

Sustainable Neighborhood in Doha (State of Qatar): A Strategy for Achieving Urban Quality in Al-Hitmi

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Abstract: Over the past two decades, gulf cities have been rapidly growing, mainly after the discovery of oil. Large-scale urban projects have been constructed as a result of globalization, which has affected the built environment and the urban fabric of gulf cities. Doha, the capital city of the State of Qatar, has been substantially influenced by globalization. The city has experienced great transformation in its environment since the 1950s, after the discovery of oil. Therefore, Doha has faced the challenge of keeping pace with urban developments that have been increasing and taking over the existing heritage embedded in buildings and traditional neighborhoods. Al-Hitmi is one of the neighborhoods affected by urbanization and sprawling. This research study investigates Al-Hitmi neighborhood and its features, opportunities, constraints, and relationship with the surrounding areas, specifically Qatar National Museum and the Museum Metro Station. The research design is based on the review of the literature, site analysis of the selected case, and surrounding context in order to (1) find opportunities and challenges and (2) to propose a strategy for the urban regeneration of the neighborhood of Al-Hitmi.

Keywords: Sustainable Urbanism; Urban Regeneration; Smart Growth; Livability; Al-Hitmi Neighborhood.

INTRODUCTION

Cities have been rapidly developing under the process of globalization. This has resulted in neglecting the urban heritage, which for centuries represented the heart of the cities and reflected their history and identity. The distinctive and neglected historical architectural heritage should be preserved within the urban fabric of cities [1-5].

The State of Qatar is one of the GCC countries displaying a rich cultural heritage, which, due to the process of globalization, is currently in need of preservation and restoration. Since the 1950s, directly after the discovery of oil, The State of Qatar has witnessed major economic changes and urban developments, which have led to the phenomenon of urban sprawling. The preparation for FIFA 2022 World Cup has contributed to the rapid urbanization, economic and demographic growth of the city, and has affected the urban fabric of its neighborhoods. People moved to

new neighborhoods, abandoning old historic neighborhoods, which have been exposed to urban degeneration [6, 7].

The neighborhood of Al-Hitmi witnessed the construction of high-rise buildings, leading to the loss of its urban identity. In turn, this has raised concerns related to the need of preserving cultural and social values of the inhabitants, which have been embedded into the urban fabric of neighborhoods and cities until the recent globalized trend embraced by communities for developing modern cities [8].

The aim of the research study is to explore a strategy for the urban regeneration of the neighborhood of Al-Hitmi: it is meant to shape a sustainable neighborhood based on urban qualities such as integrated networks and walkable streets, open and green public spaces, in addition to the renewal of the old historic houses.



Fig-1: View of Al-Hitmi. Source: Google Maps



**Fig-2: Old houses in Al-Hitmi
Source: the authors**

Background

Sustainable urbanism

Sustainable urbanism has been defined as “walkable and transit-served urbanism combined with high performance buildings and high-performance infrastructure” [9]. The key criteria for conceiving sustainable urban developments are density, diversification, and design, which in turn contribute to enhanced livability. Sustainable urbanism consists of the application of sustainability principles to the design and planning processes of cities. It primarily focuses on enhancing walkability through the design of smart, dense, and compact communities, including creating medium and high-density developments [10-13].

The three basic aspects of sustainable urbanism are listed as environmental, social, and economic. Environmentally, the urban form should enable users to walk within short distances and/or without the use of private vehicles to fulfill their daily needs. Mixed-use developments allocate residential, retail, leisure, and commercial areas all together within

a short walk and provide access to public transportation modes. In social terms, sustainable urbanism consists of suitable spaces and buildings of distinctive sizes and kinds that have a variety of community activities. Economically, in a sustainable community, developments should have business activities that create job opportunities for many users [14-18].

In relation to sustainable urbanism, there is a need to enhance the architectural environment, restrain the use of non-renewable energy, and control pollution. All of these have effects on climate change and ecological health and/or livability. To achieve sustainable urbanism, the constructed environment should be capable of enhancing walkability and create communities that are transit-served and integrated with buildings that provide daily activities and encourage movement. The livability of the users is strongly impacted by the availability and closeness of public transportation and public amenities, such as workplaces and schools [19-22].

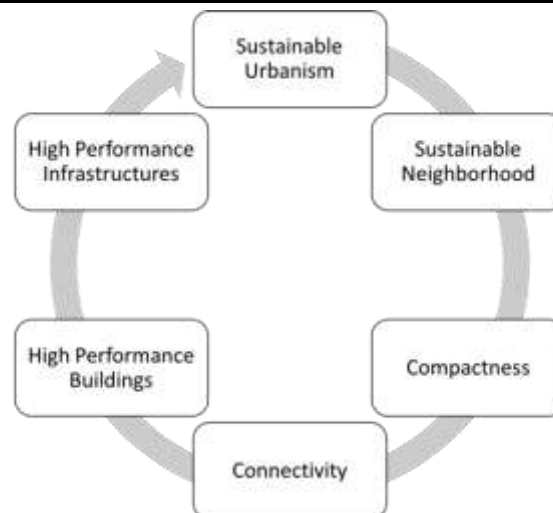


Fig-3: Defining elements of sustainable urbanism. Source: Authors

Smart Growth

Smart growth focuses on land use from a planning and transportation perspective. It intensifies growth in dense walkable urban downtown areas to avoid sprawl. This theory accepts that growth and development will continue to occur. Therefore, through creating a transit-oriented, bicycle-friendly, walkable, high-density mixed-use development with complete streets and housing, smart growth seeks to direct growth in an intentional and comprehensive way. There are some constraints facing smart growth that threaten the neighborhood's character, which are high-density, congested streets and crowded sidewalks. These constraints can, however, be prevented through controlling sprawl and directing growth and investments into development areas, and reserving the natural environment [23-27].

Congestion, sprawl, lack of open spaces, air pollution, and green-house emissions are the factors that have distinguished the importance of urban sprawl. In addition, the rise of housing prices in downtown areas has limited residential choices and opportunities to homeownership for most people. Consequently, this theory seeks to provide creative, friendly, and environmentally responsible societies. It defines professionals from all disciplines to house growth [28-30].

Establishing mixed land uses allows people to meet their needs through walking and without using

cars. This leads to creating healthier neighborhoods that are pedestrian and bicycle friendly that promote urban connectivity. These neighborhoods should be safe and easy to move around in, and the local economy should support the smart community movement. High-density developments encourage the principle of smart growth. Smart growth offers accessibility to facilities and social and educational services within walkable short distances [31-35].

Urban growth and sprawl could be well controlled through these specific strategies: (1) managing growth; (2) encouraging compact growth through transit, linking mixed-use societies within walkable distances; (3) streets that are livable and integrate the use of various transportation systems and are walkable, increasing social equity [36-38].

Smart growth is also affected by high density and urban connectivity. Social, economic, political, and environmental aspects are all key for creating healthy and sustainable societies. Political goals are impacting smart growth through the regulations that lead to high-density and mixed-use developments to provide different services in one location [14, 39]. Therefore, they reduce mobility usage and walk to the desired destination instead. These principles can be strongly applied to establish a smart growth community in Al-Hitmi neighborhood.

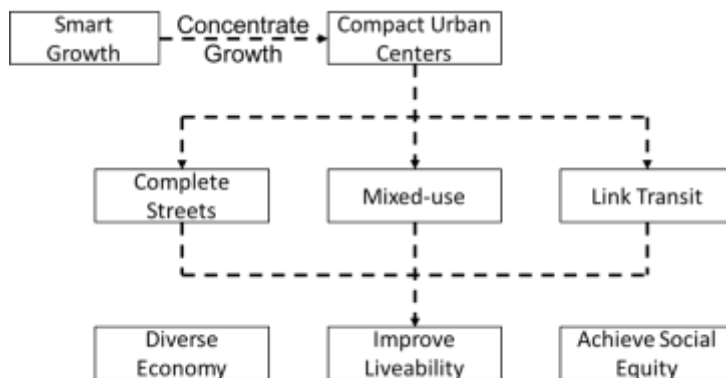


Fig-4: Diagram of smart growth principles. Source: the authors

Green urbanism

Unlike new urbanism and landscape urbanism, which concentrate on the form and the character of the built environment, in green urbanism, different approaches to sustainability are offered. The focus is on the city's role in reducing modernity's negative impacts on the environment, such as greenhouse gas emissions and climate change. Green urbanism aims to reduce fossil fuel emissions and preserve the natural environment, such as water and energy [23, 40-42].

Travel distance and car usage will be reduced, and the quality of life will also be enhanced through creating compact urban areas where the needs of people are met within short distances. The three major aspects in creating eco-districts that control and reduce negative impacts on the environment are building management, infrastructure, and recourses [37, 43, 44].

Green urbanism stresses that cities and positive urbanism have an important role in shaping sustainable places, communities, and lifestyles. It also emphasizes that old approaches to urbanism and views of cities, towns, and communities are incomplete. They must expand to incorporate ecology in the forms of living. The world today needs to reflect a new urbanism that is sensitive to ecology in the design and planning process. In addition to reducing the ecological footprint, cities should accept their relationships with and effects on other cities and the planet [45-48].

Green urbanism assumes that cities are responsible for the environment, therefore, rather than

spreading damage all over the planet, cities must work harder in being places for nature, by providing shelter, purifying the air and water, and replenishing the planet. There are several ways of restoring and nurturing the urban ecology, including creating daylight streams, planting green rooftops, introducing the concept of forestry and greenspaces into the heart of the cities [45, 49, 50].

Also, the goal of green urbanism, and a sustainability measurement tool is that a city should facilitate livability and make it easier for people to live richer lives. A city should provide opportunities for individuals to choose for instance, whether to walk or ride bicycles, to grow food, to live with fewer consumer goods, or to live without cars. The benefit of this approach is not only environmental, but it also inspires people, if they desire, to change their way of living and emphasize the quality of their relationships, rather than the size of their home or possessions [51, 52].

Accordingly, green urbanism strengthens neighborhoods and places. People enjoy being in them and they are inspirational and have aesthetical and emotional value. Green urbanism emphasizes providing adequate housing and services for all types of people and aims to be socially and economically comprehensive. Creating ecological cities also creates highly livable cities, where nature is an important aspect meant to enhance livability of a city. Correspondingly, green urbanism also believes that nature is important to people's health and well-being [53].

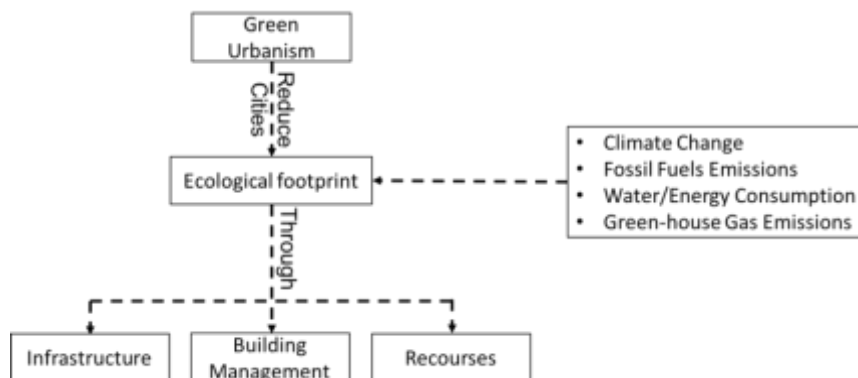


Fig-5: Diagram of green urbanism process. Source: Authors

Urban regeneration (preservation and adaptive reuse)

Urban regeneration is a strategy of transformation of targeted areas to upgrade housing, public and private buildings, services, infrastructure and mobility services, open and green areas, in addition to landscapes and skylines. The process of urban regeneration integrates diverse professions. Waterfronts, industrial areas, and degraded inner cities are usually the targeted areas [44, 54].

Also, it is considered as a component of an urban policy that does not have to be related to urban regeneration, but it is instead viewed as spatial in its relationship to urban areas and the people living in them. Urban regeneration can be viewed as the outcome of the interplay between the many process of the urban areas, such as processes that drive economic, social, physical, and environmental transition. It is also a response to the opportunities and constraints of urban deterioration. Urban regeneration seeks to create lasting improvements areas that are subject to change [55, 20, 11].

Urban regeneration is also linked to economic growth. In the 1980s, public funds were used to handle large undirected market investments. Currently, there are policies aiming to merge the public and private sectors in urban regeneration developments that have environmental awareness more than before. In the same way, urban regeneration is related to revival, rebirth, and reconstitution. It is rooted in religion, social theory, and medicine. It goes beyond physical outcome and involves concerns for social inclusion, wealth creation, sustainable development, urban governance, health and welfare, crime prevention, educational opportunity,

freedom of movement, environmental quality and good design [56].

There are three distinctive features defining contemporary urban regeneration:

- To change the nature of a place with involvement of the community and other actors;
- To embrace diverse objectives and activities intersecting with the main functional responsibilities of the government and depending on problems and potentials of an area;
- To involve a varied form of partnership among diverse stakeholders.

As a result, urban regeneration seeks to develop people’s skills and capabilities to enable their participation to benefit from it. In terms of business, it enhances economic competitiveness to create local job opportunities and prosperity. In terms of space, urban regeneration develops the renewal of a place to attract people and business. Therefore, it equalizes all three elements to protect the increasing route of a district to be sustainable in the long-term.

Since the degradation of the inner city affects everyone, regenerating urban areas is an important matter for everyone. To have an effective urban renewal approach is essentially important to several actors, professions, and stakeholders of various disciplines and at all levels, locally and globally. Also, it is important to the property owners, investors, and the residents as well. The maintenance of the city should be focused on urban life, and urban regeneration and must manage the consequences of the continuous urban change.

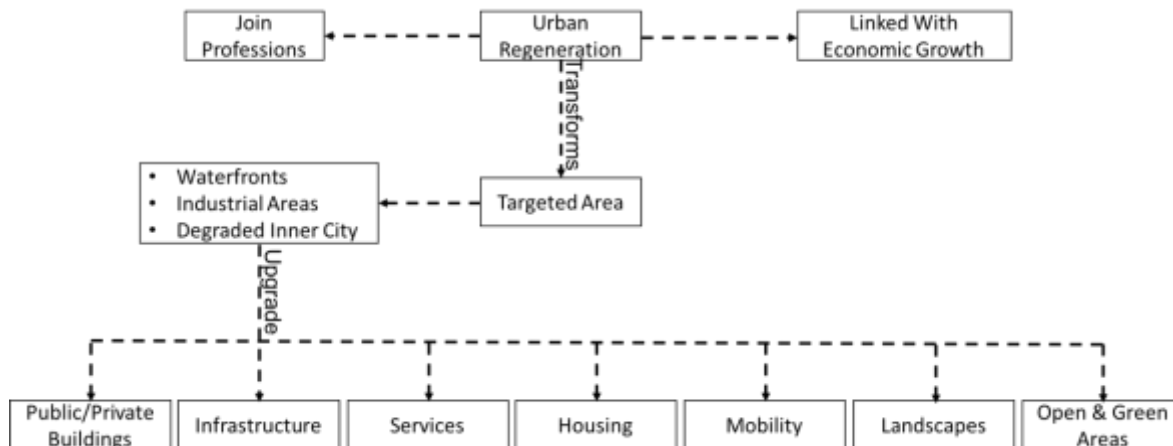


Fig-6: Diagram of urban regeneration principles. Source: Authors

Enhancing Neighbourhoods' Livability

People are making complex compensation to choose their dream house. Therefore, in this context, livability is examined through the expression of housing and the neighborhood satisfaction. Since high-density housing is promoted in cities, these policies will more likely enhance livability and the quality of life [57, 58].

It is evident that livability is not necessarily associated with density, but rather shown by the high degree of satisfaction. This satisfaction is often expressed in varying density lifestyles. Livability is often combined with quality of life, well-being, and sustainability. Scholars accept that the quality of life experienced by urban dwellers is measured with satisfaction of housing, which is considered an expression of livability [59].

Residential satisfaction is the level to which people recognize their inhabited environment, have their needs met, and further fulfill their goals. Livability is also argued to have both objective and subjective aspects. Objectively, it concerns the way the physical environment affects behavior positively and negatively. In this way, it may enhance or reduce livability. While subjectively, it concerns the perceptions of urban residents about the impact of the urban environment on their urban living experiences, and it shapes their rationale about livability [60, 58].

The goals of a livable city are to have green, vibrant, compact, and accessible along with a unique sense of place. Livability is also achieved through promoting walkability in higher density transit-oriented developments. This development enables people to be with their family and friends, and at the same time, have

access to goods and services within a few blocks. It also offers a reliable public transportation network. This will also enable older people to maintain their quality of life and have access to services. Dense neighborhoods have the potential of creating healthy and beautiful urban environments. These environments attract people of different groups and enhance the social cohesion and interactions through the creation of a mix of cafes, restaurants, shops, services, and well-designed public spaces that accommodate the daily needs of people. It is important to understand that a compact development is more sustainable, livable, and more economically responsible than a low-density development [61-63].

The future of growth must be well planned and designed to create livable urban centers that foster a sense of place and community and encourage active and healthy living. Today, important changes in the planning system are associated with the achievement of livability and general well-being of a community and its citizens as a goal to urban planning. In achieving this goal, strategic partnerships are expected to promote and coordinate public and private stakeholders, communities, and businesses in local decision-making and focus on the desired urban character.

In transit-oriented developments, the housing conditions and the amenities provided in the neighborhoods are what constitute livability. Therefore, the measures of housing satisfaction do not only involve dwellings, but also include the context of the neighborhood. Livability is experienced at different levels, including housing units, neighborhoods, and communities, which are all seen as part of a nested hierarchy [64, 7, 65, 66].



Fig-7: Principles of livability. Source: Authors

The Research Design

This study addresses the following questions:

- Is Al-Hitmi neighborhood a sustainable neighborhood?
- How does Qatar National Museum contribute to the urban quality of Al-Hitmi neighborhood?
- How can the spatial form of Al-Hitmi neighborhood and its surrounding be more sustainable and livable?

This research study aims to explore and draft a strategy for a sustainable design and regeneration of a traditional asset in the heart of Doha’s Al-Hitmi neighborhood to make it more livable. The site was chosen because of its strategic location adjacent to Qatar National Museum. This large landmark is being designed by the French Architect Jean Nouvel and it is expected to be opened by the end of 2018. The development and regeneration of the neighborhood will add value to the area and can be linked with the activities related to the museums. The structure of the methodology employed the use of both quantitative and qualitative research methods and will be divided into four key steps: a review of relevant literature first followed by data collection and analysis, then concept development, and finally implementation. The different stages are described briefly here:

- A review of related literature is conducted on topics of sustainable urbanism, smart growth, green urbanism, and urban regeneration to learn about design implementation in order to enhance social interactions within the urban fabric of the neighborhood and transform it into a vibrant livable area [67-69].
- Site visits and observations were conducted between February 2018 and May 2018. Through site visits and observations, visual data was collected, such as maps and photographs of the

existing site with its major surrounding destinations. Site visits were conducted to gain a better overview of the existing status of the environment, land use, density, site orientation, transportation options, climatic conditions, community requirements, and connectivity to the surrounding areas. Collectively, these methods helped in gathering relevant personal, behavioral, cognitive, and spatial data to achieve the research objectives. The analysis of this data was manual, and interpretations were based on the author’s understanding of the case study contexts. Based on these analyses, several site opportunities were found, as well as challenges [70-72].

- The concept development step follows the observation and site analysis with the help of information gathered in the literature review. Various design solution alternatives were created in accordance with the site and context analysis. The development concept included four key features of the design: neighborhoods, environment, connectivity and transportation, land use and building typologies. It is expected that addressing these elements will contribute to enhance livability in Al-Hitmi neighborhood and transform it into a sustainable district.
- Plan implementation is the last step, which consists of guidelines and strategies to further implement and expand the study to a wider context and to engage a variety of stakeholders.

Through the explored urban design principles of the regeneration and development of Al-Hitmi neighborhood, relevant visual concept design ideas were added. This allowed a deep understanding and qualitative knowledge of the urban regeneration and development’s strategies currently adopted in Qatar and

the resulting challenges. In addition, this contributed to

identifying and characterizing the patterns of planning.



Fig-8: Diagram of Methodology Process. Source: the authors

FINDINGS

The findings, structured into a site analysis of the selected study area, define the surrounding context in terms of connections and destinations, existing land uses. Then, the discovered opportunities and challenges of the site and its context are listed. Based on the results of site analysis and available opportunities and challenges, a design concept was developed to contribute to the enhancement of sustainability and livability in the neighborhood of Al-Hitmi.

Site analysis

The Selected Study Area

Al-Hitmi neighborhood, located in zone no.17, covers an area of approximately 40.5 acres. In determining the boundaries of the study area, the possible walkability of people to obtain goods and services as well as entertainment within short distances of a 5 to 10 minutes walk was considered.



**Fig-9: Map of the study area
Source: Google Earth.**



**Fig-10: Photo of the study area
Source: the authors**

Context

Connections and destinations

The site is strategically located within walking distance of the Qatar National Museum. In addition to the museum, other destinations include

- Doha Port
- Museum of Islamic Arts and MIA Park
- Al-Riwaq Exhibition Hall
- Souq Waqif
- Doha Corniche
- Hamad International Airport
- Orient Pearl Restaurant and Salata Park
- Muglina Unit Park
- Sharq Village

- Qatar Museums Authority and Museum and Antiquities Department
- Qatar Petroleum Tower
- Al Jasra Club

Additionally, several towers and multi-story buildings are included, consisting of hotels, apartments, offices, and restaurants, including the following:

- City Suites Hotel Apartment
- Sovereign Hotel
- Ayana Golden Coast Hotel Doha
- Le Mirage Sharq
- Al Seef Hotel
- Century Hotel Doha

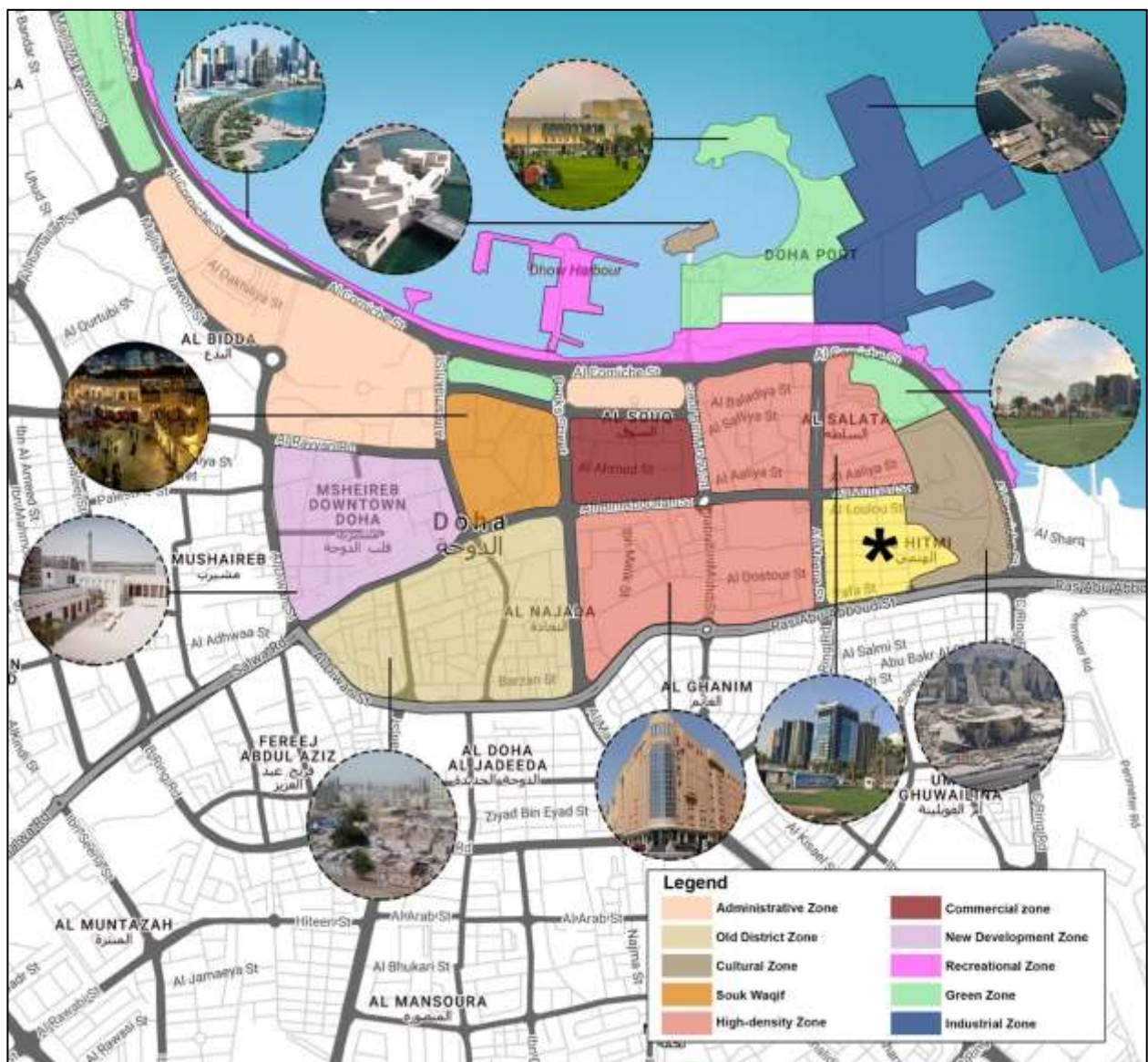


Fig-11: Context analysis and land use map. Source: the authors

Due to its proximity to Qatar National Museum, a future Museum Station Metro Gold Line is

located at the museum (Fig.12). This station connects Al-Hitmi neighborhood with other areas, such as Ras

Bu Abboud, Souq Waqif, Al Saad, and Sport City. The red line connects the neighborhood with Hamad International Airport, Al Wakra, The Corniche, West Bay, Katara, and Qatar University. The Hamad Hospital, Al Rayyan, Qatar National Library, and

education city are connected through the green line. In addition to the metro station, there are four bus stations existing in the site (Fig-13). The site is also accessible by car.



Fig-12: Qatar Metro Station Map
Source: qr.com.qa



Fig-13: Map showing bus stations.
Source: Google Maps

Existing land uses

The site is surrounded by several major streets: C Ring Road, Al Corniche Street, Ras Abbu Abboud Street, B Ring Road, Al Meena Street, and Al Muthaf Street. The site mainly consists of two types of land uses: old houses/villas and residential tower zones. Some of them are surrounded by commercial streets or office frontage zones. Some other land uses exist, such as community facilities zones, special development zones and tourism zones. Nearby land uses are high-density residential zones, open space and recreation zones, and transportation and utilities zones. The old buildings are in poor condition, and some of them are heritage houses that need to be conserved. The condition of the high-density towers and buildings vary from good to bad.

Opportunities and Challenges

After observing and analyzing the study area, several significant opportunities and challenges have been found and have been addressed in this section.

Substantial opportunities include:

- The existing intense high-rise and dense developments that have the potential of adopting and directing smart growth and an opportunity to diversify the economy.
- The increasing population and the diversity of users coming to the area for commercial reasons or people arriving to their job destination, due to the numerous towers existing in the site.
- The location of the site is near Qatar National Museum, which provides the opportunity to coordinate with the museum authority to finance the redevelopment of existing buildings, and conserve and restore old houses.
- The neighborhood is close to the metro station, which is in walking distance. The metro station will link the neighborhood with other destinations and allow easy accessibility.
- Availability of commercial general, and commercial neighborhood areas provide basic services and daily needs of users and are walkable.
- The site is surrounded by major roads and arterials, which make it easily accessible.



Fig-14: View of Qatar National Museum. Source: Google Maps

Despite these opportunities, the neighborhood faces several challenges that could have a positive opportunity to enhance the livability and sustainability in the neighborhood, such as:

- The lack of cohesive design character;
- The intensive use of cars that discourages walkability and causes traffic congestion and pollution and endangers the safety of pedestrians;
- The location of the site along major roads, creating traffic congestion at peak times to and from the site;
- Some of the existing roads are clean, direct, with few trees; however, it is not safe for pedestrians to walk and cross from one point to another;
- Lack of clear road signage and way finding system;
- Lack of safe pedestrian movement and crossings;
- Lack of green spaces and entertainment facilities that enhance the aesthetic features of the site;
- Limitation of public parking areas because the only available parking area belongs to the museum;
- The area seems to be unclean;
- Lack of public amenities and street furnishings, such as sitting areas, public restrooms, schools, plazas and squares, water features, parks, shaded walkable areas, and paved pathways that could be used by pedestrians and bicyclists;
- The varied width of the road that is narrow in some areas and wide in others;

- The bad condition of some buildings and others that lack aesthetic features;
- Lack of locals living in the area because it is abandoned, and the old deteriorated houses are occupied by laborers;
- Lack of residential housing, which could introduce the developments of new housing choices of low, medium, and high-density residential areas to attract different types of users. It also encourages the creation of a mixed-use development;
- The lack of connections between the neighborhoods and other major destinations (Qatar National Museum, Museum of Islamic Arts, MIA Park, Salata Park, and Doha Corniche);
- This provides the opportunity of creating walkable, car-free streets that are environmentally friendly and a pedestrian bridge to cross the highway and reach the opposite area;
- The construction of the museum and station greatly affected and damaged the old heritage houses. This urges the conservation of these historic houses

before they are all demolished and the neighborhood's authenticity is lost.

Development Concept: Principles and Features

Al-Hitmi neighborhood encourages and supports the smart growth and mixed-use development due to the available efficient mode of public transportation, such as the bus stations and the future metro station, in addition to the existence of high-rise dense buildings. It also incorporates the urban regeneration of the old historic houses to preserve the Qatari identity and connect it with the activities of the museum. In general, the new development concept fosters a community that is sustainable, economical, human-friendly, environment-friendly and improves livability. Al-Hitmi neighborhood development is based on four key elements: neighborhoods, environment, connectivity and transportation, land use and building typologies. These elements will create a successful, sustainable, and livable district.

Neighborhoods



Fig-15: Visualization of the future neighborhood. Source: Makower Architects

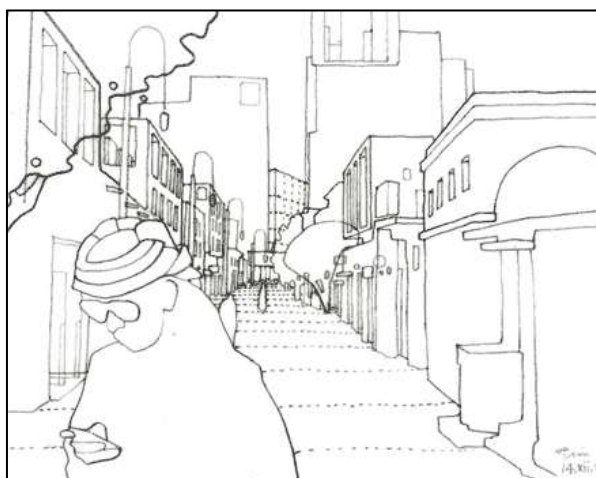


Fig-16: Visualization of the future neighborhood. Source: Makower Architects

The neighborhoods are essential to Al-Hitmi District. Defined neighborhoods support social interactions and encourage people to be responsible for

their maintenance and their governance. These neighborhoods can foster daily living activities within close proximity by having a pedestrian friendly

environment. This can be achieved by creating a dense, mixed-use project. The open spaces within the neighborhood will be clean, comfortable, interesting, and safe. The creation of a strong neighborhood can be achieved through proposing the following features:

- To have diversity of low, medium, and high-density housing choices to attract a variety of people, including homes, apartments, and studios.
- To provide various public amenities to serve people's daily needs, such as sitting areas, public restrooms, and shaded areas.
- To redevelop the existing high-rise buildings to provide different types of housing uses and to have retail shops on the ground floor to provide the daily needs of users.
- The refurbishment of the façade of the old buildings to be pleasant and interesting.
- To conserve the existing old houses that represent the Qatar identity and to transform it into a tourist destination through linking it with Qatar National Museum, and to support Qatar National vision 2030.
- To create adequate accommodations to foster the laborers living in these old houses.
- To enhance the existing old hotels to welcome future visitors to the area.
- To create entertainment facilities, such as cafes, child playing areas, and a cineplex to ensure the liveliness of the area at night.

Environment

The urban natural environment includes natural features which consist of air and water quality, parks, squares, and open public spaces. Through the planning concept and the design of this neighborhood development, the environment should be respected to bring nature into the neighborhood, to significantly improve the quality of life, and support the green urbanism concept. Achieving a healthy environment in Al-Hitmi neighborhood will be implemented through the following proposed actions:

- To increase green spaces and parks to define the neighborhood boundaries.
- To create an open space, such as a plaza or square.
- To link the site with the existing Salata Park and MIA Park.
- To impose policies for residential landowners to use 5-10% of their space to provide greenery.
- To provide incentives for investors to create squares and open spaces with shaded areas within their property.
- To use xeriscaping for planting trees and plants to

reduce the need of water for irrigation.

- To reduce accessibility of cars to reduce emissions.
- To increase the usage of solar panels as a replacement to generate electricity for buildings and street lights.
- To create green parkways to enhance the walking experience.

Connectivity and Transportation

The sustainability and success of the neighborhood is linked to transportation and connectivity. It provides an organizing structure of a community and circulates the flow of movement. Streets are better utilized and shared within different modes of transportation, such as public transit, bicycles, vehicles, and walking. A good transportation and connectivity system, facilitates independent mobility for residents of all types and for people with special needs. The streets should also be well-designed, functional, and attractive. Al-Hitmi neighborhood will have a balanced connectivity and transportation system which includes:

- To provide adequate lighting, paved sidewalks, trees, and public amenities;
- The sidewalks should be shaded and adequate for at least three people to walk and/or a wheelchair;
- To provide bicycle lanes and pathways as another mean of transportation;
- To eliminate car access in some roads to be a car-free zone and transform them into pedestrianized roads;
- To create pedestrian signals for safe crossings;
- To have stronger pedestrian connectivity to the surrounding residential areas;
- To create pedestrian bridge to link the neighborhood with the opposite Corniche area;
- To create a shared parking strategy to utilize the parking lots in day for offices and retail shops, and for residents at night;
- To create decorative crosswalks to be attractive and safe;
- To increase the number of bus stations and link them with the defined pedestrian walkways for easy and safe crossings, as well as link them with the metro routes;
- The metro station is a great opportunity to reduce car usage and move toward public transportation modes. Therefore, the neighborhood and street network design should encourage walking, biking, and the use of public transportation.



Fig-17: Conceptualization of a sustainable suburban area. Source: Retail Insider

Land Use and Building Typologies

The redeveloped land use system and building typologies reflect a more consistent mixed-use approach, which combines residential and commercial areas with offices over shops, restaurants and cafes, and recreational and community areas. All of these are connected by attractive, well-designed, and functional pedestrian and transit networks that lead to the desired destination within a five-minute walk. Consequently, this mixed-use development concept supports the smart growth movement. It includes a mixed-income area with high density housing, commercial, and office land uses that diversify the economy of the neighborhood. They create a variety of job opportunities and provide social equity to attract people to the neighborhood and will, therefore, create a sustainable neighborhood. The land use and building typology include the following strategies:

- Focusing commercial buildings on the main streets and including retail frontage.
- Creating a main street that has different types of land uses, including retail and commercial spaces.
- To provide schools and public institutions.
- To have residential areas ranging from single-family housing to multi-family apartments.
- To conserve the historic areas and provide urban regeneration programs to revive it and utilize it more efficiently.
- To provide cafes and restaurants all over the area on the ground floor to serve people at work during their break hours and support a safe and pleasant walking experience.

CONCLUSION AND DISCUSSION

The redevelopment of existing buildings and conservation of historic houses to transform them into tourist destinations, and the creation of different residential areas with pedestrian streets to accommodate walkability all contribute to the identity and quality of the place. The sustainability and success of Al-Hitmi

project critically depends on efficient design and maintenance. The following points should be considered in the design process:

Positive outdoor spaces

Outdoor spaces should be created to be linked with the overall planning of the city to enrich the user experience. Considerations of the outdoor spaces should include:

- Creating open spaces in several areas to be available for all users.
- Creating interesting pavement designs to attract users and direct them to destinations.
- Providing greenery for a pleasant view and clean air.
- Offering street furnishings, such as street lights, sitting areas, trash bins, and walkways.
- To be open at all times and have direct access.

Livability and quality of life

The following should be considered to further enhance livability:

- Provide a variety of housing to satisfy various users' needs.
- Improve walkability in the neighborhood and its surroundings.
- Enhance the aesthetic design of the neighborhood to make it more functional and beautiful.
- Create boulevards with cafes and restaurant to enhance the experience.
- Design for the sake of all users of all ages and genders.
- Accommodate different types of building uses to satisfy daily needs.

Safety and Security

Safety and security of the urban environment is very important. The neighborhood, roads, and commercial and public areas should all be safe and prevent crime. Safety considerations include:

- These areas should have human presence.
- The roads should have safe routes with pavements to protect the pedestrians.
- Buildings should have visible entries and exits to be easily monitored.
- CCTV cameras should be installed on the site to prevent anyone from committing crime.
- Public areas should always be monitored by community police officers.

Contribution to Knowledge

The development of Al-Hitmi neighborhood is fundamentally important. The neighborhood is a historical district that has been affected by urban sprawl and recently by the construction of Qatar National Museum and the metro station. These constructions caused demolition of part of the neighborhood, resulting in a few older houses that have been left to the usage of laborers. People who lived and were raised in this neighborhood express the need to protect and conserve their culture and history as they represent Qatar's identity.

The conservation and the renewal of this neighborhood will have a significant cultural impact on the city of Doha and Qatar. Accordingly, it is located in front of the museum and could be linked with the activities of the museum that present the cultural value of Qatar. The renewal of the old houses and the existence of two museums, Doha Corniche and the Souk Waqif, all contribute to the community's appeal as a tourist destination. The surrounding hotels and apartments, of which many are new and others still to be restored, have a cohesive facade with the overall area. These will be used to welcome the tourists. The development concept is also expected to enhance livability and sustainability of its residents. The overall concept will boost the economy through tourism and contribute to the Qatar National Vision 2030 (QNV-2030), which comprises four pillars: economic, social, human, and environmental development.

Implications for Practice and Advancement of Research

Urban sprawl and the construction of the museum and metro station are ongoing. Therefore, to further implement the development concept, the core of the project must be conserved. Policies and actions must be implemented to prevent the demolition of the historic district. Further research can investigate the effect of culture and identity on the sustainability and livability of the neighborhood and how it can reshape other urban neighborhoods with historic cores in Doha. This would also require spreading awareness among different types of stakeholders of the importance of preserving culture.

Further aspects related to smart growth and mixed-use dense developments in Qatar and their

relationship to the future Qatar rail need to be addressed on a larger scale. This subject requires further research. Comprehensive strategies must be established and planned for the future long-term sustainability and to prevent future planning problems that could severely affect the environment. The project also requires the engagement of further stakeholders of public and private sectors, decision makers, planners, and practitioners to be involved with the study area.

Acknowledgments

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