

## Green recovery and sustainable reconstruction policies to deal with slums in Egypt Case Study: Izbet Khairallah

**Heba N. Abed Elhamed**

Department of Environmental Planning  
Faculty of Urban and Regional Planning- Cairo University  
[Eng\\_hebanabil@yahoo.com](mailto:Eng_hebanabil@yahoo.com)

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### ABSTRACT

Slums considered one of the global problems that represent a threat to the urban environment and its surroundings. The world has been interested in searching for solutions and methods to address these problems and negatives and limit their various effects. Therefore, it is became important to apply new concepts that include sustainable policies for reconstruction using green methods in Egypt as well as in other regions in the world. In the current study, the analytical inductive theoretical method was applied on a slum area in Egypt, Izbet Khairallah. The obtained results of this study indicated how to employ green restoration policies and sustainable reconstruction in urban areas of Egypt in order to face the problems of slums to avoid environmental degradation and promoting the optimal use of natural resources in a more efficient manner. Also, these results indicated the importance of the environmental and urban responsibility to achieve the goal of improving the quality of life for society.

**Keywords:** Slums, Izbet Khairallah, green policies, green restoration, sustainable construction, Egypt.

### INTRODUCTION

The phenomenon of slums or informal areas continues to be among the major challenges of urbanization, especially in the major cities (Ghoneim, 2022). It is one of the most serious issues due to its social economic and security repercussions, which threaten security and social stability. Although over the past two decades that issue has been an essential component of the State's development plans and the policies and programs of successive Egyptian governments, yet its stability had worsened until it reached its current state with all its risks to the stability of society (Mar'ey, 2011).

Given the emergence of problems of degradation of the urban environment and the importance of the emergence of the concepts of development and revival, the rehabilitation and green construction

emerge as a solution of these problems. It is necessary to deal with the urban degraded areas in a manner consistent with the nature of their problems and with the requirements of development under a developmental intellectual framework that provides the idea of cooperation between the Government and the people and allows the population to contribute to development programs.

### Research Problem

The main problem of this research is the expected negative impacts of slums in Egypt in the absence of sustainable rehabilitation and development. Therefore, it is necessary to understand the potential impacts of slums, and the importance of applying green recovery and sustainable reconstruction policies to mitigate and avoid these impacts, thereby preventing us

from reaching dangerous levels that threaten the sustainability of urbanization. Therefore, Egypt should aim in its policies and strategies to develop green recovery and sustainable reconstruction policies on informal areas and determine how these policies can be operationalizing when adopting Egypt's future development policies.

**Research goal**

The research aims to study the use of green restoration and sustainable reconstruction policies in informal areas to avoid the negative social, environmental and economic impacts and their application in Egypt (Izbat Khairallah) to reach the quality of life of society.

Here, the importance of research is reflected in the following themes:

- i. Indicating the concept and problems of informal areas
- ii. Developing policies for slum areas

in developing countries from 1950 to 2030

- iii. Sustainable development to solve the problems of informal areas in Egypt
- iv. Understanding the Green Restoration and Sustainable Reconstruction Policies
- v. Global Experiences of Green Restoration and Sustainable Reconstruction in Informal Areas
- vi. Implementation of the Green Restoration and Sustainable Reconstruction entrance in Izbat Khairillah to address the problems and issues of informal areas

**METHODOLOGY**

In the current study, the analytical inductive theoretical method was applied on a slum area in Egypt, Izbat Khair Allah. The research steps and procedures used are shown in Figure (1).

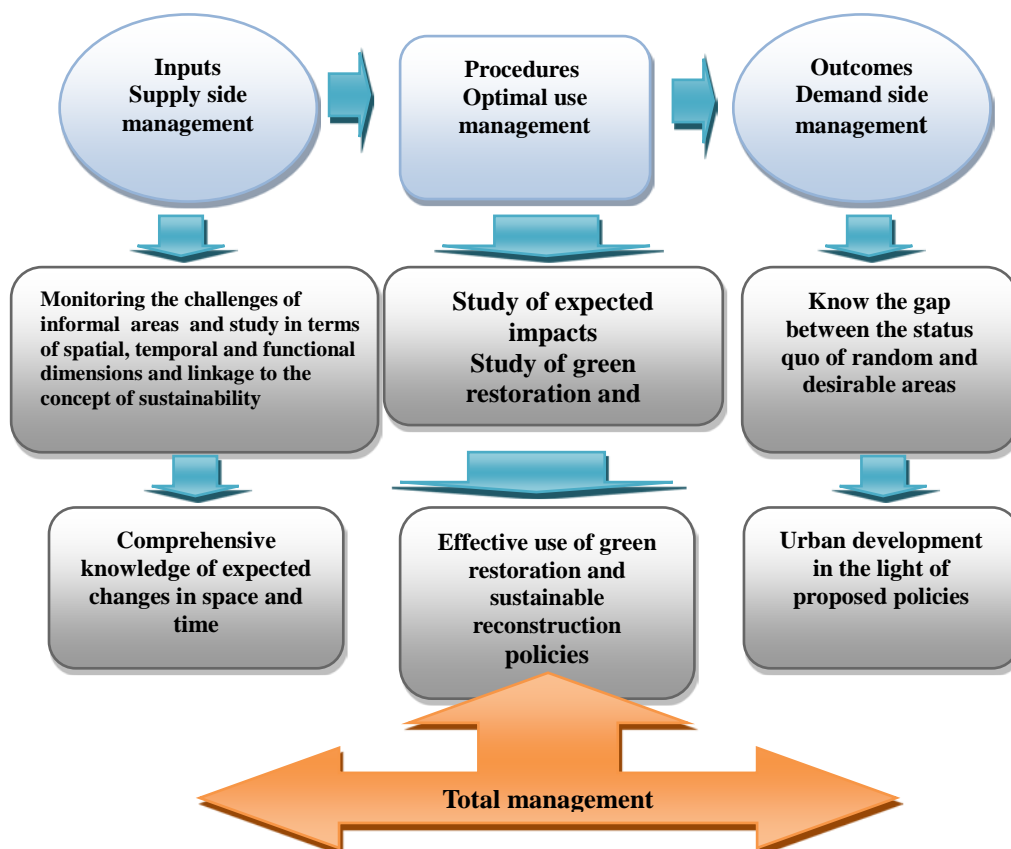


Fig. (1). Research Steps and Procedures. Source: Author

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### RESULTS AND DISCUSSION

#### i- The concept and problems of informal areas

Informal settlements are crowded urban areas with poor housing conditions and distinctive social and behavioral traits (UN-Habitat, 2003b).

Informal areas definition has numerous synonyms including; spontaneous housing, margin housing, cancer housing, petty commodity housing, unplanned housing, and squatter housing. Because each region or nation has unique traits, it might be difficult to define the term "informal" (Khalifa, 2011).

In general, low-income settlements and unfavorable living conditions are referred to as "informal" in the Human Settlements and Millennium Development Goals Report (Patel et al., 2014), which links them to the following traits: poor structural quality and durability, high density and overcrowding, unsafe housing conditions, and insufficient access to infrastructure and sanitary services.

Insufficient public planning, lack of zoning regulations, and encroachment on public and private property are all considered to be the foundations of informal zones. These areas lack fundamental services like security, health, education, and transportation in addition to being denied access to water, sanitation, and energy for all forms of basic facilities (Khalaf, 2001). Also, the informal population among urban dwellers is defined at the household level as families lacking one of the five requirements (access to clean water, access to better sanitation, security of tenure, sustainable housing, and enough living space) (UN-Habitat, 2003b).

Many problems that coincide with the growth and increase of informal areas appear on all aspects of society's life (Mohamed, 2019), including:

##### a- Planning and design aspects:

- Planning laws and regulations that could have been followed to make these locations meet the actual demands of their residents are not followed and the planning characteristics of such areas are depreciated.
- Inland streets and narrow roads that make it difficult to construct utility networks, deal with fire-related issues, and cause traffic concerns.
- General lack of public services, particularly in regards to parks and other outside areas for sports and pleasure.

##### b- Demographic factors:

- Low-income and no-income groups, as well as certain middle-class groups, reside in these smoke-filled neighborhoods. As the population grows, more than one household becomes cramped.
- The language of indiscriminate difficulty in fostering criminal activity and promoting bullying, violence, and the extension of harmful and unwholesome customs.

##### c- Legislative and economic aspects:

- Transform rural areas into metropolitan areas.
- In comparison to regions that are created in line with planning rules and regulations, trying to repair these areas after their haphazard growth is a highly complex task that also requires high resources.
- Given the numerous violations of all rules and regulations present in these regions, legalizing them is a very challenging issue. As a result, there must be several exceptions to the legalization of these places. If they are acknowledged and granted legal status, it will be required to offer them the most basic facilities and services, which will put

- additional strain on infrastructure networks.
- d- Environmental aspects:
- Environmental degradation and increased pollution rates.
  - Lack of optimal use of natural resources.
- ii- Developing policies for slum areas in developing countries from 1950 to 2030**
- a- In 1960, following the First and Second World Wars:
- The slums were not perceived as having a significant detrimental impact on urbanization at this time, but rather as a small threat. This phase focused on a direct provision method, in which governments primarily served as housing providers and as a social control and power-wielding tool.
  - Developing nations ignored these phenomena and concentrated primarily on building public housing. However, generally speaking, these public initiatives did not provide enough housing, either in terms of quantity or quality.
  - After recognizing that blind policy did not stop the expansion of this, governments in developing nations later dealt with slum regions by removing them (Buckley *et al.*, 2006)
- b- 1970s through 1990s:
- This phase focused on a support approach because of budgetary limitations, rising housing provision and decommissioning costs, and international acknowledgment of the right to sufficient housing and the significance of creating informal housing, which led to the adoption of a self-help building method (Croese *et al.*, 2016). Slums were viewing as urban reality needing an appropriate solution; therefore, the World Bank started a self-help approach to address them.
- c- 1990 - 2016:
- This phase depended on an empowerment approach, where the notion of enabling a neoclassical economic analysis and highlighting that there were factors affecting housing demand such as the availability of mortgages, taxation, housing support, residents' property rights, and security of tenure arose (Ndlela, 2005; Start and Johnson, 2004).
  - International organizations came to the conclusion that government restrictions were necessary in the late 1980s in order to improve housing provision, prevent slums, and implement pro-poor land and housing policies (Hassan, 2011).
  - The enabling approach to housing development was initially outlined in the Global Report on Human Settlements (UNCHS, 1987), which also featured a legal, institutional, and financial framework for the growth of the urban housing market by the private sector, local governments, and private citizens (Croese *et al.*, 2016).
  - The enabling approach and the adoption of the World Bank's enabling market-based policies were then included in the agenda for Habitat II (Croese *et al.*, 2016). With the principles of poverty alleviation, environmental improvement, well-being, and health risk reduction through local, national, and international collaborations, the objective of "enough shelter for all" was adopted in the Istanbul Declaration of 1996 (UN-Habitat, 1996) with the intention of developing environmentally sustainable, healthy, and livable human

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settlements (Croese *et al.*, 2016; UN-Habitat, 1996).

d- 2016 until 2030

- An integrated and sustainable urban approach was used in this phase. Cities and urban communities are to be places that promote equality and sustainable development for all of their residents, including slum dwellers and informal settlements, according to the Habitat III Agenda from the 2016 United Nations Conference on Housing and Sustainable Urban Development in Kyoto.
- In order to influence policies taken by developed and developing nations to reduce risks and shocks affecting vulnerable populations by 2030, the Kyoto Declaration on "Sustainable Cities and Human Settlements for All" outlines the issues of vulnerability, poverty, and inequality in urban development in article 77 (UN Habitat, 2017).

### iii- Sustainable development to solve the problems of informal areas in Egypt

Urban issues are interconnected, and sustainable development addresses how to address them through coordinated efforts

to gain access to essential infrastructure facilities. In order to achieve sustainable development and its effects on economic and social development, we must plan and implement at all levels and have sufficient, financial, human, and institutional resources at the disposal of Governments (UN-Habitat, 2017) in order to provide people with clean drinking water, effective waste management, access to energy for all, and availability of proper sanitation services that reduce health risks.

The social, economic, and environmental components are part of Egypt's Strategic Vision for Sustainable Development 2030 (Fig. 2). This figure emphasizes the significance of the environmental factor in linking (urban development - environment), with the goal of a clean, safe, and healthy environment that fosters a diversity of productive resources and economic activities. The improvement of the built environment's quality is necessary to conserve natural resources, encourage their optimal use and investment, and rely less on conventional energy sources and more on energy efficiency and renewable energy sources (Alana, *et al.*, 2019; Bolleter and Cameron, 2021).



**Fig. (2). Key dimensions of the sustainable development strategy**

Source: M.A.A.R.Egypt Ministry of Planning, Sustainable Development Strategy: Egypt vision 2030.

#### iv-**Green Restoration and Sustainable Reconstruction Policies**

The concept of reconstruction emphasizes the need to establish a resilient and sustainable society, the need to make societies safer by lowering risk and fostering resilience, and the necessity of advancing justice and equity during recovery. Planning a green recovery and sustainable reconstruction take into consideration the environmental changes and a scarcity of natural resources and it is dependent on accurate information in addition to the presence of environmentally responsible construction methods. This will achieve long-term sustainable development objectives. During planning procedures, failing to take into account the connections between the environment and people leads to an incomplete and wrong understanding of issues, which can have a number of unfavorable effects.

The Green Restoration and Sustainable Reconstruction (GRR) approach (Robert,2012) is a means of fulfilling the idea of sustainable development. This can be achieved through the following:

- Investigating the benefits and factors of taking environmental concerns into account and by developing guidelines to balance environmental protection with the need to support reconstruction.
- Determine and avoid any potential negative environmental repercussions that could imperil sustainability and obstruct the pursuit of development goals.
- Find ways to enhance environmental conditions, manage natural resources, and make restored infrastructure safer while reducing risk and exposure to disasters in the future and preparing for their effects, such as coping with climate change.
- Work to lessen the negative effects of environmental risks and disasters and to assist in mitigation measures, such as focusing on reducing greenhouse gas emissions from land-use change to lessen the effects of climate change.

For the successful implementation of every sustainable rehabilitation and reconstruction activity, the Green Restoration and Sustainable Reconstruction portal at GRR is built on four fundamental, all-encompassing policies:

- a- Environmental issues must be mainstreamed into all facets of sustainable reconstruction activities and strategies in order to improve the standard of living for affected communities and individuals while limiting the damaging effects of reconstruction on the environment and protecting the long-term and productive biodiversity of natural systems.
- b- Laying the groundwork for solid and trustworthy local institutions where the establishment of strong local institutions can enable them to conduct sustainable development programs on their own and will help them recover from social, economic, cultural, and living consequences while also ensuring the environment's sustainability and smart development.
- c- A comprehensive spatial plan is necessary to guarantee that reconstruction operations have the least possible negative effects on the environment and climate and to encourage decisions that will enhance access to environmental goods and services, development opportunities, and livelihoods.
- d- Promoting good governance where the planning, execution, and evaluation of the reconstruction process must be transparent, accountable, and incorporate meaningful community participation.

Green restoration and sustainable reconstruction policies have many benefits, such as lowering poverty, assisting communities affected by environmental risks and disasters to achieve sustainable economic growth, and working to manage natural resources. However, there are a number of obstacles to the implementation

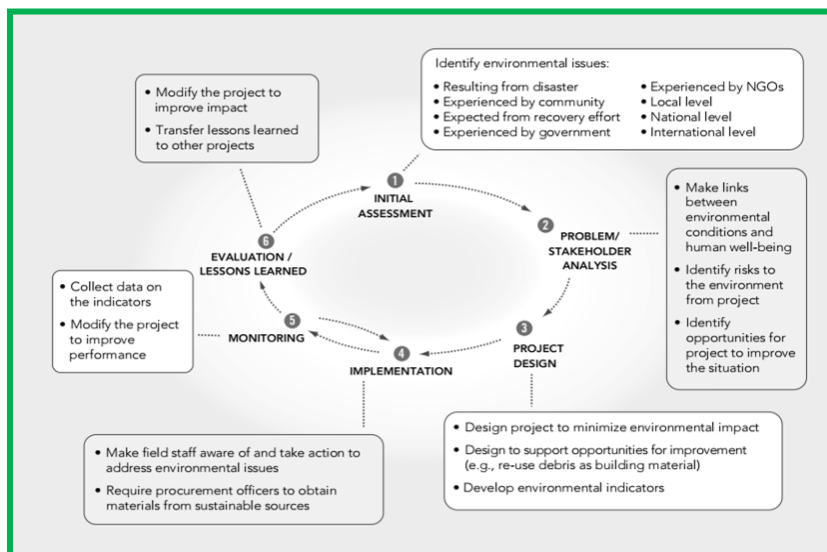
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of green restoration and sustainable reconstruction policies, including a lack of easy access to data and the need to set environmental criteria for areas after environmental impacts and changes take place both inside and outside the project area. For this reason, the success of GRR's Green Restoration and Sustainable Reconstruction site necessitates the active participation of local and regional government officials, impacted parties, and other stakeholders.

The concept of green restoration and sustainable rebuilding is being pursued through a five initiatives that aim to directly address environmental problems. These are illustrated in Figure (3) as follow:

1. The region's initial evaluation phase, during which environmental

2. Hazards and difficulties are noted.
2. Analyze the issue's root causes, individuals who are impacted and local stakeholders.
3. Planning and developing the project in accordance with the overall goal and outcomes, working with potential, and assessing environmental hazards by looking at environmental sustainability indicators.
4. Operational and implementation phase, which includes tracking and evaluating how the project's implementation phase has an influence on the environment.
5. Assessment and action to share lessons learned and their linkage to environmental sustainability.



**Fig. (3). Green Restoration and Sustainable Reconstruction Entrance Procedures**  
Source : Robert (2012)

### v- Global Experiences of Green Restoration and Sustainable Reconstruction in Informal Areas

It was obvious from data in Table (1) that the studied global experiences have identified the issue, characterized it, worked to analyze it, identified its

weaknesses, and worked to identify possibilities to achieve the need to adopt rehabilitation and reconstruction policies in impacted metropolitan areas. These needs vary depending on the conditions that are conducive to each issue, work on implementing them, and monitor the

impact monitoring.

results of their implementation while taking into consideration environmental

**Table (1). Application of green restoration and sustainable reconstruction entrance to global experiences.**

experience	problem description	goal	Green restoration and sustainable reconstruction	Results of the application of the portal policies
<b>Sangbar - India</b> ( <a href="https://kenanaonline.com">https://kenanaonline.com</a> )	<ul style="list-style-type: none"> <li>- There is a deterioration in the region's basic structure</li> <li>- The high level of pollution in the city resulting from the lack of planning for the city</li> <li>- The per capita income level is low</li> <li>- The city's economic capacity is at a low level</li> <li>- There is high unemployment rates</li> <li>- The population's level of education is low and mostly in vocational education</li> <li>- Per capita green area ratios are very low</li> </ul>	Sustainable urban reconstruction through: <ul style="list-style-type: none"> <li>- Reduce pollution rates</li> <li>- Create a healthy security environment</li> <li>- Improving living conditions</li> <li>- Establishing green zones</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of clean drinking water and provision of sanitation to homes</li> <li>- Provide the population with basic community development services such as education, health, vocational training, capacity-building, skills and income generation, as well as optimal access to government services.</li> <li>- Provision of employment opportunities for the population commensurate with their level of education</li> <li>- The use of the population's human energy in the re-planning of the region.</li> <li>- Field workshops to raise the population's awareness of the dangers of unplanned areas</li> <li>- Transfer of pollution sources and treatment of damage</li> <li>- Laws to reduce pollution sources</li> <li>- Paving roads and high streets</li> <li>- Increase the Green Patch in the region</li> </ul>	<ul style="list-style-type: none"> <li>- Optimal use of the city's labor to reduce pollution, create good infrastructure and provide job opportunities for residents with a view to re-planning the city themselves</li> <li>- Achieve green rehabilitation of the urban area and follow up on urban and environmental development processes and its impact on the region's economic development.</li> </ul>
<b>Harare area of Benghazi</b> (Mustafa, 2019)	<ul style="list-style-type: none"> <li>- Random construction lost the area part of its green belt and its food back parts.</li> <li>- Deterioration infrastructure networks as a result of population pressure.</li> <li>- Growing problems of environmental pollution as a result of waste accumulation</li> <li>- Shortage of services</li> </ul>	Sustainable urban reconstruction : <ul style="list-style-type: none"> <li>- Create a healthy security environment</li> <li>- Improving living conditions</li> </ul>	<ul style="list-style-type: none"> <li>- Sustainable strategies for the region's infrastructure</li> <li>- Provide sustainable waste disposal and recycling strategies for energy</li> <li>- Use of perennial environmental materials of the same nature as the area</li> <li>- Provision of green flats and footpaths</li> <li>- Encourage interaction and social communication on how sustainable urbanization is important</li> </ul>	Achieve green rehabilitation of the urban area and follow up on urban and environmental development processes and its impact on the region's economic development.

Source: (Mostafa, 2019; <https://kenanaonline.com>)



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**vi- Implementation of the Green Restoration and Sustainable Reconstruction entrance in Izbet Khairallah to address the problems and issues of informal areas**

urban area and the historical and archaeological sites of Fustat, the residential compounds of Dar Al-Salam to the south, the Nile River, the Helwan metro line and the housing of Al-Zahraa to the west, while to the east it is bordered by Qarafa Al-Basateen (Fig. 4).

**a- Identifying the Location**

Izbet Khairallah is located south of Cairo, bordered to the north by the



**Fig. (4).** Map showing the location of Izbet Khairallah and the surrounding area.  
**Source: Cairo Governorate (2019).**

**b- Reframe the problem**

Izbet Khairallah is considered one of the unplanned and unsafe areas in the Cairo governorate with many problems. According to Ghoneim (2022) the

Following Environmental and social problems in Izbet Khairallah and the implemented projects were recorded (Table 2).

**Table (2).** Environmental and social problems in Izbet Khairallah after Ghoneim (2022).

Environmental & Social problems	Importance	No. of implemented projects
<b>Streets: Main roads</b>	+++	2
<b>New Roads &amp; Pedestrian paths</b>	++	1
<b>Sewage networks</b>	-	-
<b>Water networks</b>	-	-
<b>Health &amp; Education services</b>	++	1
<b>Recreation &amp; Culture services</b>	+	-
<b>New Markets</b>	-	-

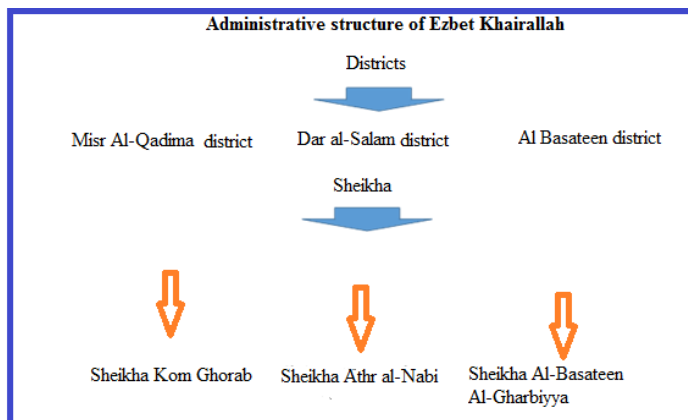
+++ Highly important    ++ Moderately important    + Important    - Not important

In the current study the following problems were identified;

**1- Administrative Problems:**

Administratively, Izbet Khairallah is located in three districts (Fig. 4): 1- Misr Al-Qadima district, including the Sheikhha Kom Ghorab, 2- Dar al-Salam district,

including the Sheikhha Athr al-Nabi and 3- Al Basateen district, including the Sheikhha Al-Basateen Al-Gharbiyya (Fig. 5). This exposes the populace to numerous challenges, including the fact that it hinders the establishment of the different sectors overall development.



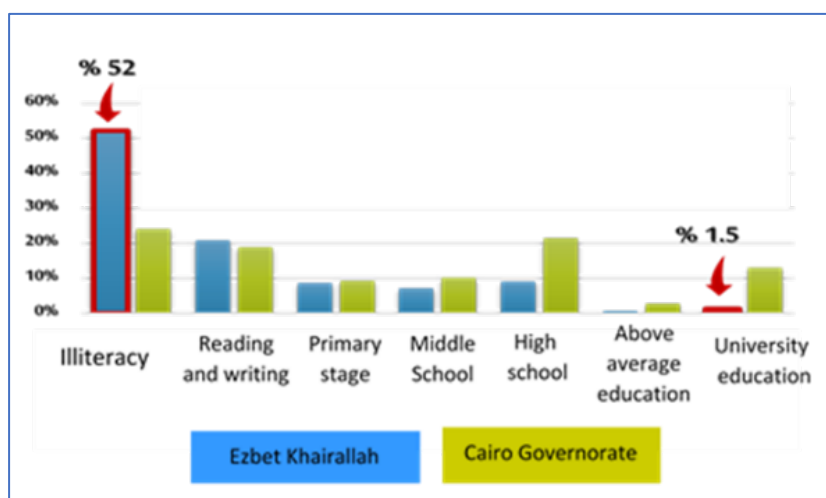
**Fig. (5). Administrative structure of Izbet Khairallah**

**2- socio-economic problems:**

Its population is about 650,000 people who live on about 500 acres. In the late 1990s, the ring road was constructed that divided the area into two northern sectors that include the largest part of the area of the mountain plateau, and a southern one that includes the Establ Antar

area. Inhabitants of Izbet Khairallah suffer from:

- The per capita income level is low
- Economic capacity at a low level
- There is high unemployment rates
- The population's level of education is low compared with that in Cairo governorate (Fig. 6) (Census, 2017).



**Fig. (6). Education ratios in Izbet Khairallah compared with Cairo governorate**  
Source: Census (2017)

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**3- Urban Problems:**

- Deterioration in the region's infrastructure (constantly exploding

sewage pipes and mixing them with drinking water as shown in Figure (7).



**Fig. (7). Deteriorating forms of infrastructure in Izbat Khairallah**

- Physical deterioration of the area and the passage of the Central

Circular Road, as illustrated in Figure (8).



**Fig. (8). Forms of urban deterioration in Ezbat Khairallah**

- Deterioration of the region's cultural heritage in Ezbat Khairallah because of the rise in

groundwater levels as illustrated in Figure (9).



**Fig. (9). Forms of Cultural Heritage Deterioration in Ezbat Khairallah**

**4- Environmental issues:**

- High level of contamination in the region as a result of pollution of the mounted lake in the area and reduction of the sulphur treated from 27% to 19%. The height of its proportion is about 21.6 metres

because of its mixing with the sewage plant in the mounted area in addition to the dumping of the residues of buildings and garbage inside it as illustrated in the Figure (10).



**Fig. (10). Contamination of the Mounted Lake in Ezbat Khairallah**

- Air pollution resulting from marble cracking workshops that lead to an increase in the number of people

with lung diseases from 9.5% to 13.4%, as illustrated in Figure (11).



**Fig. (11). Marble workshops and contamination in Ezbat Khairallah**

- The lack of a waste management system, where residents tend to dump rubbish on the ring road, in

- Lake Ain Al-Khalil and on the northern edge of the plateau as illustrated in Figure (12).
- Low per capita green area ratios



**Fig. (12). Photo showing the spread of garbage in Ezbat Khairallah**



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- The region suffers from sloping tendencies and the presence of crumbling rock edges as illustrated in Figure (13).



**Fig. (13). Sloping tendencies and rocky edges in the family of Ezbat Khairallah**

### c- Goal Setting

Egypt 2030 vision focuses on the improvement of underserved communities, the provision of amenities and services, and the eradication of pollution. For the environmental and urban upgrading of Izbet Khairallah region and to make it a safe and sustainable area, the following will be accomplished:

- Upgrading the urban environment and creating a healthy security environment.
- Attention to the archaeological heritage areas of tourism development in the region

(Qabab al-Sheva Girls, Makam al-Sheva Doctors, Jabkhana Muhammad Ali (Stable Antar)).

- Reduce pollution rates and high air and water quality rates in the region. Improving living conditions and raising the population's awareness of the seriousness of unplanned places.

### d- Investigation of Izbet Khairallah's issue's root causes:

This phase analyses the key problems and their causes in ten zones in Izbet Khairallah as shown in Tables (2 & 3). Figure (14) also shows the areas affected by each problem.

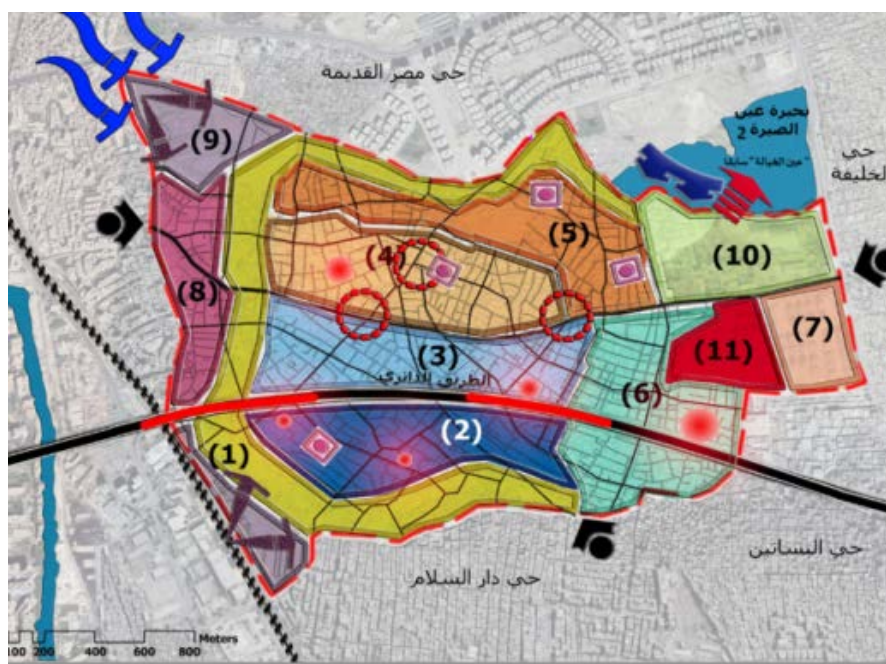


Fig. (14). Ten zones of Izbat Khairallah. Source: Author.

Table (2). Analysis of the main problems in 10 zones of Izbat Khairallah

zone	problems	zone	problems
1	Collapsible rock ledges	5	household waste
	Industrial and domestic waste		Buildings with dilapidated foundations
	air pollution		Dilapidated buildings
	Buildings with dilapidated foundations	6	soil of a child
2	Leakage in the sewage network	6	traffic jams
	Buildings not served by the sewage network		Leakage in the sewage network
	household waste		Buildings with dilapidated foundations
3	soil of a child	7	soil of a child
	Traffic jams		household waste
	household waste		Buildings not served by the sewage network
4	soil of a child	8	Leakage in the sewage network
	Leakage in the sewage network		9
	household waste	Industrial waste	
	Buildings with dilapidated foundations	10	Unused vacant lands

Source: Author.

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**Table (3). Analysis the causes of problems in zones of Izbet Khairallah.**

Description and analysis of problems	Causes	affected zones
<ul style="list-style-type: none"> <li>Contamination of the lake with solid and liquid residues and wastewater resulting in a decrease in sulphur treatment from 27% to 19%.</li> </ul>	<ul style="list-style-type: none"> <li>Low cultural and social awareness of the population</li> <li>Drainage in the region</li> </ul>	Near 10 zones
<ul style="list-style-type: none"> <li>Widespread gatherings and spots of household waste.</li> <li>Production up to 423.54 kg/individual/year wastes"</li> </ul>	<ul style="list-style-type: none"> <li>Lack of waste recycling system</li> </ul>	All zones
<ul style="list-style-type: none"> <li>Prevalence of air pollution resulting from wood workshops and marble factories.</li> </ul>	<ul style="list-style-type: none"> <li>Many workshops and crafts overlap within the residential block</li> </ul>	All zones
<ul style="list-style-type: none"> <li>Low proportion of green areas in the region adversely affects the health of the population</li> </ul>	<ul style="list-style-type: none"> <li>Lack of open areas that can be converted to green ones.</li> </ul>	All zones
<ul style="list-style-type: none"> <li>Unplanned growth and the spread of unsafe housing in the region.</li> </ul>	<ul style="list-style-type: none"> <li>Low cultural and social awareness of the population.</li> </ul>	1, 4,5,6
<ul style="list-style-type: none"> <li>The degradation of archaeological buildings and their transformation into waste collection places.</li> </ul>	<ul style="list-style-type: none"> <li>Low cultural and social awareness of the population</li> </ul>	1,4,5
<ul style="list-style-type: none"> <li>Deterioration in the region's infrastructure (continuous explosion of sewage pipes and mixing with drinking water).</li> </ul>	<ul style="list-style-type: none"> <li>Low cultural and social awareness of the population</li> <li>Lack of sewage pipe maintenance</li> </ul>	All zones
<ul style="list-style-type: none"> <li>Consolidates traffic accumulations in the area and the presence of unplanned roads with less than 6 m display</li> </ul>	<ul style="list-style-type: none"> <li>The overall deterioration of the state of the roads and their lack of supply</li> </ul>	All zones
<ul style="list-style-type: none"> <li>Mixing artisanal activity with residential.</li> <li>High unemployment and maintenance</li> <li>Most people work in informal sectors (their workers are irregular)</li> </ul>	<ul style="list-style-type: none"> <li>Low cultural and social awareness of the population.</li> <li>High family growth rates</li> </ul>	All zones

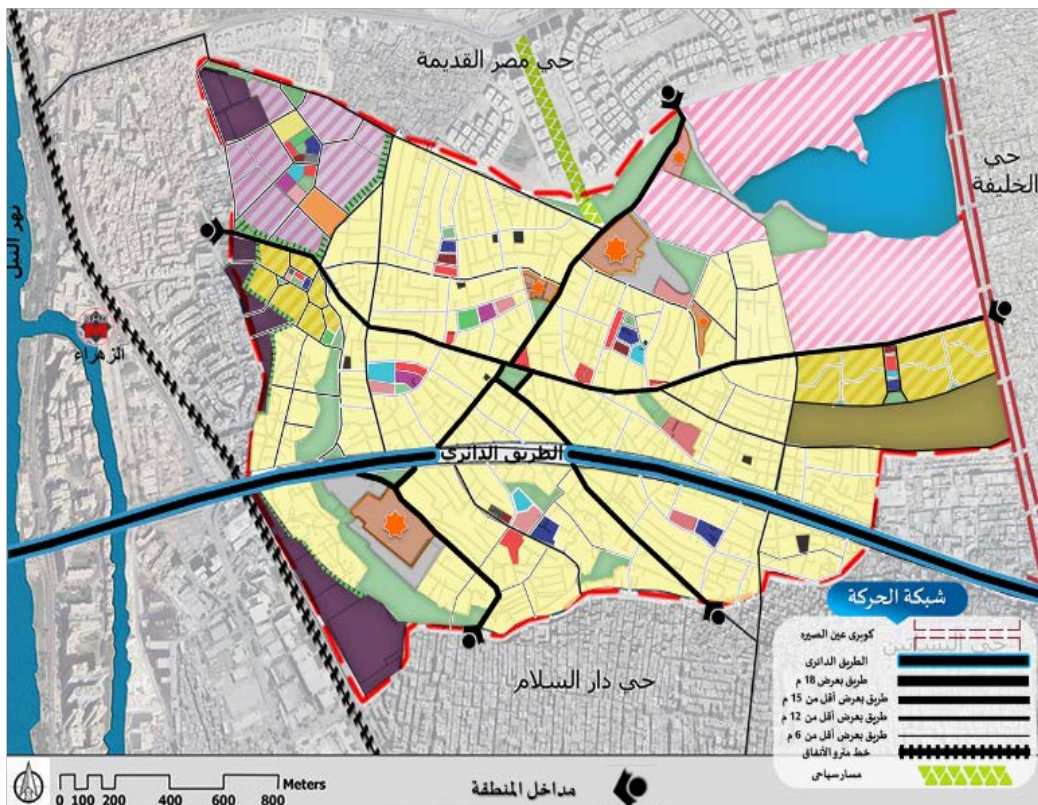
**Source: Author.**

**e- Redefining Izbet Khairallah in the Light of Green Restoration and Sustainable Reconstruction Policies (Potential and Environmental Risk - Environmental Sustainability Indicators**

From the results of analysis of the current problems and thie causes in different zones of to Izbet Khairallah region and from studying the existing land uses there, the author can give a picture to the proposed land uses to solve the investigated problems by applying the green restoration and sustainable reconstruction policies based on the relationship between the existence of positive environmental and socioeconomic potential and the existence of dangers and constraints that needed to be addressed.

This will focus on the following (Figs. 15 & 16):

- Relying on the region's cross-link axis to link uses.
- Providing the green hubs to raise mobility efficiency and connect heritage areas
- Linking the proposed residential use with the main green axes
- Linking service use areas to subcontracts.
- Localizing tourist, therapeutic and cultural services while developing the surrounding residential areas to create an investment return in favor of rehabilitating the Izbet Khairallah area to be environmentally friendly.



Proposed land uses		Existing land uses	
Tourist-therapeutic complex		housing	
housing		Industrial	
commercial		Ain al-Sira Lake	
educational		My service	
public services		historical location	
Craft market		Military areas	
Athlete industrial			
Workers' housing			
healthy amenities			
Green areas			
Recreational walkway			
religious			

Fig. (15). Proposed and existing land uses in Izbat Khairallah ource: Author



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**Develop public paths**

**Developing the edge of the mountain to be recreational and cultural areas**



**Developing building destinations and the visual image of Izbet Khairallah**

**Fig. (16). The proposed green restoration and reconstruction policies for roads and degraded areas of Izbet Khairallah region. Source: Author**

#### **f- Environmental Management Plan (EMP):**

In this study EMP can provide options to minimize impacts arising from implementing the proposed land uses. The EMP that has been proposed contains a list of pro-active measures that would address the potential impacts prior to their occurrence. It is a standalone document that has to be used and consulted by all concerned parties and major stakeholders during the construction and operation phases. The success of any project lies in the hands of management as it is the focal point for decision taking and releasing the required financial resources.

Management should therefore be convinced on the sensitivity of this undertaking and be fully committed to provide its support towards environmental stewardship.

#### **Objectives of the EMP:**

The main objectives of the EMP are:

- To analyse the risks of each of the components of the project. To include mitigating measures against probable impacts during construction and operation. To independently monitor or audit the environmental performance and to verify mitigating measures implemented.

#### **g- Analysis of risks during implementation and operation phases**

##### **1. Construction or (implementation phase):**

This includes activities that may affect the community and the environment at the construction site and may directly and indirectly affect the areas around the study area. It includes:

- a. Work to prepare and settle workplaces.

- b. General construction works which include transportation and storage of construction materials, solid waste and construction wastes.
- c. Paving, water, drinking, sanitation, electricity, finishing and site coordination.
- d. Development of roads, waiting places and entrances to the study area.
- e. Occupancy of the road in the work area and requiring traffic transfers during implementation.
- f. Operation of construction equipment and heavy equipment and the resulting noise, dust and harmful emissions of demolitions and construction.
- g. The presence and activities of crews in the region.

#### **2- Operational phase:**

This was done in the light of the people's participation in the region to measure satisfaction with the implementation and operation of the scheme. A review of the environmental and social implications of projects after implementation includes the following activities:

- a. Proposed tourism activities.
- b. New residential activities.
- c. Proposed industrial activities
- d. Archaeological and Historical Development Plan
- e. Development of transport and new road networks and reduction of resulting emissions
- f. Operation of sewage, drinking water and electricity systems.

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**Table (4). Risk of impacts at implementation and operational phases for applying Green Restoration and Sustainable Reconstruction Policies in Izbet Khairallah.**

desired objectives	Implementation stage														operating phase								
	Site processing work	Removing public occupancy	Demolition and construction residues	Transfer of demolition work and construction waste	Storage of demolition work and residues	Preparation, equipping and reconciliation of workplaces	Road occupancy in the work area	Traffic transfers during implementation	General construction works	Paving Works	Operation of heavy equipment	Landscaping	Crews' activities	noise	harmful emissions	tourism activities.	New residential activities	Plan for the development of archaeological and historical areas	Development of transport and new road networks and reduction of resulting emissions	Port development and construction	industrial zones	Operation of sewage, drinking water and electricity systems.	
Improving living conditions																							
Attention to archaeological areas																							
traffic flow																							
Reduce pollution rates, increase air and water quality																							
Upgrading the urban environment and creating a healthy security environment.																							
Stabilizing social relations, raising population's awareness																							
	positive impact			Specific negative impact		strong negative impact				there is no impact				<b>Source: Author</b>									

### h- Mitigating measures against probable impacts during construction and operation.

In this part mitigation measures for each of the estimated risks will be discussed so that we can minimize any impacts on the environment performance. The extrapolation of potential impacts depends on the investigation of the relationship between the nature of each component or activity contained in the scheme on the one hand and the sensitivity of elements of the natural and social

environment in the impact areas on the other as shown in Table (4).

The mitigation strategies will deal with the effects of implementation and operation of the main components and these will include:

- Mitigation and adaptation actions to ecosystem-based projects through periodic follow-up to the measurement of indicators on the region's environmental and natural values
- Mitigation and adaptation to tourism and recreational projects

through periodic follow-up of the tourist hospitalization area of Lake Ain Sirah, periodic follow-up and maintenance of archaeological and historical areas.

- Mitigation and adaptation actions for industrial and commercial projects through environmental impact assessment of all proposed projects and periodic follow-up and maintenance of production and operation.

**i- Monitor or audit the environmental performance and verify mitigating measures implemented:**

All the planned activities to achieve the proposed green restoration and reconstruction policies for roads and degraded areas of Izbet Khairallah region have to be monitor during the construction and operational phases by the administrative committee in the region to ensure that there were no negative environmental and socio-economic impacts. An environmental impact assessment (EIA) must be performed before achieving each of this activities. The environmental impact assessment of the proposed projects of the Izbet Khairallah plan will contribute to the development of appropriate requirements and strategies to reduce the environmental impact of modernizing the scheme towards achieving environmental sustainability in similar informal sites in Egypt.

EIA will carry out through the following:

- Choose the site and its environmental relevance with the surrounding projects and activities.
- Compatibility with the scheme's environmental objectives.
- Identification of the environmental and socioeconomic risks of each of the project elements.
  - Implement Mitigation plan for each risk.
  - Monitor the implementation of this mitigation plan.

**Conclusion**

- The study indicates that slums pose a threat to the urban environment and must be seriously addressing for their multiple effects on our social, cultural and economic values as well as on our natural and physical environment.
- Green restoration and sustainable reconstruction policies can support decision makers to address the problems in these slums.
- In the light of this situation, action is being taking to develop policies for the sustainable rehabilitation and reconstruction of these areas in order to avoid environmental degradation and to promote the optimal use of natural resources for sustainable urban development and for the improvement of society's quality of life.
- Addressing informal areas requires policies and strategies that take into account social, economic and environmental dimensions and achieve timely and effective sustainable urban development.
- Green restoration and sustainable reconstruction policies are modern policies to ensure sustainable rehabilitation and reconstruction of the need to avoid environmental degradation and promote optimal use of natural resources in a more environmentally responsible, urban and social manner to achieve the goal of improving the quality of life of society.
- Izbet Khairallah region is in urgent need of development that requires the implementation of green restoration and sustainable reconstruction policies to address the problems of this unplanned region.

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- The re-layout of Izbet Khairallah region in the light of green restoration and reconstruction policies must depend on linking the existence of beneficial environmental, social and economic potentials, and the existence of risks and limitations that must be addressing.

### Recommendations

The research recommends working on developing slum areas in Egypt by applying green restoration policies and sustainable reconstruction with innovative environmental development ideas and increasing funding for scientific studies to find engineering and planning solutions suitable for the Egyptian environment to face its problems in the surrounding urban environment through the following:

- Determine the main problems and their causes
- Provide alternate housing options to impacted communities
- Increasing access to these locations by opening main and branch roads with little Demolition regulation of property rights
- Strengthening of tenure
- Supply of essential services for unoccupied lands,
- Raising of living standards
- Environmental improvement,
- Expansion of green space,
- Creation of public parks -
- Removal of polluting activities from the region,
- Conversion of some streets and highways into pedestrian lanes,
- Improve public transportation.

### REFERENCES

- Alana, H.; Al-hagla, K. and Hasan, H. (2019). A framework for architects'role in attaining sustainable community development in heritageareas: Al-Darb Al-Ahmar, Islamic Cairo, Egypt as a case., Eygpt. Alexandria Engineering J., 58(1): 333-343.
- Bolleter, J. and Cameron, R. (2021). A Critical landscape and urban design analysis of's new administrative capital city, Egypt. J. Landscape Architecture, 16(1): 8-19. Doi.org/10.1080/18626033.2021.1948183
- Buckley, R. M. and Kalarickal, J. (2006). Thirty years of World Bank shelter lending: What have we learned? editors, Robert M. Buckley and Jerry Kalarickal. Directions in development. Infrastructure. Washington, D.C. World Bank.,
- Cairo Governorate (2019). General Administration of Information and Conciliation - Gis Department .
- Croese, S.; Cirolia, L.R. and Graham, N. (2016). Towards Habitat III: Confronting the disjuncture between global policy and local practice on Africa's 'challenge of slums'. Habitat International, 53:237–242. Doi.org/10.1016/j.habitatint.2015.11.037
- Ghoneim, S.A. (2022). EIA of new and upgrading projects in four slums within Greater Cairo to support public services and infrastructures. African J. Biol. Sci., 18 (1): 79-95.
- Hassan, G.F. (2011). The enabling approach for housing supply: Drawbacks and prerequisites- Egyptian experiences. Alexandria Engineering J. 50(4): 421–429. Doi.org/10.1016/j.aej.2012.01.007  
<https://kenanaonline.com/users/ghiras/posts/153636>
- Khalaf, K. (2001). Housing acquisition strategy within the framework of sustainable urban development. The regional conference, Securing Tenure/Good Urban Management, Two Axes for Achieving Social Justice in the City, April, p. 11. Cairo.
- Khalifa, M.A. (2011). Redefining slums in Egypt: Unplanned versus unsafe areas. Habitat International, 35(1),

- 40–49. Doi.org/10.1016/j.habitatint.2010.03.004
- M.A.A.R. Egypt Ministry of Planning. (2016). Sustainable Development Strategy: Egypt vision 2030.
- Mar'ey, E. (2011). Is it possible to solve the problem of slums? Digital Al-Ahram, July 1.
- Mostafa, A. (2019). Urban upgrading for the development of slums (the case study of Al-Hawari), the second engineering conference of the Engineering Professions Union. Al-Zarawiyyah.
- Mohamed, S. (2019). Policies for Dealing with Informal Settlements by Sustainable Urban Development Approach, *Int. J. Engineering Res. Technol.*, 12(4): 465-474
- Ndlela, W.N. (2005). The Paradox of Enabling Strategies and Housing Improvements Msunduza, Mbabane, Swaziland.
- Patel, S. and Mandhyan, R. (2014). Impoverishment assessment of slum dwellers after off-site and on-site resettlement: A case of Indore. *Commonwealth Journal of Local Governance*. At: <https://doi.org/10.5130/cjlg.v0i0.4065>
- Robert, G. (2012). Mainstreaming environmental issues into rehabilitation practices, Deutsche Welthungerhilfe e.V., Friedrich-Ebert-Straße 1, 53173 Bonn.
- Start, D. and Johnson, C. (2004). Livelihood options?: The political economy of access, opportunity and diversification / Daniel Start and Craig Johnson. Working paper: Vol. 233. London: Overseas Development Institute.
- UNCHS (1987). *Global Report on Human Settlements*: Oxford University Press for the UN Centre for Human Settlements (Habitat). Retrieved from <https://www.un.org/ruleoflaw/wp-content/uploads/2015/10/istanbul-declaration.pdf>
- UN-Habitat (1996). *The Habitat Agenda. Istanbul declaration on human settlements.*: Report of The United Nations Conference on Human Settlements (Habitat II). At: <https://www.un.org/ruleoflaw/wp-content/uploads/2015/10/istanbul-declaration.pdf>
- UN-Habitat (2003b). *Slums of the World: The face of urban poverty in the new millennium?* UNHabitat.Nairobi.
- UN-Habitat (2017). *World Cities Report 2016- Urbanization and Development - Emerging Features*; UN-Habitat: Nairobi, Kenya, 2016. At: <http://wcr.unhabitat.org/>
- UNICEF (1987). *Informal Settlements Development Facility. Egypt Multidimensional Child Poverty in Slums and Unplanned Areas in Egypt*, UNICEF Egypt and ISDF, Cairo.

## Green recovery and sustainable reconstruction policies to deal with slums in Egypt Case Study: Izbet Khairallah

التعافي الأخضر وسياسات إعادة الإعمار المستدامة للتعامل مع العشوائيات في مصر  
دراسة حالة: عزبة خير الله

هبة نبيل عبد الحميد

قسم التخطيط البيئي والبنية الأساسية  
كلية التخطيط الإقليمي والعمراني - جامعة القاهرة  
Eng\_hebanabil @ yahoo.com.com

### المستخلص

تعتبر العشوائيات من المشاكل العالمية التي تشكل تهديداً للبيئة الحضرية ومحيطها. اهتم العالم بالبحث عن حلول وأساليب لمعالجة هذه المشاكل والسلبيات والحد من أثارها المختلفة. لذلك أصبح من المهم تطبيق مفاهيم جديدة تشمل سياسات مستدامة لإعادة الإعمار باستخدام الأساليب الخضراء في مصر وكذلك في مناطق أخرى في العالم. في الدراسة الحالية. تم تطبيق الطريقة النظرية الاستقرائية التحليلية على منطقة عشوائيات في مصر، عزبة خير الله. أشارت النتائج التي تم الحصول عليها من هذه الدراسة إلى كيفية توظيف سياسات الاستعادة الخضراء وإعادة الإعمار المستدام في المناطق الحضرية في مصر من أجل مواجهة مشاكل العشوائيات لتجنب التدهور البيئي وتعزيز الاستخدام الأمثل للموارد الطبيعية بطريقة أكثر كفاءة. كما أكدت هذه النتائج على أهمية المسؤولية البيئية والحضرية لتحقيق هدف تحسين نوعية الحياة للمجتمع.

**الكلمات الدالة:** المناطق العشوائية- عزبة خير الله - سياسات - الاستعادة الخضراء - الإعمار المستدام