

Egyptian Slum Governance

- Karafa Slum Renovation Design

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Abstract: The once highly prosperous industrialization brought a large population to Cairo, but now Cairo faces a series of problems such as a lack of infrastructure, a large wealth gap, and extreme religious hazards, making it unable to continue accommodating so many residents. In this situation, the Egyptian authorities chose to alleviate the population pressure in Cairo by relocating their capital, but for the poor who make up the majority of Cairo's population, they cannot afford the cost of relocating to the new capital. In response to this situation, this paper chooses to start from several aspects such as public transportation, public service facilities, and residential houses in old Cairo. Through measures such as the three-dimensional transformation of transportation, supplementation of social infrastructure, and renovation and reuse of old houses, The living environment of the poor in Cairo can be improved, and conditions can be created for the poor to move out of the slums, thereby fundamentally solving the problem of excessive poverty.

Keywords: slum, firefighting, community node, stereoscopic transportation, public service

1. Introduction

For the poor living in Cairo, the existing old Cairo faces problems such as traffic congestion, dense population, and severe aging of urban facilities. However, the apartment price of up to \$5000 in the new Cairo are also a problem for them [1]. Especially after the July Revolution, urbanization in Egypt accelerated. Slums have become an important form of housing in Cairo. The abnormal expansion of cities, worsening poverty, and lack of government management have jointly led to the emergence and spread of slums in Cairo [2]. This form of housing has had multiple impacts on Cairo and poses a serious threat to urban social stability. If the complex situation between the old and new Cairo is not properly handled, the wealth gap for Cairo will become increasingly large. The wealthy will go to the new Cairo with a more complete environment, security, infrastructure, and other aspects. The marginalized members of society who stay in the old Cairo are easily incited by extreme religions and ultimately form social unrest factors when facing the huge social gap in front of them. Existing research has focused on the political aspects of Egypt's slums, as well as people's livelihoods in areas such as employment, healthcare, and food subsidies, while paying less attention to housing. Bi pointed out that it is the national housing policy that has exacerbated the rapid expansion of urban fringe areas since the mid-1970s. For rural immigrants who have nothing and urban extremely poor

populations, it is impossible to solve the housing problem through normal channels, which has led to the formation of urban fringe areas and caused serious social problems [3]. Sarah Sabri, introduced the poverty situation. Many families face the problem of government subsidies unable to meet non food expenses, which leads to a very poor life for them. These expenses include rent, children's education, transportation (workers and students), medical care, water, sanitation facilities, and electricity [4]. At the same time, there is a detailed introduction to the living expenses and living environment of informal settlements in the Greater Cairo region. The main focus of this paper is on the transformation and design of slums in Cairo in the face of current Egyptian society, including public transportation, public service facilities, and residential houses, in order to achieve better development in the context of Cairo's relocation.

2. The Current Situation of Egyptian Slums

2.1. Geographical Location

Cairo is the capital and largest city of Egypt, as well as the largest city in Africa and the Arab world. It spans the Nile River and is the political, economic, cultural, and transportation center of the entire Middle East region, located in the northeast of Egypt [5]. Standing in the capital of Egypt, a gray building area of about 6 square kilometers can be seen from the high-rise buildings of Cairo. Underground is a cemetery for the wealthy, with millions of poor people living on the ground. In most countries around the world, cemeteries are located in quiet suburban areas, rarely visited, and solemn. However, in the southeast of Cairo, there is a special area where the landmark buildings Saladin Castle and the "garbage mountain" Mukatam are located. Between the urban areas, there is a low and dilapidated, lifeless gray building complex. This is the most famous "Karafa" cemetery complex in Cairo, commonly known as the "City of the Dead".

2.2. Cultural Conditions

According to the World Heritage Committee, Cairo is one of the oldest Islamic cities in the world, hidden in the modern urban area, with famous mosques, Islamic schools, Türkiye bathrooms and fountains. Cairo was built in the 10th century AD and later became the new center of the Islamic world, reaching its peak in the 14th century [6].

Thanks to Cairo's lack of devastating wars, a large number of historical and cultural buildings are preserved in the city, with over 800 mosques throughout Egypt.

2.3. Function Changes of Egyptian Slums

In history, Egypt was one of the few countries in the Middle East with a well-developed economic system and diverse economic structure [7]. The rule of Western colonialism changed the economic structure of Egypt, resulting in issues of singularity and dependence in the Egyptian economic structure, leading to the contemporary Egyptian economy falling into a long-term rent-based economic vortex. Modern Egypt once achieved a period of rapid economic development through four major foreign exchange earning industries: remittances, oil exports, Suez Canal transit taxes, and tourism [8]. But at the same time, it also caused a large number of people to gather in Cairo during this period in search of employment opportunities. With the sharp drop in international oil prices in 1986 and the outbreak of the Iraq Iraq War in 1988, the Gulf War in 1991, and the Iraq War in 2003, Egypt's four major sources of foreign exchange income were severely affected. Recently, due to the Russia-Ukraine conflict, foreign indirect investment totaling about \$25 billion fled from the Egyptian market, and the liquidity of the US dollar and international reserves were strained, which severely impacted imports [9]. From 2014 to 2017, the deposit, loan and treasury bond interest rates of the

Egyptian Central Bank rose rapidly. Since March 2022, Egypt's inflation rate has continued to rise, reaching over 21% at the end of November, the highest level in nearly five years, mainly due to the rise in food, beverage, and service prices [10]. The living standards of ordinary people have been stagnant for a long time, and under this series of blows, a large number of people who came to Cairo to work have no choice but to live in public cemeteries around Cairo, forming thousands of slums around the entire city of Cairo.

3. Current Issues

3.1. Lack of Infrastructure

Due to the slow development of urban industry and commerce and a lack of skills, less educated migrant workers often have to work in low-paying daily jobs that lack of security, and even part-time jobs. In illegal settlements where the urban poor live, houses without official planning mean there is no infrastructure such as schools and hospitals, and power lines need to be connected privately. Narrow streets are filled with sewage, and garbage piles are not cleared by anyone. On the other hand, since the Nasser era, in order to control the population of Cairo, the city government has strictly controlled the construction of new houses. But this has also led to many old houses being in disrepair, with over 50% of the recorded houses collapsing, and more small houses not being recorded [11].

3.2. Increased Negative Emotions in Society

Data shows that in the 1970s, 20% of the bottom poor in Egypt accounted for only 5% of national income; 9.5% of the wealthy accounted for 44.5% of total consumption. For this group of people who came to Cairo to improve their lives, the past rural poverty has begun to be replaced by new urban poverty, causing the pessimism and disappointment of most rural immigrants in the city to spread. As Samuel Huntington said, "Expectations and satisfaction increase sharply, but the growth rate of satisfaction is lower than expectations", or "expectations increase, but satisfaction first increases and then decreases", resulting in a strong sense of frustration and relative deprivation, which may form a political turmoil in the entire society and have a significant negative impact on social stability [12].

3.3. Negative Religious Extremism

Due to the lack of infrastructure and the psychological imbalance among local residents, coupled with the fact that Egypt is now a predominantly Islamic country, some extreme religious ideologies, such as Islamism, which advocates for the transformation of the real society according to the original Islamic teachings, and the subsequent movement of comprehensive Islamization, are easily spread among the poor [13]. When facing social injustice, the poor are prone to developing unstable emotions and being exploited by these extreme religions. These religions will continuously incite the anger of the poor towards the existing order and the upper class, ultimately evolving into terrorist attacks and class conflicts. The government will dispatch troops as soon as it receives information from relevant organizations, but often due to the complex traffic conditions in slums, the results are often minimal, making it difficult to nip these illegal organizations in the bud in the first place. The current situation in Egypt is shown in Figure 1.

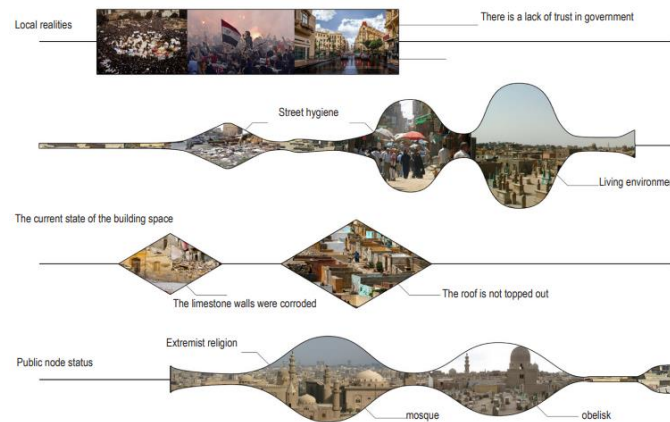


Figure1: Current situation in Egypt.

4. Reform Policy of Egyptian Slum

The Karafa Cemetery complex in Cairo, commonly known as the “City of the Dead”, covers an area of approximately 6 square kilometers [14]. Under the conditions of rapid population growth, tight housing, and expensive land, it has gradually become a concentration of the poorest in Cairo and the area with the highest levels of criminal activity [15].

4.1. Public Transport Planning

Although the slum belongs to a cemetery, it is also an important area for entering the city of Cairo. Whether it is a civil servant who goes to work in the city or a tourist who comes to Egypt, as long as they enter the city or the tourist attractions around Egypt, they will inevitably pass through the city of the Dead. At the same time, Karafa is also a tourist attraction, except for the tombs and mosques of famous people throughout the ages, Saladin Castle, which is located inside the city of the dead. Therefore, the first step in transportation renovation is to use the roads that originally existed in the city of the Dead to widen the roads, from a double lane of about 7 meters inside to a four-lane of about 15 meters, in order to open up the road from the slum to the urban area. the second step is to design for internal transportation. The main commuting methods for people living in the slum are public transportation and walking, and public transportation is processed through the widened roads mentioned above. Therefore, the design of internal transportation mainly focuses on walking and fire protection. Because the area is essentially a cemetery, it is not advisable to carry out excessive engineering renovations on the surface and underground. Therefore, the design of a two-story elevated road in the area is chosen, and the support between columns is used to lift the road that should have been on the surface up to 8 meters above the ground. The construction of a new road will have a great impact on surface buildings. The specific design of the flat road is shown in Figure 2. Many houses in the area have flat roof structures, and the high-density houses in the slums can be connected by these roofs, a custom has formed in the local area. People like to go to the rooftop at night to have parties, celebrate holidays together, and have fun with their families. The existence of a two-layer road network is to connect the already existing ground transportation in the local area more closely. The width of the second-floor road is 7m to meet the needs of fire vehicles in emergency situations to reach the inner areas of the slums that cannot be reached by ground traffic, and to meet the needs of local residents on the second-floor road.



Figure 2: Road planning.

4.2. Design of Public Service Functions

4.2.1. Creation of Community Node

After conducting research on the entire area, it was found that although the area is large, there is a lack of a management organization similar to a community service point. Therefore, this work consider to combine the local people's faith in Islam, and also to promote the secularization of religion, so that religion is no longer a superior thing, but can be integrated into people's daily lives. In this context, There is no excessive intervention in sacred areas such as the main hall used for religious prayer. The main use is the public space and corridor space in the mosque, including community mediation, public offices and other public service functions. Figure 3 displays, the secular transformation of the mosque. Due to the large number of mosques in the area, the mosque chosen as the community service center can precisely cover the entire design area.

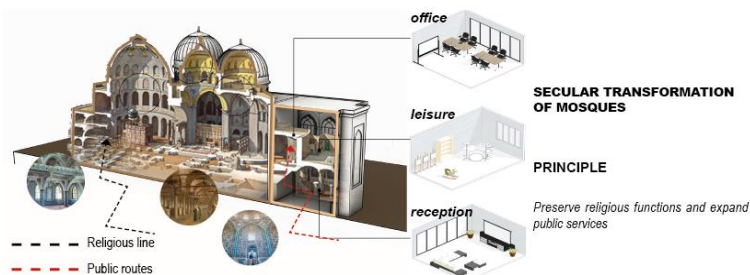


Figure 3: Secularization of mosques.

4.2.2. Construction of Medical and Educational Facilities

Due to the current pyramid-shaped population structure in Cairo, where a large number of people are children, basic medical and educational facilities should have been an important part of the region. However, the opposite is true. The most lacking in the region is these facilities, Due to the unique nature of the land parcel, It is necessary to renovate certain larger housing facilities in the area, transforming them into small community medical centers and children's service centers and other public service facilities, alleviating local medical and educational pressure, and to some extent ensuring the medical and educational level of the area. As shown in Figure 4, the old houses renovated into medical and educational facilities.

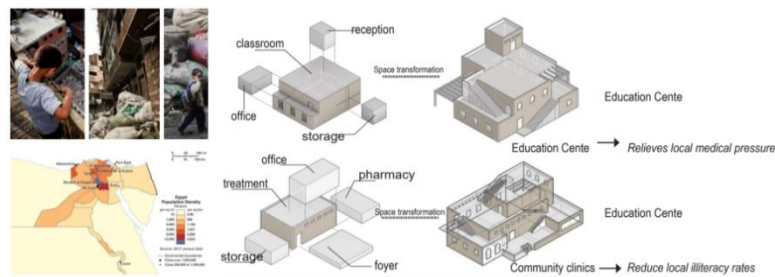


Figure 4: Medical and educational facilities renovation.

4.3. Commercial Block Planning

The disorderly development in this area has lasted for about 700 years, leading to the formation of related businesses, but the overall situation is in a fragmented state. All shops in the entire area are in a disorderly state, making it difficult for merchants to form a stable flow of people passing through the shops. While for customers, it is difficult to find the shops they want to go to. At present, through the newly added mosque nodes, these nodes are connected into a whole through the second-floor road. By setting up shops scattered around the site on the second-floor roads and standardizing the entire area's shops, a local characteristic industry can be created. The introduction of the concept of rooftop markets serves as a way for tourists to experience local characteristics. For residents living internally, these rooftop roads can serve as commuting roads within these areas, To some extent, reducing the impact on the historical buildings present on the site. Figure 5 presents the design.



Figure 5: Design rendering.

The renovation of shops along the street mainly focuses on renovation design. By renovating the second floor or roof platform of the house and installing storefronts, the original residential housing is transformed into commercial housing with the upper floor for commercial activities and the lower floor for residential and goods storage. The renovation measures for the store are shown in Figure 6.

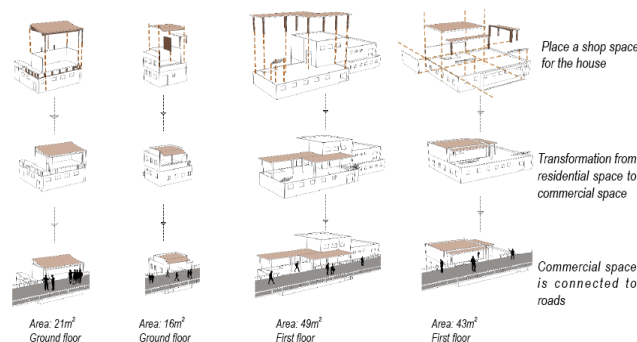


Figure 6: Shop renovation design.

4.4. Residential Housing Renovation

The renovation of residential houses is mainly divided into two parts. Firstly, it is aimed at improving the functional types of houses. Many local houses lack the necessary functional space for kitchens and bathrooms, so appropriate expansion should be carried out to add space for bathrooms and kitchens on top of their original foundation. Additionally, some houses have a small usable area due to being located in the residence of tomb guards. Most of these houses have a small courtyard, which can be renovated to make it a part of the interior space, thereby improving the utilization of space. The second part is aimed at the renovation of the house structure. Most of the houses belong to the category of self-built houses, which are built through stone stacking. Therefore, it is necessary to install beam and column structures inside the houses to support the walls. Afterwards, the local climate is dry and hot, so temperature insulation materials need to be installed on the walls and roofs. Finally, for houses with relatively wide roof platforms, modern methods are used to add a layer to improve the quality of life. The schematic diagram of residential housing renovation measures are shown in Figure 7.

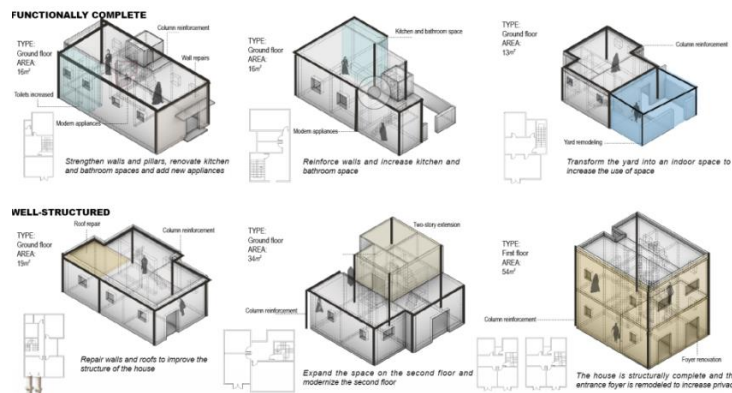


Figure 7: Measures for residential housing renovation.

4.5. Museum Settings

Due to the special situation of the local cemetery. During the construction of the site, it will cause damage to the burial area. In order to preserve these artifacts, museums were therefore built. The details are shown in Figure 8.

In the design of the museum, the inverted pyramid was chosen as the element. The former pyramid represented the dignity and inviolability of the pharaoh, but now when this element can be applied to the museum facility, anyone can come and visit, and the contrast formed by this can bring the museum closer to the local people. In terms of design, the four-sided sloping planes are used to place cultural relics, while the central position is used to introduce the local history and development. At the top is a large observation platform that can be used to see the current transformed appearance. The internal structure is shown in Figure 9.



Figure 8: Museum rendering.



Figure 9: Internal structure of the museum.

5. Conclusion

The renovation design of this paper mainly focuses on four aspects: transportation, commerce, infrastructure, and culture. By connecting local transportation and connecting the project site with the outside world, the location advantage of being located through the Cairo urban area ensures that foreign tourists can enter the area. Later, through the creation of the rooftop street market, the local industry is integrated to stimulate local commercial development. Finally, it is to drive the internal improvement of residents, achieve health security through medical centers, improve cultural level through educational facilities, and improve the quality of life through the renovation of old houses. Besides, the construction of the museum as a commemorative building enhances the sense of identity of local residents. In summary, the core purpose of the transformation measures for slums in this article is to mobilize their own development potential and prevent them from becoming parasites of the city. But how to coordinate the relationship between slums and cities in the subsequent development is also the core issue.

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