

## Determining Design Criteria For Re-Connecting Muharraq City With The Waterfront



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**Abstract:** This paper focuses on the design considerations for city open space projects, especially those near waterfront projects. In this perspective, the objective is to discuss the expertise involved in dealing with the Sa'ada project Phase 2, which aims to establish a sustainable connection to the nearby waterfront projects via proposing an innovative concept of a pedestrian bridge connecting the adjacent Plaza in Muharraq City, Bahrain, to the nearby waterfront. The research methodology is qualitative analysis. Moreover, conducting focus group discussions with specialists will guide the research to embody Muharraq's heritage features, practical solutions for an innovative, sustainable pedestrian bridge and plaza, and foster the social uses of Muharraq's residents and tourists are critical points of discussion. The study provides design strategies for integrating regional identity with modern city development. Its findings can offer important implications for future urban development initiatives to vitalize urban areas design projects.

**Keywords:** Muharraq, Walkability, Commercial streets, Waterfront, Focus Group, Urban development.

### Muharraq Şehrini Sahil Kenarıyla Tekrar Bağlamak İçin Tasarım Kriterlerinin Belirlenmesi

**Özet:** Bu makale, özellikle kıyı şeridi projelerine yakın olanlar olmak üzere, şehir açık alan projelerinin tasarım değerlendirmelerine odaklanmaktadır. Bu perspektifte, amaç, Bahreyn Muharrak Şehri'ndeki bitişik Plaza'yı yakındaki kıyı şeridine bağlayan yenilikçi bir yaya köprüsü konsepti önererek yakındaki kıyı şeridi projeleriyle sürdürülebilir bir bağlantı kurmayı amaçlayan Sa'ada projesi Aşama 2 ile ilgili uzmanlığı tartışmaktır. Araştırma metodolojisi nitel analizdir. Dahası, uzmanlarla odak grup tartışmaları yürütmek, araştırmayı Muharrak'ın miras özelliklerini somutlaştırmaya, yenilikçi, sürdürülebilir bir yaya köprüsü ve meydanı için pratik çözümlere ve Muharrak sakinlerinin ve turistlerinin sosyal kullanımlarını teşvik etmeye yönlendirecektir. Çalışma, bölgesel kimliği modern şehir gelişimiyle bütünleştirmek için tasarım stratejileri sunmaktadır. Bulguları, kentsel alanları canlandırmak için gelecekteki kentsel gelişim girişimleri için önemli çıkarımlar sunabilir.

**Anahtar kelimeler:** Muharrak, Yürünebilirlik, Ticari sokaklar, Kıyı şeridi, Odak Grup, Kentsel gelişim

### 1. INTRODUCTION

The Sa'ada Phase 2 is one of the new urban development plans for building a proper connection between the island of Muharraq and the sea. Muharraq is historically one of the oldest cities in Bahrain, and its urban fabric is distinctive for its cultural and historic attributes that have increasingly overloaded the traditional island trade and architectural identity [1]. Nevertheless, urban growth and transformation, as well as social and infrastructure development, including the construction of a major highway, have erased the links to the seashore and have housed barriers, both physically and metaphorically, between the historical core of the city and the waterfront. Understanding this need, the Sa'ada Phase 2 proposed plan includes a pedestrian

bridge and plaza with the intention of connecting the old city to Sa'ada Phase 1 located right across the highway at the waterfront. Its provision is aimed to contribute to building linkages, and, notably, the cultural identity of today's urban spaces in the framework of contemporary architecture and design.

The aim of this paper is to explore and analyze the design factors that would be directed at boosting the success rate of Sa'ada Phase 2 and thus revitalize the area. In general, this research seeks to discover the principles, design solutions, and qualitative characteristics in which the conceptual design of the pedestrian bridge and the plaza may express the Muharraq historical identity and at the same time fulfill the social and functional requirements in a new urban context. It also becomes important to find a balance between the need to retain the historic character of the area and the requirement for designing a walkable pedestrian environment of contemporary global standards in terms of comfort and safety [2]. To determine these requirements and challenges, a focus group method is carried out with stakeholders such as Academics, architects, urban planners, and cultural specialists. This cooperative process ensures that a common understanding of the design is developed through which potential design solutions can be explored, which take into account the respective cultural aspects and at the same time are functional.

The project's contribution was also studied using the method of SWOT analysis, of which the cumulative outcomes of urban connectivity were determined. The study reveals how the project would succeed and where potential risks lie by addressing social, economic, and environmental issues. The article mentions that master plan and urban design are among the issues that contribute to and hereby can play a role in the becoming of a more livable Muharraq in the perspective of a sustainable and climate-resilient future. The data from the study will enable the Bahrain government to redesign urban areas as well as other places under similar conditions in the future.

The following are the research questions this study poses:

- a. What are the most important design factors to take into account when designing a plaza and a pedestrian bridge to link Muharraq's waterfront with its historic urban core?
- b. What attributes and challenges are to be considered to make this project active and well-connected physically and visually with the surroundings and the waterfront?
- c. What are the characteristics of the proposed site that would make it a successful project?

By answering these questions, the study aims to offer a systematic analysis of how urban design can be utilized to enhance the connection between the past and the current architecture of Muharraq city. In this respect, the study is particularly concerned with designing a public space within Muharraq taking into consideration its culture and respective architecture with an appreciation of contemporary design standards of such spaces. The information gathered from the focus group discussions will be used in the creation of guidelines for design approach that will provide continuity in matters concerning aesthetics and architectural language in the face of modernity hence boosting up the Sa'ada Phase 2 project as a visionary development of a public hub connecting to waterfront in Bahrain and other heritage urban contexts. The research structure is shown in Figure 1. In general, this paper joins others in expanding the discussion of place-making in an urban context, highlighting the value of participatory approaches in shaping public spaces that honor the past while looking toward the future.

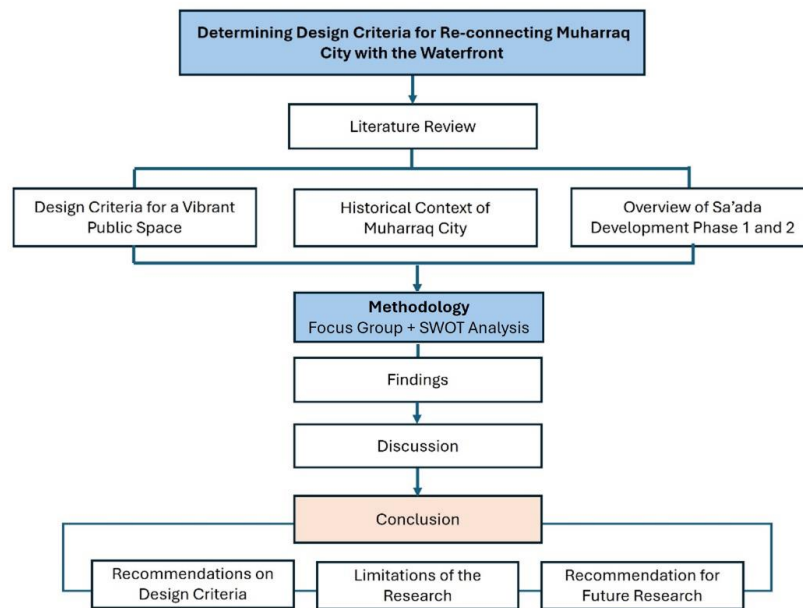


Figure 1. Research Structure (Developed by authors)

## 2. LITERATURE REVIEW

### 2.1. Design Criteria for a Vibrant Public Space

There has been a great acknowledgement of urban vibrancy from studies on emerging urban areas, attributing it to enhanced business activities and lots of social activities in the metropolitan areas [3]. This is provided in residential areas, commercial areas, historical and cultural sites, and recent thematic parks, among others. If these categories are not well-designed considering social interactions and cohesiveness across different societies, then their sustainability issue might be at stake.

Public space is an essential component, given that it makes cities sustainable and friendly for their inhabitants because that is where they interact. They also promote business, leisure, tourism, and numerous other uses [4]. While there has been continuing concern about studying the ways in which public spaces are employed, they recognize the threads of the urban texture. Nevertheless, the researchers in the field have always tried to guide the design through guidelines which direct them to quantify & qualify the properties of public space. Classical urban design texts like [5], [6], and [7] outline methodical analyses of varying degrees of vibrancy in urban public areas from the standpoint of social use, as well as how these relate to specific traits and architectural elements of these areas. Lynch stated his perception of comprehending the city space in his book titled “The Image of the City,” published in 1960. He divided the understanding of the built environment into five components which include Paths, Districts, Edge, Landmarks, and Nodes, as explained. Knowledge of these elements helps urban planners in creating pleasing, easier-to-navigate cities. More comprehensive models have recently been proposed to quantify, assess, and score public space qualities. [8] created a public space index based on 45 distinct characteristics in order to assess the quality of public space from five perspectives—inclusion, meaningful activities, comfort, safety, and pleasure. Some research focuses on how a small number of easily quantifiable factors affect human activity in public areas, such as entrances and the length of the street [9]. Using a variety of descriptors and indicators, including accessibility, ownership, inclusiveness, and management, [10] assessed public space according to the notion of publicity.

Historic zones keep the city's past and significantly reshape the present townscape [11]. However, the design and planning changes due to growing globalization have become a threat to the physical-aesthetic locales of towns all over the world [12]. It is difficult to conceptualize location as a notion without considering the issue of historical characteristics. This is because "place" is attached to "them being portrayed socially, physically, and in minds" [13]. The act of adorning a location's physical fabric, which forms the foundation of a successful social space, is known as "place-making" in the context of urban design [14].

According to [5], the main components of urban vitality are the necessity of small blocks, older buildings, people, and primary mixed-use [5]. In order to maintain, renew, or advance a lively urban life in large cities, Jacobs demonstrated that diversity is necessary at both the neighborhood and street levels in the physical environment. According to [15], Jacobs understands cities as places where the public is used as a meeting point, the streets are designed for pedestrians, and there are buildings with multiple functions that can facilitate many of the users' needs. While [16] found that there are four essentials from the perspective of diversity: land uses, compacted blocks, historically significant buildings, and higher building densities should all be present in physically diverse environments.

### 2.2. Historical Context of Muharraq City

Muharraq, which was previously a thriving center for natural pearls in the region which boosted the country's economy, making it the economic capital of the country. The intimate relationship that exists between Muharraq City and the waterfront was elaborated upon. Beginning with the name Bahrain, which refers to the country's undersea freshwater springs as well as its salty waters. The Arabic translation of the word means "two seas". Pearl harvesting has been a vital source of income for every segment of the economy since the beginning of the twentieth century, including creditors, merchants, brokers, suppliers, sailors, crew members, boat owners, and builders [17]. However, the pearling industry was affected negatively when cultured pearls started becoming popular in the 1930s, and at the same time the oil was discovered in Bahrain. Accordingly, Manama became the capital [18]. stated that this then led to homes being rented out to the expatriates and foreign laborers.

Muharraq's close relationship with the sea was broken when land was reclaimed (Figure 2). Most of Muharraq City's streets still have the same layout as they had during the Pearling era, despite a significant amount of new development. These alleyways are characterized by a network of tiny, frequently attractive passageways [19]. Muharraq's spirit was brought back to life when Sheikha Mai Al Khalifa's grandfather's ancient home was converted into the Sheikh Ebrahim Al Khalifa Centre for Culture and Research in early 2000s, hoping to revive Muharraq's cultural life, which had drastically fallen since the pearling industry's collapse [20].

A newly built tourist center on the seashore, three preserved oyster beds, and a maintained Bu Mahir fort are all part of the project, which involves the preservation and reconstruction of various man-made and natural features associated with the pearling trade. These structures are all interconnected along a unique trail known as the "Pearling Path," which tells the story of pearling and runs from the last coastline of Muharraq into the inland area. From the reclaimed area, a newly built pedestrian bridge (Figure 3a) leads to the old Muharraq, where a number of traditional buildings (Figure 3b) underwent restoration and rehabilitation [21].



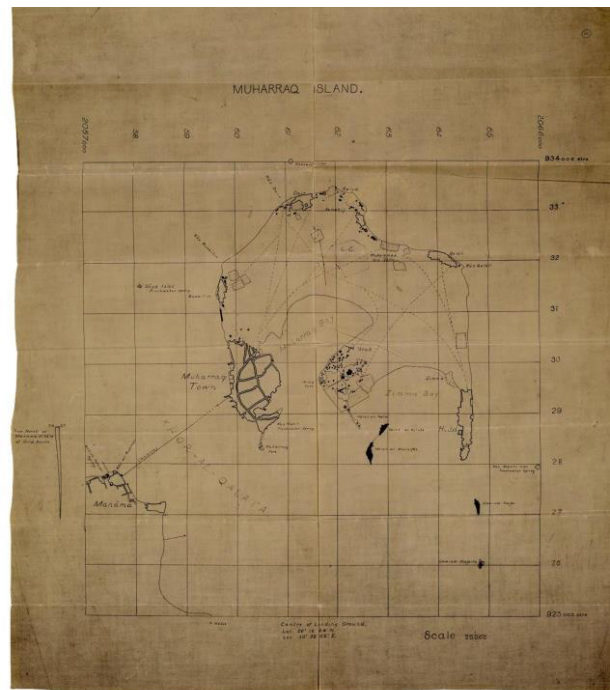


Figure 2. Old map of Muharraq City, Bahrain [21].



Figure 3a. Pedestrian bridge leading to old Muharraq historic sites (Source: By Authors)

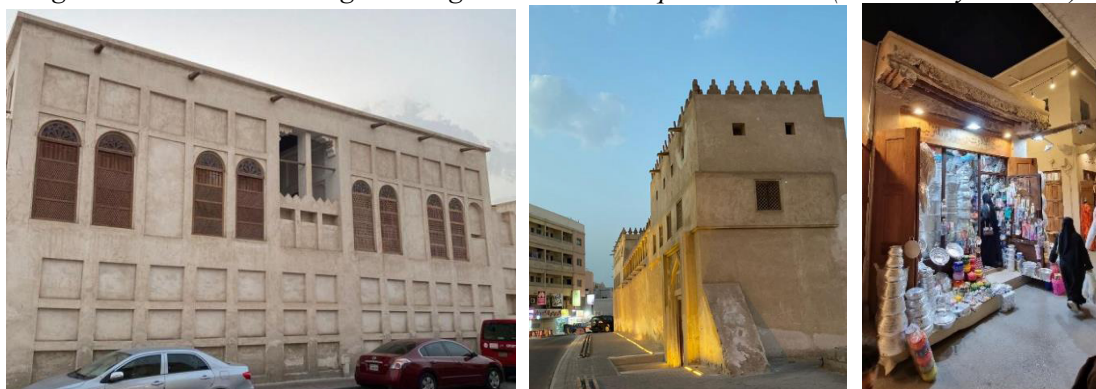


Figure 3b. Traditional buildings and market (Souq) in Muharraq (Source: By Authors)

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The Pearling Path (Figure 4) was given the 2019 Aga Khan Award for its design, which was honored for the storytelling element through the use of the various themed components and the metaphor of the pearl in every part [22]. Many who had written before of their longing for older times and positive transformation showered local newspapers with expressions of gratitude for the project's accomplishment [23]. Reviving the local markets and people's culture and lifestyle are part of urban development, according to [24].

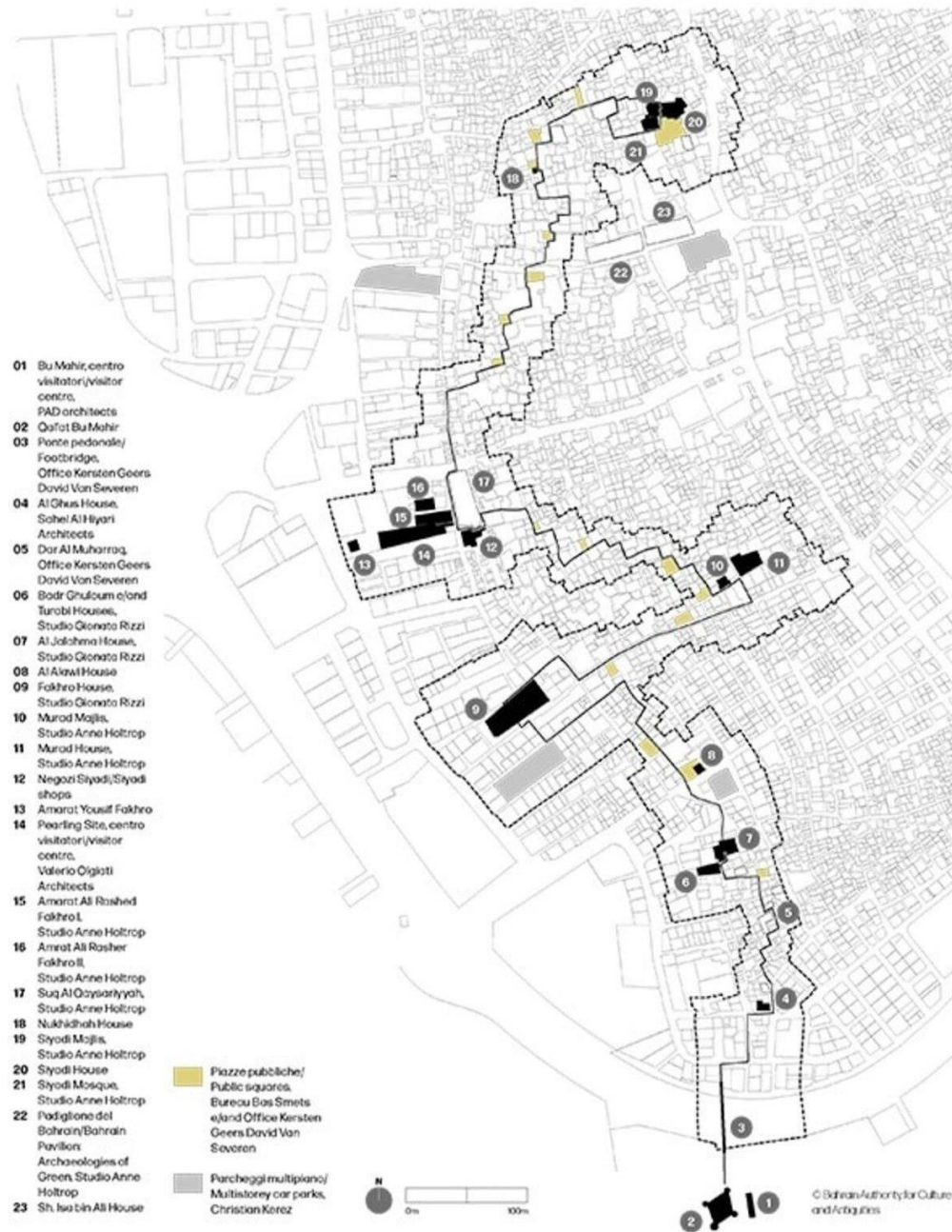


Figure 4. The Pearling Path Map at Muharraq city, Bahrain [7]

### 2.3. Overview of Sa'ada Development Phase 1 and 2

The Sa'ada waterfront development, situated in Muharraq, the first phase of which has been completed, and the second is expected to start, is one of the most prestigious projects in Bahrain. The Sa'ada project leads mixed-use development with an organic urban structure that covers the area with open places and buildings. The project studies the use of a linking approach to connect the Muharraq Souq and the old part of the city to the waterfront. The general design directs the urban image that is environmentally sustainable, including an aesthetically and functionally friendly space that is both peaceful and safe. The project's development goal is to develop a tourist attraction that offers seafront access to the historic core of Muharraq (Figure 5). The site is situated in the northeast of Bahrain, in the Muharraq neighborhood near the Sheikh Hamed Causeway, Al Ghous, and the Khalifa Al Kabeer highway interchange on both the east and west sides of the road. The plaza is located at a prime spot between the two main islands of the Kingdom. The existing F&B components of the project have an impact on the social and economic aspects of the area. The project is recognized for being an attraction due to its strategic location in Muharraq and connections with other developments.

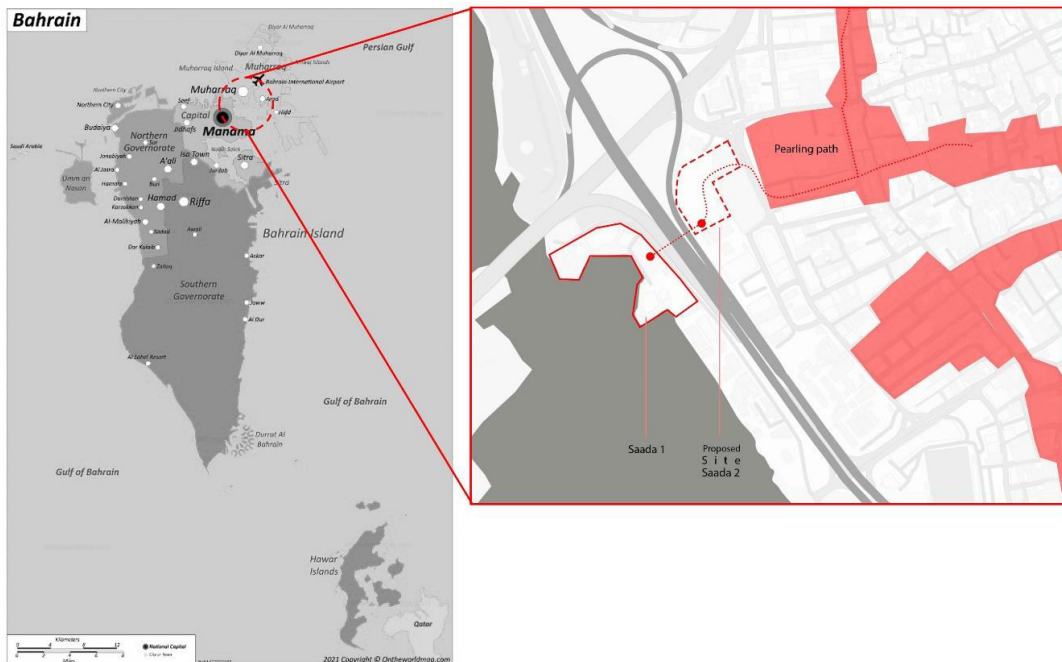


Figure 5. Sa'ada Waterfront Development – Phase 1 & 2 site location in reference to the Pearling Path.  
(edited By Authors)

Two main elements that link the past and present in Sa'ada Phase 1 mixed-use waterfront development concept are the combined image of the old souq in Muharraq and the Manama cityscape. The whole image of the diverse inspirational local architecture makes the development strive to be different and unique. Phase 1 of the project covers an area of 18,066 square meters which consists of 34 commercial units, including restaurants, retail, and entertainment venues. There are also 200 parking spaces and 36 marina bays [25]. Sa'ada's second phase is focused on three main goals: creating a development that will be profitable, bringing a marina center to the area, and—above all—creating a connection to the old side of Muharraq as a continuation of the Pearling Path project. The new phase links the first phase with Muharraq's Old Souk. The main component required for the second phase is a pedestrian bridge that connects the project's two segments.



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Parking is a problem for Muharraq Souq as well as Sa'ada's first phase. Therefore, the project's second phase, with an area of over 11,223 square meters (Figure 6), is set to enhance the location by including a multi-storey car park building, F&B outlets, retail and service shops, and open plazas. In addition to revitalizing the historic bus station and renovating the post office.



Figure 6. Sa'ada Waterfront Development – Phase 2 site location [edited by Authors]

## 3. MATERIAL AND METHODS

### 3.1. Focus Group

To ensure that the design criteria for the Sa'ada Phase 2 project received robust evaluation from various users, the Focus Group method was adopted as the qualitative research method in this study. Since focus groups are an excellent method for studying complex and nuanced topics, it is excellent for understanding how different members of the community and experts see the design of a public space that reconnects Muharraq to its waterfront. Using focus groups is a perfect technique to engage stakeholders within a group discussion forum where participants contribute their thoughts and also respond to other participants' views, in addition to exploring in more detail subjects in urban design studies, particularly those regarding culturally sensitive projects [25]. Academics, architects, urban planners, heritage specialists, and project developers are among the many stakeholders involved in the focus group discussion about Sa'ada Phase 2 project (Table 1), and each one offers unique insights into the cultural, functional, and aesthetic elements that are essential for the plaza and pedestrian bridge.

Table 1 . Focus Group Participants

	Name	Position
1	Prof. Islam Elghonaimy	Professor, Coordinator of Postgraduate programs – UOB
2	Dr. Souheil El Masri	Director, Architectural Design - Gulf House Engineering
3	Mr. Ahmed Arafa	Senior Design Manager – Gulf House Engineering
4	Mr. Haider Alnoaimi	Associate Director Operation – Architect - MSCEB
5	Prof. John Pierre El Asmar	PhD, DArch – Academic Vice President – Royal University for Women
6	Mr. Abdullah Isa Qudrat	Business Development Director - Amakin
7	Dr. Fatima Al Hammadi	Assistant Professor – Coordinator of Landscape Architecture Program - UOB
8	Sara Fareed Hussaini	Architect - BACA
9	Fatima Al Hayki	Architect - BACA
10	Ms. Afaf Ebrahim	PhD. Candidate - UOB
11	Mr. Isa Jalal	Business Development Officer - Amakin

After setting the date and time with all the invites, the focus group members confirmed their participation by email. A total of 11 members participated in a discussion that took approximately 1 hour and 30 minutes, excluding the introduction and closing of the session (Figure 7).



*Figure 7. Focus Group Discussion (By authors)*

This approach gives a proper understanding of stakeholders' needs to be met and issues that they hold while designing a public domain that needs to fulfill a balance between the historical importance of the area in today's functionality of a city. Unlike structured interviews, surveys, and exclusive interviews, this facilitates discourses that involve discussions that put into contemplation which are likely to lead to ideas that would not be suggested when in solitary. The other characteristic of focus groups is that they align with the project's aim as they seek to promote the activation of the community and ownership of the communal space. In addition, this approach allows for expressing opinions and presenting conflicting viewpoints, which the study can then shape to address a broad scope of real-world issues. Besides enhancing our understanding of specific design requirements, this technique also helps us to understand the values and expectations of the upcoming space users, thereby resulting in cultural and more community-oriented design criteria.

### **3.2. SWOT Analysis of 2<sup>nd</sup> Phase of Sa'ada Project**

An Interview was conducted with one of the top management team to participate in the SWOT analysis [26]. As one of the key stakeholders in the project, Mr. R. H the head of asset management at Edamah, the Bahrain Real Estate Investment Company, which is the leading property developer in the kingdom. He was interviewed to gain the perspective of experts and to consider important information regarding the factors and dimensions mentioned, which will help in the decision-making considerations of the aspect that would determine the new project's phase. The SWOT analysis for the second phase of the Sa'ada waterfront development project based on the literature review and the interview with the developer, is outlined in Table 2:



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Table 2. Criteria and dimensions of SWOT Analysis of 2<sup>nd</sup> phase of Sa'ada Project (by Author)

No	Factor	Element	Description	Results and conclusion of studying the second phase of Sa'ada project	Results and conclusion of studying the second phase of Sa'ada project	Results and conclusion of studying the second phase of Sa'ada project	Results and conclusion of studying the second phase of Sa'ada project
				Strengths	Strengths	Strengths	Strengths
1	<b>Economic</b>	a. Government Support (Developer – Top Management)	In terms of funding, regulations and policies	Transferring land ownership to Edamah			Delays in approvals might affect the project timeline
		b. Cost of construction (Developer-finance team)	Affordability of the project, availability of capital		High cost of construction – find an investor		
		c. Shifts of trends & Market change (Developer-Sales team)	Market stability, change of trends, commercial demands. Global economic downturn.				Impact on the capital expenditure cost, rental rates. This might affect the choice of tenants.
		d. Purchasing Power (Developer-Marketing team)	The purchasing power of customers and the demand of commercial brands				Low purchasing power affects the commercial viability of the project
		e. Investment opportunities (Developer-Investment team)	Collaboration with local businesses and international investors			Additional resources of funding and financial stability	Gentrification and over-commercialization
		f. Financial Status (Developer-finance + Sales team)	Success of first phase outcome and readiness financially for the 2 <sup>nd</sup> phase	The successful outcome of 1 <sup>st</sup> phase with 80% occupancy leads to a strong financial status to start the new phase			

2	<b>Environmental</b>	a. Location (Consultant + Physical Planning Directorate)	Accessibility, proximity to the surrounding features, orientation	Connection between the old Muharraq and the waterfront area	Limited to Muharraq area. Exposed to south orientation. Dense traffic with lack of parking spaces.	Tourists' attraction due to the link with the old souq and heritage areas.	
		b. Architectural Design and spatial layout (Consultant – Main architects)	Functional relationships between the facilities and ease of circulation pattern in the spatial layout	Innovative architectural elements increase the aesthetic appeal of the project	Limited circulation pattern in the spatial layout restricts the connections with the waterfront.		
		c. Sustainable solutions (Consultant – Main architects+ Engineers)	Integration of sustainable solutions in the design			Demand of sustainable solutions due to the orientation of the site facing the south	
		d. Components & features (Developer – project development team + Consultant – Main architects)	Fulfilling the needs of providing important components and facilities	Providing the features and facilities required for the area. Especially the carpark building.			
		e. Infrastructure (Ministry of Works + Consultant)	Provision of well-developed infrastructure in the area	Availability of well-developed infrastructure to receive the new phase of the project			
		f. Smart and technological systems (Consultant – Main architects+ Engineers)	Use of latest technologies in construction and operation of project.			Enhancing the facilities with the integration of smart solutions in operating the car park building	

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3	Social	a. Demand (Developer – project development & Investment team)	Responding to the demand of users and visitors. The need for the project	Increasing demand for phase 2 supports the initiation of the project			
		b. Social Interaction (Developer - Marketing team)	Facilities encouraging social attractiveness and interaction on site			Potential spaces to encourage social participation and interaction	
		c. Convenience (Consultant – Main architects+ Engineers)	Ease of accessibility, inclusive design, and comfort measures.	Easily accessed and inclusive design of site make the site more livable			
		d. Cultural aspects (Consultant – Main architects+ BACA)	Identity of place and cultural and history connection	Strong Identity and sense of place and cultural connection with heritage areas			
		e. Competition (Developer - Marketing team)	Emergence of other competitive projects				bigger scale projects such as Qalali waterfront project, the Wharf and the Park can attract visitors away from the site.
		f. Security & Safety aspects (Consultant – Main architects+ Engineers)	Provision of safe and protected spaces to give sense of security.			Well-designed spatial layout and integration of technology can enhance the sense of security.	

#### 4. RESULTS

The key findings from the focus group discussions for the Sa'ada Phase 2 project reveal critical design criteria and challenges that need to be considered to ensure the project's success in reconnecting Muharraq's historic core with the waterfront. These findings are categorized as follows:

##### *Cultural Sensitivity and identity of the place*

There was a strong debate about using design features that reflect the cultural characteristics of Muharraq. According to the participants, this element should embody the traditional language of architecture and continuity with the place in terms of spatial configurations, construction material and typologies, the built environment typical of the historical cores, and the modernity of the new emerging constructions of the project area. They proposed the objectives to use features of modern forms that refer to the historical past of Muharraq's identity, making the space as natural as possible, and recalling the historic days of the city.

##### *Accessibility and Inclusivity*

During the discussion, the participants paid great attention to the question of accessibility and inclusiveness of the design. they recommended that the design should be friendly to wheelchair and pushchair users, those with impaired mobility, the elderly, and children by having ramps, handrails and slip-flooring, adequate seating, and shading; Information and signage should be in different languages for easy wayfinding and that the safety of pedestrians should be of utmost importance, however, sufficient carpark and services to be provided to compensate the lack of these provisions in the area.

##### *Pedestrian Safety and Traffic Integration*

The group also expressed safety concerns about linking the pedestrian bridge with the heavily busy highway between Sa'ada Phases 1 and 2. Some proposals were for the distinction of the roads used by pedestrians from other vehicles installation of cross signals or manage traffic efficiently. One of the participants suggested that the plaza be built at a higher level above the vehicle accesses. Such steps were considered necessary in order to avoid mishaps and guarantee users a smooth walkable experience.

##### *Environmental and Climate Consideration*

The Participants highlighted the necessity of climate-appropriate architectural design since a hot climate characterizes Bahrain. These included providing walkways with shades, constructing seating arrangements to shade them, and appropriately using materials during hot weather. Greenery was noted as having potential for cooling through improving microclimate as well as water features and the technology of outdoor cooling systems was proposed for both cooling and aesthetics to make the environment attractive and comfortable.

##### *Functional and Socially Active Plaza*

All the focus group participants agreed that the plaza should be filled with various social and cultural activities due to the absence of such places in the area. In order to make the plaza act as a social and cultural place where various activities would be organized to attract the residents as well as the tourists, it was suggested that well-maintained public toilets, public amenities, flexible furniture, art exhibitions, and cultural events, as well as social performances or market space, can be provided and organized in the space with the intention of improving the vitality of this area [17].

##### *Connection with the Waterfront*

To reconnect Muharraq with the sea, which has been an element of its identity and historical economy, participants suggested that the bridge should be designed with overlooks allowing people to look at the city and the sea. The importance of maintaining open access to the waterfront was highlighted in terms of physical and visual contact.

### 5. DISCUSSIONS

The focus group discussion findings for Sa'ada Phase 2 project highlight essential design criteria and challenges that align well with insights from existing literature on urban design in culturally significant and waterfront contexts (Figure 8). Particularly in heritage-rich cities locations, the literature analysis and focus group results emphasize the significance of environmental adaptation, inclusive accessibility, and culturally sensitive design. However, Muharraq's climate, urban difficulties, and historic fabric make it necessary to modify these general principles in particular ways. The implementation of successful, culturally sensitive solutions to the project's main design difficulties is made possible by comparing focus group results with existing literature.

Literature extensively stresses the necessity of preserving cultural identity in planning and design, especially in areas of cultural importance. According to [28] and [29] the design of public spaces in heritage areas must respect the place's local context, architectural typology, and history, which helps foster a sense of belonging among residents. The importance of the project in reflecting Muharraq's architectural identity was also emphasized by focus group participants, who offered inspiration from the traditional architectural language of Muharraq city, considering elements, materials, and spatial configuration. This aligns with the approach used in Al Seef and Dubai Creek Development of Dubai, United Arab Emirates, which uses modern and traditional architectural language. The work was completed in 2018 and respects the old Creek area of Dubai with a public pedestrian zone, commercial, and cultural points of interest. The place was designed to resemble Dubai's old, restored Al Fahidi district with stone buildings, wind towers, and narrow shaded alleys. The Al Seef project reflects traditional Emirati architecture while seamlessly integrating into a modern part of the city that represents its development. Both aspects of blending old with new are made to interconnect and meet the needs and expectations of both local people and tourists, focusing on Dubai's cultural and modern profile [30]. For Sa'ada Phase 2, it might be possible to represent Muharraq's heritage without producing an imitative look by utilizing architectural elements, a traditional spatial layout, and historical references, ensuring the area seems incorporated rather than forced into its surroundings.

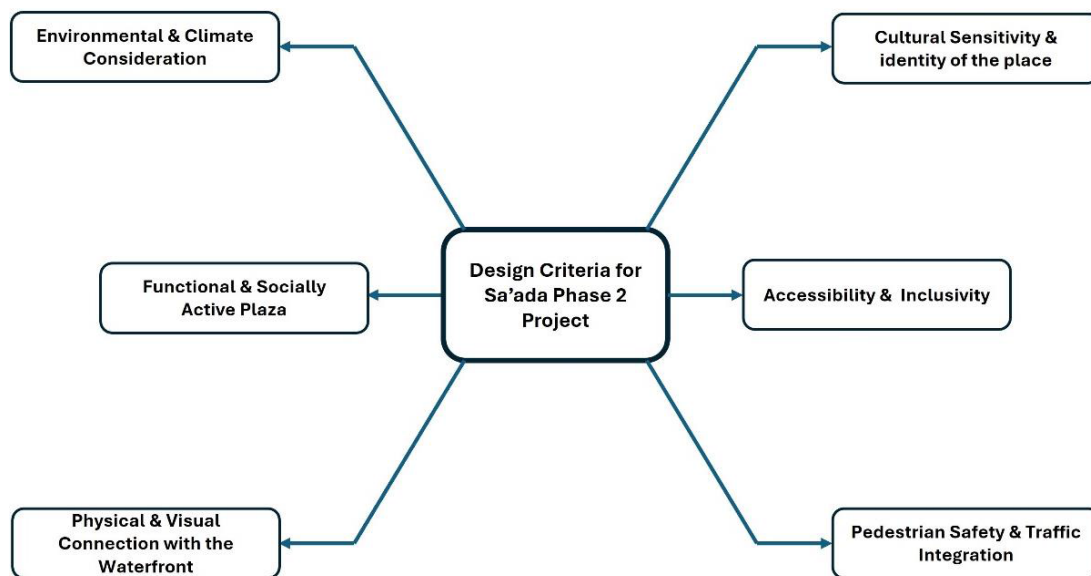


Figure 8. Design Criteria for Sa'ada Phase 2 Project as Suggested in the Focus Group Discussion.



When combined with the literature, the focus group highlighted the accessibility aspect as having implications for the design of public spaces. The three elements as specified by [31] Handrails, ramps, and clear signage should be made to be a part of the design so that members of the community with disabilities and all ages will be able to access the urban spaces. The Provision River Pedestrian Bridge in the United States is a good example of a pedestrian bridge that meets a variety of user requirements by including ramps, accessible paved routes, and ample of benches [32] [33]. It played a significant part in combining the East and West Park into one coherent area of shared public use with elements of urban and natural landscapes envisioned by the master plan. In addition, the bridge magnifies the connectivity of residential districts, commerce, tourism, and culture. It creates the possibility of environmental interpretive nodes that teach locals and tourists about the ecology and history of the urban area. Similar components could be used for Sa'ada Phase 2 to guarantee that the area stays friendly and inclusive.

Literature regarding pedestrian infrastructure in large urban spaces corresponds with the focus group's safety concerns, particularly concerning the highway separating Sa'ada Phases 1 and 2. When developing areas within close proximity to main highways, [34] Emphasized the importance of traffic mitigation measures and pedestrian crossings. As suggested by the focus group participants, Sa'ada Phase 2 may include an elevated pedestrian bridge, which will enable safe and continuous pedestrian connectivity between Phase 1 and Phase 2 without interruptions or crossing dangerous roads. This will allow for uninterrupted pedestrian mobility between the two sites of Sa'ada. Other safety measures that may be added include greenery barriers, lighting, and signals.

One of the group discussion findings was the challenges posed by Bahrain's hot climate, which has to be considered in the design to encourage walkability in the space. Literature reviews on climate-responsive urban design stressed elements such as shading, ventilation, and cooling systems. [35] described some strategies such as shaded pathways, integrated water features, and greenery to help mitigate the occurrence of the urban heat island effect. The focus group suggested that, in order to reduce the heat effect, planting native trees, green walls, or covered pathways should be considered in the design. In addition, thermal comfort could be improved by the use of features such as fountains that could serve as a focal point, or outdoor cooling systems in the plaza.

From the results of focus group sessions, participants pointed to the need to have a more active and socializing central area, which can accommodate the inhabitants, as well as visitors. Previous studies on urban plazas also promote the concept of versatile, engaging, or performable open spaces, which may represent leisure or culture [36]. To ensure that there is public participation and that the plaza is active, it was recommended that the plaza incorporate sitting areas, public toilets that should be well maintained, an area for holding community functions, open markets, and a space that could be used for art exhibitions. The plaza would help call for community usage by offering a fun and multi-use environment, fostering a sense of belonging and place identity as well as attracting various users.

The focus group expressed the importance of reconnecting Muharraq to the waterfront. According to [37] flexible designs that permit visibility to the surroundings or accessibility to unobstructed sight are valuable for the urban waterfronts. Regarding the organization of connections, as specified by the focus groups, the bridge's design should also promote visual references to the waterfront at Sa'ada Phase 1 site and to other landmarks of the area. This is especially important considering the valuable relationship between Muharraq and the seashore, as well as the historical city center, enhancing users' experience.

In support of the findings of the focus group discussions, the following criteria was determined from the SWOT analysis:

### Impact on the Local Community

Sa'ada Phase 2 promotes the community spirit through accessibility, public spaces, and the spread of these streets that are currently so far apart. The project facilitates the connection of the old Muharraaq and the new waterfront by creating physical infrastructure, enabling the inhabitants to be more involved with their environment. The provision of pedestrian walkways, the exposure of open public areas, and the improvement of the connection create favorable conditions for direct, social contact that forges the opportunity for a community sense of belonging in the city [38]. A series of research studies stated that pedestrian-friendly environments secure the growth of higher levels of social interaction, therefore enhancing the health of a community [39]. The project turns such ideas into design features by coordinating to have such areas that are more or less visited on a daily basis, becoming apparent in the construction of social capital, trust, and increased local identity, imperative for the long-term sustainability of the community.

Holding the most important architectural treasures and using them in today's-built environment, the new development not only guarantees the continuity of Muharraaq's historical culture in the community but also ensures that the town, with its culture, is preserved. This attitude greatly facilitates the inhabitants in giving them a strong anchorage point. It is confident that, regardless of how the city expands to serve the needs of today, the people's self-image will not be altered. Jacobs speaks about the protection of the old and cultural properties as factors that keep the suburbs' identity; therefore, cities are where people are resettled and related to their historical background. Further, the two newest inquiries confirm this also, especially the one that indicates that cultural heritage could be a place-based identity and a citizenship community identity in building and resilience of sustainable cities [40].

### Tourism and Economic Boost

The study done by [41] shows that the mixed-use benefits the local economy in terms of traffic patronage and the development of accessible public space. Unlike the first phase of Sa'ada, the second phase will involve giving instructions on the combination of commercial, residential, and art domains that are open together with the recreation of parks and gardens for both tourists and citizens.

On the other hand, the study indicates the threat that more people in residential areas are getting evicted because of high property values. [42] If not well handled, it would be a disastrous project that would tear apart the entire social fabric of Muharraaq. The project desires a development that will protect people's needs and prevent the exploitation of big business companies. Local authorities should ensure that the project benefits everyone, not only outside investors and developers.

### Mixed-Use Development and Sustainability

The Sa'ada Phase 2 project is a neighborhood where people live, shop, enjoy culture, and recreation [43]. By walking more and driving less, the project makes the city more sustainable [5]. Cities are made for people, not just for cars [44]. Studies show that walkable cities do better economically, and harmful emissions are less [45]. So, in Sa'ada Phase 2, walking connections promote lively shared spaces aiming for a sustainable city.

### Social Equity and Inclusion

The challenge of the above scheme is that it directly assigns the economic gains for the more affluent societies as well as foreigners to the detriment of the local dwellers. The concept of 'renewal of cities, excluding the people in those cities, is supposed to be the needs of those people and not merely the needs of people who can make profits [5]. Therefore, the first measures that are going to be taken in order to eliminate this problem are the creation of new vacancies, for instance in the community, and the guaranteed activity of small businesses [46]. It is not simply about deciding and fulfilling their needs; that is what is needed to carry out a manual for a proper society. The new studies commend the role of the community in

implementing satisfaction of urban renewal projects, if inclusive rather than non-inclusive, suggesting that the planned process is just and thus efficient [47].

## 6. CONCLUSIONS

Sa'ada Phase 2 plays a crucial role in reconfiguring the old urban community of Muharraq with its waterfront, generating sociocultural benefits for Bahraini inhabitants and guests. In the role of a pedestrian bridge and plaza, this project aims at the literal and symbolic bridge between the old town and the modern leisure services area. The discussions in this study have revealed some valuable information in relation to the specific design necessities and challenges of this study, as well as stressing the part played by environmental, functional, and cultural elements to enhance the connectivity within cities. The ideas mentioned in the focus group discussions show that certain design features are needed to accommodate the specific character of Muharraq heritage, and at the same time, meet the practical requirements of making the space pedestrian-friendly. The peculiarities of the subject combine the ideas of the design of the pedestrian bridge and plaza that should fit Muharraq's identity, which means the use of local materials, forms, and styles to represent the city's history, to be in line with the latest guidelines for the development of Muharraq city [48]. This goal ensures that, apart from meeting the aesthetic concerns of the community, the project is aligned with the community's values and history. Moreover, the input received from the members revealed that accessibility was an important factor. This means integrating a design that will be functional for users of all categories, including children, families with elderly people, people with impairments, visitors, and the elderly. This factor can be regarded as critical for enhancing the use of space and supporting its role as a community meeting point.

The challenge of integrating contemporary design into a historically significant area is highlighted in this study. Making sure the plaza and bridge blend in with the traditional urban fabric without dominating it or detracting from its distinctive character is one of the primary concerns with spatial integration. Other topics that were highlighted include traffic management and pedestrian crossing, since Sa'ada Phase 1 is separated from Phase 2 by a highway. It is mandatory to design the bridge to allow safe pedestrian movement. Besides, the traffic should consider crossing the roads from Muharraq city to the intended site safely and efficiently. That is to say, achieving these elements involves using the proper and innovative measures in the layout and circulation, which pertain to vehicles and pedestrians.

The design features considering the environmental issues suggested by the focus group participants are also aligned with the current and future trends of sustainable city development. Thus, the suggestions given here may be considered not only as a contribution to the project's future sustainability but also as a contribution to further urban sustainability.

The SWOT analysis from this study also identifies some problems and challenges associated with the project. However, the general argument that Sa'ada Phase 2 has proved successful on different parameters cannot disregard specific threats – it risks getting either gentrified or over-commercialized. If the numerous masses of tourists and commercial areas are not managed efficiently the local communities may be obliterated or the historical space replaced with something obscene. Critic environmental and infrastructure requirements must be added to this, particularly the construction of the connection to the waterfront on the opposite side of the primary street, which raises the question of the feasibility of this venture in the long term. Hence, precaution by monitoring and altering the plan is essential so that the project is well-analyzed concerning the economy, Social impact, and culture.

The limitation of this present research is that the focus group is very much dependent on the participants' views on a specific subject, which may be biased. It simply means that participants may post only self-considerations or encounters that may not reflect the community. This can be supported by the survey findings besides the observational studies that validate the focus group response. Despite the logical

recommendation offered by the research, budget constraints, technical difficulties, or the conflicting interests of other stakeholders such as developers and other regulating agencies make implementation somewhat difficult.

Using these findings together with related literature, one is able to develop a clear model of how the Sa'ada Phase 2 can be adjusted to address both functional and cultural requirements. Essential techniques that could be employed include evaluating other culturally sensitive and waterfront projects to understand how the design of the pedestrian bridge and plaza can be further enhanced to allow reflection and incorporation of heritage onto it, how the design can be made more friendly for users of diverse abilities, how safety can be improved and how the design can best encourage public participation. Implementing these solutions might not only respond to the challenges expressed by the focus group participants but also guarantee that the designed space will be meaningful to the community, leaving a long-lasting, memorable impact by providing continuity to the relationship of Muharraq with its waterfront. By reconnecting the old city to the waterfront and enhancing the public spaces, the project not only helps in the internal growth of the local people and the deepening of the community connection, but also is the most significant stimulus that is implemented by tourism and local commerce [49].

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