



## RELOCATION AND SLUM UPGRADING (CASE STUDY: ZEINHUM IN SAYIDAZEINAB -CAIRO- EGYPT)

Enas El-halwagy<sup>1,\*</sup>, Rasha Ekladios<sup>2</sup>

<sup>1</sup> Architectural Engineering Department , College of Engineering , Canadian international collage - New Cairo-CIC – Egypt,

<sup>2</sup> Architectural Engineering Department , College of Engineering ,Canadian international collage –6<sup>th</sup> of October -CIC - Egypt

\*Correspondence: [Arch.enas.elhalwagy@gmail.com](mailto:Arch.enas.elhalwagy@gmail.com)

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### ABSTRACT

Slums and informal settlements are a major source of social and economic problems in the developing world. They lack the basic services and infrastructure, causing disease and vulnerable to natural disaster. Slum clearance often takes the form of urban renewal projects. The paper main constrain is the insufficiency of slum upgrading strategy This paper aims to focus on the key factors that contribute to the success of formulation and implementation of slums upgrading. The paper methodology depends on the inductive method and the descriptive approach to explain some scientific concepts to clarify the information that will serve the paper problem. In addition to enabling the analytical method to explain and analyze some examples to formulate a strategy that is useful for application on the case study, reaching the results and establishing a theoretical and practical framework that can be applied on further studies. Upgrading projects should be built upon the understanding of the prevailing norms and beliefs in the targeted community. this can be accomplished through out conducting situation analysis of the communities in which they will operate. This includes ensuring public participation to share their voices and their needs, concerns, and interests are met. Community upgrading projects must gain support from community members and create partnerships with stakeholders for successful outcomes in addition to the significance of political commitment and continuous monitoring as shown in the case study in Egypt which emphasizes the need to address socioeconomic disparities and uplift marginalized populations with sustainable solutions.

**KEYWORDS:** Urban Migration, informal settlements, and slum upgrading.

إعادة التوطين والارتقاء بالأحياء الفقيرة (دراسة حالة: زينهم في سيدة زينب - القاهرة - مصر)

أيناس الحلوجي<sup>1\*</sup>، رشا أكلاديوس<sup>2</sup>

<sup>1</sup> قسم الهندسة المعمارية، كلية الهندسة، المعهد الكندي العالي لتكنولوجيا الهندسة والإدارة، القاهرة الجديدة  
<sup>2</sup> قسم الهندسة المعمارية، كلية الهندسة، المعهد الكندي العالي للهندسة، السادس من أكتوبر

\*البريد الإلكتروني للباحث الرئيسي: [Arch.enas.elhalwagy@gmail.com](mailto:Arch.enas.elhalwagy@gmail.com)

### الملخص

تشكل العشوائيات و الامتدادات العمرانية اللامخططة و الغير الرسمية مصدرا رئيسيا للمشاكل الاجتماعية والاقتصادية في المدن النامية. فهي تفتقر إلى البنية الأساسية والخدمات، مما يتسبب في تعرض شاغليها للأمراض والتعرض للكوارث الطبيعية. وكثيرا ما تتخذ إزالة العشوائيات الفقيرة شكل مشاريع التجديد الحضري. العائق الرئيسي للورقة هو عدم فاعلية استراتيجيات النهوض بالعشوائيات الفقيرة. تهدف هذه الورقة إلى التركيز على العوامل الرئيسية التي تساهم في نجاح صياغة وتنفيذ تطوير العشوائيات. و تعتمد منهجية الورقة البحثية على المنهج الاستقرائي والمنهج الوصفي لشرح بعض المفاهيم العلمية لتوضيح المعلومات التي من شأنها أن تخدم المشكلة الورقية. بالإضافة إلى المنهج التحليلي من شرح وتحليل بعض الأمثلة لصياغة استراتيجية مفيدة للتطبيق

على دراسة الحالة والوصول إلى النتائج وإنشاء إطار نظري وعملي يمكن تطبيقه على مزيد من الدراسات المشابهة . وينبغي أن تبنى مشاريع تطوير العشوائيات على فهم عميق للمعايير والمعتقدات السائدة في المجتمعات المحلية التي ستعمل فيها. يمكن تحقيق ذلك من خلال إجراء دراسة لحالة المجتمع المستهدف. ويشمل ذلك ضمان مشاركة الجمهور لمشاركة أصواتهم وتلبية احتياجاتهم واهتماماتهم. يجب أن تحصل مشاريع تطوير العشوائيات بالمجتمع على دعم من أفراد المجتمع وخلق شراكات مع أصحاب المصلحة لتحقيق نتائج ناجحة بالإضافة إلى أهمية الدعم السياسي والمتابعة المستمر كما هو موضح في دراسة الحالة في مصر التي تؤكد على الحاجة إلى معالجة الفوارق الاجتماعية والاقتصادية ورفع مستوى السكان المهمشين بحلول مستدامة.

**الكلمات المفتاحية :** الهجرة الحضرية، التجمعات غير الرسمية، تطوير العشوائيات.

## 1. INTRODUCTION

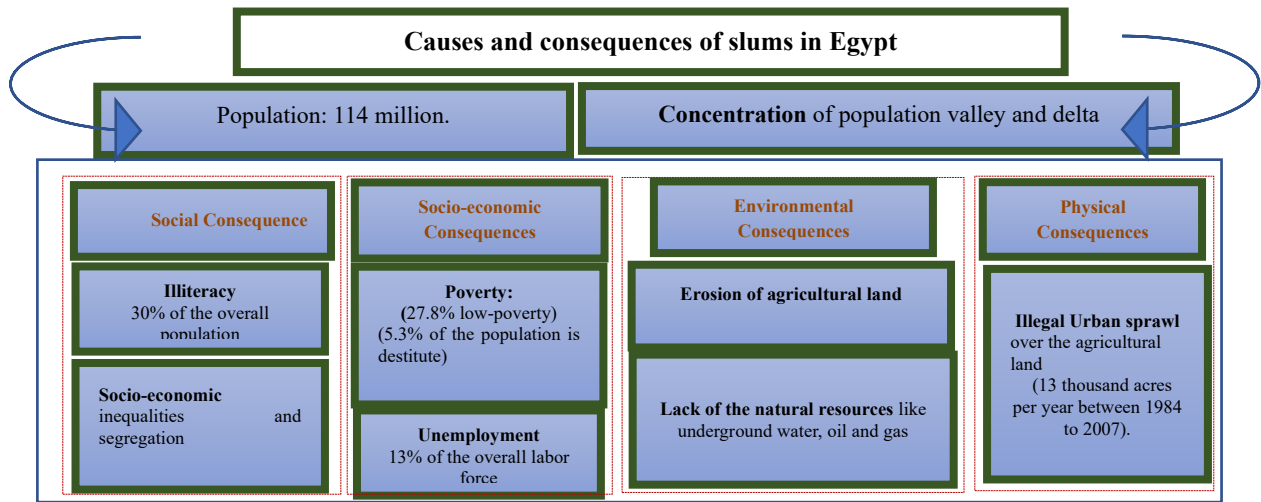
A slum is a highly populated urban region typified by poverty, with overcrowded, dilapidated dwellings and bad living circumstances. These places frequently have little infrastructure and are mostly populated by disadvantaged individuals [1]. Slums are prevalent in cities worldwide and provide hard living circumstances for people. According to CAPMAS, Egypt has over 1,000 slums, including over 300 in Greater Cairo [2]. Also In Egypt, informal settlements account for around 37% of urban space, including slum regions. Unsafe slums account for around 1% of metropolitan areas [3]. Approximately 40% of Cairo's population lives in informal settlements or slum neighbourhoods. These locations have inadequate housing and bad living conditions [4]. However, Egypt's significant dearth of cheap housing has forced many impoverished people to live in slums. Approximately 40% of Egyptians live on or near the US\$2-a-day poverty threshold. During the "25 January Revolution," the majority of those slain or injured were from disadvantaged families [5].

On the other hand, Slum clearance is frequently carried out through urban regeneration programmes. It ranges from tiny shacks to permanent constructions. These villages lack essential urban facilities such as water, sanitation, waste management, storm drainage, street illumination, paved walkways and emergency routes. Additionally, many residents lack quick access to schools, hospitals, and community gathering areas. Furthermore, as with other informal settlements, slum housing is erected on property to which the resident has no legal title, and there is no urban planning or respect to zoning standards. Slums generally have negative social indicators, such as increased crime and unemployment.

### 1.1. Research problem

There are two main types of slums in Egypt; first one is the unplanned settlement, which account for the largest percentage, about 37% and the other type is the unsafe settlements, which occupy a small percentage and do not exceed 1% [6]. However, according to [3] there are a total of 364 slum areas countrywide as reported. From here come the importance of solving this problem, efforts are being made to improve the living conditions in these areas, with 130 slums areas having been developed, and plans to eradicate slums by 2030 [4]. These statistics highlight the significant challenges faced by slum dwellers in Egypt, including issues related to health, education, employment, and basic services.

The government and other stakeholders are actively working to address these challenges and improve the living conditions in slum areas. Slum relocation are one of the solutions which the government go through applying it but it faced many obstacles through and after applying it, this paper will discuss this problem and give a recommendation for that.



**Figure 1: A Diagram showing a summary of the Egyptian problem.**  
(Source of data (National strategic plan of Egypt 2050) Modified by researcher)

### 1.1. Research aim

This paper examines the socio-economic impacts of slum relocation programs in Egypt, evaluating the effectiveness of current policies and strategies to improve living conditions and provide sustainable housing solutions. It also identifies potential areas for policy enhancement and community development.

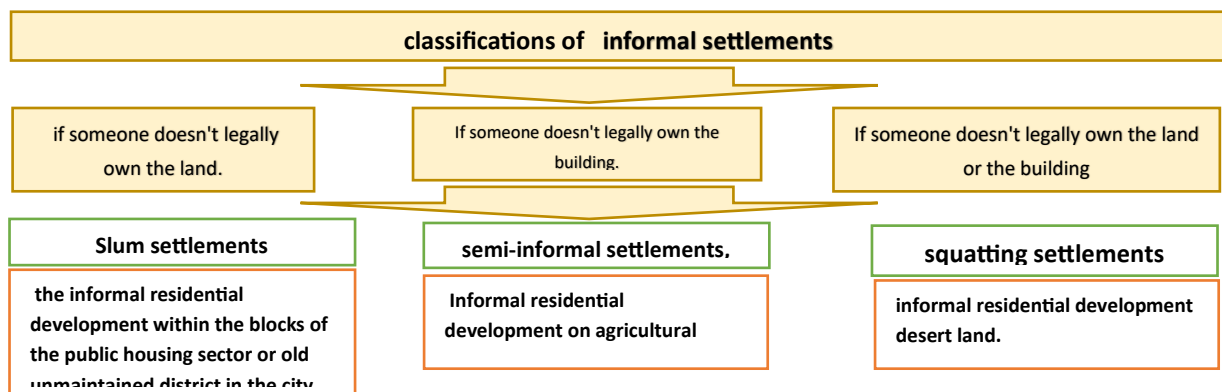
### 1.2. Research Methodology

The paper methodology depends on the inductive method and the descriptive approach to explain some scientific concepts to clarify the information that will serve the paper problem. In addition to enabling the analytical method to explain and analyze some examples to formulate a strategy that is useful for application on the case study, reaching the results and establishing a theoretical and practical framework that can be applied on further studies.

## 2. LITERATURE REVIEW

### 2.1. Informal settlements definition and classifications

Slums are the neglected part of cities, characterized by poor housing and miserable living conditions. They have historically emerged due to population growth and inadequate governance, serving as the only affordable option for the urban poor.



**Figure 2: Classifications of informal settlements.**

## 2.1. Causes of informal settlements

**2.2.1. Rural to urban migration** has long been a significant contributor to urban extension, dating back to the establishment of cities. The migration rate fluctuates across time and space in the developed world. Internal migration is commonly attributed to push factors in the migrants' place of origin, which are perceived as detrimental to their well-being and economic security[7] It is evident that the dynamics of rural to urban migration play a crucial role in shaping the demographic and socio-economic landscape of urban areas.



Figure 3: Rural to urban migration analysis.

**2.2.2. Natural increase** is probably the greatest contributor to urban extension. This may force to cause uncontrolled sprawl. This rapid uncontrolled growth of cities strains their ability to provide basic services such as energy, education, health care, transportation, sanitation, and physical security. Cities become areas of huge sprawl and critical environmental problems because governments have less revenue to invest on basic city services and infrastructure [8].

## 2.2. Consequences of informal settlements

**There are three main consequences; environmental, social and economic consequences**

### 2.2.1. Environmental Consequences

Informal Urban expansion in developing countries often comes at the cost of productive and fertile agricultural farmland as well as forests. Unfortunately, this expansion is not accompanied by an adequate environmental protection system. Instead, urban waste is disposed of through open canals, drains on the roadside, and holes in the ground, especially in areas experiencing expansion. As a result of this urbanization, rural farming communities not only lose valuable farmland but also essential environmental resources such as clean air and water, tranquility, access to the countryside, and recreational facilities [9].

### 2.2.2. Social Consequences

Urban sprawl leads to the displacement, relocation, and segregation of communities, ultimately disrupting social cohesion. Residents in the expanding urban regions often find themselves excluded from the decision-making processes regarding resettlement and relocation strategies. Additionally, there is a risk of being marginalized from the urban development initiatives and becoming caught between socio-economic classes, exacerbating inequality. Consequently, this

phenomenon has spurred the migration of marginalized groups, such as the agricultural community, who have historically resided in these areas [9,10].

### **2.2.3. Economic Consequences**

In developing nations, individuals are relocating to urban areas. Within these urban centers, impoverished individuals often move to the outskirts for urban revitalization or to establish informal settlements. These areas necessitate the establishment of essential infrastructure such as roads, power lines, water pipes, and drainage systems. The implementation of such infrastructure incurs significant development costs, placing a strain on the financial resources of municipal governments. Oftentimes, municipalities are unable to afford the necessary infrastructure, leaving residents without access to basic necessities. Consequently, a large portion of the population in these areas face heightened living expenses. Moreover, job opportunities are limited in these regions. The plight is particularly severe for displaced farming communities, as they lose their primary source of income [9].

## **2.3. Slum Upgrading**

Slum Upgrading is about providing basic services and infrastructure (water supply, adequate sewage disposal. But fundamental is legalizing the properties in situation of insecure or unclear tenure. The most important thing, though, is to legalize properties with ambiguous or precarious tenure through gradually improvement and formalized and incorporated into the city itself and citizenship to slum dwellers. It involves providing slum areas with the economic, social, institutional and community services available to all citizens.

### **2.3.1. The demand of slum upgrading**

More than 300 million urban poor people have few options but live in squalid, dangerous environments where they face numerous threats to their health and safety. Of these, more than 200 million are in Asia, more than 50 million are in Latin America, and more than 60 million are in the troubled parts of African cities, which are currently experiencing a rate of urbanization never seen before in human history. Because slums lack basic services and infrastructure, residents are more vulnerable to disease and natural disasters [11]

On the other hand, the need for slum upgrading in Egypt is enormous, given the country's issues with urban growth, housing shortages, and the need for better living conditions in informal neighborhoods. Those some major points based on recent data; urban development, housing shortage, government initiatives, slum upgrading program and education of slums.

- Urban development: The disconnect between centralized physical planning processes and local reality has resulted in urban expansion without appropriate planning, leading to a significant percentage of informal and unplanned places [12].
- Housing shortage: Egypt's population is expanding at a rate of about 2% per year, resulting in an urbanization catastrophe. The housing ministry predicts a need for 500,000 additional homes each year for the next five years to accommodate the growing population and address the 3 million housing unit backlog [13].
- Government initiatives: Egypt has set an aim of being declared slum-free by the end of the year, with plans to build 250,000 housing units at the cost of L.E.63 billion to move individuals living in dangerous regions [14]. However, the government aims to provide 750,000 housing units by the end of 2018, including 135,000 units designated for informal housing residents [13].

- Slum upgrading program: The Housing, Urban Renewal, and Informal Settlement Upgrading Program strives to provide enough housing, basic urban amenities, and improve informal and dangerous neighborhoods [12].
- Education of slums: The Informal Settlements Development Fund (ISDF) has invested L.E.14 billion over the previous two years to improve slum regions, with a goal of eradicating them by 2030 [4].

The government aims to improve living conditions in Egypt's informal settlements and provide safe, suitable homes for the rising population.

### **2.3.2. The importance of slum upgrading**

The importance of applying slum upgrading in Egypt is critical for several reasons;

- Improving living conditions: Upgrading slums may considerably improve inhabitants' living circumstances by giving access to essential amenities such as safe drinking water, improved sanitation, and consistent electricity [15].
- Health safety: Addressing overcrowding and living in dangerous areas through slum improvement can minimize health hazards and increase resident safety [15].
- Economic opportunities: Upgraded slums can improve people' economic chances by establishing a more stable environment for work and entrepreneurship [16].
- Social stability: Slum upgrading can help to promote social stability and community cohesiveness by lowering issues like drug misuse, insecurity, and violence [15].
- Urban development: Slums that have been properly improved can be incorporated into the larger urban fabric, helping to advance and modernize cities [17].
- Sustainable development: Slum upgrading is consistent with the Sustainable Development Goals (SDGs), notably Goal 11, which seeks to make cities more inclusive, safe, resilient, and sustainable [18].
- Poverty reduction: Upgrading programs can help to reduce poverty by improving slum inhabitants' living circumstances and economic opportunities [16].
- Preventing new slums: Effective slum upgrading can prevent the establishment of new slums by highlighting the advantages of planned urban development [17].
- Government commitment: The Egyptian government's focus on slum improvement demonstrates its commitment to providing safe homes for everybody and combating multidimensional poverty [18].
- International support: International organizations frequently sponsor slum upgrading programs, highlighting the worldwide significance of solving urban poverty and housing issues [16].

To summarize, slum upgrading in Egypt is critical for improving the quality of life for millions of inhabitants, promoting economic growth, and attaining sustainable urban development. It's a complicated process that involves careful preparation, enough resources, and the participation of various stakeholders to be effective.

### **2.3.3. The main challenges of slum upgrading**

The primary difficulties to slum upgrading are broad and complicated, encompassing a wide variety of social, economic, legal, and political concerns. challenges of slum upgrading are represented in:

- Insufficient legal and regulatory systems,
- Excessive land regulation,
- Gender discrimination,

- Corrupt, inefficient, or inadequate land registration system,
- Disintegration of customary and traditional protections,
- Lack of political will, lack of cooperation from residents,
- Competing and conflicting interests,
- Corrupt contractors [19].

Addressing these issues needs a multifaceted strategy that involves legal reforms, community participation, open governance, and long-term political commitment. It is also critical to examine the different demands and conditions of slum dwellers in order to guarantee that upgrading initiatives are inclusive and successful [20].

#### **2.3.4. The factors for successful slum upgrading**

**The main factors that contribute to the success of slum upgrading initiatives include;**

- Community participation: Involving the community in the planning and implementation process ensures that solutions satisfy their requirements while also encouraging project ownership [21].
- Physical infrastructure: Providing necessary amenities such as water, sanitation, power, and roads is the backbone of slum upgrading [22].
- Social infrastructure: Addressing the demand for schools, healthcare facilities, and social services is critical to improve slum living conditions [21].
- Tenure security: Ensuring legal land rights instills trust in citizens to invest in their homes and communities [21].
- Opportunity structures: Creating economic possibilities through job creation and skill development helps to address the underlying causes of poverty [21].
- Government capacity: The capacity of metropolitan governments to fund infrastructure and provide basic services is critical to the success of improvement programs [23].
- Resource mobilization: Another important issue is slum residents' ability to mobilize resources to improve their living conditions [23].

When these variables are adequately handled, slum neighborhoods can see long-term changes, boosting people' livelihoods and integrating these communities into the larger urban landscape

#### **2.4. Slum relocation**

The slum relocation process typically involves several key steps to ensure the successful resettlement of slum dwellers to a more adequate living environment. Here's a general outline of the process:

- Organization: Slum inhabitants organize into cooperatives [24]
- Voting: They choose to give a property developer the right to rehouse them [24].
- Re-housing: The developer is responsible for relocating inhabitants on-site in high-rise structures governed by an entity such as the Slum Rehabilitation entity (SRA), which monitors the process [24].
- Provision of amenities: The new town provides essential municipal and infrastructure services [25].
- Participation: Throughout the process, community members must actively participate [26].
- Physical development: This covers the creation of the resettlement area and the associated infrastructure [26].
- Compensation: Compensation will be awarded if applicable [26].
- Social development: Ensure that social facilities and services are available to benefit the community [26].
- Livelihood consolidation: Assisting residents in consolidating their livelihoods upon relocation [26].

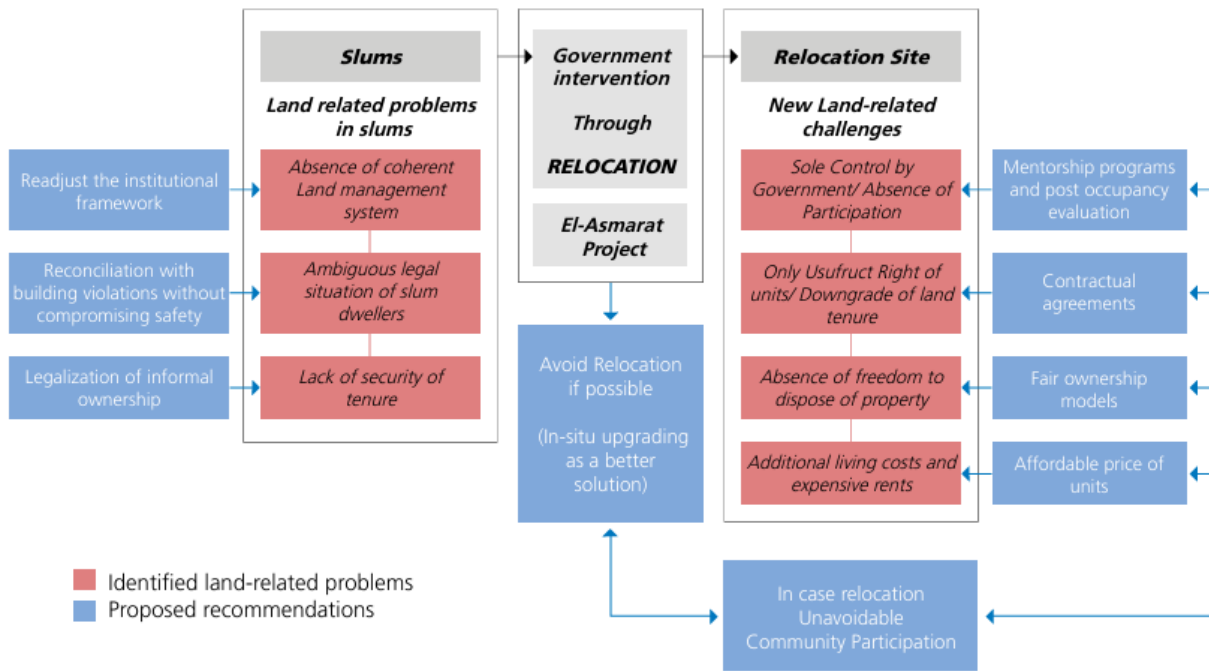


Figure 4: Proposed Model - Relation between identified challenges before and after slums relocation and proposed solutions.

Source : ( Mohamed Hamdy Mohamed Ali, Reham Reda Ali, 2022)

This process is designed to be participatory and aims to improve the living conditions of slum dwellers while providing them with security and better access to urban opportunities. Each slum relocation project may have its own specificities based on the local context, regulations, and available resources. The next figure 4 shows how Egypt deal with slum relocation in their projects [27].

### 2.5.Evaluation of slum upgrading

According to [28,29,30] evaluating a slum upgrading area that involves relocation is crucial for effective planning and sustainable development need to consider many points (Table 1).

**Table 1: evaluating slum upgrading which used relocation method**

The consideration	Application
Data collection and database preparation	Create a comprehensive database of slum areas.
	Align slum upgrading efforts with city development objectives.
Selection Criteria and prioritization	Create explicit selection criteria for informal settlements that qualify for the program.
	Priorities settlements based on vulnerability, infrastructural requirements, and community participation.
Project implimintation unit	Create a specialized project implementation unit to manage the relocation process.
	Ensure collaboration with both national and local stakeholders.
Degree of participation	Involve impacted communities in the design and implementation phases.
	Seek their feedback on relocation options and resolve their concerns.
Infrastructure and services	Determine the availability of essential utilities (water, sanitation, and power) in the relocation region.
	Consider how accessible schools, hospitals, and public venues are.
Security of teniur	Ensure that displaced people have a stable tenure to avoid forced eviction.
	Address the legal and land tenure concerns.



In conclusion that slum upgrading is more than simply physical infrastructure; it also includes social, economic, and environmental considerations. Balancing these aspects is crucial for a successful move and sustainable development.

### 3. INTERNATIONAL ANALYTICAL EXAMPLE

#### 3.1. The Kenya Slum Upgrading Programmed (KENSUP)

Kenya's slums are growing at a unique rate as people move to cities in search of employ and other opportunities urban areas offer. The local establishments faced the serious challenge of controlling the physical growth of urban areas as well as provided that adequate facilities for the increasing urban population [31].



**Figure 5 :The location of Kibera within Nairobi and Kenya.  
(Source: Google Maps)**

UN-HABITAT adopts a comprehensive and integrated strategy towards slums upgrading. The organization depends on the improvement of infrastructure framework as a starting point for slum upgrading. [32]. This strategy is complemented by the enhancement or establishment of the current housing inventory, subsequently connecting it to initiatives focused on enhancing skills and generating income for inhabitants of informal settlements, with the intention of enhancing their quality of life. These actions go parallel with improving the capacity of local establishments to plan and cater for expansive developments in their cities [31].

The key core poverty Programmed of The Kenya Slum Upgrading Programmed (KENSUP) aimed at targeting the challenge of housing complications affecting the common of the urban population who live in slums and informal settlements.

The Government and the UN-HABITAT entered into a Memorandum of Understanding on fifteenth of February 2003 to improve slums and informal settlements in Kenya starting with certain slums within the administrative boundaries of the Nairobi, Mavoko, Mombasa and Kisumu.

The Upgrading program aims to reduce poverty and fulfill the Millennium Development Goals, particularly Goal No. 7 target 11: improving the lives of 100 million slum dwellers by 2020. It also aims to improve the lives of those who live and work in slums and informal settlements throughout all of Kenya's urban areas [33].

### 3.1.1. Program components

The following strategic components are typically planned and implemented through participatory means:

- Micro financing and credit systems Liaison,
- Improvement of Shelter,
- Development strategic and land use master plans preparation,
- Physical and social infrastructure/amenities provision,
- Environment and Solid waste management,
- Employment / income generating activities,
- Viruses' concerns,
- Support to vulnerable and disadvantaged groups,
- Community mobilization, organization and participation,
- Conflict prevention and management [34]

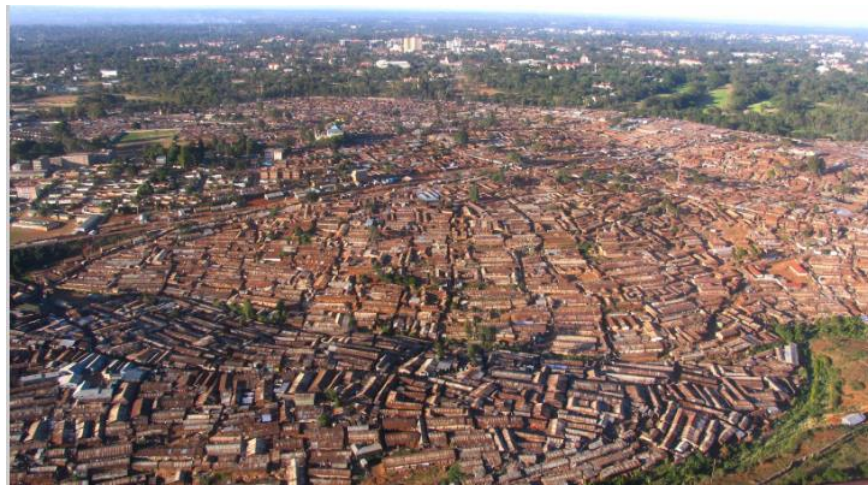


Figure 6: An aerial view of the Kibera slums, Nairobi, Kenya (source: <https://africakibera.weebly.com>)

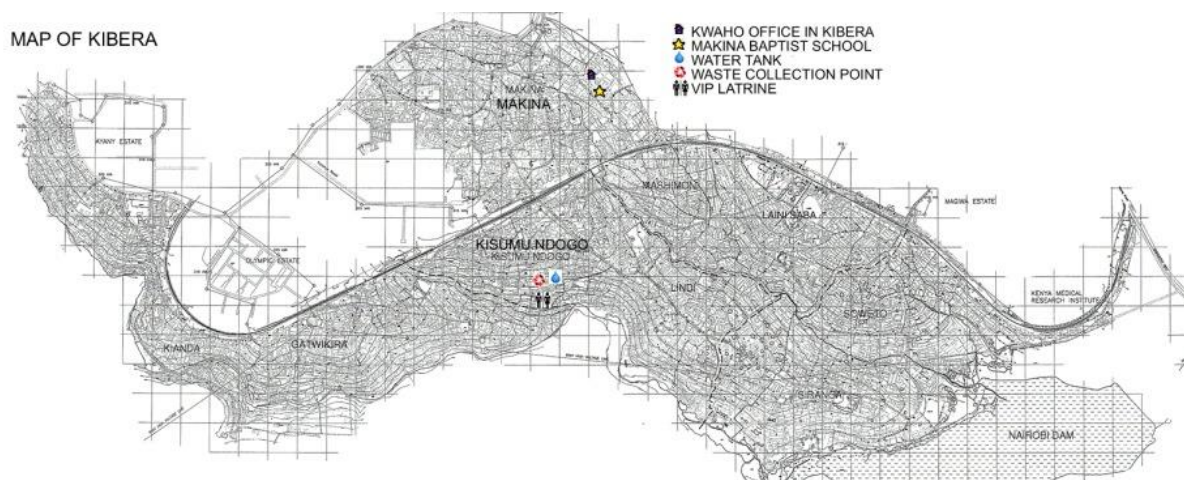


Figure 7: A map showing the villages that compose Kibera Slums (source: <https://builddesign.co.ke/slum-upgrading-kenya-failed>)

### 3.2.Slum relocation projects in Bangkok

The important challenge challenged by slum residents in Bangkok is the lack of secure land occupation, with only 50% of total slum households having some security of land occupation. The remaining 50% face eviction due to undistinguishable or no tenure status when land for new urban development is in demand. The relocation of slum communities mainly occurred during Thailand's economic boom from 1987–1997, while the economic recession from 1997 to 2003 created a favorable atmosphere for slum dwellers.

Although removals have become not as much of a threat from the public sector, reports still exist of evictions by the private sector in central areas of Bangkok. Despite the policy on low-income housing implemented since the 1970s, with a focus on giving security of tenure, more than 200 slum settlements, housing approximately 30,000 households, are set aside for relocation [35].

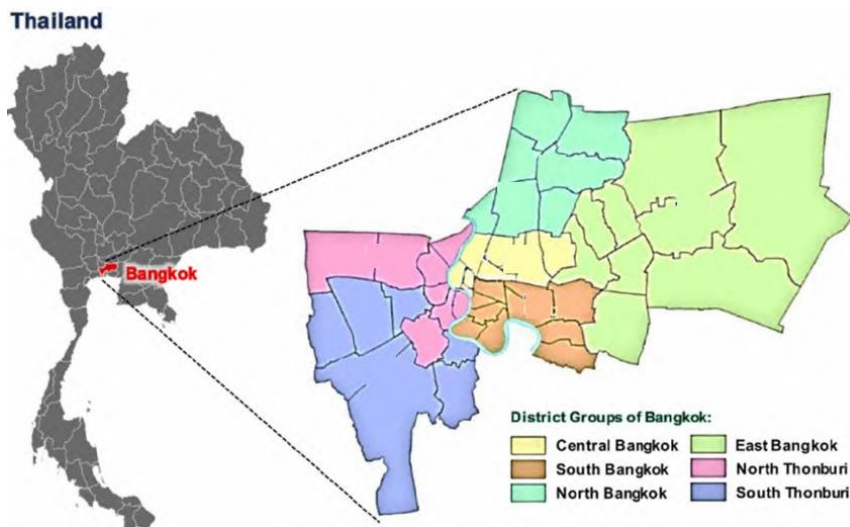


Figure 8: A map showing the villages that compose Kibera Slums. (Source :Ekasit ,T.2022)

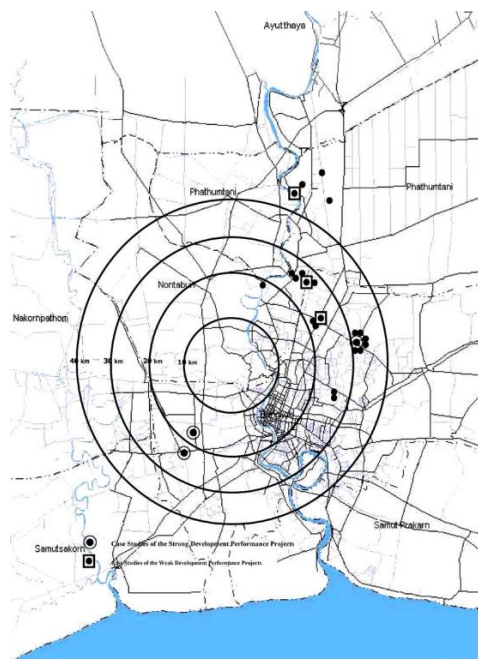


Figure 9: Locations of the case studies. (Source: Vichai ,V, 2006)

### 3.2.1. Factors Affect the Slums Relocation Projects in Bangkok

- If beneficiaries are compensated and have security of tenure, the location of the new settlement has little bearing on development performance.
- The award of compensation, particularly in cash and kind, significantly affects the development performance of slum relocation projects.
- Internal factors such as unity of community, strength of leadership, and participation of members affect development performance.
- Projects start to differ in development performance during the consolidation stage, indicating the need for careful attention at this phase.
- Housing policies tend to neglect issues emerging during the consolidation stage, leading to declining enthusiasm and community unity.
- A cooperation between housing experts, community-based organizations, and the local government is necessary to create and promote specialized community activities that can sustain development performance [36].
- Shift of attention from relocation to community development during project progression is essential for long-term sustainability.
- Community empowerment, sense of togetherness, and belongingness should be fostered through community activities for long-term project sustainability.
- Relocation projects should not only focus on providing security of tenure and social welfare
- Projects should have additional objectives after families are relocated, such as targeting social welfare and community development
- Continued support and assistance from housing professionals and local authorities is essential for successful integration of beneficiaries
- The departure of original beneficiaries and replacement by new households does not indicate higher development performance [37]

### 3.2.2. Bangkok relocation projects attributes

The performance of the development is an important indicator used to evaluate the process and outcome of development projects. In this study, it specifically refers to the effectiveness of slum relocation projects. It is assessed through several physical and non-physical attributes, identified through a survey involving slum dwellers, housing professionals, and community development experts [37].

The following attributes were chosen as indicators to assess the development performance of the relocation projects:

- **Original land ownership**

This refers to the percentage of initial land recipients who remain in the community's new location. A larger percentage of original beneficiaries is seen to be indicative of good development achievement [35].

- **Plot occupation**

This feature accounts for the percentage of land beneficiaries who actually inhabit the piece of land. A greater percentage represents a project's good development success [35].

- **Completion of house construction**

This takes into account the housing unit accomplishment rate, as a larger percentage of finished dwellings in a project indicates better development success [35].

- **Condition of infrastructure**



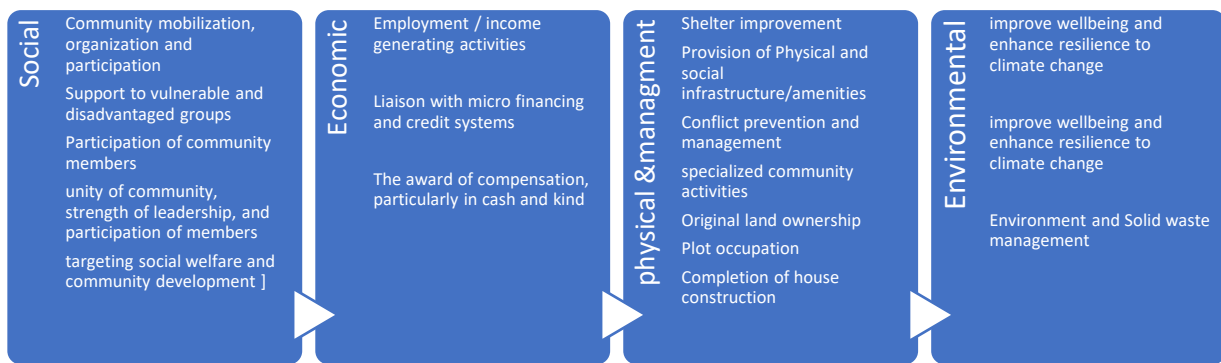
the characteristic of on-site project infrastructure plays a crucial role in defining the overall development routine, with a better infrastructure condition comparing with stronger development outcomes [35].

- **Public Participation**

The level of community members' participation in regular meetings is a key indicator of strong development performance within a community [35].

### 3.3. Conclusion of the two examples

In conclusion, The Kenya Slum Upgrading Programmed (KENSUP) aims to address the housing challenges faced by the urban population living in slums and informal settlements. Through a comprehensive strategy that includes infrastructure improvement, housing inventory enhancement, and skills development, KENSUP seeks to improve the quality of life for residents while contributing to poverty reduction and the achievement of Millennium Development Goals.



**Figure 10 :key elements of successful slum upgrading and relocation**

The challenges faced by slum dwellers in Bangkok regarding secure land tenure are significant, with only half of households having any form of security. Factors like compensation, community unity, and ongoing support from professionals and authorities play crucial roles in the success of slum relocation projects. Assessing the development performance of these projects through various attributes provides insight into their effectiveness. It is evident that addressing these issues requires a coordinated effort from all stakeholders involved to ensure sustainable and successful outcomes for the residents of these communities.

**Table 2: A comparative analysis between the two international examples based on the literature review concluded criteria**

Criterrea	-Application -Kenya Slum Upgrading Programmed	-Application –Slum relocation projects in Bangkok
Data collection and database preparation	The Government and the UN-HABITAT entered into a Memorandum of Understanding to improve slums and informal settlements in Kenya starting with certain slums within the administrative boundaries of the Nairobi, Mavoko, Mombasa and Kisumu based on a comprehensive study and survey	Through a survey involving slum dwellers, housing professionals, and community development experts

Selection Criteria and prioritization	enhancement or establishment of the current housing inventory, subsequently connecting it to initiatives focused on enhancing skills and generating income for inhabitants of informal settlements, with the intention of enhancing their quality of life.	<b>Completion of house construction,</b> This takes into account the housing unit accomplishment rate, as a larger percentage of finished dwellings in a project indicates better development success
	Improving the capacity of local establishments to plan and cater for expansive developments in their cities	<b>Condition of infrastructure,</b> the characteristic of on-site project infrastructure plays a crucial role in defining the overall development routine, with a better infrastructure condition comparing with stronger development outcomes
Project implementation unit	Improving the capacity of local establishments to plan and cater for expansive developments in their cities	A cooperation between housing experts, community-based organizations, and the local government is necessary to create and promote specialized community activities that can sustain development performance
	Community mobilization, organization and participation, Conflict prevention and management	
Degree of participation	Public participation, Micro financing and credit systems Liaison,	<b>Public Participation,</b> the level of community members' participation in regular meetings is a key indicator of strong development performance within a community
	Support to vulnerable and disadvantaged groups,	Shift of attention from relocation to community development during project progression is essential for long-term sustainability
Infrastructure and services	Physical and social infrastructure/amenities provision,	Seeking for a better infrastructure condition comparing with stronger development outcomes
	Environment and Solid waste management,	Providing necessary services and amenities
Security of tenure	Improvement of Shelter, Development strategic and land use master plans preparation,	<b>Original land ownership</b> This refers to the percentage of initial land recipients who remain in the community's new location. A larger percentage of original beneficiaries is seen to be indicative of good development achievement
	Put into consideration Residents' concerns,	<b>Plot occupation</b> This feature accounts for the percentage of land beneficiaries who actually inhabit the piece of land. A greater percentage represents a project's good development success

## 4. EGYPT SLUM RELOCATION EXAMPLE

### 4.1. Zeinuh before upgrading:

It is placed in the Southeastern part of Cairo. It resides in an area of 50 feddans with total populations of 18,764 persons. Managerially, Zeinuh is a neighborhood in Sayida Zeinab - Cairo Governorate.

Zeinuh, like many Cairo neighborhoods, is rich in history. While Zeinuh's historical significance is not well recorded, it is part of the greater setting of Historic Cairo, a UNESCO World Heritage Site. Historic Cairo is one of the world's oldest Islamic towns, including well-known mosques, madrasas, hammams, and fountains. Founded in the tenth century, it became the center of the Islamic world and reached its peak in the fourteenth century. The neighborhood shows a complex 'medieval' urban form that was respected and improved in following centuries, symbolizing political capital while enabling population increase. It incorporates aspects of four Islamic capitals and is distinguished by the preservation of its architectural, cultural, and urban legacy, which completely shows its long history and diverse values. [39] Cairo was established as

the seat of the Fatimid Caliphate in 969 ADS, and throughout the Mamluk period (1250-1517 AD), the city's coherent urban fabric grew to include older settlements like as Fustat and Al-Askar, where great mosques and other monuments were built [40].

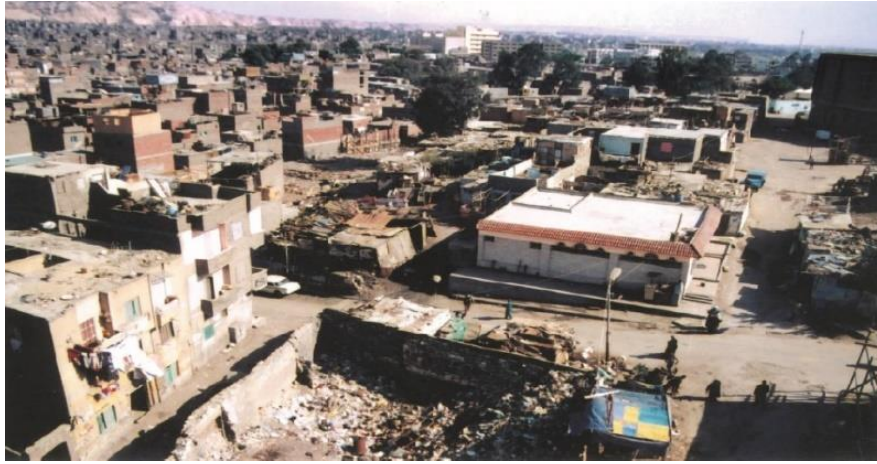


Figure 11: Zinhum before the Development. (source: Tadamon, 2014)

The bulk of the inhabitants lived in cabins or huts and public housing (44% and 40%, separately).

The typical dwelling unit had 2.2 rooms. The bulk of people (51.8%) resided in one-room dwelling units. Approximately 43% of the 16 people lived in a two-room flat. The common of respondents said their residences are composed of bricks and concrete. In terms of public utilities, practically all houses were linked to the public water network and the electrical grid (80% and 99%, separately) [41].

#### 4.2. The project idea

This initiative was driven mostly by political influence. Mrs. Suzanne Mubarak, wife of the past former President Hosni Mubarak, commissioned the Egyptian Red Crescent Society to create the region in 1988. Mrs. Mubarak made this choice on one of her visits to the Red Crescent Society head office in Zinhum, where she served as President. It is possible that Suzanne Mubarak's name was associated with the project, which drove it in an unusual route for redevelopment projects. Many people expressed a strong desire to engage in the initiative in order to court favor with Mrs. Mubarak and eventually further their own private enterprises or professions. Government institutions such as the Cairo governorate rushed at the chance to help, businesspeople were ready to donate to the initiative, and contractors offered to build the houses for free [41].

#### 4.3. Project steps for applying

Initially, the Red Crescent Society assessed the neighborhood and developed a comprehensive survey to determine the people's social and economic profiles. They split the region into three sections, which would be renovated sequentially. During each phase, inhabitants were relocated to temporary residences in el-Nahda and Mothallath Helwan until the old houses were dismantled, infrastructure was built, and new structures were constructed. Following that, they were restored to their neighborhood in new homes.

The first phase began in 1999 and ended in 2000, with the second and third stages lasting from 2003 to 2004 then 2005 to 2007, individually. Each unit is 67 square meters and has two bedrooms, one living room, a kitchen and one bathroom. The footprint area did not surpass 30% of the whole area [41].

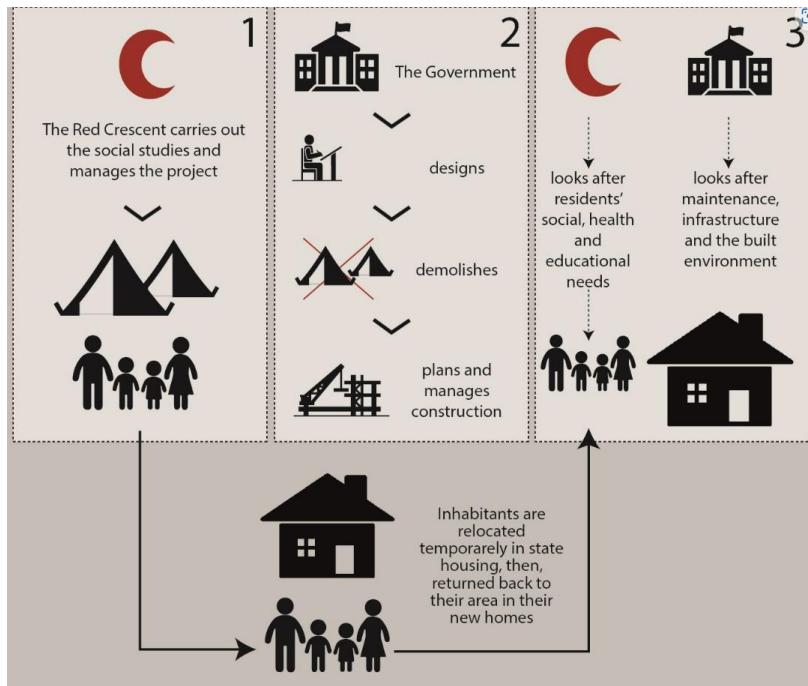


Figure 12: zenhium development phases of upgrading.

(source: Tadamon, 2014)

**Table 3: Bases for the information in the table above: The website of the Egyptian Red Crescent ‘Report of the Center for Social Research the American University July 2011.**

	Time period	Number of apartment buildings	Number of flats	Area in acres	Cost (Million EGP)
1st phase	1999-2000	29	348	12.8	30
2nd phase	2003-2004	81	972	19.6	65
3rd phase	2005-2007	71	1136	21	40

According to a report from the Red Crescent Society, the initiative was organized end to end two primary axes: The first axis is social development for inhabitants through RCS-provided education, healthcare, and cultural programs. The second axis is the complete demolition of the huts, followed by the planning and renovation of the region with new contemporary residences, open spaces, green areas, services, and utilities [41].

**4.4.Phasis of development**

The phases of slum relocation in Zinhum, as part of the urban development and housing improvement efforts, typically involve the following steps:

- Planning: This entails identifying locations in need of relocation and creating a complete plan that includes selecting new housing sites and designing new homes [41]
- Community engagement: Engaging with the local community to ensure that their needs and preferences are met. Surveys, gatherings, and the development of community organizations can all help to improve communication [42].



- Temporary relocation: Providing temporary lodging to people throughout the building process. This is critical to ensuring that residents have a place to live while their new houses are being built [42].
- Construction: Building new housing units include not only the physical constructions but also the essential infrastructure such as water, power, and sanitation services [41].
- Resettlement: Moving the occupants to their new dwellings. This phase comprises not only the actual relocation, but also support services to assist individuals acclimatize to their new surroundings [42].
- Post- relocation support: Providing post-move support services, such as social, economic, and legal aid, to help residents settle in and succeed in their new city [42].
- Monitoring and evaluation: Continuously monitoring the process and reviewing the results to ensure that the relocation program's objectives are accomplished and that modifications are made as needed [42].

These phases are intended to enable a seamless transition for inhabitants from their previous houses to their new ones, with a focus on community involvement and sustainable development. However, the development phase had been done through three phases; zone one, zone two and zone three.

Zone I, had a total of 29 construction blocks, which had 348 units. Each construction block was built to house 12 apartments, with an average space of 70 m<sup>2</sup>. The building areas do not exceed 30% of the overall area, providing opportunity for green space, roadways, and walkways. The map below depicts the first stage's geography as well as the construction block layout. During this time, the ERC erected a social, cultural, and health center on around 1500 m<sup>2</sup> to provide necessary services to community members.



Figure 13: zone 1 in zinhum development phases. (source: Rageb.A, 2021)

The success of phase one earned 40 million LE for the ERC, which aided in the launch of the second phase. Due to the sheer scale of Zone 2, building was separated into two parts. The first phase had 49 construction blocks, each with 12 flats and a commercial center. During the second phase, 35 building blocks were erected. Financing the development of Zone 2 followed the concept of Zone 1. The real implementation began in early 2003, with the work completed by the end of 2004 [43].

The work in the second phase followed the same stages as in the first. Additional amenities were created in response to the conclusions of the resident consultation. A retail mall was built to serve the residents of that region as well as the surrounding communities. The building area did not exceed 40% of the total area of Zone 2.



Figure 14: zone 2 in zinhum development phases. (source:Rageb.A, 2021)

Structure work in Zone 3 began in August 2005. It was carried out by the Ministry of Defense's engineering department as well as commercial construction businesses. The Ministry of Defense's engineering department erected 18 residential buildings, while a private enterprise built 53. The ERC received enough donations to pay the cost of all 71 construction blocks. It is worth mentioning that not all residents who were transported to transit settlements returned to their old homes in Zeinhum; some preferred to settle in the transit community.



Figure 15: zone 3 in zinhum development phases. (source:Rageb.A, 2021)

Finally, through their stay at Muthalth-Helwan, Mukkatam, and Nahda, Zeinhum people got a range of benefits. Classifying the essential services was based on discussions with locals, who define and priorities their own requirements [43].

#### 4.5.Recent Situation

While previous studies have documented the physical and environmental conditions in Zeinhum before and after the project, it is crucial to evaluate these aspects using sustainability

indicators and inhabitants' perspectives. This section explains how the initiative had a major beneficial influence on this dimension. The study found that Zeinoh squatters have certain environmental sustainability characteristics. The evaluation of environmental sustainability will provide a brief overview of each indicator. Table 3 will show this.

Table 4: zeinoh recent situation [44].

Environmental sustainability	EN1	Help create a high-quality urban environment.	After the revolution, the project's quality suffered due to a lack of political support and government oversight. The field visit revealed significant loss of green areas and unauthorized additions to public places. Interviewees unanimously agreed that the atmosphere had deteriorated significantly.
	EN2	Optimize the usage of land and structures.	The initiative aimed to optimize land and building usage by raising building heights and public spaces. However, it resulted in a loss of social networks and ignored economic demands. Most green spaces have vanished, and some have been illegally enclosed for private, polluted purposes like livestock and poultry farms.
	EN3	Maximize renewable energy supply and energy efficiency.	The project improved sustainable water and power networks, and the gas network was a welcome addition to the neighborhood.
	EN4	Save water resources.	
	EN5	Reduce waste and maximize recycling.	A professional commercial business has done excellent work on these two points since its inception.
	EN6	Reduce harmful emissions to water, air, and soil	
	EN7	Maximize the usage of locally sourced and sustainable resources.	
	EN8	Protect and improve biodiversity.	Prior to the initiative, biodiversity was restricted to a few birds and animals due to its negative influence on health and the environment. However, due to the lack of local government involvement, individuals have recently resumed their previous conduct.
Social sustainability	S1	Increase the mix of housing types and the availability of affordable homes.	The project offered a single kind of dwelling with a fixed monthly cost of 50 LE. While it was a significant improvement over their prior squatter houses, it was unjust in certain situations. Some families were allocated three dwellings in the scheme, whereas others with the same family number received only one.
	S2	Enhance access to communal, cultural, and recreational amenities.	Except for nursery, women, and cultural services, the situation remained same before and after the initiative. ERC developed the Woman Cultural Centre during the first phase of the project to provide efficient and effective services.
	S3	Reduce vehicle use while creating high-quality	The new Zeinoh has a high-quality design, but there is little indication of consideration for

		pedestrian and cycling pathways.	impaired persons or cycling. However, Zeinhom squatters were unable to afford it and had limited access to acceptable care streets.
	S4	Provide a high-quality inclusive design that is completely accessible to handicapped individuals.	
	S5	Security, privacy, relationships, and a sense of community.	The project has significantly improved individuals' sense of community and security. Furthermore, the frequency and intensity of social confrontations have grown. Most respondents attribute the change to random relocation, which disrupted long-standing social networks between neighbors.
Economic	EC1	Opportunities for local employment and training	The initiative missed out on training and employing local workforce due to their flexibility. Interviews revealed low satisfaction with available opportunities for men. ERC's training programs and activities at the women's cultural facility mostly target women.
	EC2	Opportunities for local and small company participation.	Interviewees expressed discontent with the initiative, citing injustice and a lack of alternatives for those who lost their workshops or businesses. Some residents have illegally extended and modified their homes to accommodate their businesses.

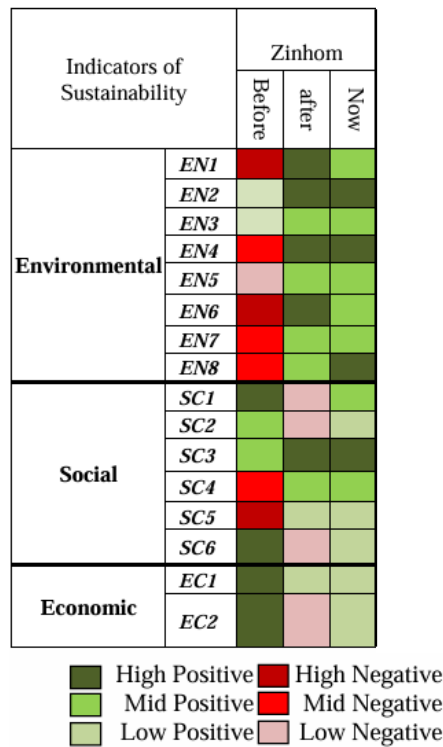


Figure 16: Results of the evaluation of sustainability indicators.

(Source: Safaa A. Ghoneim, Rania B. Salem, and Gihan Hassan, 2014)

## 5. Results

From the previous studies, a successful slum relocation involves careful planning and execution. The next points should be checklist for any slum relocation development; Community engagement, Assessment, Legal framework, Relocation site selection, Infrastructure development, Housing design, Temporary housing, Transportation and logistics, post-relocation support finally Monitoring and evaluation. However, any slum relocation project can use the criteria mentioned in the literature review to assess the situation of the project as had been done in the analytical examples and in the next table 4 for zenhium project.

Table 5: An analysis for zenhium project based on the literature review concluded criteria

consideration	Application	Zinhum relocation project application
Data collection and database preparation	Create a comprehensive database of slum areas.	To understand further about the social and economic characteristics of the neighborhood's residents, the Red Crescent Society carried out an extensive survey and an in-depth community evaluation.
	Align slum upgrading efforts with city development objectives.	Choosing new housing sites and creating new home designs are all part of the planning process, along with determining relocation places.
Selection Criteria and prioritization	Create explicit selection criteria for informal settlements that qualify for the program.	The process of monitoring and evaluating the relocation program is continuously monitored to ensure its objectives are met and necessary modifications are made as needed.
	Priorities settlements based on vulnerability, infrastructural requirements, and community participation.	
Project implimentation unit	Create a specialized project implementation unit to manage the relocation process.	The goal of post-relocation support services, which include financial, legal, and social assistance, is to help people successfully transition into and settle into their new communities.
	Ensure collaboration with both national and local stakeholders.	Government institutions like Cairo governorate rushed to assist, with businesspeople donating and contractors offering free house construction.
Degree of participation	Involve impacted communities in the design and implementation phases.	In order to guarantee that the needs and preferences of the local community are satisfied, community engagement entails involving them through surveys, events, and the formation of community groups.
	Seek their feedback on relocation options and resolve their concerns.	
Infrastructure and services	Determine the availability of essential utilities (water, sanitation, and power) in the relocation region.	Construction of new housing units encompasses not only physical constructions but also essential infrastructure like water, power, and sanitation services.
	Consider how accessible schools, hospitals, and public venues are.	Resettlement entails relocating residents to new homes and offering them assistance in acclimating to their new environments.
Security of tenur	Ensure that displaced people have a stable tenure to avoid forced eviction.	The locals were relocated to makeshift accommodation in el-Nahda and Mothallath Helwan while the old houses were demolished, new buildings were constructed, and the neighborhood was reconstructed.
	Address the legal and land tenure concerns.	Temporary relocation ensures residents have a place to live during the construction of their new homes.

## SUMMARY AND CONCLUSIONS

Ultimately, the slum upgrading is essential in ensuring that residents of the informal settlements are provided with basic dignity and adequate living standards, as well as prevent the formation of new slums.

It also plays a pivotal role in tackling significant challenges like social segregation, economic marginalization, and environmental deterioration. Effective slum improvement schemes necessitate unwavering political determination, community support, collaborative efforts, and a commitment to fulfilling genuine necessities, while linking with other initiatives to achieve sustainable urban development.

In conclusion, the case study in Egypt highlights the urgent need to address socioeconomic disparities and uplift the lives of marginalized populations throughout the sustainable solutions. The proposed slum upgrading in Zeinhum emphasize the significance of understanding community norms, comprehensive approaches, and active public participation to bring about real change and improve living conditions. Political commitment, stakeholder partnerships, and continuous monitoring are crucial for the success of such interventions.

The main research limitation in this research was the local community awareness of the importance of development to provide a decent life.

Further studies should be; An important recommendation for future studies in this field is that researchers should expand the scope of the study to the rest of the informal settlement's regions in Egypt, taking into consideration the spatial adjustments. This will definitely contribute to achieving the national goals of seeking to prevent the occurrence of new informal settlements, and finally Expanding the field of study of socio-economic sustainability to include community participation through WEBGIS and public participation GIS (PPGIS) application to improve the community's role

## CONFLICT OF INTEREST

The authors have no financial interest to declare in relation to the content of this article.

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