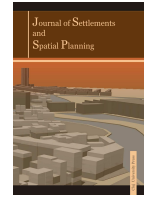




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Unplanned Settlements in Saudi Arabia. The Case of Al-Sabeel District, Jeddah

Abdel-Moniem EL-SHORBAGY*¹

* Corresponding author

¹ Effat University, College of Architecture and Design, Jeddah, SAUDI ARABIA

E-mail: aeshorbagy@effatuniversity.edu.sa

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ABSTRACT

Unplanned settlements represent a twentieth-century phenomenon that has been steadily growing on the periphery of almost all cities in the world. These areas are usually overpopulated and characterized by inadequate housing, unpleasant living conditions. Jeddah, a second major city in Saudi Arabia, consists of many unplanned settlements and slums, which affect the future development of its urban and social fabric. This paper intends to explore some essential issues relating to the issues of unplanned settlements in Jeddah through the study, analysis, and assessment of the built environment of Al-Sabeel district, one of the oldest districts in Jeddah. The main objective of this research is to investigate the major physical problems of the deteriorated areas of the district. Thus, the primary purpose is to define a set of recommendations for the upgrading of future unplanned settlements, which will help these informal areas to improve and gradually integrate into the existing urban fabric of the city. Regarding methodology, a qualitative research approach was adopted, which included a literature review, a face-to-face interviews, and field visits to document the physical condition of the built environment of the district. The outcome of the study represents a set of recommendations that indicate the importance of community participation approach as a means of improving the physical condition of the urban environment of Al-Sabeel district.

1. INTRODUCTION

Unplanned settlements, slums, and informal settlements have varying interpretations and meanings based on the socioeconomic, political, and mainly historical circumstances. The United Nations has defined slums as overcrowded residential areas, characterized by dilapidated housing and lack of essential services such as drinking water and sanitation (UNESCAP, 2015).

From a broader perspective, unplanned settlements are built areas not authorized by the government and illegally settled, while slums denote substandard dwellings in terms of services and infrastructure, building materials, and method of construction (UN-Habitat, 2015). They have also been

categorized as “*the most deprived form*” of settlements, which may not necessarily be illegal (Drakakis-Smith, 1981). Thus, an unplanned settlement specific definition depends on its scale and existing urban context and it is not necessarily to be categorized as a slum, while its residents might not be poor (Minnery et al., 2013). However, it was estimated that approximately one billion persons are living in slums worldwide, and this number is expected to double by 2030 (UN-Habitat, 2016). Out of one billion persons, about 881 million are living in slums in developing countries. The highest number is recorded in Asia followed by Africa and Latin America and the Caribbean. In 2015, it was estimated that approximately 25% of the world’s urban population continued to make their home in an urban slum (UN-Habitat, 2015).

Urbanization represents one of the most critical transformative drivers of the 21st century. Around 54% of the world's population is living in urban cities and it was estimated that, by 2050, approximately 70% of the world's population would be living in urban areas (World Cities Report, 2016). Urbanized cities are characterized by unprecedented population growth accompanied by economic change, social and cultural activities, and appropriate livability. However, the nature of urbanization creates several planning challenges, including the provision of sufficient housing and services, health, education, and infrastructure. Thus, the adoption of a New Urban Agenda to achieve world sustainable urbanization for the next twenty years was the primary outcome of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador in 2016. This agenda represents a shared vision for a better and more sustainable future, and if well managed, urbanization could be a common and useful tool for sustainable development for both developing and developed countries. In this context, sustainable urbanization and cities are seemingly weaved together to achieve socioeconomic, cultural, and environmental goals (UN-Habitat 3, 2015).

Joan Clos, Under-Secretary-General of the United Nations, believes that if urbanization is not structured, it will adversely affect the future of cities in the developing countries. He argues that this form of urbanization could be the driver behind the formation of slums and unplanned settlements, which represent the most affordable housing solutions to one-third of the global urban population today. Clos also discusses that this type of unplanned urbanization would obstruct cities from implementing their agenda in economic development and social prosperity (UN-Habitat, 2012). Thus, the growing phenomena of setting up informal settlements could be perceived as the logical consequences of urbanization, which allows their residents for housing, services, and infrastructure (Minnery et al., 2013). However, many international policy approaches addressed the problem of these unplanned settlements by suggesting the strategy of demolition and replacement. The demolition approach is perhaps not the appropriate solution because it creates more problems than it solves. For example, it would disturb the life of inhabitants, who represent an essential factor of the urban economy and contribute to the economic growth of their cities (UN-Habitat, 2003).

Another essential strategy is the slum upgrading approach that has been adopted by many countries worldwide as a critical component of their urban planning programs. They invest in upgrading both the buildings' physical condition and infrastructure systems such as electricity, water, sanitation, and sewage. Also, the upgrading approach concurrently develops the road network and solves the problems of block accessibility. One of the significant

examples of slum upgrading is Zwelisha, a newly upgraded settlement north of Durban, South Africa. The outcome of the upgrade process in Zwelisha was successful due to the imperative role of the community, who participated in achieving a remarkable improvement to tenure security and wellbeing (Patel, 2013). Another pioneering upgrading program was carried out by Surabaya city in Indonesia. In 1969, the city initiated the Kampung Improvement Program (KIP), which became a model for slum upgrading nationally and internationally. The main goal of the KIP was to put the residents of the Kampung slum at the heart of the upgrading development, provide them with the necessary services and infrastructure, and offering livelihood opportunities. This program became one of the significant examples of successful slum upgrading in the world (Das A., King, R., 2019).

The upgrading approach has also been adopted by some Arab countries such as Egypt, Tunisia, and Morocco. In 2008, Egypt issued the Unified Building Law, which deals with issues far wider than urban structures and their locations. It aims not only to reorganize the approach to strategic urban planning but also to create future visions for Egyptian cities. The Unified Building Law emphasizes that informal areas will not be demolished; they will be considered as part of the urban fabric of the city, and they will be provided with statutory benefits of facilities and investments to cope with the planned and serviced areas of the city. Representative examples that employed the strategy of upgrading approach also include Manshiet Nasser and Ezbet el Haggana, the largest long-standing informal areas in Cairo (UN-HABITAT, 2011). Over the last few decades, Saudi Arabia has faced many challenges because of the enormous population growth of unplanned settlements, particularly in major cities such as Jeddah and Riyadh. Saudi Arabia is one of the largest countries in the Arab world, which encompasses an area of approximately 2,149,690 km² and a population of approximately 34,490,879 inhabitants (total number of population of Saudi is of 20,768,627). However, the density is of approximately 15.5 persons/sq km. Jeddah is a large city with an area of approximately 5460 km². It is the second-most populous city in the kingdom, with a population estimated around 4,076,000 as of 2017, which is almost 12% of the total population of Saudi Arabia (World Population Review, n.d.).

Jeddah is the home to the largest port on the Red Sea, which represents the main gateway to the two holy cities of Makkah and Madinah. The analysis of the city of Jeddah has shown significant problems of the urban structure, including the isolation of the historic area from the rest of the city, moving the center of urban structure to the north of the city, the excessive imbalance between urban growth and sprawl, and, most importantly, the spatial segregation of the unplanned settlements, which in some cases turned into urban slums (Karimia, 2012). Although Jeddah is currently

enjoying unprecedented growth and is undergoing massive urban development, it faces substantial urban challenges. The significant expansion of the uncontrolled and unplanned settlements in the last century has created complicated problems that affected the urban fabric and infrastructure of the city (UNICEF, 2012). According to the report released by the Municipality of Jeddah in 2008, the city comprises more than 54 unplanned settlements, which occupy around 16% of its area (Fig. 1) (Al-Malki, Mashael, 2008). It also houses more than one million people living in unplanned settlements, which represents about one-quarter of the city's population. The central four large informal districts in Jeddah are Bani Malik, Al-Ruwais, Al-Boghdadiyah, and Al-Sabeel (Fig. 2). The majority of these neighborhoods are characterized by the lack of healthy living conditions, proper infrastructure, including water, sewage, electricity, safe roads, and open spaces.

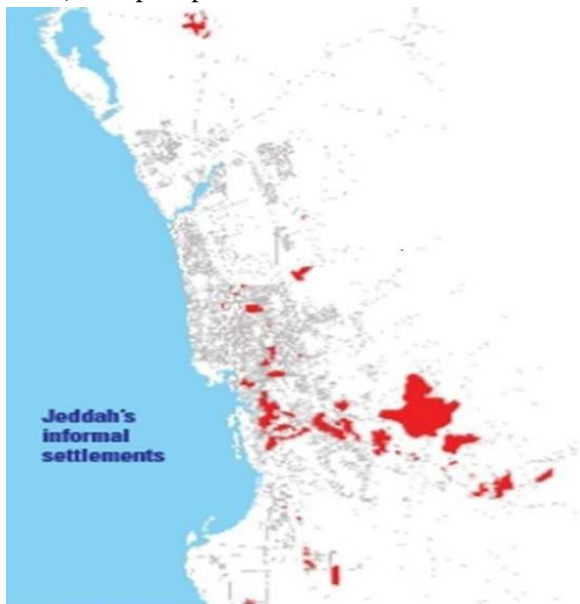


Fig. 1. Informal Settlement in Jeddah (source: UNICEF, 2012).

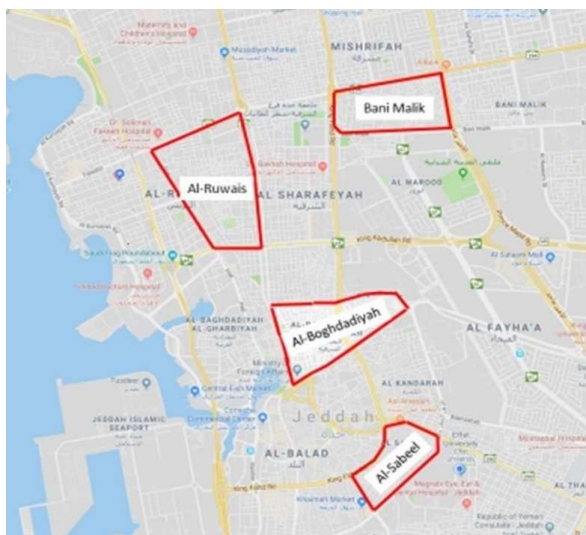


Fig. 2. Main unplanned settlements, Jeddah.

The literature review has also shown that Jeddah's authority has brought the issue of these unplanned settlements to the national scale and suggested comprehensive planning programs. For example, in 2006, a royal decree was issued to approve the establishment of Jeddah Development and Urban Regeneration Company (JDURC), which is a state-owned company, represented by the municipality of Jeddah. The company has a fully independent financial responsibility to prepare and implement urban regeneration programs and projects in Jeddah. In 2008, JDURC initiated the development of Al-Ruwais unplanned settlement, which lies in the center of Jeddah (Fig. 2) and represents the first urban regeneration experience in Jeddah. The primary aim of the project was to improve living condition and provide a new world vision of urban development. However, the project program followed the evacuation-demolition approach to allow for a new cultural landmark for both Jeddah and the country (Fig. 3). Unfortunately, the project did not meet any success, and the residents refused to leave their houses hoping for an improvement and upgrading plan instead of the evacuation option (JDURC, n.d.).

In 2007, Jeddah municipality announced the launch of the re-planning and upgrading program for many of the informal and unplanned settlements in the city, including Al-Sabeel district. As part of the development program, the project aimed to facilitate the transportation system of Al-Sabeel by expanding its main streets. The project included the demolition of 165 buildings in order to increase land availability for the expansion of six streets in the district. Accordingly, the government handed over the appropriate compensation to the owners of the removed buildings, and the demolition process was supervised by relevant government authorities, including the civil defense, telecommunications company, electricity, water and sanitation, traffic, and the police (Ghamdi, 2007). Unfortunately, the municipality pended the project because of a conflict with the contractor and the residents. The majority of the demolished houses have turned into places for criminal activities, and storages for contraband and intoxicants, which consequently pose a threat to the youth of the area. Also, illegal laborers occupied these abandoned houses and increased the population of the area. In a broader sense, we can attribute this problem to the absence of a definite system of commissioning projects and implementing them in a way that ensures the security and safety of citizens (Al-Faraj, 2014).

Within the perspective of these developments, it seems that none of them involved the concept of upgrading and community participation. Instead, the city approached the issue of these settlements from the viewpoint of evacuation and demolition to allow for setting up entirely new modern mega projects. However, Al-Sabeel district is a particular research

topic because of its unique location in Jeddah city center. It represents a reliable tool for gaining a more in-depth insight into the complex urban phenomenon of unplanned settlements in Jeddah. Al-Sabeel district also allows for the opportunity to explore their changing physical characteristics and their consequences on the urban structure of the city. Although Al-Sabeel faces many different interrelated problems including, socio-economic, environmental, poverty, poor planning, safety and violence, health, and wellbeing, this research

will focus on the physical condition of the district's built environment. The main objective of this research is to identify the essential issues related to the issue of unplanned settlements in Jeddah through the study, analysis, and assessment of the built environment of Al-Sabeel, namely building conditions, streets network, and infrastructure problems. The primary purpose of this study is to define a set of recommendations for upgrading the physical condition of Al-Sabeel district and future unplanned settlements in Saudi Arabia.



Fig. 3. New proposal for Al-Ruwais unplanned settlement (the evacuation-demolition approach) (source: JDURC, n.d.).

2. METHODOLOGY OF THE STUDY

This research represents a preliminary study aiming to identify the physical condition of the built environment in Al-Sabeel district. The study adopted a qualitative research methodology based on an in-depth understanding of the physical built environment of the district provided by the rich experience of residents and their own social situations. Also, the qualitative research relies heavily on purposive sampling strategy, which refers to the deliberate selection of specific settings from which researchers can learn extensively about the issues under examination (Carpenter, C. M., Suto, M., 2008). This methodology can provide essential information about the physical condition of the existing buildings in Al-Sabeel District. The research methodology consisted in three phases; an extensive literature review, a face-to-face interview with the residents of the area, and field visits to document and analyze the physical condition of the existing buildings in a specific study-zone.

a). The study began with collecting the appropriate literature review data and the available information that relates to the research topic and sheds

light on the general context of slum problems and upgrading programs.

b). The study also consisted in carrying out some 32 face-to-face interviews with the district's residents to identify the challenges they face. The interviewees responded to a pre-prepared questionnaire survey that was structured on four main aspects, namely general information, building physical condition, infrastructure problems, and mobility and accessibility difficulties (Appendix A). The main intention of the questionnaire was to explore the residents' daily problems, as well as their personal opinions about the physical environment of their district. The research employed the survey interviews as the method of data collection. Data was further analyzed and interpreted to draw recommendations and conclusions. Although the number of interviewees was relatively small, it managed to reflect the actual context and image of the area and enriched us with a realistic response to the residents' living conditions.

c). The last phase included the selection of a small sample study-zone, which was systematically and thoroughly investigated (Fig. 4). The field study was conducted on foot by the author and took place from 22

December 2019 to 7 January 2020. The primary purpose of the field study was to develop an actual image of the present situation in the area and collect as much data as possible. The study-zone included 40 houses (Fig. 5), for which the author mapped their physical condition, recorded their heights and materials. Notes were also taken about the infrastructure condition, such as water, sewage, electricity, and the road network (Appendix B).



Fig. 4. Al-Sabeel district and the study area (source: Google maps).



Fig. 5. Distribution of houses within the study area.

The outcome of the field study expresses both the author’s observation of the physical conditions of the district and the results of the analysis based on residents’ responses to the questionnaire. Although the site visits allowed for a useful observation of the physical built environment, the residents provided the most valuable insights into the lacking services, facilities, and needs for better living conditions.

3. DESCRIPTIVE ANALYSIS OF THE EXISTING URBAN CONTEXT

Jeddah has a significant rate of migration from other regions in Saudi Arabia, which contributes to the growth of the unplanned settlements. It seems that the development of low-cost housing in Jeddah cannot accommodate all migrants, and consequently, they find a home in these informal residential areas. The approximate population of Al-Sabeel District is 50625 inhabitants with a population density of 62019 people/sq km (Appendix C). Al-Sabeel has a

significant number of expatriates; the majority of them are of African and Yemeni nationalities. They try to create their living environment, as best adapted to their economic capacity and cultural background, with hopes for modernization and urban development (Arab News, 2015). The literature review, observation during site visits, and the results of the interviews with the residents highlighted numerous different problems and critical issues that affect the living conditions in Al-Sabeel district. However, overcrowding, dilapidated buildings, small size dwellings, and inadequate streets are the main features of the district. The majority of streets are unnamed, including the main streets connecting the district with the city’s road network. There is also a clear shortage of facilities and services such as schools and medical centres and a lack of open spaces and green areas, as it is confirmed by 88% of the survey participants (Table 1). In general, Al-Sabeel, as a neighborhood, is not well-planned, unhealthy, and ultimately unsafe.

Table 1. Responses of residents regarding the existing services in Al-Sabeel District.

Schools, clinics, open spaces, and green areas	No. of participants	Share (%)
Yes	2	6
No	28	88
Do not know	2	6

3.1. Site location and road network

Al-Sabeel lies in the southern region of Jeddah and occupies about 816,273 sq m. The district is bordered by four main roads, King Fahd Road in the northwest, King Khaled road in the southeast, Old Makkah road in the northeast, and the unnamed street-1 in the southwest.



Fig. 6. Site location and the main streets in Al-Sabeel District.

There are two main internal streets; unnamed street-2 and unnamed street-3, which connect King Khaled road and King Fahd road. Also, there is another unnamed twisting street-4, which connects Old Makkah

road and the unnamed street-1. Al-Sabeel is characterized by crowded internal narrow streets and high density of buildings, which in many cases obstruct the access to the essential street network. However, the road network of Al-Sabeel reflects a variety of street types, which vary in width, length, and functions (Fig. 6). Thus, there is a critical need to address part of these prevalent road network problems by innovative approaches that provide solutions and identify new opportunities.

3.2. Al-Sabeel land use

Al-Sabeel neighborhood comprises many different land uses, including residential, commercial, mixed commercial/residential, and public facilities and utilities. According to residents and the observation of

the field study, residential buildings occupy most of the land in the district, while commercial buildings, storages, and industrial buildings hold only a small share.

The field study also recorded significant deficiencies regarding areas providing entertainment and social life, along with the lack of roads, streets, lanes, and parking lots.

3.3. Building conditions

The majority of the buildings in Al-Sabeel district is mostly poor and tends to get worse. The survey results show that 66% of the buildings are in poor physical condition, and many of them are about to collapse (Fig. 7).

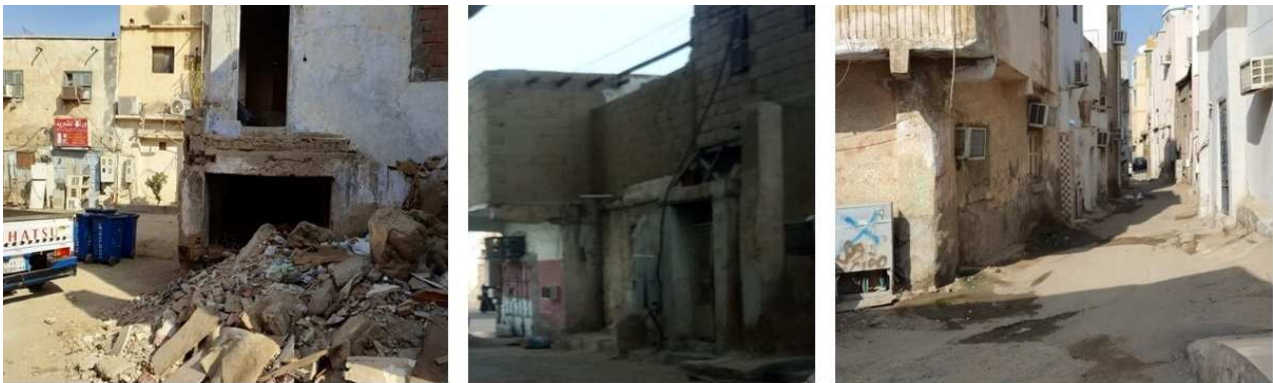


Fig. 7. Examples of buildings with deteriorated physical condition.



Fig. 8. Buildings of different heights in Al-Sabeel District.



Fig. 9. Construction materials used for buildings in Al-Sabeel District.

Also about 28% of the buildings are in fair condition but need renovation, while only 6% of them are in good condition (Table 2).

This apparent contradiction among buildings of various levels of quality creates an unpleasant and disharmonious visual effect. The height varies as well (Fig. 8), but the most of them are one and two storey buildings representing 41% and 44% of the total number, according to the responses of participants. Three-storey buildings represent about 9%, while the four-storey ones represent only 6% (Table 3).

Many of Al-Sabeel buildings have been built illegally using many different construction materials (Fig. 9). While 63% of the buildings are built with cement blocks, for 28% of them reinforced concrete was used. Other supporting building materials such as stone, mud, and metal could be found and they were found in about 9% of the cases (Table 4).

Table 2. Residents' response regarding the physical condition of their buildings.

Building condition	No. of participants	Share (%)
Poor	21	66
Fair	9	28
Good	2	6

Table 3. Building heights – results of the survey.

Number of floors	No. of participants	Share (%)
1 floor	13	41
2 floors	14	44
3 floors	3	9
4 floors	2	6

Table 4. Building materials – survey results.

Building material	No. of participants	Share (%)
Reinforced concrete	9	28
Cement block	20	63
Brick	0	0
Wood	0	0
Metal	0	0
Others	3	9

3.4. Infrastructure and hygiene problems

Al-Sabeel is characterized by extremely deteriorated infrastructure and hygiene problems, which are responsible for the creation of an unhealthy and polluted environment for the residents (Fig. 10). For example, 56% of the respondents declared that many areas of the district are characterized by a bad smell coming from the uncollected rubbish, which exposes residents to health issues. Also, 53% of the

survey participants agreed that the exposed electrical wires are common features of almost all buildings, which causes fear of sudden fire or hazards causing death. Furthermore, 69% of them believe that water and sewage piping systems are improper, inadequate, and affect the safety of their buildings. Residents confirmed that many streets are flooded with sewage water, which creates an unhealthy contaminated environment (Table 5).

Table 5. The residents' responses regarding the existing infrastructure and hygiene condition.

Rubbish	No. of participants	Share (%)
Collected	12	38
Uncollected	18	56
Burnt	2	6
Electrical wires	No. of participants	Share (%)
Power box	6	19
Hidden in walls	9	28
Exposed outside the house	17	53
Water and sewage pipes	No. of participants	Share (%)
Good	2	6
Fair	3	9
Deteriorated	22	69
Flooding streets	5	16

3.5. Mobility, accessibility, and open spaces

Street networks have always been an essential tool that links and integrates the unplanned settlements to the overall system of the city. Site visits to Al-Sabeel district proved that there is a remarkable lack of public transport services and other facilities to be used during emergencies, such as fire, ambulance, and police vehicles.

Examination of the road network (Fig. 4) shows that the district is connected to the city main road network through two internal streets, but the many obstacles here do not allow easy access to these internal streets from the other numerous narrow streets and lanes (Fig. 11).

While 78% of the survey participants believe that the district's street network is unplanned in general, 44% of them stated that their houses lack any access to the main roads, and 37% have only partial access to the streets from their blocks. Besides, 81% of the interviewees confirmed that the district lacks parking lots, and consequently, cars block the narrow lanes for any emergencies (Table 6).

However, the absence of appropriately connected streets and lack of parking areas creates several problems that affect the mobility of the

residents and consequently affect their daily life and distress them.



Fig. 10. Deteriorated infrastructure, exposed electrical wires, sewage, uncollected rubbish.



Fig. 11. Narrow street configuration dominating the district.

Table 6. Mobility and accessibility – survey results.

Street network	No. of participants	Share (%)
Planned	7	22
Unplanned	25	78
Accessibility	No. of participants	Share (%)
Easy access	6	19
Partial access	12	37
No access	14	44
Parking lots	No. of participants	Share (%)
Yes	6	9
No	26	81

4. DISCUSSION

Like many Gulf cities, Jeddah represents a fast-growing city, which experiences a transformation on many different levels. Over the last few decades, Jeddah continues to deal with the consequences of rapid urban growth, including shortage of affordable housing and inadequate quality of public services, infrastructure, and environmental facilities (UN-HABITAT, 2018). Informal and unplanned settlements are no longer marginalized neighborhoods that represent a small portion of the urban population in the

world. They have become a distinct category of human settlements, which individualized within the fabric of modern cities, specifically in the developing world (Moreno and Warah, 2006). Statistics show that the number of slum dwellers increases by six million every year. Thus, the population of slums and unplanned settlements is expected to continuously grow if no appropriate and authoritative action is taken and implemented.

The subject of unplanned settlement is a complex one, not only for Saudi Arabia but worldwide, as well. The growth of slums and unplanned settlements today is a fact that will negatively affect the future urban regeneration of Saudi Arabia unless decision-makers adopt a different approach that involves the community in the upgrading and development processes.

According to the United Nations report on sustainable development, there are many successful examples of unplanned settlements upgrading programs, which created community-housing initiatives, reduced poverty, and averted further slum growth, which were implemented in many different countries worldwide, namely Yemen, Jordan, Brazil, Philippines, Chile, and Costa Rica (United Nations, 2014). The survey revealed that 63% of the participants expressed willingness to serve in community projects voluntarily, while 28% of them are ready to work with a deriving benefit (Table 7). However, there is a need for government intervention, stakeholders, financial and

political support, and experts to help in planning work activities. Slum upgrading is not only about extensively involving the residents in the development of their district but also about growing the whole community's ability to sustain itself. Although the concept of upgrading is not new, it holds promising results that can help with the problems of Al-Sabeel's built environment.

Table 7. Future upgrading and self-help participation – survey results.

Future upgrading projects	No. of participants	Share (%)
Yes	0	0
No	32	100
Community participation	No. of participants	Share (%)
Yes voluntarily	20	63
Yes with a deriving benefit	9	28
No	3	9

More broadly, this paper indicates that Al-Sabeel settlement needs immense efforts to be recognized and visible in the public sphere. Although Jeddah municipality has made essential attempts to improve Al-Sabeel's built environment, the government should also define a set of strategies that would promote more social inclusion in the city. The central core of this argument is to bring the upgrading concept and community participation approach to the level of corporate discourse, to be expansive and encompassing. Officials should have the vision to explore the potential of community to be able to provide them with the appropriate solutions. Hou et al. (2015) believe that unplanned settlements embrace the potential of extraordinary design innovation, where scarcity and adversity breed ingenuity and resilience, and where nothing exists, everything is possible. Unplanned settlements have the potential to provide better living conditions, but they still face various challenging issues that need revolutionary solutions so as to achieve a better habitable environment for people. As cities are moving towards becoming smart in the future, they can also play a vital role in transforming these areas into lively neighborhoods and integrate them into broader urban development systems. Renovating these settlements with street networks, green spaces, and upgraded infrastructure would improve the physical living conditions and quality of people's lives, as well as reducing the associated health risks. One of the advanced solutions is to adopt the technological and digital applications that can cause a notable change in their future living conditions. The study showed that Al-Sabeel district is dense with buildings, which in many cases, block access to the essential streets network and

hinder residents' movement. However, this problem could be overcome through innovative approaches that provide solutions and identify new opportunities, such as Map Kibera. It is one of the earliest digital technology and development projects expressing the significant interplay between technology and local slum communities. This project depends on trained young people from the community to survey their neighborhoods, and track roads using GPS devices, and then editing the map online in a computer laboratory. This technology has created the first open map of the Kibera slum in Nairobi in 2009 (Hagen, 2017). Another significantly advanced technology is the 'open Reblock' that creates a web-based platform to simplify the process of improving slum living conditions. This project intended to develop the existing street network of slums with the least-disruptive processes to provide access to their entire infrastructure (Open Reblock, 2015). The tool uses an algorithm to identify the best and simple reorganization of a cluster of blocks so that it can get access to the street. The 'open Reblock' was used successfully in Epworth neighborhood of Harare, in Zimbabwe, as well as in Khayelitsha, a township in Cape Town, South Africa (Brelsford, 2019).

Although these innovative solutions, which depend on smart applications, can play an essential role in the implementation of Al-Sabeel's upgrading road network, they must not be imposed on the district, but instead, they should be rooted in the urban context of the area and serve the realities of residents' living conditions. However, the cornerstone of Al-Sabeel's upgrading process is its residents, who conveyed a single overarching need, which is the improvement of the physical environment that can produce a very positive impact on their lives. The analysis shows that the residents voiced their concerns to play a role in the urban upgrading of their district. Thus, without reducing the cultural distance between the policymakers and members of Al-Sabeel's residents, there will be a lack of understanding of the essential components of the upgrading processes. Therefore, the authority in Jeddah needs to fully exploit the community's ability to contribute, to some extent, to the implementation of any proposed upgrading project. The standpoint of this discussion is that the engine of change is the residents of Al-Sabeel, who should be mobilized to help in the development process, and without a strategy for long-term participation, no project will be truly sustainable.

5. CONCLUSION

The authority in Jeddah has undertaken many noteworthy steps towards the improvement of living conditions in many of the unplanned settlements, including Al-Sabeel, but they could not keep pace with the rapid population growth in these areas. The growth of these unplanned settlements could be attributed to

the lack of sustainable housing policy in Jeddah. The government has enough resources allocated to improve and maintain the infrastructure and services, but they have faced many problems and obstacles that delayed the development of these areas. Meanwhile, several organizations made efforts and investments to control the growth of the unplanned areas, but without consideration to a sustainable urban development proposal to solve the problem. In this context, government policies and strategies involving the demolition of informal settlements and slums need to be critically questioned. While the objectives of unplanned settlements and slum upgrading of the city of Jeddah can be understood as part of a broader ideal urban development model, the lives of residents, who are disadvantaged and already marginalized, remain flawed. For example, what is reflected in Al-Ruwais proposal (Fig. 3) is the shift towards modern, visually attractive vertical housing instead of the existing local urban patterns, which is based on the residents' views on their livelihoods. Thus, Jeddah's authority needs to understand the implications of the residents' lives when applying the replacement approach and to address and consider their concerns.

Al-Sabeel's unplanned settlement has its individuality, and it indeed differs from other slums in Jeddah. It represented a culture of deficiency and was noticeable for its lack of civic amenities, which stood out against the backdrop of the progressive character of Jeddah city. The strength of a slum or unplanned settlement lies in its physical infrastructure, including street connectivity, access to improved sanitation, tapped water, sewerage, and power supply. Therefore, the city of Jeddah should adopt a broader challenge of ensuring equity in the provision of these infrastructures and services. In addition, the poor living condition in Al-Sabeel's deteriorating built environment affects the health of people mentally and physically and can cause diseases. Also, as these deteriorating areas remain isolated from the rest of the urban society, they will create serious social and deviant behavioral problems such as crime, vandalism, drug abuse, alcoholism and crime. However, Al-Sabeel settlement should not only be studied in the context of its physical condition but also the social dimension, which requires an interdisciplinary approach, should be considered. There is still a need for more in-depth investigations of the social structure of the district, which is beyond the scope of this paper. Thus, extensive research is needed to help and support the government to find appropriate solutions to this pressing problem.

In this regard, the importance of community participation approach as a means of improving the physical condition of the urban environment and uplifting residents from a degrading quality of life is recommendable. Hence, the authority and other stakeholders should abandon the prevailing idea of slum clearance, and the construction of a new housing

approach. Instead, they should determine what works for such unplanned settlements and tailor a specific development plan that would correspond to their contextual situation. In addition, the urban authority needs to develop innovative ideas to solve the district's problems and improve the physical environment.

Also, Al-Sabeel residents should not be seen just as beneficiaries but as the primary stakeholders, as well as the focal point of developing the physical built environment. Finally, while the collected survey data provide a considerable measure of the physical status of the built environment of Al-Sabeel, it is often not precise enough due to difficulties in identifying and interviewing a more significant portion of the residents. However, the survey's results of this research may not be necessarily generalized for all the informal settlements of Saudi Arabia and hence requires the inclusion of other representative case studies for slums and unplanned settlements.

No doubt, improving living conditions in unplanned settlements is a critical challenge that Jeddah will face over the next few decades, and Al-Sabeel settlement may remain vulnerable to being designated for redevelopment and eviction by the government.

6. RECOMMENDATION

The study covered the analysis of the physical context of Al-Sabeel, which is an essential component of what constitutes a healthy environment for the community. The survey has brought essential issues that affect the physical condition of the district and have an impact on the welfare of the residents, such as lack of properly connected street network, dilapidated houses and deteriorated infrastructure. These problems should be viewed within the context of finding appropriate minimum intervention solutions, without replacing or removing the entire district. The following are some of the recommendations that could mitigate the problems that residents face and provide valuable insights towards the development and upgrading of similar unplanned settlements.

a). Local authorities should be actively involved in implementing infrastructure projects with a vision of sustaining the wellbeing of the district's inhabitants.

b). Jeddah municipality should manage the upgrading of Al-Sabeel district by consulting the residents in the proposed renovation plans and considering their sense of place and social network.

c). The government should consider the demolition of the abandoned, dilapidated houses, which evoke fear and a rapid decline in the health and welfare of the community. The demolition of these houses represents a potential opportunity to preserve the land and establish new open green spaces or parking areas. They will also help enhancing the environmental quality

of the district and provide a sense of pride to the inhabitants.

d). The existing street network, specifically the internal one, needs a thoughtful study to find practical and innovative solutions that create smooth movement, ensure safety, and connect it to the city's main network.

e). A framework of the community self-help plan could be considered to encourage the residents of Al-Sabeel to take part in the development while keeping their own identity.

g). The government and the public sectors can play a significant role in solving the problem of unplanned settlements by investing in infrastructure improvement schemes as well as financing low-income housing programs.

h). Finally, as this research focused on analyzing the physical built environment, a more in-depth study in the area of upgrading as an alternative means of intervention would be of great help in the future. For example, further studies should be conducted in order to examine what other factors, such as migration, lack of education, health issues, socio-economic, and environmental, may affect the improvement programs of slums and informal settlements.

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APPENDIX A. Urban Unplanned Settlements in Saudi Arabia, Case Study: Al-Sabeel District, Jeddah Questionnaire – Face-to-face interview

This questionnaire intends to investigate the physical condition and common problems of Al-Sabeel district in Jeddah City. The questionnaire is divided into four sections, including personal information, building physical conditions, infrastructure problems, and mobility and accessibility. The outcome of the

questionnaire will help to analyze and assess the built environment of the district. All information mentioned in this questionnaire will be strictly confidential.

A. General Information

1. Your name
2. Have the residents of the district been informed about any future upgrading project?
Yes – No
3. What is the prevailing building type in the district?
4. Would you participate in a self-help community project to improve the district's physical condition?
Yes voluntarily – Yes with deriving benefit – No

B. Building physical condition

1. What is the building material for your house?
Reinforced concrete – Cement block - Brick – Wood – Metal - Others
2. How many floors in your house?
One floor – Two floors – Three floors – Four floors
3. What is the physical condition of your house?
Poor – Faire – Good

C. Infrastructure and Hygiene problems

What is the status of the district's infrastructure and hygiene conditions?

1. Rubbish
Collected – Partially collected – Uncollected - Burnt
2. Electrical wires
Power-box – Hidden in walls – Exposed outside the house.
3. Water and sewage pipes
Good - Fair – Deteriorated – Flooding streets

D. Mobility, accessibility, and Open spaces

1. Street network
Planned – Unplanned
2. Are all the internal streets and lanes have access to the main road?
Easy access – Partial access – No access
3. Are there parking lots for the resident's cars?
Yes - No

E. Services

1. Are there adequate schools, clinics, open spaces, and gardens for social life activities?
Yes – No – Do not know

APPENDIX B. Number of residents/unit & Buildings' height, material, and physical condition.

No.	Person	Height/ Floor	Material	Building Condition		
				Poor	Fair	Good
1	12	2	Cement Block	√		
2	12	2	Reinforced Concrete	√		
3	6	1	Cement Block	√		
4	6	1	Cement Block	√		
5	6	1	Cement Block	√		
6	24	4	Reinforced Concrete		√	
7	12	2	Reinforced Concrete	√		
8	12	2	Cement Block		√	
9	12	2	Cement Block		√	
10	12	2	Cement Block	√		
11	12	2	Reinforced Concrete	√		
12	12	2	Cement Block	√		
13	12	2	Cement Block	√		
14	6	1	Reinforced Concrete	√		
15	12	2	Reinforced Concrete	√		
16	12	2	Cement Block	√		
17	18	3	Reinforced Concrete			√
18	12	2	Cement Block		√	
19	12	2	Reinforced Concrete		√	
20	12	2	Reinforced Concrete		√	
21	24	4	Reinforced Concrete			√
22	6	1	Cement Block	√		
23	6	1	Cement Block	√		
24	6	1	Cement Block	√		
25	6	1	Cement Block	√		
26	6	1	Cement Block	√		
27	6	1	Cement Block	√		
28	6	1	Cement Block	√		
29	6	1	Cement Block	√		
30	6	1	Cement Block	√		
31	6	1	Cement Block	√		
32	6	1	Cement Block	√		
33	6	1	Cement Block	√		
34	18	3	Reinforced Concrete		√	
35	12	2	Reinforced Concrete	√		
36	18	3	Reinforced Concrete		√	
37	12	2	Cement Block		√	
38	6	1	Cement Block	√		
39	12	2	Cement Block		√	
40	12	2	Cement Block	√		
Total	420			28	10	2
%				70	25	5

APPENDIX C. Calculations of the density of Al-Sabeel district.

	Calculations	Source
Area of Al-Sabeel District	$816273 \text{ m}^2 = 0.816273 \text{ Km}^2$	Google map
Area of the study zone	6772 m^2	Google map
Study zone population	420 person	Appendix B
The approximate population of Al-Sabeel	$816273 / 6772 \times 420 = 50625 \text{ persons}$	
The density of Al-Sabeel district	$50625 / 816273 \times 1000000 = 62019 \text{ persons/Km}^2$	