbourhood of New Hidd on Road 942 was observed on the 5th of April from 6.00 pm to 8.00 pm. The neighbourhood was similar to the other two regarding pedestrian flow and cars parked haphazardly in the streets. The neighbourhood was darker as compared to the other two.

The pedestrian movement was observed only at prayer and Traweeh time. Car-washing cyclists used the roads as there were no sidewalks or designated pathways. Another two visits also showed the same routine and car congestions.

The observations from the New Hidd neighbourhood indicated the absence of pedestrianisation due to a lack of proper SIP, therefore, a lack of social life. It was observed that the project is still under construction as most of the paved sidewalks are unfinished. Therefore, the researcher observed the whole neighbourhood but could not see pedestrians on the streets.



Figure 4.14: New Hidd empty plots and lack of walkway (Akram)



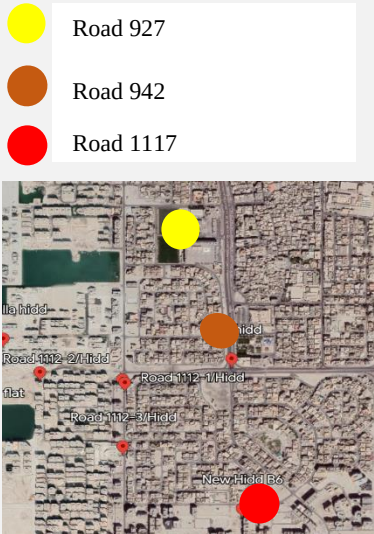
Figure 4.15: New Hidd Lack of sidewalks (Akram)

The images above show the lack of walkways, green areas, public parks, and lack of safety in New Hidd neighbourhood.

Table 4.11: Site visit observation schedule in New Hidd

Observation 4: New Hidd

Objective 1: Relationship of Pedestrianisation and Social Life

No. of visits	3	3	3	Map of site
Day	Wednesday Thursday Friday	Tuesday Thursday Friday	Tuesday Thursday Friday	 Figure 4.16: New Hidd Plan (Adopted from Google Maps, n.d.)
Location	Road 1117	Road 942	Road 927	
Time	6:00-8:00pm 1:00-3:00 pm 6:00-8:00pm	6:00-8:00pm 1:00-3:00 pm 6:00-8:00pm	6:00-8:00pm 1:00-3:00 pm 6:00-8:00pm	
Available functions	Buildings Small shop	Houses	Houses	
No. of people	12-15 13-17 21-29	7-11 12-19 19-23	5-8 11-20 23-29	
Weather conditions	Sunny Sunny Sunny	Sunny Sunny Sunny	Sunny Sunny Sunny	
Land use	Residential	Residential	Residential	
Theme Level Of Street Liveability	Observation Criteria S, W, F			Reference For Evaluation
Presence of parks	Weak	Weak	Weak	Project for Public Spaces (PPS) outlines four major quality requirements a space for liveability must have, which are categorised as follows, since liveability determines the QoL. These criteria apply to the evaluation of any kind of public space, including streets, playgrounds, and plazas: ease of access, pleasant atmosphere, good company, many functions (Yassin,2019).
Presence of plazas	Weak	Weak	Weak	
Ease of access	Weak	Weak	Weak	
Greenery	Weak	Weak	Weak	
Design elements	Weak	Weak	Weak	
Mosque	Strong	Strong	Strong	
Level of street vitality	Strong	F	F	Reference For Evaluation
Level of inclusivity	Weak	Weak	Weak	Vitality according to Gehl, Montgomery, the vibrancy of a street is the outward sign of the social interactions that take place there, and this vibrancy is shown by the fact that people of all ages and backgrounds spend time on the street at all hours of the day. Thus, the liveliness of a street is measured by the volume and duration of people engaged in sedentary or slow-moving activities. Since the availability of data has increased in recent years, a
Movement level	Fair	Fair	Fair	
Variety of activities	Fair	Weak	Weak	

				number of empirical studies have been done to define the meaning and metrics of a thriving city's streets better. It is the intensity of the immobile and slow-moving activities that creates the foundation for life on the streets. The more people on the street, the livelier it is.
Level of interaction	M	M	F	Reference For Evaluation
People clusters	Fair	Weak	Weak	Clusters, as opposed to uniform distribution, in seemingly stagnant activity might be an indicator of the presence of such an impact (whyte, 1990).
Variety of activities	Weak	Weak	Weak	
Street furniture occupancy	Weak	Weak	Weak	
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Weak	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element. (Ghel,2010)
Availability of green surfaces	Weak	Weak	Weak	
Availability of natural shading	Weak	Weak	weak	

4.3.2. Objective 2

To Study the Urban Design Characteristics that Enhance Social Sustainability

- **Diyar Al Muharraq**

The researcher started the observation of Diyar al Muharraq Tuesday, 21st of March, from 4.00 pm to 6.00 pm. The three areas under observation were Noor and Sherooq, Deraat al Oyun, and Jewaan. When observing these areas, the very first thing the researcher observed was the walking patterns. It was observed in Diyar al Muharraq that even though the walkways and cycling tracks are well-organised and functional, people are not using them due to various reasons. The first reason observed was that

wider roads and sidewalks occupied by cars need to make it more welcoming for pedestrians and make it a walkable neighbourhood. Additionally, crossing the road is a safety concern that interviewees pointed out in section 4.2.1. The second reason observed was a need for more stimulating views that encourage one to walk around often for fitness or leisure. The third reason observed was the absence of services within the block. Moreover, the walking pattern is weak even after having such an organised pathway due to the absence of landscaping. Many empty small land patches were observed covered with pebbles, which could have been green. Resident's interview in section 4.2.1 shows their concern regarding lack of landscape elements. Moreover, the streets and street furniture were observed, and observation showed that one of the reasons Noor and Sherooq have active pedestrianisation and social life within the streets and plaza due to the street materials used. It observed that in Noor and Sherooq, the streets have interlocked streets that provide a welcoming feeling to the pedestrians, whereas, in Deraat Al Oyun and Jewaan, the streets are covered with asphalt making them more accessible for cars. Moreover, due to the interlock, the cars slow down due to the roughness. While in Deraat Al Oyun and Jewaan, cars honk at kids because of the street material.

The researcher further observed the presence of street furniture but in the wrong orientation and location that has emerged as a theme in the interview findings. It was observed during the visits that people were hardly using this street furniture. In contrast, the fountain mentioned in Noor and Sherooq was used for seating due to its design, view, orientation, and provision. A lack of sidewalks was also observed; instead, the space is used for parking spots and movers; the researcher has observed that street usability is compromised due to a lack of shading because the neighbourhood is low-rise.

Table 4.12: Site visit observation schedule in Diyar al Muharraq

Observation of Diyar al Muharraq				
Objective 2: Urban design characteristics that enhance social sustainability				
No. of visits	3	3	3	Map of site
Day	Tuesday Thursday Friday	Tuesday Thursday Friday	Tuesday Thursday Friday	 Figure 4.17: Diyar al Muharraq Plan (Adopted from Google Maps, n.d.)
Location	Al Noor Al sharooq	Deraat Al Oyoon	Jiwaan	
Time	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	4.00-5.00pm 8.00-10.00pm 4.00-5.00pm	
Available functions	Kids play area, shops, seating,	Mosque	houses	
Availability of designs	Fountain			
No. of people	15-20 30-35 30- 35	5-6 8-10 10-13	4-5 6-9 11-14	
Weather conditions	Cloudy Cloudy Sunny	Sunny Sunny Windy with clouds	Sunny Sunny Sunny	
Land use	Public services	Public services	Public services	
Theme Level Of Street Accessibility	Observation Criteria S, W, F			Reference For Evaluation
Street signage	Fair	Fair	Fair	The American Society of Landscape Architects (ASLA) recommends having extra-wide sidewalks so that individuals in wheelchairs have space to turn around or relax, and so that those communicating with sign language may face each other without blocking pedestrian traffic. Good lighting, minimising shadows that can be perceived by people with low
Street lighting	Fair	Fair	Fair	
Street furniture	Strong	Fair	Weak	
Greenery	Fair	Fair	Weak	
Pedestrian flow	Strong	Fair	weak	

Pavement quality	Strong	Strong	Strong	vision as grade changes, and glare, affecting people with sensory sensitivity, are also key components of universal streets. Moreover, frequent seating with arms allows people to rest and stand up easily, while flexible seating allows people to choose where to sit. Visual patterns on universal roadways aid in navigation and comprehension, while tactile signals aid the visually impaired.
Level of street Scape	Strong	F	F	Reference For Evaluation
Landscape	Strong	Weak	Weak	More lighting, better landscaping and furnishings, better connections between sidewalks, bike lanes, pedestrian crossing protections, and traffic calming measures are all examples of what may be included into a streetscape (Whyte, 1990).
Sidewalks	Fair	Weak	Weak	
Bike lanes	Strong	Fair	Fair	
Pedestrian crossing	Strong	Fair	Fair	
Level of walkable features	M	M	F	Reference For Evaluation
Connectivity	Fair	Weak	Weak	The pace at which a person can walk depends on a number of variables, including the route's quality, the surface, the crowd density, and the walker's age and mobility. The room's layout is also an important factor. People tend to move more quickly along routes designed for straight-line travel, and more slowly
route	Fair	Weak	Weak	
Pollution	None	None	None	
Stimulating view	Fair	Weak	Weak	

				through plazas (Ghel, 2010). A tendency, cluster, or increase in walking activity would be indicative of the importance of factors such as (1) a pleasant microclimate consisting of good temperature and sky conditions, (2) a good auditory level and pollution level, (3) a stimulating view, and (4) a location that is psychologically comforting (Ghel, 2010).
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Fair	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element (Ghel, 2010).
Availability of green surfaces	Fair	Weak	Weak	
Availability of natural shading	Fair	Weak	weak	

• Dilmunia

The researcher started the observation of Dilmunia on Monday, 20th of March, from 4.00 pm to 6.00 pm. The three areas under observation were the Seafront housing, the Essence of Dilmunia, and the canal view. The observation has shown that all three neighbourhoods are yet to be completed but are mostly occupied. Additionally, the observations show incomplete walkways and urban design characteristics that hinder social life and impact social sustainability. The most significant characteristic that needs to be added to all the neighbourhoods is the greenery; the places don't show liveable and social streets due to the lack of greenery.

In order to use outdoor spaces with seating, socialising neighbours often use the Mall of Dilmunia due to the need for such smaller commercial areas within the neighbourhood. In many empty plots near the sea area, people were seen doing bonfires on weekends shows the need for proper seaside design with PF. The researcher observed that the inner streets of

the neighbourhood had a very monotonous atmosphere; apart from cars, there was no observable street character. The researcher has observed the walkways of the neighbourhoods are not being used, whereas the walkway around the Mall of Dilmunia is used, and the preference of driving over walking was observed. This was also highlighted in interview findings.

Table 4.13: Site visit observation schedule in Dilmunia

Observation of Dilmunia				
Objective 2: Urban design characteristics that enhance social sustainability				
No. of visits	3	3	3	Map of site
Day	Monday Thursday Saturday	Monday Thursday Saturday	Monday Thursday Saturday	 Figure 4.18: Dilmunia Plan (Adopted from Google Maps, n.d.)
Location	Sea front houses	Essence of Dilmunia	The Canal View	
Time	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	4.00-5.00pm 10.00-12.00pm 4.00-5.00pm	
Available functions	Residential	Mosque	houses	
No. of people	2-4 1-3 5-7	Less crowded Crowded Crowded	3-4 1-3 2-4	
Weather conditions	Rainy Rainy cloudy	Sunny Sunny Sunny	Sunny Sunny Sunny	
Land use	Residential	Public services	Public services	
Theme Level Of Street Accessibility	Observation Criteria S, W, F			Reference For Evaluation

Street signage	Fair	Fair	Fair	The American Society of Landscape Architects (ASLA) recommends having extra-wide sidewalks so that individuals in wheelchairs have space to turn around, relax, and so that those communicating with sign language may face each other without blocking pedestrian traffic. Good lighting, minimising shadows that can be perceived by people with low vision as grade changes, and glare, affecting people with sensory sensitivity, are also key components of universal streets. Moreover, frequent seating with arms allows people to rest and stand up easily, while flexible seating allows people to choose where to sit. Visual patterns on universal roadways aid in navigation and comprehension, while tactile signals aid the visually impaired.
Street lighting	Weak	Weak	Weak	
Street furniture	Weak	Weak	Weak	
Greenery	Weak	Weak	Weak	
Pedestrian flow	Weak	Weak	Weak	
Pavement quality	Fair	Fair	Fair	
Level of street Scape	Strong	F	F	Reference For Evaluation
Landscape	Fair	Fair	fair	More lighting, better landscaping and furnishings, better connections between sidewalks, bike lanes, pedestrian crossing protections, and traffic calming measures are all examples of what may be included into a streetscape (Whyte, 1990).
Sidewalks	Weak	Weak	Weak	
Bike lanes	Weak	Fair	Fair	
Pedestrian crossing	Weak	Weak	Weak	
Level of walkable features	M	M	F	Reference For Evaluation
Connectivity	Weak	Fair	Weak	The pace at which a person can walk depends on a number of variables, including the route's quality, the surface, the crowd density, and the walker's age and mobility. The room's
route	Weak	Fair	Weak	
Pollution	None	None	None	

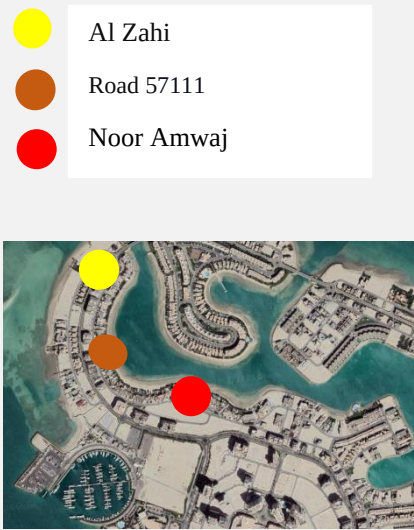
Stimulating view	Fair	Fair	Fair	layout is also an important factor. People tend to move more quickly along routes designed for straight-line travel, and more slowly through plazas (Ghel, 2010). A tendency, cluster, or increase in walking activity would be indicative of the importance of factors such as (1) a pleasant microclimate consisting of good temperature and sky conditions, (2) a good auditory level and pollution level, (3) a stimulating view, and (4) a location that is psychologically comforting (Ghel, 2010).
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	weak	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element (Ghel,2010).
Availability of green surfaces	weak	Weak	Weak	
Availability of natural shading	Weak	Weak	weak	

- **Amwaj**

The observation was conducted in Amwaj in three neighbourhoods—Al Zahi, Noor Amwaj, and the neighbourhood on Road 57111. The observation started from Al Zahi on Sunday, 19th of March, from 4.00 pm to 6.00 pm. The researcher observed pedestrians along with their pets walking on the streets and walking around with pets is a common trend in Amwaj. However, the streets could be more pet-friendly as there was no proper system for pet waste. The walkways were observed to be narrow because if someone was coming from the opposite side along with a pet, they had to wait until the other person passed. Street furniture was another character, and the ones available needed to be oriented in the right direction. Street light at night in some areas was observed to be limited.

Cars parked over the sidewalk were observed to be the common trend due to lack of parking facilities. Due to this, haphazard parking was observed while people were walking on the street. The first thing observed was pedestrianisation on the street. It was seen that the only location of PS and amenities was at the main entrance of the Amwaj and nothing within the neighbourhood. The lack of parks was a significant observation during the site visits, and due to this, no kids were seen playing outside in any visit.

Table 4.14: Site visit observation schedule in Amwaj

Observation of Amwaj				
Objective 2: Urban design characteristics that enhance social sustainability				
No. of visits	3	3	3	Map of site
Day	Sunday Thursday Friday	Monday Thursday Saturday	Monday Thursday Saturday	 Figure 4.19: Amwaj Plan (Adopted from Google Maps, n.d.)
Location	Noor Amwaj	Road 57111	Al Zahi	
Time	4.00-6.00pm 6.00-8.00pm 2.00-4.00pm	4.00-6.00pm 6.00-8.00pm 2.00-4.00pm	4.00-6.00pm 6.00-8.00pm 2.00-4.00pm	
Available functions	Residential	Houses	houses	
No. of people	10-17 21-24 20-26	7-10 23-26 19-22	7-9 19-23 23-26	
Weather conditions	Sunny Sunny Windy	Sunny Sunny Sunny	Coudy Cloudy Cloudy	
Land use	Residential	Residential	Residential	
Theme Level Of Street Accessibility	Observation Criteria S, W, F			Reference For Evaluation
Street signage	Weak	Weak	Weak	The American Society of Landscape Architects (ASLA) recommends having extra-wide sidewalks so that individuals in wheelchairs have space to turn around,
Street lighting	Weak	Fair	Fair	

Street furniture	Weak	Weak	Weak	relax, and so that those communicating with sign language may face each other without blocking pedestrian traffic. Good lighting, minimising shadows that can be perceived by people with low vision as grade changes, and glare, affecting people with sensory sensitivity, are also key components of universal streets. Moreover, frequent seating with arms allows people to rest and stand up easily, while flexible seating allows people to choose where to sit. Visual patterns on universal roadways aid in navigation and comprehension, while tactile signals aid the visually impaired.
Greenery	Weak	Weak	Weak	
Pedestrian flow	Fair	Fair	Fair	
Pavement quality	Weak	Weak	Weak	
Level of street Scape	Strong	F	F	Reference For Evaluation
Landscape	Weak	Weak	Weak	More lighting, better landscaping and furnishings, better connections between sidewalks, bike lanes, pedestrian crossing protections, and traffic calming measures are all examples of what may be included into a streetscape (Whyte, 1990).
Sidewalks	Weak	Weak	Weak	
Bike lanes	Weak	Weak	Weak	
Pedestrian crossing	Strong	Strong	Strong	
Level of walkable features	M	M	F	Reference For Evaluation
Connectivity	Fair	Fair	Fair	The pace at which a person can walk depends on a number of variables, including the route's quality, the surface, the crowd density, and the walker's age and mobility. The room's layout is also an important factor. People tend to move more quickly along routes designed for straight-line travel, and more slowly through plazas (Ghel, 2010). A tendency, cluster, or increase in walking activity would be indicative of the importance of
route	Fair	Fair	Fair	
Pollution	None	None	None	
Stimulating view	Fair	Fair	Fair	

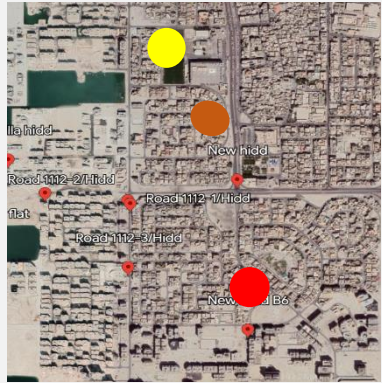
				factors such as (1) a pleasant microclimate consisting of good temperature and sky conditions, (2) a good auditory level and pollution level, (3) a stimulating view, and (4) a location that is psychologically comforting (Ghel, 2010).
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Fair	Fair	Fair	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element (Ghel,2010).
Availability of green surfaces	Fair	Fair	Fair	
Availability of natural shading	Fair	Fair	Fair	

- **New Hidd**

The researcher started the observation of New Hidd on Tuesday, 21st of March, from 4.00 pm to 6.00 pm. Three neighbourhoods were observed—Road 1117, Road 942, and Road 946. The neighbourhood on Road 1117 was primarily observed to be mid-rise buildings and narrow streets. These narrow streets had haphazard car parking lots and no sidewalks; moreover, the streets hardly had any sunlight due to the buildings' shade and narrow streets where sunrays' penetration was significantly slighter. The researcher, while walking around these streets, had the same vibe as if walking in the streets of Um al Hassam. It was observed that the neighbourhood needs proper planning, and private investors are building their mid-rise buildings, leasing them, and neglecting the fact that roads and streets still need to be adequately paved. The interview findings in Section 4.2.1 further justify this observation. The

street width is adequate only for vehicles while the sidewalk, plantation, street furniture, and even street lighting was observed to be bare minimum at specific points. After observing the streets, the researcher reached the mosque area, which was again crowded by cars, but the people were socializing, and some were walking around. The observation throughout the neighbourhood was made that the main character of social life happens where the mosque is located.

Table 4.15: Site visit observation schedule in New Hidd

Observation of New Hidd				
Objective 2: urban design characteristics that enhance social sustainability.				
No. of visits	3	3	3	Map of site
Day	Wednesday Thursday Friday	Wednesday Thursday Friday	Wednesday Thursday Friday	 Figure 4.20: New Hidd Plan (Adopted from Google Maps, n.d.)
Location	Road 1117	Road 942	Road 927	
Time	6:00-8:00pm 1:00-3:00pm 6:00-8:00pm	6:00-8:00pm 1:00-3:00pm 6:00-8:00pm	6:00-8:00pm 1:00-3:00pm 6:00-8:00pm	
Available functions	Residential	Houses	houses	
No. of people	12-15 13-17 21-29	7-11 12-19 19-23	5-8 11-20 23-29	
Weather conditions	Sunny Sunny Sunny	Sunny Sunny Sunny	Sunny Sunny Sunny	
Land use	Residential	Residential	Residential	
Theme Level Of Street Accessibility	Observation Criteria S, W, F			Reference For Evaluation
Street signage	Weak	Weak	Weak	The American Society of Landscape Architects (ASLA) recommends having

Street lighting	Weak	Weak	Weak	extra-wide sidewalks so that individuals in wheelchairs have space to turn around, relax, and so that those communicating with sign language may face each other without blocking pedestrian traffic. Good lighting, minimising shadows that can be perceived by people with low vision as grade changes, and glare, affecting people with sensory sensitivity, are also key components of universal streets. Moreover, frequent seating with arms allows people to rest and stand up easily, while flexible seating allows people to choose where to sit. Visual patterns on universal roadways aid in navigation and comprehension, while tactile signals aid the visually impaired.
Street furniture	Weak	Weak	Weak	
Greenery	Weak	Weak	Weak	
Pedestrian flow	Weak	Weak	Weak	
Pavement quality	Weak	Weak	Weak	
Level of street Scape	Strong	F	F	Reference For Evaluation
Landscape	Weak	Weak	Weak	More lighting, better landscaping and furnishings, better connections between sidewalks, bike lanes, pedestrian crossing protections, and traffic calming measures are all examples of what may be included into a streetscape (Whyte, 1990).
Sidewalks	Weak	Weak	Weak	
Bike lanes	Weak	Weak	Weak	
Pedestrian crossing	Weak	Weak	Weak	
Level of walkable features	M	M	F	Reference For Evaluation

Connectivity	Weak	Weak	Weak	The pace at which a person can walk depends on a number of variables, including the route's quality, the surface, the crowd density, and the walker's age and mobility. The room's layout is also an important factor. People tend to move more quickly along routes designed for straight-line travel, and more slowly through plazas (Ghel, 2010). A tendency, cluster, or increase in walking activity would be indicative of the importance of factors such as (1) a pleasant microclimate consisting of good temperature and sky conditions, (2) a good auditory level and pollution level, (3) a stimulating view, and (4) a location that is psychologically comforting (Ghel, 2010).
route	Weak	Weak	Weak	
Pollution	Weak	Weak	Weak	
Stimulating view	Weak	Weak	Weak	
Level of greenery	M	F	F	Reference For Evaluation
Variety of plantation	Weak	Weak	Weak	There may be a tendency, a cluster, or an increase in static activity for conditions that provide aesthetically fascinating plants, all of which would be indicative of the significance of this element (Ghel, 2010).
Availability of green surfaces	Weak	Weak	Weak	
Availability of natural shading	Weak	Weak	Weak	

Chapter Five

Discussion and Conclusion

5.1 Discussion

The research findings have uncovered the current problem that new neighbourhoods of Bahrain lack pedestrianisation (Soliman, 2014), eventually impacting the social sustainability of neighbourhoods. Additionally, the findings have discovered some intriguing realities about the distribution of social characteristics, pedestrianisation, urban design characteristics, and their relationship with social sustainability. The primary study's discoveries show the absence of social life due to a lack of pedestrianisation and urban characters.

This chapter will discuss the findings in relation to the research objectives and answers the research question:

What is the relationship between pedestrianisation and social sustainability? And what urban design approaches can enhance social sustainability in new neighbourhoods in Bahrain?

5.1.1. Pedestrianisation Creating Urban Quality Of Life

The investigation of the influence of pedestrianisation on social life in new neighbourhoods of Bahrain reveals that social life depends on active pedestrianisation, and pedestrianisation starts from the neighbourhood street. When a street becomes pedestrian-friendly, it may transform into a pleasant social space that encourages people to go out and stroll. The findings from the interviews and observations show pedestrianisation is the facilitating factor of various social aspects of life. However, due to the dominance of car-oriented design, various social aspects are at risk in new

neighbourhoods of Bahrain. Safety is one of the significant aspects that is compromised in new neighbourhoods.

As discussed in the literature review, more people walking about means more eyes on the street, more socialising, and enable walkability (Jacobs, 1961), all of which contribute to a safe community. Different walkability patterns were observed when studying three sites of Diyar al Muharraq because of differences in pedestrianisation structure.

Noor and Sherooq provides good examples of pedestrianisation as it promotes social life and safe neighbourhoods. The findings have shown kids using streets without anyone accompanying them, indicating the safety of streets. These findings further suggest that the Noor and Sherooq streets being pedestrian-oriented and kids freely walking around was due to a sense of belonging. Jackson, as discussed in a literature review, can further justify this. The pedestrian route is one aspect of community planning that garners much attention. Unstructured exercise will benefit people's health, help integrate the city's underprivileged population, and strengthen inhabitants' sense of place and belonging (Jackson, 2003).

The findings from Deraat Al Oyun and Jawaan car-oriented neighbourhoods where they had parking spots instead of streets and sidewalks for pedestrians. According to Ghel (2010), a neighbourhood is "walkable" if people can easily access parks, shops, CCs, grocery stores, schools, and cafés on foot. In contrast, it is found that new neighbourhoods do not qualify as walkable due to the absence of accessibility, proximity, and well-designed walkways, as observed during site study. This inconvenience in walkability has impacted the neighbourhood's social sustainability by taking the neighbours' social right to accessibility. Moreover, this study has established that pedestrianisation has a never-ending connection with human behaviour and life. It has been discovered that residents' daily basic activities around the neighbourhood are impacted

by how well pedestrianisation is enabled. Forsyth (2015) claims that pedestrianisation targets several activities: people walking to places, exercising, socialising or enjoying the outdoors. Mehta (2019) asserts similarly to Forsyth (2015) that integrating sociable streets in neighbourhoods promotes various activities, including socialising, daily and infrequent shopping, eating, loitering, celebrating, and protesting.

The same pattern was observed in Dilmunia, where the researcher witnessed the pathways and cycling tracks. However, there is a lack of usability due to the absence of a stimulating view and movement due to unfinished spaces. This aspect of the scarcity of usability implies that the liveability of the neighbourhood was not created. According to Veenhoven (2013), enhancements done to bring a community closer to its residents makes it a "liveable" neighbourhood. They are places where people feel welcome, where children can play safely, where the air is clean, and where the community as a whole can thrive. The findings have shown the absence of the characters essential to making the neighbourhood liveable.

It has recognised that pedestrianisation is an essential character in facilitating social life, which eventually would create socially sustainable communities. Moreover, having a solid community and a good QoL are the outcomes of a well-developed social infrastructure, which in turn attracts foreign investment and stimulates economic growth (Casey, 2005).

The Objective 1 data set found that the lack of pedestrianisation in new neighbourhoods has negatively impacted social life by constraining the residence from QoL, their well-being, and social rights as the residence of the neighbourhood. The figure below shows the relationship of pedestrianisation with neighbourhood social life and answers the research question part one.

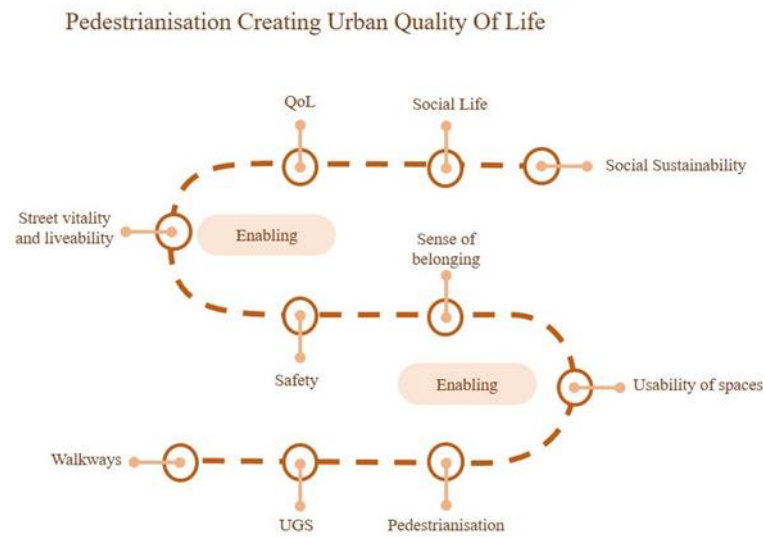


Figure 5.1: Pedestrianisation creating urban quality of life (Akram)

5.1.2. Significant urban characters to achieve social sustainability.

The figure below shows the significant urban characters that were the emerging themes from the findings. The figure further answers the research question part two.

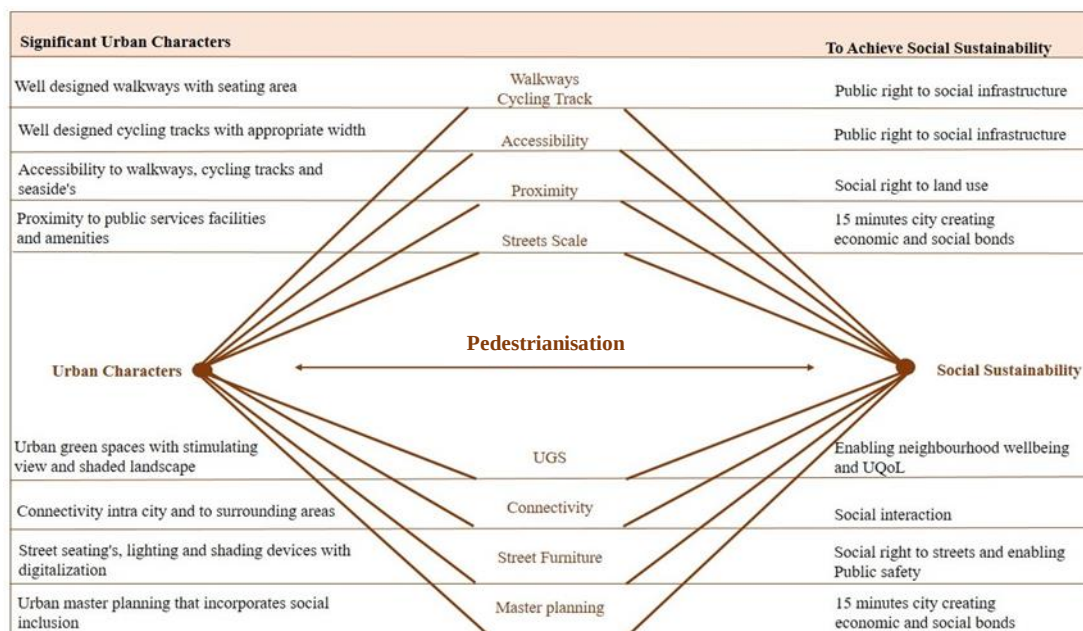


Figure 5.2: Significant urban characters (Akram)

The investigation indicated that the urban design characters in the four case studies were lacking, and in some cases, these characters were further unequally distributed. For example, findings from a case study performed in Diyar al Muharraq show that among three neighbourhoods—Noor and Sherooq, Deraat Al Oyun, and Jawaan—Noor and Sherooq are well-designed with PS, amenities, and facilities and provide the urban design characteristics that possess a stimulating view. These urban qualities are the driving characteristics to facilitate pedestrianisation. Active pedestrianisation also showed liveability and vitality in the streets, further enhancing social life. As Bramley & Power (2009) claimed, social sustainability in the local community is based on equity, safety, and long-term financial viability. While the other two neighbourhoods, Deraat Al Oyun and Jawaan, although having well-organised and functional walkways, do not have active pedestrianisation due to the lack of stimulating views, PS, amenities, UGS, and urban characters. This unequal distribution removes the neighbourhood's social right to enjoy all those facilities. According to Dempsey et al. (2012), the word "social equity" relates to the concept that resources should be allocated equitably and that discriminatory actions should be avoided regarding social, economic, and political involvement.

The other three case studies performed in Dilmunia, Amwaj, and New Hidd have also shown the need for urban social characters. There is a connection between people and their communities, which is essential for building relationships and social sustainability. According to Jalaladdini & Oktay (2012), the now-famous Maslow's pyramid of needs describes a hierarchy of human needs, from the simplest to the most complex. In keeping with this, one can agree that accessibility, equality, and safety are the most crucial social features of community spaces. Considering

Maslow's pyramid, the findings show that majority of the participants said that there is a lack of accessibility to the sea area; similarly, most participants also said that there is a lack of accessibility to green areas. Furthermore, the results above showed that more than half of the participants, when inquired about the safety of their neighbourhood, showed dissatisfaction as it is not safe for kids; this also indicated that new neighbourhoods are also not designed for inclusivity.

Moreover, the interview and observation findings have highlighted a significant factor that every private investor, when creating a neighbourhood, must first obtain an attractive concept of commercial space in the form of malls. In the case of Diyar al Muharraq, they are Dragon Mall and Marasii; in the case of Amwaj, the lagoon is a commercial attraction spot; and in the case of Dilmunia, Mall of Dilmunia is the attraction. This removes the solitude and other leading issues of the neighbourhood. Similarly, it was noticed that visitors from outside Amwaj make it a commercial area rather than a familial one. This also creates problems with accessibility to public amenities and facilities for the residents. These factors have been observed to be one of the reasons for the downfall of Amwaj, which must be considered for future neighbourhoods. A neighbourhood must have its own privacy and neighbourhood characteristics.

One of the significant findings is the master planning of the neighbourhood being linear and creation of more private and secluded neighbourhoods. Another finding is having u-shaped street arrangement which encourages conversations since everyone may join in from the same starting point. Incorporating passive and active leisure spaces into residential areas promotes more social interaction. Pedestrian friendly areas encourage social interaction. Sustainable development relies on

design to enable or boost social justice, economic growth, and ecological consciousness.

Demographic changes (ageing, mobility, and migration); skills and education; employment; health and safety; housing and environmental health; identity, place, and culture; participation, empowerment, and access; social mixing and cohesion; social capital; and well-being, happiness, and QoL are the ten dimensions and policy areas that make up social sustainability, as stated by Colantonio et al. (2009). Considering this definition, the missing urban characteristic not only compromises the social sustainability of the neighbourhood but also impacts well-being and QoL, which is described by Sirgy et al. (2008) as how an individual experiences positive emotion in their life.

- **Lack of Surveillance and Unequal Distribution Urban Characters Matter Social Sustainability**

In Amwaj, it was found that people walk and socialise in outdoor spaces due to the availability of greenery. The street or road width is the second reason for active pedestrianisation in Amwaj. It was found that, compared to other new neighbourhoods, Amwaj has relatively narrow roads which makes the neighbourhood walkable and connected. However, the surveillance of outside visitors is needed. Outsiders have not only crowded the neighbourhood and created a burden on walkways but have taken away the neighbourhood's privacy and made it a commercial area. Lack of surveillance and privacy implies the physical settings feels more like a commercial area than a residential area (Fareej) which is vital for social sustainability (Ghahramanpouri et al., 2017). Social sustainability requires community procedures and institutions that meet changing requirements (Peters, 2016). Vallance et al. (2011) proposes three

mechanisms for social sustainability, "development sustainability," "bridge sustainability," and "maintenance sustainability," which adapt structures to changing requirements. Therefore, new neighbourhoods need to consider future growth, maintenance, and prioritising the residents' needs.

Two standard practices from the findings were driving to walk and paying to walk in new neighbourhoods. All four case studies, Diyar al Muharraq, Dilmunia, Amwaj, and New Hidd, have frequently illustrated participants asserting they must drive to a specific location and pay a certain fee to walk in a neighbourhood facility (in sections 4.2.1.1 and 4.3.1). In Diyar Al Muharraq, if residents want to walk with a stimulating view, they either have to pay at the park or pay at Marrasii, while in Dilmunia, Amwaj, and New Hidd, people will drive to the Mall of Dilmunia, Lagoon, and Khalifah Park, respectively, to use the walking facilities with a view. This practice has various shortcomings related to different aspects of the community. The first drawback is the scarcity of the right to access social infrastructure. According to Latham and Layton (2019), social infrastructure is the network of venues, services, institutions, and organisations which promote social interactions, such as libraries, public parks, sports centres, and schools. Social infrastructure is vital to designing a healthy community and a sustainable living environment (Latham & Layton, 2019). Social infrastructure is supplied to meet fundamental community requirements and to improve QoL, equality, stability, and social well-being. The third shortcoming is reliance on vehicles which makes overall sustainability impossible. As Blečić et al. (2017) mentioned, a sustainable city's critical capabilities include the ability of individuals of varying ages, genders, residential areas, socioeconomic levels, and personal skills to access valued destinations and places "on their own" and on foot. These discoveries lead to the drawback

of privatisation and their planning strategies which must be supervised by the government authorities.

5.2. Recommendations

Several recommendations might be taken in terms of future studies. Below are important recommendations based on this research's findings.

1. Further study is needed to determine what aspects of residential and urban characteristics in communities foster a feeling of harmony and social vibrance. Since these two concepts have been misunderstood or misplaced in earlier public life studies in neighbourhoods, this study may provide a useful vantage point for future research. PS and commercial streets form the primary social bond of a neighbourhood and provide the setting for inhabitants to interact with one another. There are two ways to examine neighbourhoods regarding the definitions and implications of communal and social life: one involves exploring harmony in residential streets while the other involves creating vitality and encouraging social life in commercial streets. This study's focus was the social life of new neighbourhoods, and it is recommended to investigate the sense of community of these neighbourhoods as they are new, has mixed cultures, and are built on reclaimed land with no social characteristics.
2. The degree to which the physical environment might influence neighbourhood communities is a topic that could be explored in future studies. In a world where most people are active in communities that are not physically near, this research paves the way for a discussion on the value of local communities. Finally, further

research on the importance of neighbourhood's social life in new neighbourhoods is still needed, even though some light has already been shed on how a neighbourhood's sense of community must be put to use.

3. The time and energy efficiency of daily visits within communities could be improved when daily retail outlets, transit hubs, and schools are arranged along important community routes; this also makes walking more convenient, which increases the likelihood of acquaintance. Therefore, it is essential to prioritise the safety of pedestrians while designing roadways and sidewalks in residential areas. Furthermore, when locals spend more time in their communities, they get better acquainted with one another, take pride in their surroundings, and are less inclined to overlook suspicious newcomers.
4. The function of streets as gathering places should be fully realised. Some academics have recommended using cues from historic streets when creating new ones (Wan Ismail et al., 2018) because such avenues accurately portray the communities, countries, and cultures they serve. Conventional streets looked good and functioned well. Traditionally environments developed gradually based on people's requirements. Our beliefs and practices are grounded in our traditions, which are the primary repository of human knowledge.
5. The quantity of street furniture should correspond to the level of foot traffic and should be strategically located to minimise the risk of injury to pedestrians. Benches, trash cans, informational signs,

illumination, water fountains, and other comforting features make up the furnishings.

6. Intersection walkability is a crucial component among the many factors influencing people's walking choices—however, most studies on walkability focus on physical characteristics of continuous sidewalks. Although crossroads are fundamental building blocks of the road network and unavoidably affect pedestrian behaviour, feeling of safety, comfort, and pleasantness of a walking path, but unfortunately, they have been neglected.
7. Personality and value differences may exist across neighbourhoods, and these differences may affect how people rate their own neighbourhoods and the likelihood that they will make close connections with others in their vicinity. Collecting correct information and incorporating it into statistical analysis may solve this problem in the future.
8. This study found that surveillance is needed to control and maintain the public's rights to have accessibility to sea areas and equal distribution of PS and amenities; most private societies control sea access setting certain rules. Therefore, this study strongly suggests that such legislation be implemented in Bahrain.

5.3. Research Limitations

There were limitations to this research which might be addressed in further investigation.

1. The main research limitation is that the data comes from just four case studies. Thus, it cannot be applied to the rest of Bahrain with any degree of certainty.
2. The research had limitations while collecting the data, especially during observation, as observation was conducted during the month of Ramadan; it was challenging to study people's behaviours during the day because of fewer people using the areas; therefore, most of the observations were made in the evening and night.
3. Due to the time constraints, the data was gathered in March and April; the researcher will recommend the observation on the topic at different times in a year to see the impact of weather conditions on human behaviour.
4. Since the research target was investigating the new neighbourhoods, especially in the Muharraq Governorate, it was a challenging task to collect 40 participants.
5. Another research limitation was extracting the emerging themes from rich qualitative data and intensive observations. The researcher had to avoid repetition and that the research objectives are met.
6. The interview questions did not specifically include people with special needs, which is neglected in urban design in the Middle East as discussed in the Literature Review.

5.4. Conclusion

A neighbourhood's social sustainability is crucial to its inhabitants' long-term social life and well-being, and it can be achieved with active pedestrianisation and proper implementation of urban characters. Unfortunately, little thought is given to pedestrians in the design of the new communities in Bahrain (Soliman, 2014). Pedestrianisation should be the primary focus when planning new towns; without it, efforts to implement environmentally friendly technologies would fail (Parhizgar, 2013). The research findings from the four case studies performed in the Muharraq Governorate provide credence that due to the lack of pedestrianisation, the social life of the new neighbourhood is deficient. People are encouraged to employ motorised forms of transportation because distant urban amenities and services are not easily accessible. This study has identified several characteristics indicative of a sustainable neighbourhood, including proximity of shops and services, kids' safety, and inclusivity, having open spaces, and UGS, as well as the accessibility with which residents could get involved in the community and with one another.

Most participants were dissatisfied with the accessibility to sea and green areas in their neighbourhood. This suggests that, despite living on an island and in newly built neighbourhoods, their social rights that are fundamental to social sustainability still need to be improved. Generally, a high degree of discontentment with one's immediate surroundings was observed among participants, as many of them mentioned missing landscape elements in the neighbourhood. Many were also dissatisfied with the design of walkways and cycling racks. Meaning that existing aspects of the environment, such as street lighting, shared public spaces, and UGS, differ from what people anticipate. Most respondents complained about not having outdoor spaces that would attract them to do ODR, which hinders

people from getting to know one another and engaging in networking and community-building activities.

The most apparent drawback of new neighbourhoods is that they are not designed to include all age groups, especially kids are deprived of playgrounds and streets are not safe. This requires rethinking the existing dogma on streets designed for cars rather than humans. In this sense, the social advantages of inclusivity should be thoroughly explored and researched before implementation. Data analysis revealed that increasing privatisation has compromised resources and facilities, public and open spaces, green and blue spaces, and equal distribution of facilities which should have been equal rights of residents. Reducing inequalities and promoting QoL are two social sustainability outcomes, as defined by Chan and Lee (2007). Hence, social engagement in society is required for QoL.

Analysis of data revealed that among various characteristics of the neighbourhood, pedestrianisation is the most crucial character which influences social life and sustainability. It has also been found that in a new neighbourhood this characteristic is not properly implemented, and even if implemented, it is with bare minimum requirements of what is needed. The effect of compromised urban characters is impacting the QoL and most significantly the social rights of the residents. Therefore, new neighbourhood design must be improved by urban character and street design which reduces street dangers for pedestrians, in terms of both speeding vehicles and strangers. Furthermore, frequently using public areas and streets increases familiarity among locals, giving them greater power over their physical surroundings and making it a socially sustainable neighbourhood. It is hoped that more qualitative studies in this area may benefit from the information presented in this research. It is also proposed that future research might include people from other cultural backgrounds to broaden the scope of the study.

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Appendix

Sample Interview Transcription

Participant: PDM1

Location: Diyar Al Muhararaq

Time: 2.00PM - 2.45PM

Date: 12th of March

Researcher: First of all, thank you so much, Miss Fatima, for giving me the time.

Interviewee: You're welcome.

Researcher: I want to ask you do you agree to record the session?

Interviewee: Yeah, sure. All right.

Researcher: Thank you so much. So what were the social characteristics of the neighbourhood when you moved here that attracted you?

Interviewee: Well, to be honest, it's just a new neighbourhood. So basically, nothing 'til a moment. So even for example, the open spaces we had, there are no open spaces in this area, and there are no mosque. So there are no cold stores, no facilities around. So basically nothing.

Researcher: So then why did you move in this neighbourhood?

Interviewee: Well, yeah, because it's just newly built. So And the, I mean, I was just happy with the house size and the, you know, the community. So we just moved in, because they were there were so many promises that these facilities will be built soon, once people move in. And to be honest, they started building the mosque just behind the house. So it was planned to be there. But it wasn't really when we moved in.

Researcher: So, I want to ask you, do you usually go for a walk around the neighbourhood and perform errands by walking, if you can explain?

Interviewee: Well, in three years, I just went once,

Researcher: Why is that?

Interviewee: There are so many reasons why I don't walk though. I'm studying walkability. I've been researching about your walkability now for four years. But I don't feel like walking in the neighbourhoods for so many reasons. Like one of the reasons as the street dogs. That's one of the biggest issues that I am facing, and many others are facing. My husband is one of them, you know, it's dangerous to walk in and suddenly got a group of dogs turning around. Because number one, number two is the looks I get from others who are you know, just standing by their houses. I remember in that walk, I was with my two children. They were looking at me as if I'm an alien, you know? I really didn't like their looks, but I just ignored it. And you know, just continued walking. That's number two. Number three is that there is no way to walk to. I mean, except for exercising, I wouldn't want to walk, you know, just to go around the neighbourhood, but there's nothing to walk to. Third reason is that sorry, the fourth reason is that the I mean, there is no way to stop somewhere to get something like grab any kind of food, you know, something that will or an ice cream, there is nothing to do around so it's just like, okay, you'll have a walk, just exercise and come back home. So, I didn't feel like walking. And I started this was just once and then that's it. Okay. The only thing that's, that's really close to my house is Dragon City. Yeah. I've walked once or twice when the weather was, let's say, okay, pleasant. But then I found difficulties in going to Dragon City though. It's just let's say 200 meters away from where I just live

opposite Dragon City. Okay. Yeah, that's the only thing I have around other than that nothing. So far. Right. Okay.

Researcher: I also want to ask you Do you know your neighbours and how did you first get acquainted with them?

Interviewee: Okay, I just know two or three of them, which I met by coincidence. When I was just, you know, when I was moving in, yeah. They just saw was bringing, you know, the furniture, and they just, you know, stopped and had a quick chat with us. Other than that. No, we, I think we just met once. That's it.

Researcher: by what means do you socialize with your neighbours?

Interviewee: Just by phone just by messages using technology? Yeah, as special occasions like a eid and ramadan something like this.

Researcher: So since we're talking about neighbours, how often do you interact with people on the streets or within the shade public spaces in your neighbourhood that you know, or you have recently become acquainted with or you have become friends with by walking in a certain area or sharing the same space?

Interviewee: I can say, rarely, as I said, we just meet them when we are getting out of the house or coming in, you know, just by a very quick chat or a hunk and then everyone goes in, you know, To be honest, I also tried to meet my neighbour once, but again, wasn't in a place that's around the neighbourhood was just somewhere away outside of the neighbourhood. I think the reason is that we couldn't find something around, or a place to be and around. So yeah, the choice was to meet up somewhere outside the neighbourhood. There are some developed open spaces in the other neighbourhoods in Diyar. Like, I'm living in Deraat al Oyun, and my cousin's living in a al Noor neighbourhood. Yeah, I can see that there is a

big difference in the activities in the social interaction, you know, and many things between this neighbourhood and the other neighbourhood, though, that just, you know, around, maybe, I don't know, half a kilometre away from each other. But there is a big difference between here and there.

Researcher: What kind of social activities would you like to indulge in? And is there any such activities available currently?

Interviewee: No. But last year, okay, there was a very interesting thing that happened and it helped in enhancing the social interaction between people and this is what you know, I sensed from you know, the responses on the WhatsApp group, we had a WhatsApp group that you know, that we're all in a big WhatsApp group that has more than 150 participants. So there was a social activity that happened last year and Ramadan, it was Girgaoon, right. That was the only thing that happened. Other than that, there was nothing else. So the neighbours, you know, we've just organized some activities for the kids and they brought a band, a traditional band, something like that happened and they were walking around, you know, the streets, right, other than that, nothing else happened after that event,

Researcher: So, what kind of activities would you suggest they should have?

Interviewee: Well, I think there are so many things, things that neighbours can do together. It could be like simple community events, like you know, simple festivals or cultural celebrations Eid Girgaoon you know, it could be a sports event, something that they could organize for children and adults, you know, long running thing or you know, cycling. Competition. Yeah, it could be religious or religious events as well. I halka Quran.

It could be some voluntary events. I mean, I've been living in the UK for four years. And I've, I've seen so many people participating and so many

volunteer events in the neighbourhood. So, something like that could happen here. Like, you know, they could arrange something to clean up, for example, the streets or the parks, this is what I was seeing there. Are these kinds of activities, you know, could bring people together and connect them together.

Researcher: Do you believe if spaces provide utilities at walking distance, it will build the habit of walking around?

Interviewee: I think yes or no. Yes. Because, I mean, there are some people who are willing to walk if the facilities were around and in close proximity, especially teenagers, and children. Yeah, no, because I think people went very far with the habit of getting so attached to the car. Yeah, yeah. And you can see that clearly and the traditional neighbourhoods for example, I was living in Hidd for 35 years 34 years of my life in the old Hidd, okay, yet the facilities were so close to me. And I never thought of walking to those facilities. For example, the cold stores just let's say a two minutes' walk from home. I never walked out. So, it depends on how people think. It depends on you know, the culture where you come from. It depends whether you care about how people look at you or not. There are so many factors you know, that would influence Decision.

Researcher: You mentioned about living in head for 25 years and then you move to the now New Hidd and was there any specific reason why you still wanted to live in Muharraq government?

Interviewee: See, we always say that in Arabic people from Muharraq it's like a fish if you going to take out of the water it will die. I don't know, why is this kind of attachment happened but I think I don't know. It's just the social cause? Maybe I don't know. And that was a decision we've made, you know, when we when got married, I was so lucky that my husband is

from Arad. And that was one of the main reasons why I said yes. I always I was always thinking like, I'm not marrying s someone who was living, for example, in Riffa , I didn't want to go out, you know, come out of this. Island. I really wanted to be in a Muharraq always. But I don't know. I mean, I can't. It's just the attachment to the to the land.

Researcher: What are your opinions about the walkways and the cycling tracks in your neighbourhoods? And do you think they are easy to approach and used by the family members?

Interviewee: Well, I'm talking about Diyar. There are so many I mean, around each neighbourhood or around you Around each block, there is a cycle path and there is a walkway relating to those walkways or, I mean, just because my house is located on a corner, to me, it's easy to get there. But it might be I mean, the only difficulty is that when I get out of my house and you know on that way, reaching that walkway could be a bit difficult because I will have to walk in the middle of the street till, I get to the to the walkway. Why because the sidewalks are already occupied by park cars. So that is the only difficulty I have other than that the cycling paths are connected around each block but then if you wanted to take a further ride, okay, then it's another risky thing to do because then you have to cross those bigger two sections. To me, it's a bit risky. I've witnessed more than 10 accidents in the past two years. And it's just because people do not adhere to any traffic lights, they just cross red lights, and they don't care. And I believe the cause of these accidents are the wide roads the wider the streets are, the more welcoming it will be for cars, you know, as they always say, when you build the streets for cars, you'll get more cars, when you build streets for people, you'll get more people as the same concept here. When this when the lane is wide, okay, yeah, that way more comfort to the driver to speed up, unlike when then when the street is narrow, you'll

have to be very careful to your surroundings, right, or your surroundings. So the same concept applies here, the streets are really, really wide, and people speed up don't care.

Researcher: In your neighbourhood, what places attracts you in terms of the design to conduct outdoor activities? And do you utilize them?

Interviewee: Around my neighbourhood, there is nothing but there is just one park in the Diyar, which we can use as a residence, which is again, located far away. So, to get there, I have to get my car and go for a picnic or whatever. I've been there twice. And I just don't feel like going again. It's just because it's too crowded. Number two is that you know, you get everyone going there. And then you know, especially kids, when they go on one of these games, they don't give the chance for others to use it. So, you know, I started getting problems with them. When my children they start fighting. So better not to go away.

Researcher: Do you believe there should be such amenities? Not Central, but according to the neighbourhood you're living in?

Interviewee: I think so it shouldn't be there should be something in each neighbourhood like, you know, a little hub that connects I mean, that people can use this is something that I so I know in noor and sharooq, I think, yeah, I wouldn't see it in my neighbourhood. What I can see so far is that they're just building the mosque and the few shops around the mosque. But other than that, I don't see a park I don't see an open space, it could be in the provision, the design proposal, but till now they haven't built anything. That's why, I mean, we see so many children playing in the streets. on daily basis. I just hear people honking you know, fighting, shouting, no children, because they are just, you know, playing in the street with their football and then suddenly, that driver don't see them don't

recognize that there is someone who's playing and, you know, they just put themselves in danger. So yeah, I want spoke to them to the children. Like why don't you go and move in that area, you know, where they mosque as? And they said, No, it's just a sandy place, there is nowhere to go to and, you know, we might get to heart to because of the little rocks. So this was their answer. I said, Okay, you can play here, but just be very careful.

Researcher: Do you think there are some missing design elements in the current neighbourhood that you believe are necessary for the current neighbourhood?

Interviewee: I think yes. One of them as the shaded areas. There are no shading devices. There are no shaded areas. I mean, because of the width of the street and the height of the buildings. You don't get enough shade. Yeah, that's one. Number two, I mean apart from the sheets that you get from buildings we don't see any shading devices on streets. There are a few benches that are placed I think wrongly around the block Yes. On the edges of the block but they are not shaded. They are surrounded by little shrubs and Blizzard flowers of plantation but that's not enough to shade you know that bench. The other thing is that plantation I mean, the greenery. The neighbourhood looks very, very dull and you know, to deserted so I think plantation and I always wonder why Diyar as a new area, why didn't they integrate greenery within the design of the of the inner streets? I'm not talking about the main streets main streets, they will I mean, even the government, they will beautify it, you know, for people and it is something that you will enjoy while driving. But what about the walkers? What about the pedestrians you want them to enjoy walking in their neighbourhoods and greenery is an essential, you know, factor that will enhance the place and it will welcome more people to walk. Just a little thing I want to add about a plantation, you know, again, people two weeks ago, my neighbours

were complaining that they got fine for planting in front of the doors. Yes, yes. Yeah. Yeah. That was something I was shocked about, you know, instead of encouraging people to, to plan something to you know, increase the green spaces in the in the area, they are finding people for those things. So, which was really strange to me.

Researcher: Do you think the street design and furniture is essential in current modern times? And it can enhance the streets usability? And in what ways you think it will improve the usability?

Interviewee: Yeah, it says important, it says important. There are many things that should be integrated within street design. bus lanes, for example. Yes. cycle lanes, shared spaces, or shared streets, whatever, something that people can use, and cars can use because you cannot stop people of using cars. Okay, it's, it's a fact it's a reality. But you can reduce their use of cars by enhancing the streets. So as I said, the shaded areas, street furniture, some water features, I think those things might enhance the connectivity, having shortcuts and in street designs that are important that that are important aspects of, you know, of how to enhance walkability and things that should be added in any development.

Researcher: Do you believe street furniture is an important character, and it can enhance the streets usability? And in what ways you think it will improve the usability?

Interviewee: I think yes, it's really an important factor and enhancing the usability of open spaces especially to different users. I think most neighbourhoods, lacks proper streetlights, bike racks and you know, some even some trash cans in some places, benches, they are important, quite a one of the main reasons that that walking people or people are walking, based on my experience is the lack of benches. When I met so many people

in Hidd many especially elderly people told me that we want to walk we want to walk especially you know in the morning when the weather is pleasant, but we cannot because there is no place to stop. There is no way to sit somewhere. So, I think that the more you bring in street furniture, and I mean it could bring up more people in the street, but again, the point is not just bringing slick furniture in place should be placed in the right place to be positioned the right place. As I mentioned earlier, there are bench around the block in the yard where I live. But those benches are facing the street. Okay, what kind of scenery I'm seeing when I'm sitting there? Number one, it's again, risky thing to do what? A driver, I mean, a fast driver coming. I stopped, you know, they might hit me Yeah. No matter what kind of scenery I'm seeing, what am I enjoying while sitting? Nothing? Yeah, right. So, and they're always, you know positioned in a parallel way, not in a group way you know how to say you could praise them in any straight line with in which you will be facing nothing. And you can position the benches for example. And groups and the u shape thing. Yeah, that will improve the social life and social connection. Right?

Researcher: What are your views on the level of connectivity of your neighbourhood by walk, by cycling and by car?

Interviewee: We're talking about Diyar is placed on reclaimed islands, the only way that connects with island to the other parts as the highway. So in terms of a street connectivity by using car, that's the only way but in terms of walkability, it's impossible to get to any of the surrounding areas by walking. It's a long way to get there. But talking about the inner streets of the within the block. I think the connectivity is it's okay. It's fair. I mean, I wouldn't say it's bad. It's okay. Yeah. But in terms of you know, being connected to the other surrounding areas, no. As I said, within the block is fine. But when I want to, let's say walk from my neighbourhood to a al

Sherooq, or I know, I wouldn't do it, I wouldn't do it. It's impossible. Again, with the problem of the big intersections and the highways, it's really, really wide. I understand that they've done this, enough to ease the movement of people, especially that this I mean, this island is going to be occupied by so many people and the future, but again, doesn't have walkability doesn't have people to walk around, or to get to their relatives or to their friends, and the surrounding areas.

Researcher: what services amenities and design will be needed to fulfil the residents need in the coming years?

Interviewee: I think I think neighbourhood amenities facilities should be there. Before anyone moves in any neighbourhood. I think this having those facilities available will enhance people people's walkability from day one. This is what they need because other things that I would want to see I mean, more open spaces. more greenery. Maybe better connections to the surrounding neighbourhoods. Some pedestrian bridges maybe Yeah, I think that's it, I think. I think any developers should consider people as a priority when designing any development. If you put people first, you know how to design properly.

Researcher: Do you think that current neighbourhood design is safe and accessible for all age groups? It does provide social rights such as safety accessibility plantations sitting near the sea area.

Interviewee: I don't think it's safe for everyone to use, especially children. I've just mentioned the incidents that are happening around. It could be a bit safe for adults, because they are aware of what's happening around, but not to children. To woman, I think it's fine. But again, since there is nothing that attracts them to walk, I don't think anyone will get out of their homes

to walk around, especially with the problem of street dogs and you know, the cultural issues. I think that's it. Yeah.

Researcher: And what about your social rights, such as plantation and sitting near the sea area?

Interviewee: I think the only way to get to the sea in Diyar is you can just see the sea, I mean, not to get to the sea and touch the water. That's, I mean, the only way to see the sea from Diyar is when I'm getting out of Dragon and taking one of those side streets to get out of the diyar. Other than that, I think the other parts of the sea are privatized, they've been sold to another project, and there is no access to this. See, okay. Yeah, the only one is, is just accessed by eyesight.

Researcher: Do you think accessibility so to social gatherings and interaction in your neighbourhood should be enhanced? And how?

Interviewee: I think yes, it's really important to, you know, to enhance the social connection, through social activities, as I said, could start from the, you know, from children's activities. Kids would be more attracted to come to those activities. And once they come, they will just, you know, bring their parents with them. And then when the parties meet, they would start knowing each other and, you know, introducing themselves to each other. I think that's, that's a good way to start, you know, enhancing the social life in any neighbourhood. Another way is that, you know, you start having those little food outlets or whatever, little coffee shops, these are another thing people get attracted to food places. So that could be an idea. Yeah. There is one thing that I just known about it, I think Sherooq or in Noor are the solution or no, I don't remember. It's schools, the space of Bahrain trust foundation. Yeah. Yeah. They have organizing events at certain event. It's something that's I don't know, what they call it exactly. But it's a lot. That's

a centre where they have these kinds of activities for children. You know, like crafts and paintings and things like that. So, they've rented one of the shops or outlets in showrooms or not. And they are organizing those events for the neighbourhood's children. That's so that's a really nice thing if they continue doing that in different neighbourhoods and the I don't think that will bring up people more together.

Researcher: Is there you would like to add?

Interviewee: Again, it's a shocking thing to me. I don't know if you want to add that to you. Yeah, it's about the concept of working concept of paying to walk. That's a really strange thing that I've been, you know, reading about lately. The government is encouraging people to walk and it's raising, you know, so many slogan campaigns like this 2030 vision you know, show that was sustained. Ability and we can have sustainable communities. And one of the ways to sustain a community is to encourage people to walk and you know, let's use the cars. Yes. And then at the same time I mean, at the same time, what do they do they impose some fees on those walkways. Number one, I'm not convinced with the idea of the walking trails. Because, again, you're encouraging people to try to walk. They drive to walk so funny. Yeah, it is really funny. You should open up your door, and then start talking with joy in your neighbourhood not drive to walk. Yeah. Number two is that you know, you're imposing some fees on that. And you're making it more difficult for people to walk. People wouldn't want to pay 300 fills every day to walk? Yeah, yeah. So why are you charging them? It should be a social right for it should be my social, right as a part of this society or as a part of human. It's one of the very basic simplest traits that people should have. So the issue is not to number one, not to encourage people to drive to work number two, is thing for people. And I always say that I mean, walkability enhancing communities should start

from the Enter streets, outside towards outside at Sun the other way around. Our streets are our main roads are really nice and beautiful and really well organized and really, you know, green. Many things that didn't get addressed once, especially when I had visitors coming from other countries Kuwait, Saudi, okay, they really get impressed with the, with the main roads, but then, deep inside me, I know the reality of the neighbourhood, right? It's not like that. It shouldn't be the other way around. The government should start thinking from you know, from the other side, it should be from the neighbourhood towards outside from outside of the neglect or ignore what's happening inside.

Researcher: That's a very good insight, miss. Thank you so much.

الملخص

تعد الاستدامة الاجتماعية للحي أمراً بالغ الأهمية لخدمة سكانه، ويمكن تحقيق ذلك من خلال تخصيص الطرق المناسبة للمشاة وتنفيذ الخصائص المعمارية المناسبة للحي. في حين أنه من القليل من الدراسات قد ركزت على المشاة في المدن، إلا أنه من الضروري إجراء المزيد من الدراسات في الأحياء بغرض فهم العلاقة جيداً. يهدف هذه البحث إلى دراسة العلاقة بين الاستدامة الاجتماعية والمنطقة المخصصة للمشاة في الأحياء المطورة حديثاً في البحرين، مع التركيز على العلاقة بين سمات التصميم الحضري والحياة الاجتماعية للأفراد داخل الأحياء. تم استخدام المنهجية النوعية مع دراسات حالات مختلفة للأحياء السكنية بالإضافة إلى المقابلات مع الأفراد والملاحظة كتقنيات لجمع البيانات. تم اختيار أربع مناطق مختلفة للدراسة من محافظة المحرق، وتم إجراء 40 مقابلة مع أفراد من هذه المناطق لفهم العلاقة بين الحي والسكان بشكل أكبر.

أشارت الدراسة إلى أن المنطقة المخصصة للمشاة هي سمة الحي الأكثر أهمية التي تؤثر على الاستدامة الاجتماعية لأفراده. وأظهرت النتائج أن منطقة المشاة لم يتم تصميمها ونفذها بشكل جيد في منطقة الدراسة المختارة لهذا البحث. وإن التصميم الحالي لمنطقة المشاة وللشارع يسهل مرور السيارات فقط ولا يسهل التنقل للمشاة والذي بدوره ينعكس على سهولة التنقل مشياً وعلى عمق تواصل سكان الحي في الشارع. تظهر النتائج أيضاً أن التصميم السيئ في البنية التحتية الاجتماعية يؤثر على إمكانية التنقل بالمشي في الحي. علاوة على ذلك، يوضح البحث العلاقة بين القرب في المساحات وسهولة الوصول إلى البنية التحتية الاجتماعية للذات قد يسهلان أيضاً الوصول للمنطقة المخصصة للمشاة وعمق التواصل الاجتماعي للأفراد. كما لوحظ نقص في المساحات الخضراء الحضرية في مناطق الدراسة مما أثر على نوعية الحياة وحيوية الشارع. أظهرت النتائج أن تصميم الأحياء مع مفهوم التخطيط الخطي الأساسي قد خلق شعوراً

بالعزلة وأثر على حركة المشاة للأفراد القاطنين في الأحياء وايضا في أداء المهمات الأساسية عندما تكون سيرا على الأقدام.

ويقترح البحث إجراء دراسة للربط بين الأحياء القديمة والجديدة وتحديد أوجه القصور في التصميم. وتوصي الدراسة بدمج السمات الاجتماعية للحي كطابع عمراني أساسي لتحقيق مجتمعات مستدامة اجتماعيا. التوصية الأكثر أهمية لهذه الدراسة هي ضمان حقوق الافراد في إمكانية وسهولة الوصول داخل الأماكن العامة المشتركة للأحياء والاعتراف بالمساحات الخضراء الحضرية كعلاج محتمل لمختلف القضايا الحضرية، مثل خلق حياة ذات نوعية جيدة ، وسهولة المشي، وقابلية التواصل في الشوارع الحيوية.

جامعة البحرين



دراسة نوعية للاستدامة الاجتماعية في الأحياء البحرينية الجديدة

رسالة مقدمة لاستكمال متطلبات درجة الماجستير في العمارة (التصميم الحضري).

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