

# Effat University Repository

## Evaluating the Efficiency of the Adopted Strategies Addressing Informal settlements in Saudi cities: The Case of Makkah Al-Mukaramah

Item Type	Thesis
Authors	ALMTAYRI, RABIYAH
Publisher	Rabiyah obaid
Download date	2025-05-12 06:29:43
Link to Item	<a href="http://hdl.handle.net/20.500.14131/1885">http://hdl.handle.net/20.500.14131/1885</a>



**Effat University**

**Department of Architecture**

**Master of Science in Urban Design**

# **Evaluating the Efficiency of the Adopted Strategies Addressing Informal settlements in Saudi cities:**

**The Case of Makkah Al-Mukaramah**

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of  
MSc. In Urban Design and Practice

**By**  
Rabiyah obaid Almtayri

**Supervised by**  
Dr.Tarek Saad Ragab

**Spring 2022**

Effat University  
Jeddah, Saudi Arabia  
Deanship of Graduate Studies and Research

This thesis, written by Rabiya obaid Almtayri under the direction of her thesis supervisor and approved by her thesis committee, has been presented to and accepted by the Dean of Graduate Studies and Research on XX/XX/20XX, in partial fulfillment of the requirements for the degree of Master of Science in Urban Design.

Thesis Committee

Thesis Supervisor

Name: **TAREK SAAD RAGAB**  
Signature: 

Co-supervisor/member

Name:-  
Signature:-----

External Member

Name:  
Title:  
Signature:-----


Internal Member

Name:  
Title:  
Signature:-----

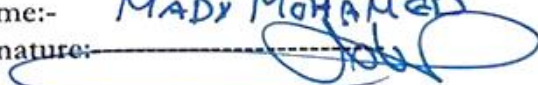
Department Chair

Name:-  
Signature:-----

Dean of the College

Name: **Asmaa Ibrahim**  
Signature:  **11 Oct 2024**

Dean of Graduate Studies & Research

Name:- **MADY MOHAMED**  
Signature: 

# Abstract

Informal settlement areas are a phenomenon that spreads in all countries of the world, and popular attempts reflect popular trends with the aim of obtaining housing. Major cities in the Kingdom of Saudi Arabia suffer from the spread of this phenomenon in a large way, which affects the urban development process and the research aims. In general, to evaluate urban policies and determine their effectiveness and suitability for dealing with degraded informal settlements in order to extract the best of these policies to deal with the spread of informal settlements in Saudi cities.

This is done by studying the concepts and characteristics of informal settlement areas and their role in providing housing for the residents and the problems they suffer from, with a focus on studying the informal settlement areas in the city of Makkah Al-Mukarramah in terms of their size, the reasons for their emergence analyzing their current situation, and then analyzing the opinion of experts, real estate developers and residents through a set of interviews, questionnaires and informal settlements site data in the city of Makkah Al-Mukarramah. This is done to determine the most important criteria that can be focused on during the policy of upgrading the urban and architectural environment of the region. In addition, studying the social and economic aspects of the residents in order to improve the reality of these areas without resorting to comprehensive removal operations, which have always been the adopted approach in dealing with these areas, and then drawing general results and presenting the proposed recommendations.

## ***Keywords***

*Informal settlement areas, Makkah Al-Mukarramah, urban policies, rehabilitation, improvement, urban renewal, upgrading.*

# Table of Contents

Abstract.....	3
CHAPTER ONE: RESEARCH STRUCTURE .....	8
1 Introduction: .....	9
1.1 Research Problem.....	10
1.2 Research Hypothesis: .....	11
1.3 Research Questions:.....	11
1.4 The aim of the Study: .....	11
1.5 The importance of research:.....	12
1.6 Limitation of the Study:.....	12
1.7 Methodology: .....	12
1.8 Structure of the Study:.....	13
CHAPTER TWO: LITERATURE REVIEW .....	14
2 Introduction: .....	15
2.1 Overview on Informal settlements Definition and Reasons of their Emergence: .....	16
2.1.1 The concept of the phenomenon (informal settlements): .....	16
2.1.2 Reasons for the emergence of informal settlements: .....	20
2.2 Problems that informal settlement areas suffer from:.....	35
2.3 Informal settlement areas treatment Approaches:.....	37
2.3.1 Methods associated with degraded urban areas that suffer from environmental and urban problems .....	39
2.3.1.1 Rehabilitation:.....	39
2.3.1.2 Improvement: .....	40
2.3.1.3 Renewal:.....	41
2.3.1.4 Upgrading:.....	44
2.3.2 Methods that bring about radical changes in the built environment .....	47
2.3.2.1 Redevelopment:.....	47
2.3.2.2 Clearance: .....	48
2.3.2.3 Removable: .....	48
2.3.2.4 Replacement: .....	49
2.3.3 A comparison of the appropriate urban methods to address the problem of informal settlements: .....	50
2.4 Challenges in the development of Informal settlements: .....	54

2.5 Summary: .....	54
CHAPTER THREE: ANALYTICAL STUDY OF THE INFORMAL SETTLEMENT AREAS IN MAKKAH AL-MUKARRAMAH CITY .....	55
3.Introduction: .....	56
3.1 An overview of the Holy city of Makkah:.....	56
3.1.1 The location of Makkah Al-Mukarramah city: .....	56
3.1.2 The area of Makkah Al-Mukarramah city: .....	57
3.1.3 Population distribution in the holy city of Makkah: .....	58
3.1.4 Administrative divisions of Makkah Al-Mukarramah city:.....	58
3.1.5 Urban growth in the city of Makkah:.....	59
3.1.5.1 Urban conditions in the city of Makkah Al-Mukarramah up to a year (1978):.....	60
3.1.5.2 Urban growth of the city of Makkah Al-Mukarramah between (1978-1986): .....	62
3.1.5.3 Urban growth in the city of Makkah Al-Mukarramah between (1986-1992):.....	63
3.1.5.4 Urban growth of the city of Makkah Al-Mukarramah between (1992-2000): .....	64
3.1.5.5 Urban Growth in the city of Makkah Al-Mukarramah until (2004): .....	65
3.2 An overview of informal settlement areas in the city of Makkah Al-Mukarramah:.....	<b>Error!</b>
<b>Bookmark not defined.</b>	
3.2.1 A historical overview of the emergence of informal settlements in the city of Makkah Al-Mukarramah: .....	<b>Error! Bookmark not defined.</b>
3.2.2 Reasons for the spread of informal settlements in the city of Makkah Al-Mukarramah:	<b>Error! Bookmark not defined.</b>
3.2.3 The Characteristics of informal settlements in the city of Makkah:.....	<b>Error! Bookmark not defined.</b>
3.2.4 Informal settlement areas patterns in the city of Makkah Al -Mukarramah:.....	<b>Error!</b>
<b>Bookmark not defined.</b>	
3.2.4.1 Informal settlements in the city of Makkah Al-Mukarramah according to the regulation for the development of informal areas in the city of Makkah Al-Mukarramah (2008):.....	<b>Error!</b>
<b>Bookmark not defined.</b>	
3.2.4.2 informal settlement areas in the city of Makkah according to its area:.	<b>Error! Bookmark not defined.</b>
3.2.4.3 informal settlement areas in the city of Makkah Al-Mukarramah according to their spatial distribution: .....	<b>Error! Bookmark not defined.</b>
3.3 Summary: .....	66
CHAPTER FOUR: EVALUATING THE DIFFERENT STRATEGIES ADDRESSING THE INFORMAL SETTLEMENT AREAS IN MAKKAH.....	67
4 Introduction .....	68

4.1 Survey analysis .....	68
4.2 Design an Evaluation Scale (AHP): .....	74
4.3 Evaluation of the effectiveness of urban development approaches to informal settlement areas	78
4.3.1 Experts' questionnaire: .....	78
4.3.2 Experts' questionnaire analysis: .....	79
4.3.3 Average of Criteria Efficiency Value after proportional weight modification .....	89
4.4 Summary .....	95
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS.....	97
5. Conclusion .....	98
5.1 Recommendations .....	98
References .....	101

## List of Tables:

S.No.	Description	Page No.
1.	Distribution of informal settlements in the city of Makkah between the third and fourth ring roads	34
2.	Administrative sectors in the city of Makkah Al-Mukarramah	40
3.	Classification of informal settlements in the city of Makkah according to the area factor	56
4.	Pairwise comparison Matrix	68
5.	the weight of the criteria	69

## List of Figures:

S.No.	Description	Page No.
1.	Research structure	15
2.	informal settlement areas treatments approaches	23
3.	The location of Makkah Al-Mukarramah Governorate in the Makkah Administrative Region	38
4.	Stages of urban growth in Makkah Al-Mukarramah until the year 2000	41
5.	Distribution of population densities in unplanned areas in the city of Makkah	47
6.	The current unplanned areas with heritage potential and areas at risk of mountain slopes in the city of Makkah	54
7.	Distribution of informal settlements in the city of Makkah between the second and third ring roads	57
8.	Distribution of informal settlements in the city of Makkah between the third and fourth ring roads	58
9.	the gender of the experts participated in the survey	63
10.	the Specialization of the experts participated in the survey	63
11.	the years of experience of the experts participating in the survey	64
12.	Comprehensiveness of the development project for the entire site	64
13.	the Comprehensiveness of the development project for all residents	64
14.	The development project guarantee shows its continuity now and, in the future.	65
15.	the project required time period	65
16.	Rearrange the return (economic, social and economic) in terms of importance	66
17.	Rearrange the cost (economic, social and economic) in terms of importance	67



18.	the importance for the development project to comply with the customs and traditions	67
19.	the importance to the development project to match the city's values	68
20.	the importance of Criteria as Per Pairwise Comparison	71

# 1

## CHAPTER ONE: RESEARCH STRUCTURE

## **1 Introduction:**

The rapid urban growth in many developing countries has contributed to an unprecedented population growth accompanied by major economic, social and cultural changes in the societal structure. Consequently, there has become an urgent need to provide new organizational schemes capable of securing residential buildings, infrastructure and public facilities commensurate with the population's growing requirements and needs (world cities report, 2016).

As a direct result of the previous urban growth and the increasing desire of the population to migrate, whether internal from rural areas to urban cities or external from their countries of origin to other regions, the idea of informal settlements arose in many cities of the world, especially developing ones on public lands owned by the state or private lands in general. Random and not subject to the laws of the state. The spread of most of these informal settlements was initially concentrated on the outskirts of the cities and then moved to within the administrative boundaries of the central cities (United Nations Human Settlements Program, 2003).

Although many informal settlements are not subject to the organizational schemes set by local governments and their lack of basic services, public utilities, infrastructure and adequate residential buildings, many researchers and thinkers have considered them as a tidy residential environment capable of providing adequate housing for people with limited income, depending on their own efforts and ability to adapt to the urban, service and economic possibilities available to them (Dhaif MA, 2001).

Many countries have faced difficulties in addressing the problem of informal settlements. There are many policies and assumptions proposed by local governments to advance these neighborhoods, whether through short-term policies represented in seeking to find new investments in rural areas adjacent to cities with the aim of reducing the phenomenon of continuous

internal migration from the countryside to the cities ( United Nations ESCWA, 2003), or by adopting long-term informal settlement development policies that depend first on studying the current available resources and economic conditions of countries and dealing with informal settlements in an organized manner that covers all the urban, social and economic aspects of these areas in the long run and within the general regional scheme in which the informal settlements are located Within it so that these areas become a harmonious part with the urban surroundings of the city and its neighboring rural areas (UN-Habitat, 2003).

Then, the necessary proposals are put forward for the process of developing informal settlements, which in many countries initially focused on the complete removal of these areas as part of the solution, and with the exacerbation of the problems resulting from the complete removal of informal settlements, most of which are represented by the state's inability to provide alternative economic housing for the residents and the displacement of most of them to Other regions (Abid A, Nida H M ,Hala A, 2018), countries have adopted another policy approach to address this problem, which is the process of developing and upgrading informal settlements without resorting to complete removal processes through improving the physical structure of residential buildings and providing public facilities and infrastructure for the region in addition to comprehensive development processes On the economic and social level of the residents, which is the approach adopted by many countries at the present time to confront the problem of informal settlements and its continuous growth (Patel K, 2013).

## **1.1 Research Problem**

The main research problem is the lack of many countries to study and evaluate the strategies adopted to accurately address the problem of informal settlements, which differ from one country to another according to the urban characteristics of the area and the social and economic

composition of its residents, and then determine the optimal strategy to address informal settlements and develop appropriate solutions and alternatives in line with the desire of the residents and their needs based on the indicators of the previous study that will be analyzed.

## **1.2 Research Hypothesis:**

Understand the reasons for the spread of informal settlements in the city of Makkah and identify the optimal strategies to address these types of areas in the Holy City in order to contribute to improving the residents' quality of life and achieving the possibility of integrating them with the surrounding urban areas.

## **1.3 Research Questions:**

The research discusses the problem of not evaluating the effectiveness of the adopted strategies to address the problem of informal settlements in the city of Makkah Al-Mukarramah (as a case study), which contributed to the application of a unified strategy to deal with this growing problem. Based on the research problem, the following questions were raised are the current strategies applied to address the problem of informal settlements in the holy city of Makkah to commensurate with the needs of the residents and their economic and social requirements. The current strategies to address the informal settlements of Makkah are in line with global trends, or they need to be developed.

## **1.4 The aim of the Study:**

The research aims to study and analyze the strategies adopted to address the problem of the spread of informal settlements in major cities and to determine the most appropriate strategy for the development of the informal settlement areas according to the characteristics of urban, architectural, environmental and economic areas to meet the needs of its residents and their future aspirations for the development of their areas.

### **1.5 The importance of research:**

The importance of the research comes through an attempt to evaluate the strategies adopted to address the problem of informal settlements in the cities of the Kingdom in general and the city of Makkah in particular, and to provide the necessary proposals to assist specialists and responsible authorities in developing these areas, and to develop a final vision for their treatment according to the indicators that were analyzed and studied in the research.

### **1.6 Limitation of the Study:**

One of the limitations of this study is the broad focus on evaluating the effectiveness of the strategies applied to address informal settlement areas in the city of Makkah and other cities. However, the lack of continuous development of urban policies by governments and identification of problems within government agencies will narrow the scope of this research.

### **1.7 Methodology:**

The research methodology stands on a multifaceted approach. First, it includes the study of theoretical and case study literature tackling the factors of formation and the development of informal settlements/informal settlements. Second, it includes the research and previous studies that dealt with the issue of informal settlements. The last part of the research is conducting interviews with experts and specialists in this field through a work mechanism represented in the following methodology:

1. The descriptive-analytical approach: by studying the theory of the concept of informal settlements, their history, their general characteristics, the problems they suffer and the strategies adopted to address them, in addition to the analytical study of global and local experiences.
2. The inductive approach: by extrapolating the theoretical material and preparing the research tools for comparison and evaluation, leading to the research results and recommendations.

3. Applied approach: projecting the theoretical study to the city of Makkah Al-Mukarramah.

### 1.8 Structure of the Study:

<b>Theoretical Part</b>	
<b>Chapter Two Literature Review</b>	<b>Chapter Three Analytical Study of Informal settlements in Makkah</b>
<ul style="list-style-type: none"> <li>- Informal settlements definition and emergence factors</li> <li>- Informal settlements Problems</li> <li>- Informal settlements intervention Approaches</li> <li>- Challenges in the development of informal settlements</li> </ul>	<ul style="list-style-type: none"> <li>- An overview of Makkah City</li> <li>- History of the emergence of informal settlements in Makkah</li> <li>- Informal settlement in Makkah and their problems</li> </ul>
<b>practical Part</b>	
<b>Chapter four</b>	
<p>A study evaluating the effectiveness of the adopted strategies for dealing with informal settlements in the city of Makkah Al-Mukarramah based on the results of the approved questionnaires and comparing the previous results</p>	
<b>Chapter Five</b>	
Findings and Recommendations	

**Figure No.1:** Research structure

**Source:** by researcher

# 2

## CHAPTER TWO: LITERATURE REVIEW

## **2 Introduction:**

Informal settlements, also known as slums, shantytowns, or favelas, refer to residential areas that have developed outside of formal urban planning frameworks and regulations (UN-Habitat, 2016). These neighborhoods are characterized by inadequate housing, lack of tenure security, limited access to basic services, and overall poor living conditions (Cities Alliance, 1999). Informal settlements emerge and expand for several reasons. Rapid urbanization and rural-urban migration often exceed the capacity of cities to provide adequate low-income housing, forcing new urban residents to construct makeshift shelters on vacant land (Gilbert, 2007). Weak governance and inability to enforce planning regulations also enable informal settlements to develop and grow outside legal frameworks (Roy, 2005). Two major types of informal settlements include squatter settlements and illegal subdivisions (UN-Habitat, 2003). Squatter settlements involve people occupying and building on land that they do not have legal claims to. Illegal subdivisions refer to informal developments on land that was fraudulently subdivided and sold by developers without following planning regulations.

Some of the most pressing issues faced by informal settlement residents include lack of security of tenure, poor access to basic infrastructure and services, overcrowding, high unemployment, poverty, social exclusion, and environmental risks (UN-Habitat, 2015). Governments have employed various policies to address informal settlements, including slum upgrading programs to provide basic services, granting of land tenure, and resettlement to formal housing (Imparato & Ruster, 2003). However, the challenge of informal urban growth persists around the world. Comprehensive policies that address the root structural causes are needed, combining in-situ upgrading, affordable housing provision, and inclusive urban planning (Cirolia et al., 2016).



## **2.1 Overview on Informal settlements Definition and Reasons of their**

### **Emergence:**

#### **2.1.1 The concept of the phenomenon (informal settlements):**

Informal settlements are residential areas that lack legal recognition, haphazardly distributed across urban landscapes. The construction of dwellings in these settlements typically involves the use of inexpensive and less durable materials, leading to inadequate urban infrastructure and services. Most often, these settlements develop outside the boundaries of legally recognized urban areas, established rapidly and without adhering to proper regulations. Consequently, the living conditions in informal settlements are characterized by severe deficiencies in essential amenities. (Nazrul Fattah & Walters, 2023)

Multiple terms were used to describe informal settlements, so they were given many names, such as (informal and illegal gatherings, shantytowns, irregular cities, dwarf housing and others). Furthermore, the concept of informal settlements differed from one region to another based on the conditions of each community, living standards and the prevailing social structure within it.

Where many researchers see that informal settlements are unplanned urban areas deprived of public utilities and basic services (Egyptian Ministry of Housing Utilities and Urban Development, 1993), others see that informal settlements are poor and crowded areas regardless of whether they adhere to the laws of the state or not (Abdul Samie E, 2004).

Many who have studied informal settlements believe that they represent the phenomenon of informal housing, which arises because of erecting residential buildings on lands owned by the state, where such lands are often located on the outskirts of cities. It can also be established on agricultural lands according to unapproved and unlicensed divisions which are areas lacking the

minimum elements of basic services and public utilities (Daief M A, 2001).

According to modern urban systems, the areas subject to the laws of regulation have been classified as “organized formal areas”. As for the areas located on lands outside the organization which are not subject to urban or rural regulatory provisions and laws, they are considered “informal settlement areas.” Another name for “arranged unorganized areas” because their residents are aware of the nature of their urban communities and their community environment at a time when others from outside these communities consider them to be scattered and unorganized areas (Akbar J, 1992).

Informal settlements have many definitions that mostly describe them as encroaching areas on state property and not subject to urban planning laws which lack basic services and facilities. They also constitute hotbeds of crime and have high rates of unemployment and poverty spread among its residents which poses a major threat to the security of society. Among the most important definitions of informal settlements are the following:

Informal settlements refer to residential areas constructed without legal building permits, often on state or private land, and lack access to public services (Al-Hamdan I Y, 1999; United Nations, 2003). As defined by the Arab Institute for Cities Development, informal settlements involve housing units built without proper authorization, typically encroaching on government or private property (Al-Hamdan I Y, 1999). A United Nations Habitat report further characterizes these neighborhoods as inhabited by illegal occupants who seize public or private land in order to benefit from and develop housing on it, violating property rights in the process (United Nations, 2003). In essence, informal settlements emerge outside the formal planning and regulatory systems, leading residents to construct makeshift housing without legal tenure status and access to basic public services.

Thus, informal settlements may be classified as overrun housing that lacks basic services, and this is true in some cases depending on the patterns of these neighborhoods and their locations. The intellectual concept of informal settlements indicates the absence of a structural and planning approach which in turn leads to the establishment of rules for urban construction. By the residents themselves (Al-Qubati S A, 2002) where the residents start adding new parts to the existing feared buildings or new buildings are constructed in violation of the regulations and laws and the residential neighborhood becomes for a period of time a group of violating buildings that together constitute a random neighborhood that has its effects and repercussions on the residential structure of the residents (Al-Momeni S A, 2000).

Understanding the different types of informal settlements is crucial for policymakers and urban planners to develop targeted interventions and sustainable solutions.

Typology of Informal Settlements:

- Informational Settlements on Unregistered Land (Deed):

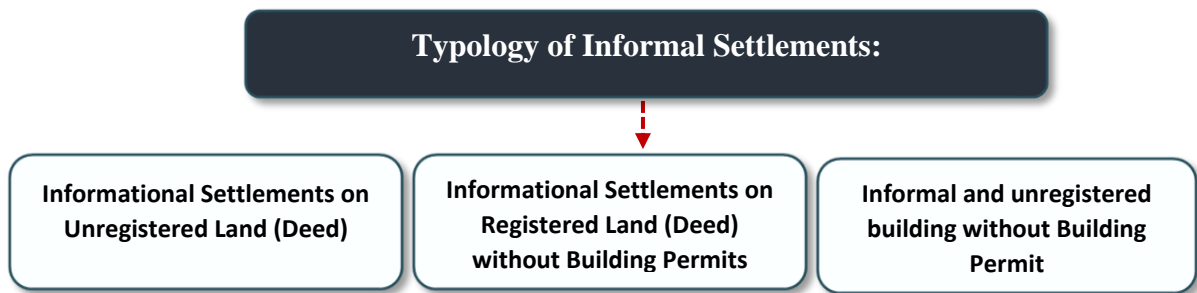
This type of informal settlement comprises dwellings established on land without any formal documentation or legal ownership. Residents occupy these areas without obtaining official land rights or tenure. The absence of property titles and land registration creates an uncertain and vulnerable living environment for the inhabitants.(Sofianou, 2015)

- Informational Settlements on Registered Land (Deed) without Building Permits:

In this category, informal settlements are situated on land with legal documentation and ownership rights; however, the structures within these settlements lack the necessary building permits. As a result, dwellings are constructed without adhering to building regulations and safety standards, posing potential risks to residents and the surrounding environment.

- Informal and unregistered building without Building Permit:

This type of informal settlement combines the characteristics of both the previous categories. The residents of these settlements lack proper land ownership documents, and the structures they inhabit are constructed without the requisite building permits. Such settlements often face increased challenges, as both land tenure and housing legality are uncertain. (Sofianou, 2015)



Many researchers have addressed the problem of informal settlements in their scientific and research articles as a problem that must be identified and appropriate strategies proposed to address it, the most prominent of which were:

- **Charles Abrams:** From his point of view, he believes that the housing strategies approved by governments, which do not recognize the existence and continuity of informal settlements, often only exacerbate the problem and increase its growth and establishment in other areas that negatively affect the rest of the city. So, it is necessary to plan appropriately for it and set it up in organized and planned areas by the government, with a commitment to build them with facilities that can be improved over time. As for the process of complete removal of them, it is not the appropriate solution to address the problem unless the state is able to provide alternative housing for the families who have been deported (AL Qadie J, 2009).

- **John Turner:** He pointed out that informal settlements represent the self-efforts of low-income residents in providing them with housing, which indicates the ability of individuals to solve their problems without the help of current governments. From the observation of the squatters' conquest of the city of Lima-Peru (Munir A, 1997).

### **2.1.2 Reasons for the emergence of informal settlements:**

The phenomenon of providing housing for low-income people remains one of the most important problems they face in light of the high prices of land allocated for construction and the value of rents for residential buildings, which prompted many of them to try to provide alternative housing at the lowest possible cost and without prior planning. Other factors have contributed to the exacerbation of the informal settlement problem, including the following:

#### **Planning and Urban Factors: إعادة صياغته بدون تعداد**

- Weak interest in rural development, which contributes to the increase in internal migration from the countryside to the cities because of the concentration of most basic services, facilities and job opportunities there.
- The lack of sufficient residential buildings to accommodate workers in the industrial areas located outside the city, which contributed to the growth of a number of informal settlements around these areas.
- Lack of interest in developing organizational planning studies for new urban areas capable of meeting the population's needs for public facilities and services.
- The high cost of residential buildings located in the expansion areas that have been studied by the current governments, which contributed to keeping them empty of residents.

### **Economic Factors:**

Several interrelated planning, urban, and economic factors contribute to the growth of informal settlements. Weak rural development policies drive migration to cities, while insufficient affordable housing fails to accommodate new urban residents, especially workers in emerging industrial zones outside cities (Baghdad Municipality, 2008). Lack of well-planned developments with adequate services exacerbates the problem. At the same time, high costs and financial barriers make formal housing unaffordable, leading people to opt for informal self-built shelter (Baghdad Municipality, 2008). Furthermore, sale of agricultural land and growth of unlicensed workshops attract more migrants to cities and expand the demand for informal housing. In essence, rural-urban migration, deficiencies in formal housing and planning, and constrained access to affordable shelter options interact to spur the emergence and expansion of informal settlements.

### **Political and Legislative Factors:**

Informal settlements also emerge due to political and legislative limitations. Inflexible building codes and high taxes on formal housing within planned areas constrain access to affordable shelter through legal channels (Baghdad Municipality, 2008). At the same time, weak enforcement allows violation of regulations without consequences (Baghdad Municipality, 2008). In essence, restrictive codes and costs make formal housing development challenging, while inadequate monitoring enables informal construction to proceed unchecked. The combination of stringent regulations and poor enforcement drives circumvention of formal planning frameworks and expansion of informal settlements. Streamlining codes, costs, and oversight could help improve formal housing options and curb growth of unauthorized informal areas.

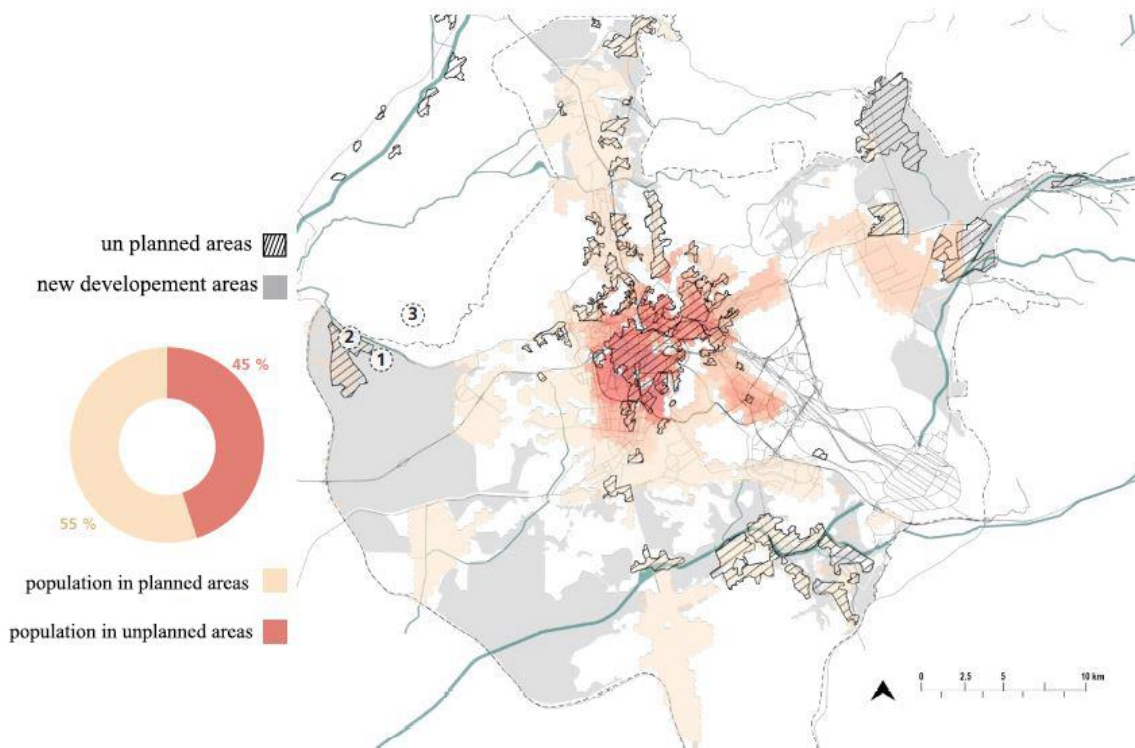
### **Social Factors:**

The emergence and persistence of informal settlements is further driven by social conditions and dynamics. Deteriorating education, health care, poverty, ignorance, and unemployment plague many informal areas (Touma G, 2013). High population growth and low incomes constrain access to formal housing. Changing social structures and family patterns, such as the division of large families into smaller units, also generate greater housing demand. However, new smaller households remain unable to afford or access adequate formal shelter. Consequently, they turn to informal settlements despite the poor conditions. Tackling the social deprivations and demographic pressures faced by marginalized groups could help curb the expansion of informal areas by enhancing livelihoods, education, and formal housing options.

### **2.2 An overview of informal settlement areas in the city of Makkah Al-Mukarramah:**

The General Authority for Statistics indicated that %26 of the total population of the Kingdom of Saudi Arabia (32,552,336) people reside in the Makkah Al-Mukarramah region, and thus it is the first region in terms of the percentage of the total spatial distribution of the population.

Many factors have contributed to the increase in the concentration of the population in the Holy Capital, most notably the settlement of economic activities and the provision of infrastructure and services, which has contributed to a significant increase in internal and external migration to it, and the emergence of random housing areas in them, and in light of the high value of residential buildings, most low-income families are unable to bear the costs of housing, and therefore informal settlement areas constitute the best option to accommodate this population, as approximately 40% of them reside in informal settlement areas, and according to the current population growth rates, the total residents in informal settlement areas will reach (1.5) million people by the year 2040



**Figure. No 5:** Distribution of population densities in unplanned areas in the city of Makkah

**Source:** UN – Habitat. (2019).p.66

(General Authority for Statistics, 2017)



### **2.2.1 A historical overview of the emergence of informal settlements in the city of Makkah Al-Mukarramah:**

The successive historical developments witnessed by the Kingdom of Saudi Arabia contributed to the emergence of informal settlements in the cities of the Kingdom, in particular the city of Makkah Al-Mukarramah, which witnessed the spread of informal settlements in it significantly during the various historical eras, the historical stages of the emergence of informal settlements in the city of Makkah Al-Mukarramah can be classified according to (3) main stages:

- **Before the discovery of oil (1926-1956)**

This period represents the transition phase of the Kingdom of Saudi Arabia from a state under Ottoman rule to a state with independent rule. During this period, most Saudi cities depended on agriculture and herding livestock, while the western regions, especially Makkah and Madinah, were living better conditions, as both cities formed two attractions on the Commercial level for many visitors, especially during the Hajj season. During this period, cities began to lose their traditional urban features, and the state began attempts to settle Bedouin tribes in urban areas, prompting many of them to migrate internally to major cities in order to obtain job opportunities within the modern state. During the Second World War, the rural areas and the outskirts of the city of Makkah suffered from a severe shortage of food revenues, which prompted many of the residents of these areas to migrate to the city of Makkah in search of their daily sustenance, the new settlers began to establish their first informal settlements near Al-Shaqqaf Castle, which

marked the beginning of the emergence of informal settlements in the holy city of Makkah (Al-Zahrani Rm, 2016).

- **Pre-planning stage:**

This stage began with oil production in the country, which was reflected in urban growth, as the results of the rehabilitation and resettlement of the Bedouin population emerged, and the resulting increase in population migrations to the main cities and the emergence of housing areas around these cities. This stage was characterized by the emergence of new cities, the expansion of existing cities until their walls were removed, and the increase in migration from the countryside to the cities. The external migrations of expatriates to the Kingdom from abroad appeared in search of job opportunities and the use of modern building materials such as reinforced cement and iron, and the emergence of the pattern of grid streets, villas and tall buildings.

The development in various industrial and commercial sectors with the support of oil revenues has contributed to achieving great economic growth for the city of Makkah Al-Mukarramah and attracting the largest numbers of immigrants to it, whether from inside or outside, which resulted in a large population increase that accompanied the growth of informal settlements inside the city and on its outskirts due to the absence of organized planning for the city and systems for dividing buildings in a manner commensurating with the increasing numbers of expatriates and residents in the city (Sharif M M, 2002).

- **Planning stage:**

This stage coincided with the implementation of comprehensive national development plans, which included (7) basic plans:

Saudi Arabia implemented a series of national development plans between 1970 and 2005 aimed at managing rapid urbanization and regional growth. The initial plans from 1970-1985 focused on building infrastructure and distributing resources to major cities like Jeddah, Mecca and Medina, continuing to drive migration to these urban hubs from smaller cities and rural areas (Al Jabri N, 2008). Subsequent plans from 1985-2005 sought to redirect development efforts toward towns, villages and rural regions, providing basic services, enhancing infrastructure, and encouraging citizens to work in non-urban areas. The goal was to achieve balanced regional development and curtail migration to major cities by improving economic opportunities and living conditions outside of the largest urban centers (Al Jabri N, 2008). Despite these policy efforts, rapid urbanization continued with the expansion of informal settlements around Saudi Arabia's largest cities.

### **2.2.2 Reasons for the spread of informal settlements in the city of Makkah Al-Mukarramah:**

Several interrelated factors have driven the proliferation of informal settlements in Mecca. Mass migration of expatriate workers, immigrants, and rural poor seeking better livelihoods has increased housing demand, while adequate affordable housing supply has not kept pace (Al Shareef M, 2003). With over 100,000 families living in rented units and over half earning less than 37,332 riyals annually, high

housing prices have rendered formal options unaffordable, pushing lower-income groups toward informal housing (Al Shareef M, 2003). Furthermore, lack of municipal oversight, especially in outlying and difficult to access mountainous areas, has enabled unchecked spread of informal settlements (Al Shareef M, 2003). The private sector also has little incentive to invest in unprofitable affordable housing. Consequently, severe shortages of low-cost housing coupled with weak governance drive the expansion of informal settlements as a coping strategy among vulnerable socioeconomic groups in Mecca.

### **2.2.3 The Characteristics of informal settlements in the city of Makkah:**

Most of the informal settlement areas in the holy city of Makkah share the following physical characteristics:

- **Social and security features**

There is a clear imbalance in the demographic structure in the informal settlements scattered in the city of Makkah Al-Mukarramah, which was characterized by a high population density as a result of the migration of large numbers of illegal immigrants to it for religious, economic and other purposes, who later formed different national and ethnic groupings, and these areas constitute hotbeds of unemployment, crime and social and moral deviation. In addition to the low level of education and the widespread unemployment in it (AL Shareef M, previous reference, p.26).

- **Physical feature**

Informal settlements are characterized by substandard physical conditions that deviate from formal planning and building regulations. Housing structures are often constructed without proper permits or adherence to government-approved architectural standards (AlMubarak A, 2014). Basic services like roads, water, and electricity are distributed in an ad-hoc manner rather than systematically planned. Road networks are disorganized, very narrow

(3-5m wide), unpaved, and lack sidewalks, hampering vehicular access (AlMubarak A, 2014). Overall infrastructure is deficient, unable to comprehensively serve all housing units and requiring upgrades to enable neighborhood development (AlMubarak A, 2014). In essence, informal areas exhibit poor planning, unauthorized building patterns, and inadequate basic services and infrastructure compared to formally developed neighborhoods.

- **The structural and architectural condition of the buildings**

Similar to the informal areas in the world, 85% of the informal settlements in the city of Makkah Al-Mukarramah consist of one to two floors, 65% of these buildings are constructed of reinforced concrete, 32% of them are constructed of wood and block, and 3% are constructed of plywood and sheet metal. The buildings have significantly deteriorated their architectural and constructional condition, as 38% of the buildings in them are in poor condition and suffer from cracks on their walls and their external appearance is incomplete (ALMUBARAK A, previous reference, p.8).

## **2.2.4 Informal settlement areas patterns in the city of Makkah Al -Mukarramah:**

### *2.2.4.1 Informal settlements in the city of Makkah Al-Mukarramah according to the regulation for the development of informal areas in the city of Makkah Al-Mukarramah (2008):*

The regulation for the development of informal settlements in the city of Makkah indicated that informal settlements are areas that were established on government lands or private properties without an approved plan, that is, they are unplanned areas of varying size and are not subject to modern urban planning standards. Accordingly, informal settlements were divided in the city of Makkah Al-Mukarramah is divided into three main sections: (Al-Zamel W, Mukhasha M.I, 2021)

- **Unorganized informal settlement areas:**

They are the areas that have arisen without building licenses and some of them are with licenses and are not subject to the foundations and standards of urban planning and spread within and outside the urban boundaries of the city of Makkah Al-Mukarramah and outside. These areas suffer from a lack of services, public utilities and infrastructure.

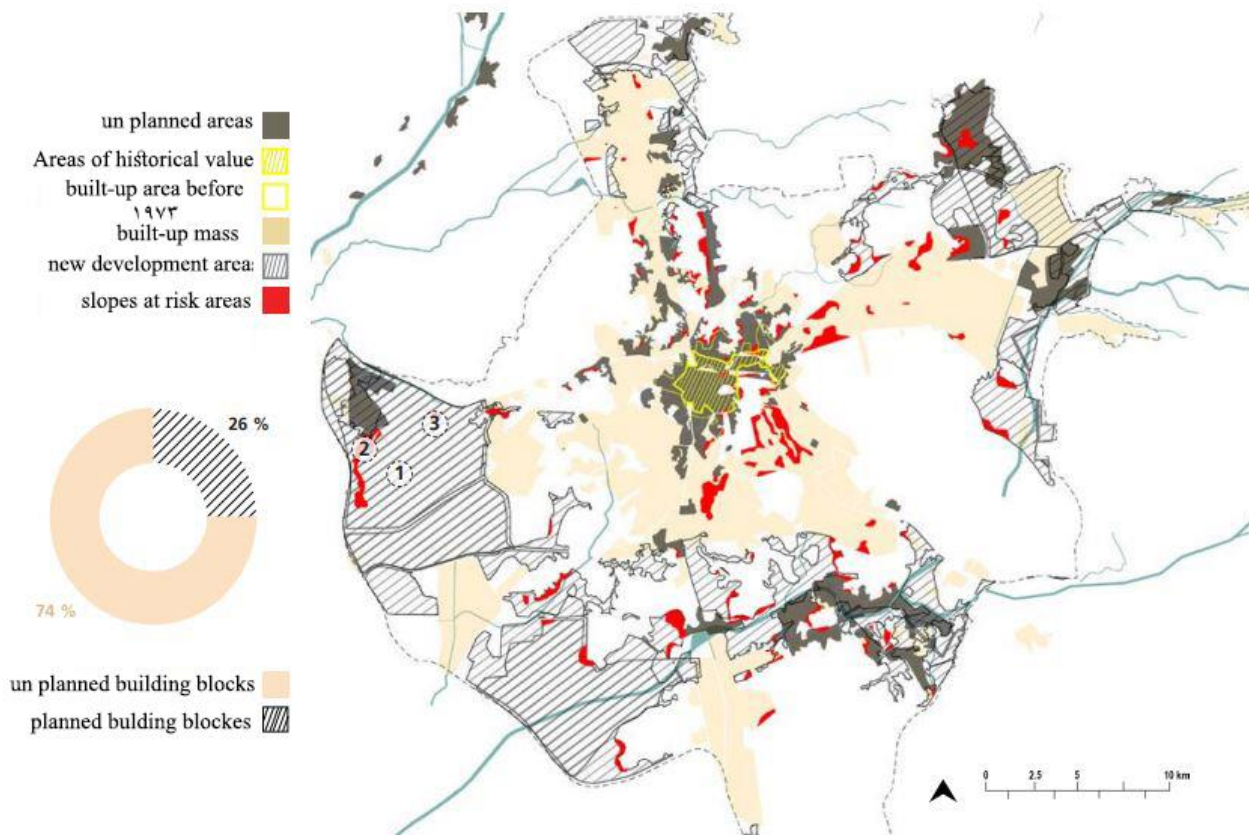
Most of these areas include informal settlements built on areas not designated for housing, such as mountain slopes, which cannot be addressed in accordance with the regulation for the development of informal settlements through regular urban development programs.

- **Semi-organized informal settlement areas:**

These include informal settlements built without building permits, but built on semi-engineered divisions, referred to as semi-permanent informal areas. This type of areas can be developed through the use of urban upgrading methods and improvement of the urban environment by enabling residents to own their homes.

- **Spontaneous areas:**

The unplanned areas that include areas of historical value or ancient areas that were established a year ago (1973) according to a spontaneous or traditional urban fabric. These areas have deteriorated over time and their original inhabitants abandoned them to areas that are more modern. These areas were classified as random areas, but it must be dealt with very carefully if it includes traditional fabric or items of historical or heritage value in accordance with the principles of urban conservation.



**Figure. No 6:** The current unplanned areas with heritage potential and areas at risk of mountain slopes in the city of Makkah  
**Source:** UN-Habitat, (2019), p.66

*2.2.4.2 informal settlement areas in the city of Makkah according to its area:*

The total informal settlement areas in the city of Makkah Al-Mukarramah amounted to about (66) informal settlement areas with varying areas ranging from (0.07) km<sup>2</sup> to more than (14) km<sup>2</sup>, the

total area of the informal settlements in the city of Makkah is about (62.3) km<sup>2</sup>, which is equivalent to (40%) of the area of the urban mass of the city of Makkah, the area of informal settlement areas within the urban zone is estimated at (43,21) km<sup>2</sup>, which is equivalent to (28%) of the urban mass area in the city of Makkah Al Mukarramah.

The informal settlements in the city of Makkah Al-Mukarramah were classified according to the area factor into three main patterns distributed as follows: (Zamel W, 2019)

Informal settlements in Dubai can be categorized into three main size classes: small, medium and large. Small informal settlements have areas ranging from 0.07 to 0.5 square kilometers, with an average area of 0.28 square kilometers. There are around 28 such small informal areas in Dubai, including neighborhoods like Al Bayan, Al Mansouriya, and Al Ghazala (Emirates Center for Strategic Studies and Research, 2003). Medium informal settlements range from 0.5 to 1 square kilometer in size, with an average area of 0.75 square kilometers. Dubai contains around 24 medium-sized informal areas, including Quoz Nakasa, Jabal Al Sharashif, and Harat Al Bab, among others (Emirates Center for Strategic Studies and Research, 2003). Finally, large informal settlements exceed 1 square kilometer in area. Dubai has approximately 14 large informal settlements, encompassing neighborhoods such as Bir Ghneim, Al Khansa, and Al Malawi (Emirates Center for Strategic Studies and Research, 2003).

Based on the statistical analysis, we find that the number of small informal settlements constitutes a percentage (42% ) of the total number of informal settlements in the city of Makkah Al-Mukarramah, but its total area does not exceed (7.7) km<sup>2</sup>, which is equivalent to (12%) only of the total area of informal settlements in the city of Makkah Al-Mukarramah, As for the number of medium informal settlement areas, it constitutes a percentage (36%) with a total area estimated at (16.1) km<sup>2</sup>, which is equivalent to (26% ) of the total area of slums in



the city of Makkah Al-Mukarramah, As for the number of large squatter areas, it does not exceed (14) a informal settlement area, but it constitutes a total area of (38.5) km<sup>2</sup>, which is equivalent to (62%) of the total informal settlement areas in the city of Makkah Al-Mukarramah, thus, we conclude that despite the spread of medium and small informal settlements in the city of Makkah, their total area does not exceed (38%) of the total area of informal settlements in the city of Makkah AlMukarramah, as shown in the attached table No. (3).

Classification of informal settlements in the city of Makkah according to the area factor				
informal settlement area	Number of informal settlement areas	number ratio	Total area	area ratio
small informal settlements	28	42%	7.7	12%
Medium informal settlements	24	36%	16.1	26%
Large informal settlements	14	21%	38.5	62%

**Table. No 3:** Classification of informal settlements in the city of Makkah according to the area factor

**Source:** by Researcher based on statistical data

*2.2.4.3 informal settlement areas in the city of Makkah Al-Mukarramah according to their spatial distribution:*

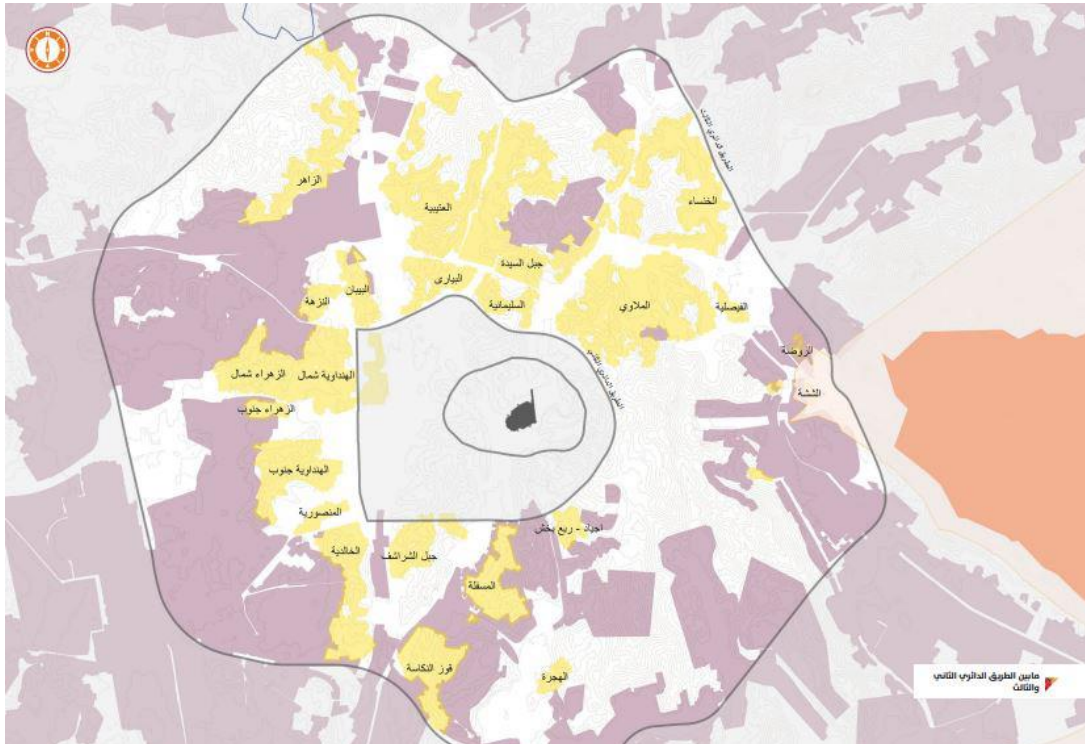
The spatial spread of informal settlement areas in Makkah Al-Mukarramah is formed according to the cluster foci system, where it increases informal settlements concentration within the scope of the second and third ring road, where the random growth begins to expand annularly along the main axes of movement to gradually decrease as we move away from the scope of the ring road and then returns in the form of urban centers and gatherings outside the borders of the fourth ring road, the informal settlement areas in the holy city of Makkah have been divided based on their proximity and distance from the Holy Haram area into (4) main areas: ( Hassan G, 2009).

## 1. Informal settlements near the central area:

With an average distance (1.5) km<sup>2</sup> from the Holy Mosque, and their number is (16) informal settlement areas with an average area of (0.53) km<sup>2</sup>. Together, these informal settlements constitute an area of (8.5) km<sup>2</sup>, equivalent to (14%) of the total informal settlements spread in the city of Makkah Al-Mukarramah. The central district was subjected to a comprehensive replacement process, with which most of these informal settlements were subjected to removal, especially with the successive expansions of the Holy (Zamel W, previous reference, p.333).

## 2. The informal settlement areas located between the second and third ring roads:

With an average distance of (1.5) km from the Holy Mosque and their number is (16) informal settlement areas with an average area of (0.53) km<sup>2</sup>. Together, these informal settlements constitute an area of (8.5) km<sup>2</sup>, which is equivalent to (14%) of the total area of informal settlements in the



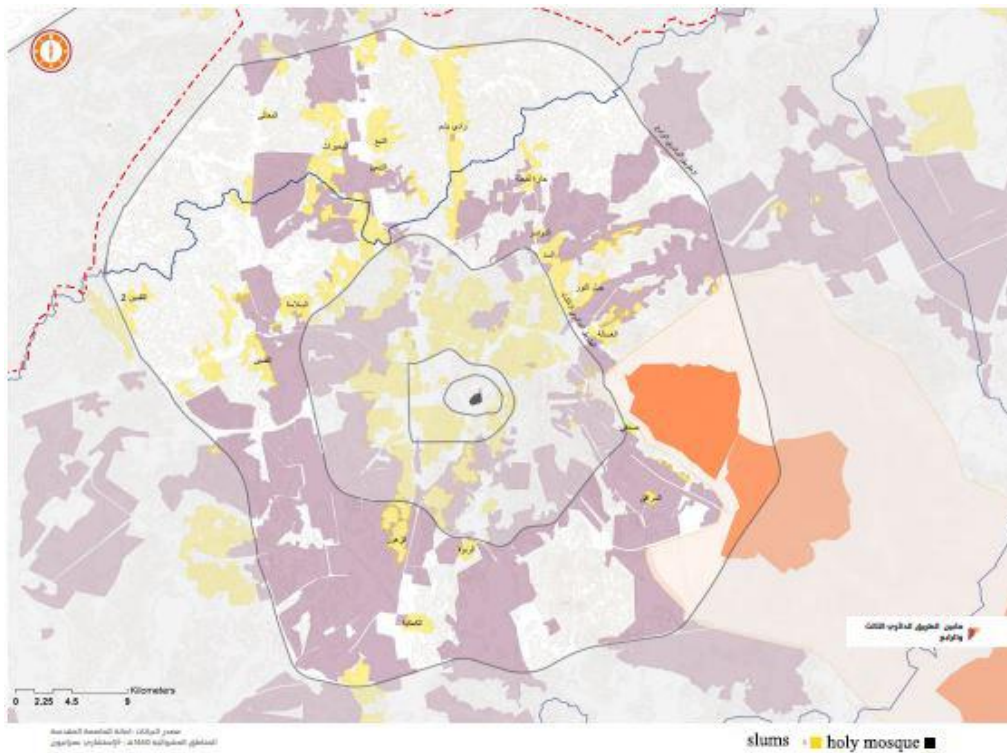
**Figure .No 7:** Distribution of informal settlements in the city of Makkah between the second and third ring roads

**Source:** Atlas of aerial photographs of informal settlements in Makkah in the year 1440 A.H.

city of Makkah Al-Mukarramah and spread These informal settlements are ringed according to topographical factors and along the main traffic axes such as Ibrahim Al-Khalil Street and Al-Madinah Al-Munawwarah Road (The same previous reference, p. 334).

**3. The informal settlements located between the Third and Fourth Ring Roads:**

With an average distance of (8) km from the Holy Mosque, and there are (18) informal settlements with an average area of (0.78) km<sup>22</sup> a, and the total area of informal settlements in this area is about (14) km<sup>2</sup>, which is equivalent to (22%) of the total informal settlement area in the city of Makkah Al Mukarramah (MAJRASHI A



A. M, 2017) as shown in Figure (8).

**Figure .No 8:** Distribution of informal settlements in the city of Makkah between the third and fourth ring roads

**Source:** Atlas of aerial photographs of informal settlements in Makkah in the year 1440 A.H.

#### **4. The informal settlements located outside the boundaries of the Fourth Ring Road:**

With an average distance of (20) km from the Holy Mosque, and their number is (10) informal settlement areas and with an average area of (2.4) km<sup>2</sup>, and the total area of informal settlements in this area is (23.7) km<sup>2</sup>, which is equivalent to (38%) of the total informal settlement area in the city of Makkah Al-Mukarramah (MAJRASHI A A M, previous reference, p.108).

### **2.3 Problems that informal settlement areas suffer from:**

Informal settlement areas suffer from a large number of urban, economic, social and environmental problems that negatively affect the residents of these areas and the neighboring areas significantly (Ahdy A, 2008), the most prominent of these problems are the following:

#### **Urban problems:**

Urban areas face numerous challenges that degrade quality of life and hinder sustainable development. A primary issue is the lack of coordinated urban planning, which has led to unfettered sprawl and extreme population densities. With so many residents crammed into small spaces, residential buildings overlap in a haphazard manner. Most concerning, the vast majority of these densely situated homes suffer from deteriorated structural integrity and pose safety risks to inhabitants. Beyond the residential crisis, critical infrastructure and public services have fallen into disrepair across urban zones. Roads are crumbling, water and sanitation systems are outdated, healthcare facilities are under-resourced, and policing is inadequate. At the same time, industrial and commercial enterprises have been permitted to establish operations in the midst of residential areas with little oversight. This intermixing of heavy polluting industry with households exacerbates public health threats. Air quality suffers from unchecked emissions, while

contamination of soil and water supplies also occurs. Finally, the proliferation of informal settlements on urban peripheries has led to entire neighborhoods devoid of public spaces and green spaces. These communities experience a deficit of parks, community centers, tree cover, and other environmental elements that boost quality of life. With virtually no vegetation or open spaces, informal settlements are vulnerable to pollution and climate impacts. Trees, green spaces, parks, and similar spaces would absorb air pollutants, mitigate urban heat island effects, capture stormwater runoff, and provide residents with much-needed recreational areas. In summary, major urban challenges across the developing world include: uncoordinated planning and development leading to overcrowding, crumbling infrastructure, intermixing of polluting industry amidst homes, proliferation of informal settlements lacking public and green spaces, and degraded living conditions and safety issues across urban zones. A coordinated planning approach along with investment in infrastructure and public services can help cities address these multifaceted problems.

### **Environmental problems:**

The high-density urban area faces considerable environmental challenges due to lack of planning and infrastructure. A major issue is poor ventilation and sunlight access in residential buildings. With structures tightly packed together and surrounding homes on multiple sides, many dwellings only have one outward facing façade. This severely limits natural sunlight and airflow through the building, negatively impacting health and quality of life. Another problem is inadequate sanitation systems, which has led to pollution of the urban environment. Most sewage systems utilize outdated underground piping that leaks into the soil and groundwater. With raw sewage seeping underground, contamination of water supplies and public health threats have ensued. Finally, the extreme density and lack of space between buildings has created auditory and visual pollution due

to a loss of privacy. Noise travels easily between walls and windows of adjacent buildings, while views into neighboring homes are common due to tight quarters. These invasions of privacy degrade mental health and satisfaction among urban residents. Overall, critical environmental issues plaguing dense urban zones include poor in-home ventilation and lighting, leaking underground sanitation systems polluting the area, and auditory/visual disruptions due to cramped building spacing. Improved infrastructure and planning focused on open spaces, appropriate sanitation, and transition zones between structures could help mitigate these issues.

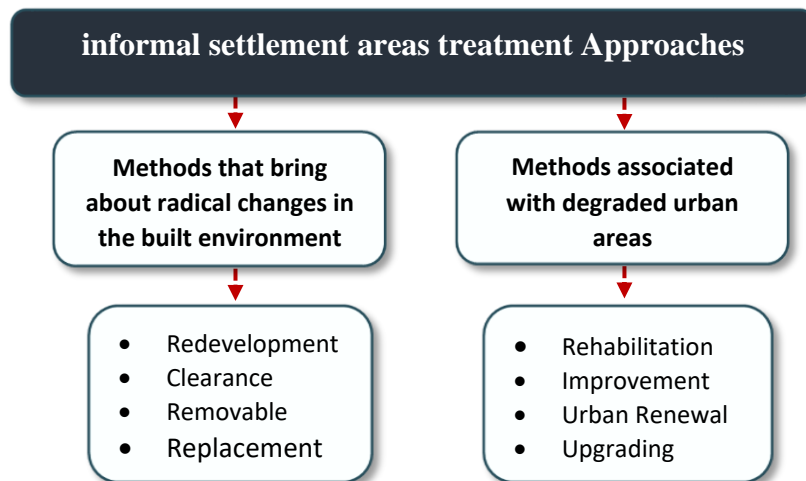
### **Economic and Social problems:**

A multitude of economic and social challenges plague the dense urban area and its residents. Financially, incomes are low and unemployment is high among inhabitants. To make ends meet, many residents turn to small-scale industrial crafts and trades in or near their homes. However, these informal microenterprises often use hazardous materials and processes without regard for health and environmental impacts. On the social side, educational attainment in the area is very low, with high illiteracy rates. This hinders economic mobility and job prospects. Additionally, weak community ties and instability lead to issues like high crime, divorce, and family breakdown. With little social support or cohesion, residents struggle with unemployment, substance abuse, domestic violence, and mental health challenges. Petty crime and theft also increase, creating an unsafe community environment. Overall, the main economic and social problems facing the urban zone include: low incomes and widespread unemployment, proliferation of small hazardous household industries, high illiteracy and low education levels, weak community ties leading to crime and family issues, and a general breakdown of social stability. Targeted programs to boost incomes, employment, and educational access could help address these problems.

Community building initiatives focused on health, skills training, and social support are also important. With strategic economic and social investments, the area can foster empowered individuals, strong families, safe neighborhoods, and an environment of cooperation and mutual growth.

## 2.4 Informal settlement areas treatment Approaches:

The appropriate approaches for dealing with the problem of informal settlements vary, which differ from one region to another and from one state to another, according to the economic, social and urban conditions. Therefore, it cannot be said that the method of dealing with informal settlements can be unified for all informal settlements. The most important methods used to address the problem of informal settlements are as follows:



**Figure No.2:** informal settlement areas treatments approaches  
**Source:** by the researcher

## **2.4.1 Methods associated with degraded urban areas that suffer from environmental and urban problems**

### *2.4.1.1 Rehabilitation:*

Rehabilitation means returning the informal settlement area to a certain level of efficiency and repairing public facilities and services in it so that the buildings within it acquire a new function that either matches or differs from its original function for which the building was built. This strategy is often applied in buildings of historical and archaeological value, and this method of treatment aims to restore the activities and functions that are practiced in the area to an acceptable level of efficiency. The removal method is used only in cases where the repair process is not beneficial (Khroufa O H, 2014).

### **Rehabilitation application cases**

This method is applied in degraded areas that contain old buildings that have lost their residential or service function and are characterized by their good structure, and therefore do not need removal operations but rather a small amount of rehabilitation.

This method can also be applied in areas with a unique urban character, in which heritage buildings are concentrated that reflect the character of the area and are dominated by mixed uses (Jais A M A. Ahmed K A N, 2000).

### **How to apply Rehabilitation**

The rehabilitation strategy depends on providing loans and financial support to the owners of residential buildings in informal settlements in order to face the financial burdens resulting from the rehabilitation of buildings in the area. Alternatively, the government purchases residential



buildings from the residents, and then rehabilitates and sells them by the local authority for urban renewal as part of the operation's urban renewal initiatives.

The previous strategy relies on restoring the appropriate living standards for the area in a manner commensuration with the needs of the local community, in addition to reducing congestion in the area by unifying the direction of traffic and preventing the entry of vehicles except at specific times and providing pedestrian areas and green spaces (Rihan G, 2008).

### **Positive aspects of Rehabilitation methods**

There are a number of important advantages of applying the rehabilitation method, including the following (Rihan G, previous reference, p.51): Urban rehabilitation offers multiple benefits as a strategic approach for renewing informal settlements, as outlined by Rihan G. First, rehab preserves the existing built environment as a real estate asset to be improved rather than discarded. Demolition and reconstruction tend to be costlier than enhancing salvageable building stock. Second, rehab seamlessly integrates upgraded residential structures back into the surrounding urban fabric. This promotes community cohesion and accessibility. Third, the process allows reuse of building components from informal settlements, reducing waste. Fourth, rehabilitation maintains the architectural style and character of the area, avoiding radical transformations that erase a neighborhood's identity. Fifth, bringing substandard buildings up to code and repairing infrastructure revitalizes economic and social activity in the zone. Finally, rehab creates local construction jobs and related employment to boost the area. In summary, rehabilitation of informal urban settlements provides environmental sustainability, cost-effectiveness, architectural preservation, social cohesion, economic revitalization, and employment opportunities. The method restores and renews communities holistically while avoiding the disruption and waste of demolition. With proper implementation, rehabilitation can turn distressed areas into vibrant urban spaces while conserving local heritage and benefiting residents. The multifaceted advantages make this a compelling strategy for uplifting informal settlements through targeted renewal rather than replacement.

#### *2.4.1.2 Improvement:*

The concept of improvement refers to the works that aim to increase the value of the informal settlement area in the urban and environmental field, improve the facilities and public services therein, and remove all influences that bring down the level of the area. It is a temporary treatment of the current conditions within a scheme aimed at renewal (Beltayab K. 2017).

#### **Improvement application cases**

This strategy is applied in degraded informal settlements that include residential buildings with medium and good construction conditions and need to improve the level of services and public utilities in them, and the previous treatment processes are temporary within a framework aimed at renewal (Ben Slimane R, 2009).

#### **How to apply Improvement**

The method of improving informal settlements is applied based on the optimal exploitation of the available governmental and individual capabilities, but the bulk of the participation falls on the shoulders of the individuals who benefit from the process of improving the area, while the task of the local government is limited to coordination and highlighting the necessary means for the success of this method (Yassin Sh. Mohamed O. Abuqrain A, 2018).

#### **Positive aspects of Improvement methods**

There are a number of important advantages of applying the improvement method, (Yassin Sh. Mohamed O. Abuqrain A, previous reference, p.49), as the urban improvement approach offers multiple benefits for enhancing informal settlements, as discussed by Yassin, Mohamed, and Abuqrain. First, improving existing structures preserves urban real estate assets rather than erasing them. Rehabilitation is typically more economical than large-scale demolition and reconstruction. Second,

targeted investments in infrastructure and public services boost the functionality and livability of the area. Improving roads, water systems, sanitation, healthcare access, and other facilities enhances quality of life for residents. Third, community participation in the improvement process fosters local buy-in and stewardship. Engaging residents reduces costs and ensures changes align with community needs. When locals are invested in area upgrades, they are more likely to maintain improvements over the long term. Additionally, small-scale incremental upgrades are less disruptive than widescale demolition and rebuilding. In summary, key advantages of the improvement approach include: conserved real estate assets, cost-effectiveness, enhanced infrastructure and services, community participation and ownership, local job creation, and incremental positive changes. By working with residents to selectively upgrade facilities and buildings, this strategy provides lasting and locally-supported enhancements. Targeted, cooperative improvement of informal settlements enhances livability and integration with the wider urban area while retaining the community's identity and social bonds. The method is a sustainable and effective alternative to demolition and reconstruction approaches to revitalization.

#### *2.4.1.3 Renewal:*

Since the late nineteenth century, urban renewal has become linked to the improvement of residential buildings in informal settlements. However, commercial pressures represented in optimizing the use of expensive lands in the central areas of cities contributed to the destruction and removal of a number of housing units in degraded informal settlements.

In the past, this term refers to the removal of old residential buildings in order to make room for the construction of modern residential buildings. However, this concept has changed now, as the renewal policy has become directed towards rehabilitating, improving and renovating informal settlements and improving the infrastructure in them with the participation of residents (Al-Sarafandi F M,2011).

### **Renewal application cases**

As Al-Sarafandi outlines, urban renewal strategies can be effectively applied to enhance certain informal settlements. Specifically, areas with residential buildings in moderately good structural condition are prime candidates for renewal. While the core housing stock may be salvageable, these zones often suffer from inadequate roads, utilities, and public services. By focusing efforts on mobility upgrades and infrastructure improvements, the livability and integration of such areas can be improved without needing full-scale reconstruction. Incremental upgrades to transit access, power and water systems, sanitation, healthcare facilities, schools, and other services can boost quality of life. Additionally, urban renewal works well in central city areas that have fallen into decline but retain cultural heritage and viable building stock. Gentle renewal preserves the architectural fabric while lifting up local economies and amenities. Historic downtowns are ideal for façade improvements, adaptive reuse, targeted rehabs, and streetscape enhancements that balance preservation with modern functionality. In both contexts, urban renewal provides a valuable alternative to demolition-oriented urban redevelopment. The strategy allows distressed but salvageable urban zones to be sustainably upgraded and integrated into the wider city fabric. By working with local assets and potentials, contextual renewal improves livability, functionality, and identity in a holistic manner. With a tailored approach, urban renewal can meet local needs and honor urban history while progressively addressing systemic issues. (Al-Sarafandi F M, previous reference, p.28).

### **How to apply Renewal**

This strategy is applied through the implementation of rehabilitation and improvement operations for residential buildings of medium and good construction status, in addition to removing worn out buildings that do not work with repair operations, while exploiting the empty lands surrounding

the area for specific uses that are developed according to the detailed organizational plan of the city /land uses plan, roads and streets (Al-Masry H. Hawass F, 2003).

### **Positive aspects of Renewal methods**

Urban renewal strategies can be effectively implemented in certain informal settlements, as discussed by Al-Sarafandi. Specifically, areas with moderately intact residential buildings are good candidates for renewal. While the core housing may be adequate, these neighborhoods often lack proper roads, utilities, and public services. By focusing upgrades on mobility and infrastructure, the livability and connectivity of such settlements can be improved without full reconstruction. Gradual enhancements to transportation access, water, power, sanitation, healthcare, education, and other services can increase quality of life. Additionally, urban renewal works well for declining central city districts with cultural heritage and viable structures. Sensitive renewal preserves architectural fabric while reviving local economies and amenities. Historic downtowns are ideal for façade upgrades, adaptive reuse, targeted rehabs, and streetscape improvements that balance preservation with functionality. In both cases, urban renewal provides a sustainable alternative to demolition-centric redevelopment. This allows salvageable but distressed zones to be upgraded and reintegrated into the urban fabric. By utilizing local assets and potential, context-sensitive renewal can holistically improve livability, function, and identity. With a tailored approach, urban renewal can address systemic issues while respecting urban history and meeting local needs. (Ahmed L A, 2001).

#### *2.4.1.4 Upgrading:*

Upgrading means improving the status quo of an informal settlement to a better situation by developing the urban environment in all aspects of architecture, urban, functional, environmental, economic and social aspects.

The upgrading strategy may be similar to urban renewal, but the upgrade includes the economic and social aspects of informal settlement dwellers in addition to the urban, architectural and environmental aspects.

This method of dealing with informal settlements is the most appropriate for developing countries, due to the inability of their budget to bear the costs of upgrading, so work is being done to bring appropriate funding to upgrade informal settlements by linking social and economic upgrading with the urban upgrade of the area (NurAlden. M E, Dahlan. A S, Nassif. A A, 2009).

### **Upgrading application cases**

Urban renewal strategies are best suited for certain informal settlements based on specific criteria, as explained by Emad (2007). First, renewal works well when the impact of the informal area on the wider city is relatively minor. This targeted approach prevents disruptive citywide redevelopments. Additionally, neighborhoods with upgradeable building stock, streets, and public facilities are good candidates since existing assets can be improved. Next, large, dense settlements bordering historic urban fabric benefit from careful renewal that integrates the area while respecting its character. Finally, degraded zones with poor infrastructure, widespread economic and social problems, and hazardous conditions require comprehensive renewal. Although buildings themselves may be dilapidated, the area remains salvageable through strategic upgrades. In summary, the ideal conditions for urban renewal in informal settlements include: marginal overall impact, existing assets to improve, proximity to valuable urban fabric, and sufficient deterioration to merit comprehensive intervention. By selecting appropriate areas for targeted, context-sensitive renewal, cities can enhance distressed neighborhoods, improve connectivity, and promote sustainable development. This prevents the need for disruptive tabula rasa approaches involving full demolition and rebuilding. When applied judiciously in specific settlement types,

urban renewal breathes new life into informal areas while retaining local character, assets, and community ties.

### **How to apply Upgrading**

The upgrade method takes a comprehensive approach to improving informal settlements across multiple domains. First, the built environment is enhanced by rehabilitating and developing residential and commercial buildings while removing hazardous structures. Second, critical infrastructure like roads, water systems, sanitation, and power are upgraded to improve living conditions. Third, social services including healthcare, education, and cultural facilities are expanded to uplift communities. Fourth, the public realm and urban ecology are improved by coordinating open spaces, increasing green cover, and enhancing waste management and transit. Finally, economic opportunities are provided by creating suitable jobs, encouraging local skills, and supporting small businesses and enterprises. In summary, the upgrade methodology involves holistic societal, infrastructural, economic and environmental enhancements. This integrated approach transforms informal settlements through incremental improvements across all aspects of urban life. By upgrading buildings, infrastructure, services, public spaces, ecology, and local economies, settlements can become vibrant, livable and sustainable urban areas without losing their essence and community ties. The multipronged upgrade process outlined by Abdel Alim allows settlements to develop within their existing fabric in an inclusive, participatory, and context-appropriate manner (Abdel Alim A, 2007).

### **Positive aspects of upgrading methods**

Upgrading approaches offer several benefits for enhancing informal settlements, as outlined by Abu Bakr. First, upgrading preserves and improves existing communities rather than

displacing them, retaining the area's social capital. Incremental upgrades also increase economic productivity and real estate value. Next, upgrading boosts the socioeconomic wellbeing of residents by providing new opportunities, skills, and services. Targeted training, job creation, and microfinance empower communities. Third, upgrading prevents disruption by retaining and slowly improving communities in situ rather than demolishing and reconstructing them. This respectful methodology maintains community identity, cohesion, and functionality. Additional positives include cost-effectiveness, environmental sustainability, and community participation. Overall, the main advantages of upgrading are: preserving place identity, uplifting local economies, developing resident skills and livelihoods, maintaining social stability, enabling incremental improvements, boosting affordability and sustainability, and fostering community ownership. Upgrading rejuvenates informal settlements holistically without uprooting them. This participatory approach allows disadvantaged communities to progressively transition into livable, productive urban spaces on their own terms. With targeted investments of resources and trust, the upgrade methodology sustainably integrates informal settlements while honoring resident voices (Abu Bakr H M, 2007).

## **2.4.2 Methods that bring about radical changes in the built environment**

### *2.4.2.1 Redevelopment:*

This approach emerged from the treatments in the fifties of the last century with the aim of removing informal settlements and degraded neighborhoods with investment from the private sector or through partnership between the public and private sectors. The style of urban development intersects with urban renewal and is an extension of his economic theory, which aims to dismantle large areas of informal settlements and re-form the functional and residential spaces



in them, depending on the strategic plan of the city and the detailed plan of the area (United Nations Escwa, previous reference, p.24).

In the sixties of the last century, this approach was reinforced in the United States by the Population and Urban Development Act 1968 as well as by other similar laws in many European countries and developing countries with the aim of providing money to middle-income families by providing loans in a percentage of a person's monthly income, but the results it was not satisfactory as a result of removing large parts of the degraded areas without providing any real estate benefit to the population, as is the case in the experience of downtown Beirut (Al-Zanbarakji L, 2016).

#### *2.4.2.2 Clearance:*

It is called the bulldozer method and depends on the re-planning of the area after assessing the damage, which mostly bears bad results for the condition of the informal settlement area, which shows the inability to treat this type of area in any way. The only option is to adopt bulldozers to completely remove everything in the area and then put a new scheme for the area (Al-Zanbarakji L previous reference, p.24).

#### *2.4.2.3 Removable:*

The removal method is used in the informal settlements that suffer from the deterioration of the urban structure in them, and whose houses are of unstable and dilapidated materials, so that these areas are demolished and rebuilt again according to a new organizational scheme. This method is considered very expensive, as it requires the establishment of new housing with new services, which made it difficult to implement it except in a limited scope (Al-Jubouri H M, 2008).

Certain informal settlements are appropriate candidates for the demolition and reconstruction method based on specific characteristics, as outlined by several sources. First, the area should have

a manageable population size that can be temporarily relocated to alternative housing during rebuilding. Second, extreme crowding and density with multiple families crammed into single dwellings indicates the need for reconstruction. Third, when providing basic infrastructure is infeasible due to narrow layouts or geotechnical issues, demolition may be required. Fourth, severe environmental hazards and unresolvable pollution may necessitate full reconstruction for resident safety. Fifth, lack of privacy, extremely tight building spacing, and narrow roads can create justification for total redevelopment. Finally, settlements with intractable security issues from high crime or violence may need a fresh start. In summary, dense, hazardous, and chaotically-planned settlements with dysfunctional layouts can merit demolition and rebuilding after rehousing residents. However, this disruptive *tabula rasa* approach permanently erases vulnerable communities. Reconstruction should only be a last resort when incremental upgrading is truly impossible. Unless an area poses severe threats to safety and health, investment into context-sensitive improvements of infrastructure, buildings and public space is typically preferable to demolition.

#### *2.4.2.4 Replacement:*

This method relies on replacing the residents in the same site to avoid the negative effects of replacing the residents with their original environment. Solutions are developed to treat the informal settlement areas according to priorities that take into account the poor current situation of the residential buildings in the area.

The replacement of informal settlements occurs through a phased process, explains Mutlaq. First, degraded structures requiring demolition are identified and prioritized based on severity of issues. Next, temporary nearby housing is secured to relocate displaced residents during reconstruction. With temporary accommodations in place, inhabitants of substandard units are incrementally

transferred to the alternative site as their homes are demolished in a systematic manner. This cycle continues until full clearance of the original settlement area is achieved. If suitable interim housing is unavailable nearby, residents may be moved to the closest neighborhood with vacancies to reside until permanent replacement housing is built. However, temporary relocation to distant areas severs community ties. Finally, new mixed-income development is constructed on the cleared site to improve living conditions. While reconstruction provides modern housing, the lack of in-situ upgrades fractures communities. The replacement process outlined by Mutlaq provides displaced residents with improved dwellings but irrevocably dissolves the organic urban fabric and social bonds that characterize informal settlements. Though conditions are poor, these areas contain vital human connections and cultural heritage. More contextual approaches involving community-led incremental upgrading should be pursued before utilizing disruptive demolition and rehousing (Mutlaq B, 2016):

#### **2.4.3 A comparison of the appropriate urban methods to address the problem of informal settlements:**

The process of comparison between the methods used to address the problem of informal settlements is based on a number of important points and axes in order to clarify the main strategy and the three urban dimensions (environmental, economic and social) and their impact on treatment processes and the mechanisms required for implementation to reach the desired results as shown in the attached:

Evaluate informal settlement areas treatment methods				
Methods associated with degraded urban areas that suffer from environmental and urban problems				
	Rehabilitation	Improvement	Urban Renewal	Upgrading
Areas to be treated	Areas that contain deteriorated buildings and there is no defect in their structural structure, in addition to areas that contain unique historical buildings	Areas that contain medium and good buildings and need to improve services and facilities	Areas that contain buildings of deteriorating, medium and good condition, and need to improve the level of services and facilities therein	The area in which some or all of its buildings have deteriorated, lacks public services and facilities, and has economic and social problems
Responsible for processing	Local government and informal settlement dwellers	Local government and informal settlement dwellers	Local government and informal settlement dwellers	Local government and informal settlement dwellers
Urban dimension	Do not depend on the strategic plan of the city and the detailed plan of the region	Do not depend on the strategic plan of the city and the detailed plan of the region	It depends on the strategic plan of the city and the detailed plan of the area	It depends on the strategic plan of the city and the detailed plan of the area
Architectural dimension	Preserves the urban mass and architectural style of the area through the rehabilitation of buildings in it	Removing deteriorated buildings that cannot be repaired and rebuilding them again	Removing degraded buildings and rebuilding them again and adding new buildings in the surrounding lands according to the detailed plan	Removing degraded buildings and rebuilding them again and adding new buildings in the surrounding lands according to the detailed plan
Environmental dimension	It does not contribute to improving public facilities and services	Contribute to improving public facilities and services	Contribute to improving public facilities and services	Contribute to improving public facilities and services
Economic dimension	It does not contribute to the development of the economic side	It does not contribute to the development of the economic side	It does not contribute to the development of the economic side	contribute to the development of the economic side
Social dimension	It does not contribute to the development of the social aspect of the residents	It does not contribute to the development of the social aspect of the residents	It does not contribute to the development of the social aspect of the residents	contribute to the development of the social aspect of the residents

Execution mechanism	Through the participation of the local government in the rehabilitation and provision of loans to the owners	Participation of residents in improving the area themselves in exchange for loans provided by the local government to them	Participation of residents in improving the area themselves in exchange for loans provided by the local government to them	Participation of residents in improving the area themselves in exchange for loans provided by the local government to them
<b>Methods that bring about radical changes in the built environment</b>				
	<b>Redevelopment</b>	<b>Clearance</b>	<b>Removable</b>	<b>Replacement</b>
Areas to be treated	An area with deteriorated buildings that cannot be repaired	An area with deteriorated buildings that cannot be repaired	An area with deteriorated buildings that cannot be repaired	An area with deteriorated buildings that cannot be repaired
Responsible for processing	the private sector or through public-private partnerships	Local government and public sector	Local government and public sector	Local government and public sector
Urban dimension	Establishing a new division of the area based on the strategic plan of the city and the detailed plan of the area	Establishing a new division of the area based on the strategic plan of the city and the detailed plan of the area	Establishing a new division of the area based on the strategic plan of the city and the detailed plan of the area	Establishing a new division of the area based on the strategic plan of the city and the detailed plan of the area
Architectural dimension	Removing deteriorated buildings that cannot be repaired and rebuilding them again	Removing deteriorated buildings that cannot be repaired and rebuilding them again	Removing deteriorated buildings that cannot be repaired and rebuilding them again	Removing deteriorated buildings that cannot be repaired and rebuilding them again
Environmental dimension	Renovation of infrastructure, utilities and public services	Providing new infrastructure, facilities and public services in the new residential areas that will be built for informal settlement dwellers	Providing new infrastructure, facilities and public services in the new residential areas that will be built for informal settlement dwellers	Providing new infrastructure, facilities and public services in the new residential areas that will be built for informal settlement dwellers
Economic dimension	Contributes to the development of public capital without developing the economic aspect of the population	Achieving large economic investments for the government without developing the economic aspect of the population	The method is very expensive for the local government, as it requires the establishment of new residential areas	The method is very expensive for the local government, but the damage is less to the population due to the gradual removal

Social dimension	It does not contribute to the social development of the residents	It creates a large social gap for the residents	Do not contribute to achieving the social development of residents due to the deportation of residents to new areas, which creates a large social gap	Do not contribute to achieving the social development of residents due to the deportation of residents to new areas, which creates a large social gap
Execution mechanism	Work committees are formed by the government whose task is to take development decisions without the participation of the population	Through the application of expropriation on the buildings of the region, with or without payment of material compensation to the residents	Removing degraded buildings and establishing new residential areas in empty areas located on the outskirts of the city, while providing the necessary services and facilities	The process of removing buildings is being implemented gradually, while providing alternative housing for the residents in the neighboring areas until the completion of construction work in new areas for them

**Table No.1:** Evaluate informal settlement areas treatment methods  
**Source:** by the researcher

## **2.5 Challenges in the development of Informal settlements:**

The formation of informal settlements on city peripheries has created numerous governance challenges, as outlined in the Informal Settlements in Aleppo report (2009). A key issue is that unplanned settlements often occupy critical zones in the urban fabric, hindering coordinated development and land use planning. Evacuating and clearing certain informal areas for investment purposes would also disrupt rational planning foundations and standards. Furthermore, these neighborhoods typically lack coherent street layouts and conformance to governmental planning regulations, disconnecting them from the formal cityscape. Another problem is that providing utilities, services, and infrastructure bypasses informal areas and instead focuses on formal zones, overburdening these facilities. There is also a lack of economic and social integration, as informal settlement residents suffer from high rates of poverty, unemployment, and other issues. This disrupts the metropolitan social and economic balance. In summary, major governance challenges with informal areas include impediments to urban planning, land use conflicts, non-conformance with city planning standards, service and infrastructure deficiencies, and socioeconomic disconnection from the wider urban fabric. Holistic strategies are needed to progressively integrate informal settlements while providing residents with economic opportunities and improved living conditions.

## **2.6 Summary:**

In this chapter, the concept of informal settlements, the general characteristics of these areas, the reasons for their emergence, and the most common problems that they suffer from were defined, and then the methods used in treating these areas were identified, whether complete removal, urban renewal, upgrading, etc., and then identifying the challenges facing the development processes of these areas.

**3**

**CHAPTER THREE: ANALYTICAL STUDY OF THE  
INFORMAL SETTLEMENT AREAS IN MAKKAH AI-**



### **3.Introduction:**

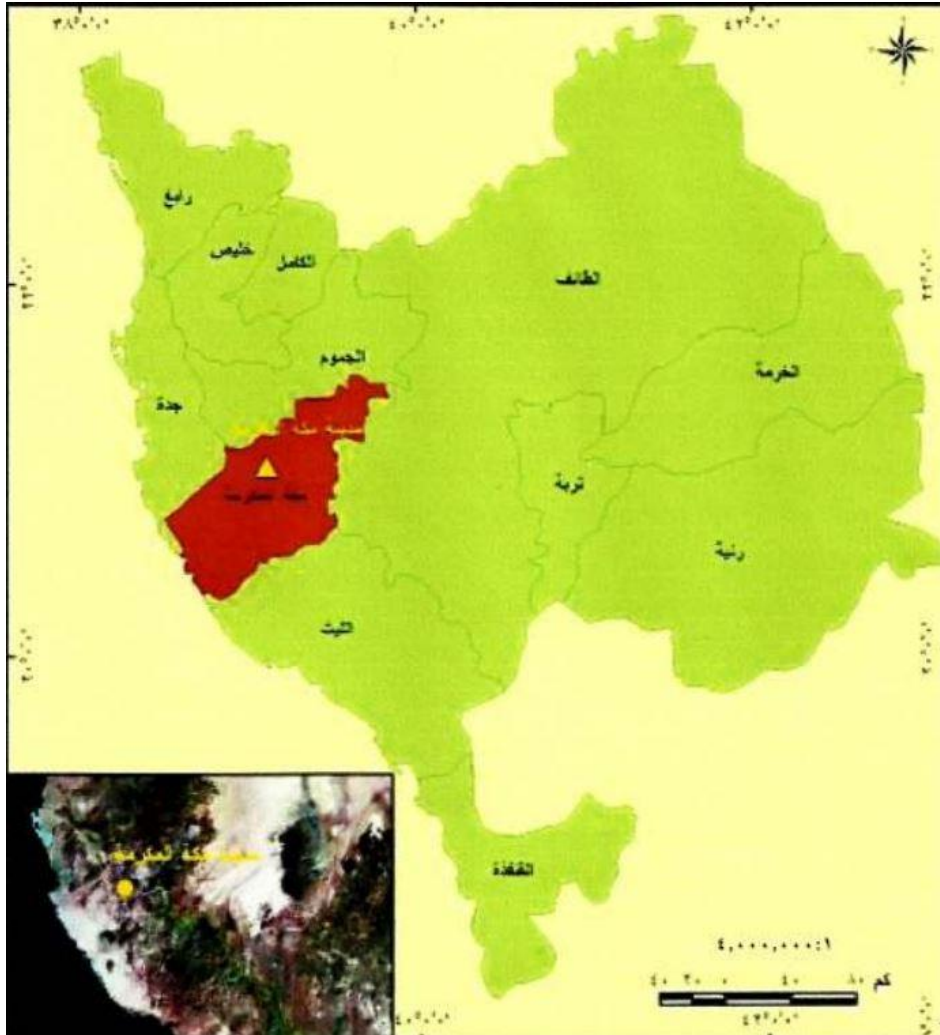
In this chapter, the location of the city of Makkah Al-Mukarramah, the nature of its inhabitants, and the urban growth phases witnessed by the city will be identified, the spreading of informal settlement areas all over the city, and the contributing reasons for their emergence. In addition, the chapter will review the general problems that informal settlement areas experiencing.

#### **1.1 An overview of the Holy city of Makkah:**

##### **3.1.1 The location of Makkah Al-Mukarramah city:**

The city of Makkah is located in the middle of the western region of the Kingdom of Saudi Arabia, in the middle of the road linking the city of Jeddah with the city of Taif, and is considered by many historians and geographers as Tihamia. It represents the pivotal city in the Emirate of Makkah Al-Mukarramah region in the west of the Kingdom, and is located at the meeting point of the coastal plain of Tihama and the mountains of the lower Sarawat, which form the beginning of the Hijaz chain (Fayez Z & Associates, 2004).

The city of Makkah is bordered on the North by Jamoum, on the South by Al-Laith, on the East by Taif and Jeddah from the west, and it is crossed by Wadi Ibrahim, which is located between two chains of mountains converging from the east, west and south sides, and the northern chain consists of Mount "Al-Falaq" and Mount "Qaii Q'an", while the southern chain consists of Mount "Abu Hodeidah" to the west, then Mount "Kadi" towards the south, then Mount "Abu Qubais" in the southeast, then Mount "Khandama".



**Figure No. 3:** The location of Makkah Al-Mukarramah Governorate in the Makkah Administrative Region

**Source:** Geological Survey Authority 1427

### 1.1.2 The area of Makkah Al-Mukarramah city:

The area of the city of Makkah is about 1,300m / 12 km<sup>2</sup> and the area of the urban mass of the city is about 15,159.3 hectares. The shape of the holy city came because of its growth on the axes of the external roads that come out of the city of Makkah in four directions. The Makkah-Madinah Road, on the southeast side, and Makkah-Taif Road, on the northeast side, on Al-Sail Road, and on the west and southwest side, on the old Makkah-Jeddah Road, Makkah-Jeddah Highway, Makkah Jazan (Kutobi Z J,2003).

### 1.1.3 Population distribution in the holy city of Makkah:

The population of the holy city of Makkah reached about 1.3 million people, and because of the holy city's location and value throughout history, the arrival of pilgrims to it from everywhere, and the permanent residence of some of them there, the composition of the population in it differed greatly, in addition to the original inhabitants of Makkah, there was the population of the Arab communities and Islamic communities such as Yemenis, Hadramis, Shamis, Egyptians, Moroccans, Turks, Javanese elements from Malays, Indonesia, Pakistan, Afghanistan, Iran, Tatars, Kurds and Bukhara, and from other Arab and Islamic regions (Halak H, 1996).

### 1.1.4 Administrative divisions of Makkah Al-Mukarramah city:

The secretariat of the holy capital proposed in the year 1423 Hijri unification of the administrative division of the city of Makkah Al-Mukarramah, where the city was divided into 9 main sectors of varying size, and each sector includes a group of neighborhoods, and the boundaries of the proposed sectors are consistent with the main and secondary road network and are distributed as shown in Table No. (2):

Administrative sectors in the city of Makkah Al-Mukarramah			
Sector name	Sector location	Sector area	Neighborhoods included in the sector
Ajyad	It is one of the two sectors of the central district	341.5 Hectare	Ajyad Al-Hajla Al-Shabaka Al-Tandabawi and Al-Mansour
AL Gaza	It is the second sector of the central region sectors and occupies the northern half of it	291.5 Hectare	Sheab Amer, Sheab Ali, Al Qarara, Al Naqa, Jarol, Al Tayseer, Al Bab and Shamiya
Al musfalah	It is located south of the central district	2,039.3 Hectare	Al Rawabi, Kudi, Al Misfalah, Hindawiya, Al-Taqwa, Al-Khalidiyah, and Al-Rusifah

AL Otaiba	It is located in the northwest of the Holy Mosque in Makkah and the central area	1,864.4 Hectare	Al-Hajoun, Al-Biban, Al-Diyafa, Al-Zahra, Al-Nuzha, Al-Zahir, Al-Shuhada, Al-Otaiba and Andalus
AL Maabidah	It is located in the northeast of the central district	3,598.8 Hectare	Al-Rawdah, Sulaymaniyah, Gemayzeh, Al-Khansa, Ra'a Thakhir, Al-Adl, Jabal Al-Nour, Wadi Jalil, and Al-Ma'abdah
AL Azizia	It is located in the southeast of the city	25,104 Hectare	Azizia, AL Mursalat, AL Jameah, AL Naseem, Awali and AL Mashaheer
AL Shouqia	It is located in the south and southwest of the city	46,229.6 Hectare	Batha Quraish Al-Kaakiyah and Al-Shawqiah, the Wly AL Ahed, Al-Akishiya, King Fahd and Al-Hijrah
AL Umrah	It is located in the north of the central district	34,245 Hectare	Umrah, Al-Tan'im, AL Buhayrat, Al-Nawariya, Al-Salama, Al-Hamra and Umm Al-Jude
AL Sharaaea	It is located in the far northeast of the city	28,423 Hectare	The laws of Rashidiya and the laws of the Mujahideen, Al-Aseelah and Al-Khadra

**Table No. 2:** Administrative sectors in the city of Makkah Al-Mukarramah

**Source:** by the researcher based on the division of the Holy Capital Municipality into the city's neighborhoods

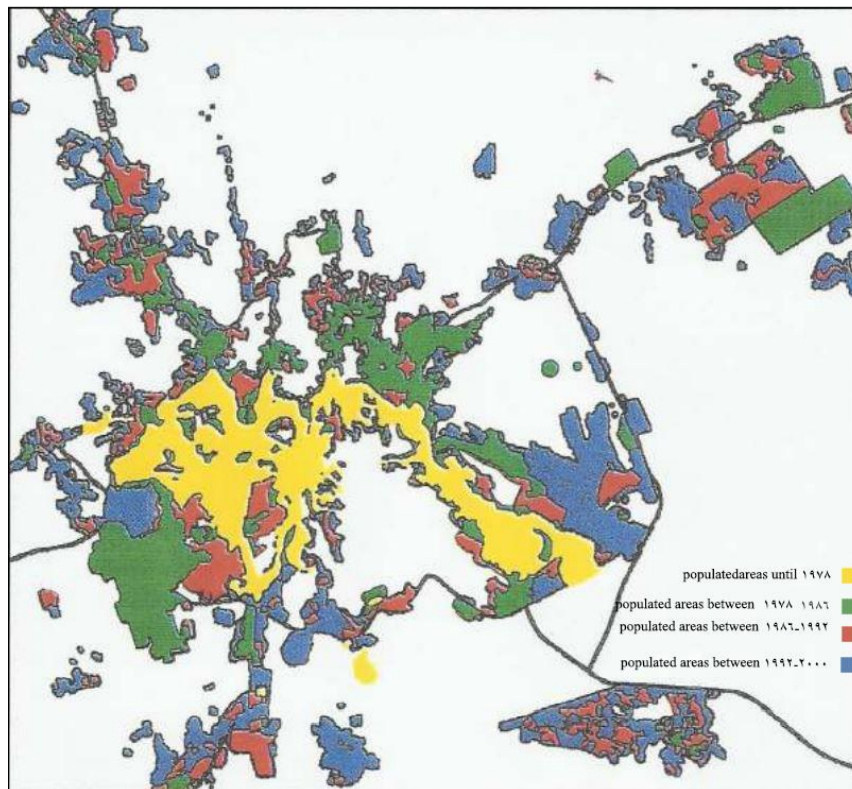
### 1.1.5 Urban growth in the city of Makkah:

The average annual urban growth rate for the city of Makkah reached about 8.3% during the past two decades, and the city witnessed a steady urban growth, especially in the years of the Saudi expansions of the Holy Mosque, the years of the economic boom and the rise in oil revenues, which led to an increase in the urban area in Makkah beyond the mountain barriers to accommodate the huge numbers of immigrants to it (Al-Ghamdi S A R. Al-NajjarY, 2002).

### 3.1.5.1 Urban conditions in the city of Makkah Al-Mukarramah up to a year (1978):

The urban block of the Holy City of Makkah was concentrated around the Holy Mosque in Makkah, and this block was united with Hajj Street in the north and parts of Al-Tana'im neighborhood closest to the Umrah Mosque and Al-Aziziyah neighborhood from the east, Al-Masfalah and Al-Rasifa from the south, and Al-Nuzha neighborhood from the west.

It is noted during this period the absence of organizational plans with the exception of the Rusaifa scheme along the west of Al-Rusaifa Street, which was completely devoid of construction, and with the exception of the old neighborhoods in the city of Makkah Al-Mukarramah, the urban expansion in this period took the valleys as special outlets in the south of the city of Makkah Al-Mukarramah, so the urban expansion of the city of Makkah came in the form following: (Mirza M, 2009).



**Figure No.4:** Stages of urban growth in Makkah Al-Mukarramah until the year 2000

**Source:** Quoting the researchers, Dr. A. Saad Al-Ghamdi d, Yasser Al-Najjar, Analysis of urban growth and its trends using remote sensing data, an applied study on the city of Makkah Al-Mukarrama

### **1. East of Makkah Al-Mukarramah City:**

It is noted during this period that the road network in the feelings has been completed, in addition to the upper bridges in Duqm Al-Waber area, as well as Al-Muaisem Road, which connects Muzdalifah with Al-Sail Road.

Until that period, the main outlets such as the King Khalid Tunnel and the King Fahd Tunnel were not established, it is noticeable that the urban growth in residential and commercial establishments was limited to the area between Duqm, Al-Waber and Al-Shasha in the Aziziyah Valley and between Mount Mina and Taif Road, and at that stage, the plans of Al-Lihyani or South Al-Aziziya were not developed, and Al-Noor Hospital had not yet been built (Al-Ghamdi SAR. Al-Najjar Y M, previous reference, p.247).

### **2. North of Makkah Al-Mukarramah City:**

The urban mass North of Makkah Al-Mukarramah in this period was limited to the area between Al-Haram Al-Makki Al-Sharif and Al-Khansa neighborhood.

Al-Hajoun Street was one of the most important streets in the north of Makkah, which connects the almost isolated area of Al-Aziziyah with the western entrance to Makkah Al-Mukarramah, and the roads perpendicular to this street were heading north, which created outlets for urban expansion through the roads of Rei' Thakhir, Algeria, and Makkah – Medina (Al-Ghamdi SAR. Al-Najjar Y M, previous reference, p.248).

### **3. West of Makkah Al-Mukarramah City:**

The pavement street in this period was the farthest urban extension of the city from the west. In the area bounded between this street in the west and the old Makkah-Jeddah Road in the north, and between the current Makkah-Jeddah Road, the nucleus of urbanization appeared in the Nuzha neighborhood.

The neighborhoods of Al-Zahra and Al-Hindawiya were characterized by their dense population, random pattern, and the emergence of the connected urban block, and the neighborhoods with high population and urban density extended on both sides of Al-Mansour Street. As for the modern plans, such as the housing of Al-Rusaifa, Al-Hamra and Al-Khalidiya schemes, they did not exist yet (The same previous reference, p.249).

#### **4. South of Makkah Al-Mukarramah City:**

During this period, there was no clear urban block except for some facilities located along Wadi Ibrahim and Towa, and the construction ended at the confluence of Ibrahim Street and Al-Mansour Street, and there was no clear development path that reflects what it has become at the present time as the largest planned areas in the city of Makkah Al-Mukarramah (The same previous reference, p.250).

##### *3.1.5.2 Urban growth of the city of Makkah Al-Mukarramah between (1978-1986):*

During this period, the city of Makkah witnessed a clear urban growth on all the city's axes. Significant growth occurred in the south of the city of Makkah, represented in the Al-Rusaifa housing complex, the Al-Rusaifa scheme and the new college district scheme. It is noted that the organized areas have started to grow clearly, whether in the Al-Sabhani scheme, the Batha Quraish residential scheme, or the schemes on the western side of Wadi Al-Salouli.

In addition, parts of the Al-Lihyani and Al-Awali scheme were formed during this period, in addition to the establishment of Al-Noor Hospital,. As for the most prominent manifestations of urban growth in the east of the city of Makkah, it was represented in the construction of sports facilities and housing schemes in the Al-Sharaa' neighborhood. In the north of the city of Makkah, the completion of the Al-Mu'aisem reservoir is noted and a clear population growth has occurred

in the neighborhoods of Al-Ghasala, Jabal Al-Nour and Al-Sufyani scheme and along the Makkah-Madinah Road extension in the Al-Madinah neighborhood Umrah.

As for the west of Makkah, the urban growth in it remained slower than others, as the Al-Hamra area plan was drawn up, but the urbanization did not extend to it. It is also noted that the Third Ring Road has been completed and has become linked to the Makkah-Jeddah Expressway, west of Makkah Al-Mukarramah, as for the old area of Makkah Al-Mukarramah (the city center). There was no large horizontal urban expansion in it except for the reconstruction of some plots of land (The same previous reference, p.251).

### *3.1.5.3 Urban growth in the city of Makkah Al-Mukarramah between (1986-1992):*

During this period, the city witnessed an urban growth that extended on four axes:

1. Al-Sail-Taif Road, where the growth was evident in the schemes of Sharia.
2. Makkah Al-Mukarramah - Al-Madinah Al-Munawwarah Road in the residential plans in the neighborhoods of Umrah and Al-Nawwariya.
3. Al-Hada - Taif Road, where Al-Awali neighborhood witnessed a great growth during this period.
4. Makkah Al-Mukarramah-Al-Laith road represented by the plans located along Wadi Al-Salouli.

The previous axes of urban expansion are logically consistent with the requirements of population growth and the accompanying need to provide organized areas, whether in terms of services, roads or lending lands in them, which are commensurate with the displaced from the heart of the city and those coming to it from outside.

In addition, these axes bypassed the city's natural outlets that avoid building on rugged areas, so the empty lands between the neighborhoods were exploited, and urbanization extended to the



slopes of the mountains, especially in the Al-Masfalah and Ruseifa areas (The same previous reference, p.252).

#### *3.1.5.4 Urban growth of the city of Makkah Al-Mukarramah between (1992-2000):*

Among the most prominent features of urban growth for this period are the following:

1. Al-Awali neighborhood has become an almost continuous urban block, after it was in the previous period a group of scattered housing.
2. The completion of the infrastructure of the Mashaer area, including roads, bridges, electricity, water and sewage networks health, and the construction of many buildings as specialized government departments to serve pilgrims.
3. In the north of Makkah Al-Mukarramah, urbanization grew in the planned areas between Umrah and Al-Nawwariya the old and modern schemes in the Sharia, as well as the Al-Ma'aisem area witnessed a clear urban growth, whether as industrial or residential areas.
4. The rapid urban growth is observed in the Al-Shouqia scheme, located between the C-Ring Road And the Al-Sabani scheme, as well as in the scheme of Batha Quraish, Al-Rabwa, Rawabi Keddi, and Quoz Al-Nakasa, and the old schemes in Al-Sabhani and Al-Imran, and it is noted that the organized schemes are in the south of Makkah Al-Mukarramah is more numerous and larger in area than others, which indicates that the current trend of expansion is Al-Omrani is located along Al-Laith Road, south of the city, and the reason is due to the low land prices, the south of Makkah and the ease of delivery of services and infrastructure as a result of the topographical situation of the city In terms of the extent of the areas that are characterized by low slope.
5. A number of newly developed areas appeared as plans in Batha Quraish, Al-Marwa, and Al-Shawkiyah, in addition to paving the hills west of the Rusifa housing for a large area.

With the completion of this project, it is expected that there will be an urban connection with housing and thus with the urban mass connected to the city, and this urban trend will encourage urban expansion towards the city of Jeddah, where these areas are characterized by their wideness and relative levelness, which may lead to alleviating urban overcrowding in the east of Makkah Al-Mukarramah along the holy sites (The same previous reference, p.253 -254).

#### *3.1.5.5 Urban Growth in the city of Makkah Al-Mukarramah until (2004):*

1. During this period, the city began to enter the phase of urban equilibrium, which was reflected in the equilibrium what is happening between the rate of urban growth and the rate of population growth, and thus the phase of the urban boom of the city ended in terms of quantity, and the trend towards improving the urban environment of the city in terms of quality began.
2. During this phase, new planned neighborhoods appeared, such as Al-Khalidiya, in the southwest of the city, and Batha Quraish in the south, and the urbanization of the neighborhoods that began to appear during the previous stage was completed In Al-Awali, Al-Shari`, and Al-Masfalah.
3. During this stage, it becomes clear that there is a trend of urban growth in the form of residential communities in the regions flat on the outskirts of the city and connected to it through the main radiative axes, which is the pattern represented by the schemes of the Sharia, Madinah Road (Al-Nawwariya), Batha Quraish and Al-Awali (F Z . Associates, previous reference, p.63-64).

### **3.3 Summary:**

In this chapter, the geographical distribution of the city of Makkah Al-Mukarramah and its urban development over different periods of time were identified, then the areas of informal settlement distribution in the city were identified, the reasons for their emergence, their general characteristics, the problems they suffer from, and their distribution patterns according to the system of cluster foci and according to three spatial patterns, both in Areas close to the Great Mosque of Makkah, along the main traffic axes, or in valleys, reefs and rugged areas.

4

**CHAPTER FOUR: EVALUATING THE DIFFERENT STRATEGIES ADDRESSING THE INFORMAL SETTLEMENT AREAS IN MAKKAH**

## 4 Introduction

This section describes the research distributed to urban development experts (architects, city planners, city designers, and others) to obtain their two points of view regarding the material factors contributing to the evaluation of different strategies that deal with informal settlements in the city of Makkah Al-Mukarramah. (68) Experts participated in this survey, which is divided into the following sections:

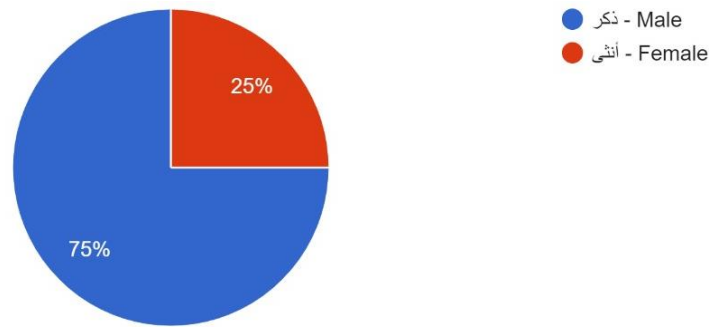
1. Title that includes a brief description of the interview and its purpose.
2. The two general information including (gender, specialty, number of years of experience).
3. Comprehensiveness of the development project, whether through its comprehensiveness of population, place or time.
4. The time required to complete the project.
5. Arranging the financial and economic return according to importance.
6. Arranging material and social costs in order of importance.
7. The compatibility of the development project with (the prevailing customs and traditions in the city, the city's tourism, religious, recreational, economic and political values).
8. Comprehensiveness of the project whether (for residents of the region, place, time).
9. The compatibility of the development project with the urban and social objectives of the region.

### 4.1 Survey analysis

(68) Answered the Survey questions and the results were as follows:

1. **The title:** Includes a brief description of the questionnaire and its purpose.
2. **General Information's including:**

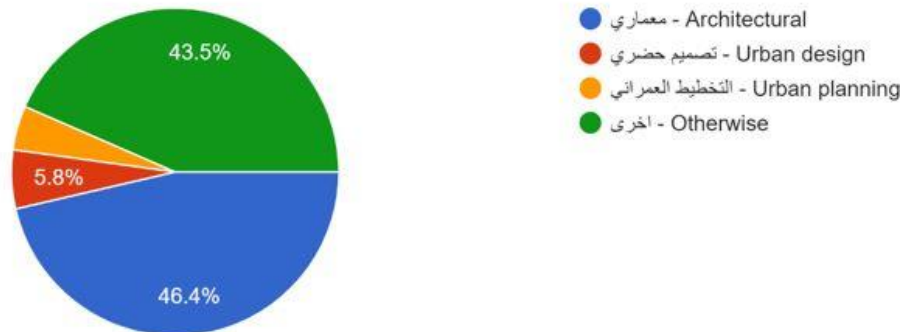
- **Gender (Male, Female):** 68 answers were obtained, 75% from males and 25 % from females.



**Figure No.9:** Shows the gender of the experts participated in the survey  
**Source:** by researcher

- **Specialization:** The results were as follows:

1. 46.4 % Architects.
2. 5.8% Urban Designers.
3. 4.3% Urban Planners.
4. 43.5% Otherwise.



**Figure No.10:** shows the Specialization of the experts participated in the survey  
**Source:** by researcher

- **Years of Experience:** The results were as follows:

- 1) (5-10) Years: 18.6%.
- 2) (10-15) Years: 25.7%.
- 3) (15-20) Years: 12.9%.
- 4) 20 Years and more: 35.7%

5) No experience: 7.1%



**Figure No.11:** shows the years of experience of the experts participating in the survey

**Source:** by researcher

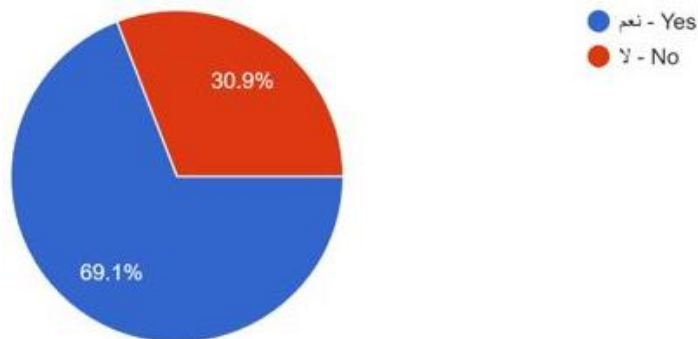
### 3. Comprehensiveness of the project (all residents of the region, place, time):(68

replies):

This division contains the following three questions:

- Q1. Does the development project include the entire site?

○ (69.1%) answered yes and (30.9%) answered no.

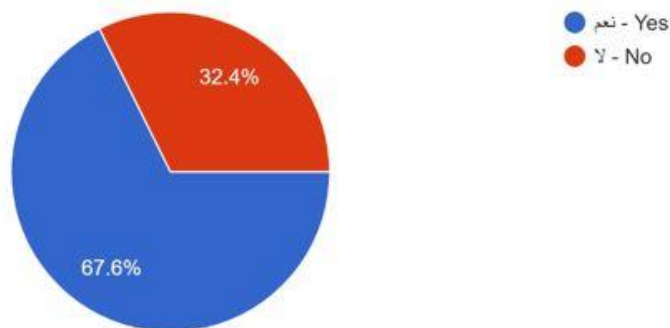


**Figure No.12:** shows the Comprehensiveness of the development project for the entire site

**Source:** by researcher

- Q2. Does the development project include all residents?

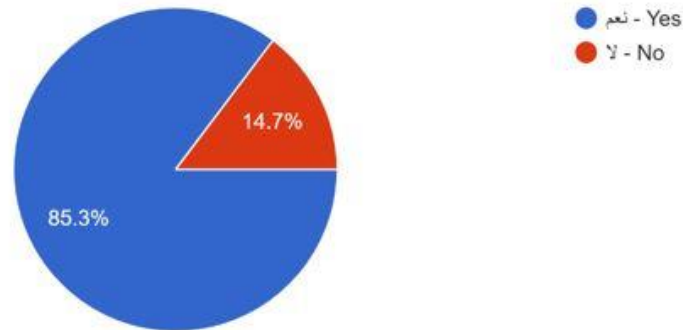
○ (67.6%) answered yes and (32.4%) answered no.



**Figure No.13:** shows the Comprehensiveness of the development project for all residents

**Source:** by researcher

- Q3. Does the development project guarantee its continuity now and in the future?
- (85.3%) answered yes and (14.7%) answered no.

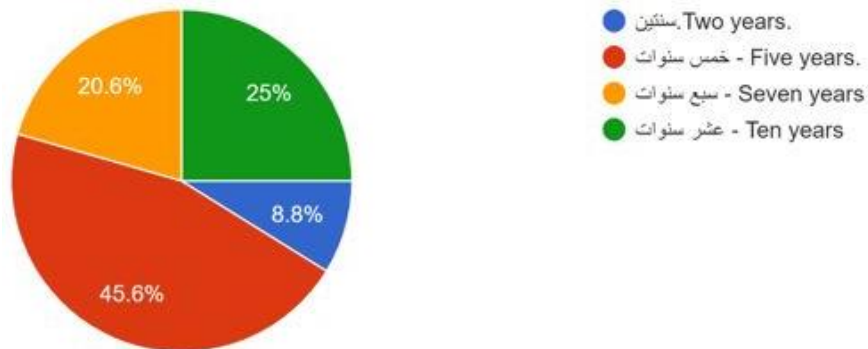


**Figure No.14:** The development project guarantee shows its continuity now and in the future  
**Source:** by researcher

- **project required time period:** (68 replies):

This division contains the following question:

- Q1. In your opinion, what is the appropriate time period to complete the development project?
  - (8.8%) Answered two years.
  - (45.6 %) Answered five years.
  - (20.6%) Answered seven years.
  - (25%) Answered ten years.



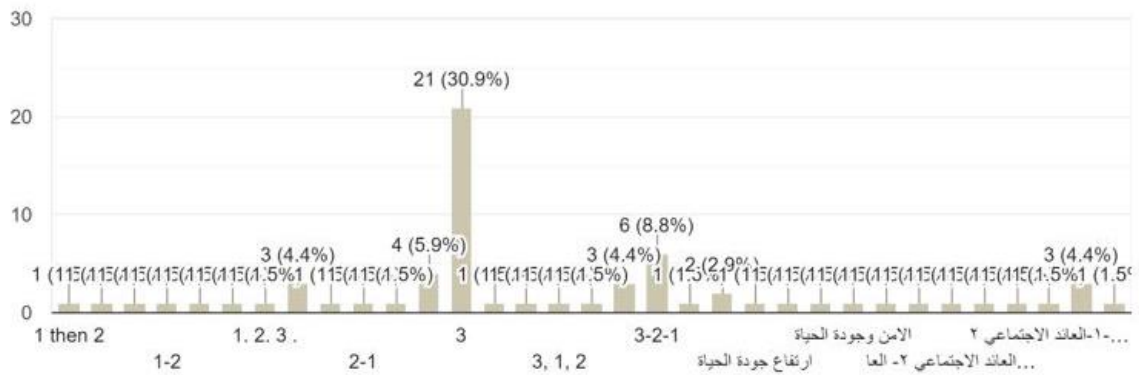
**Figure No.15:** shows the project required time period.  
**Source:** by researcher



- **Rearrange in order of importance (economic and social return, economic return, social return) :(68 replies):**

This division contains the following question

- Q1: Rearrange in order of importance on a scale of (1-3) for each of the (economic return, social return, economic and social return) of the development project: where (1) is the least important, (2) is the average importance, and (3) is most important:
  - The economic and social return came in the first place of importance, followed by the economic return, then the social return.

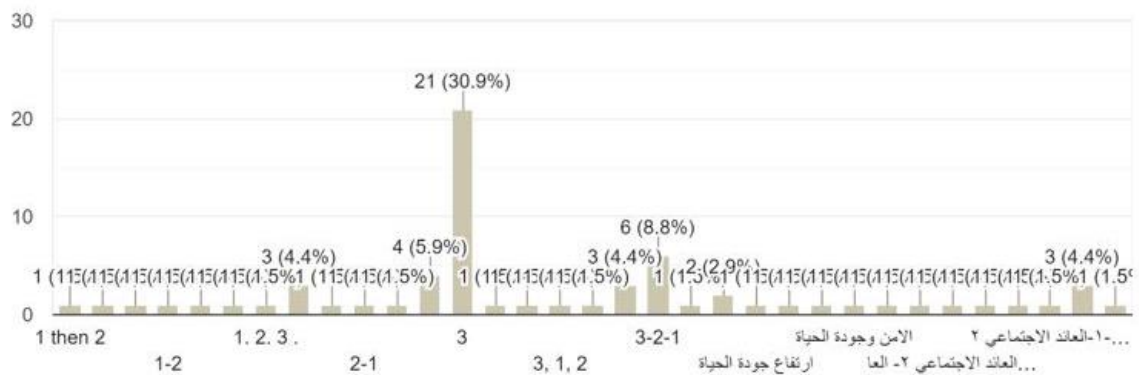


**Figure No.16:** Rearrange the return (economic and social, economic,social) in terms of importance  
**Source:** by researcher

- **Rearrange in order of importance (economic and social cost, economic cost, social cost):(68 replies):**

This division contains the following question

- Q1: Rearrange in order of importance on a scale of (1-3) for each of the (economic cost, social cost, economic and social cost) of the development project: where (1) is the least important, (2) is the average importance, and (3) is most important:
  - The economic cost came in the first place of importance, followed by the social cost, then the economic and social cost.

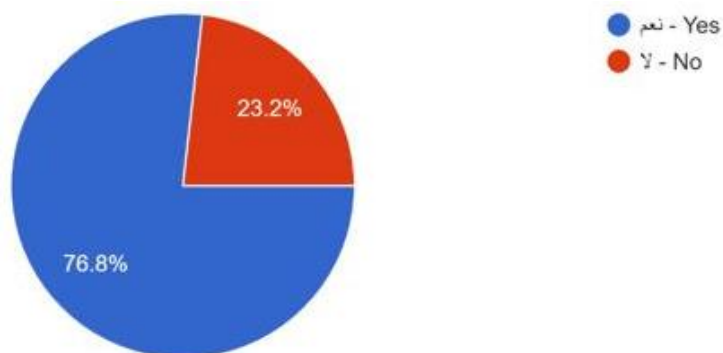


**Figure No.17:** Rearrange the cost (economic and social, economic,social) in terms of importance  
**Source:** by researcher

- **Compatibility of the city and resident's contexts with the development project:** (68 replies):

This division contains the two questions

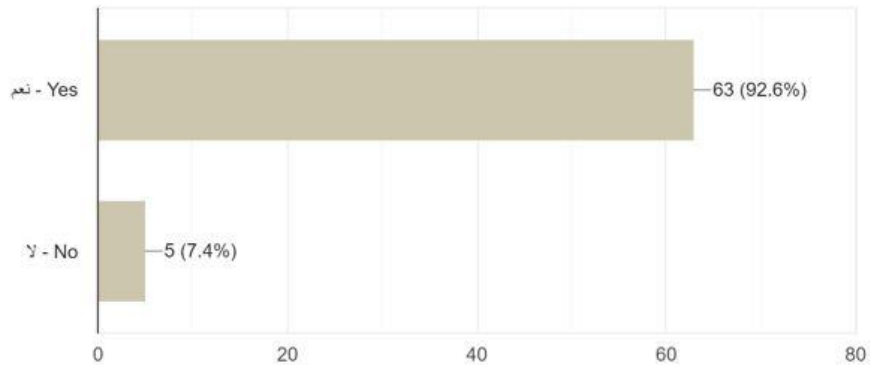
- Q1: Is it important for the development project to comply with the customs and traditions of the community?
- (76.8%) answered yes and (23.2%) answered no



**Figure No.18:** the importance for the development project to comply with the customs and traditions  
**Source:** by researcher

- Q2: Is it important that the development project match the city's values (religious, tourism, recreational, economic, and political)?

- (92.6%) answered yes and (7.4%) answered no



**Figure No.19:** the importance to the development project to match the city's values  
**Source:** by researcher

➤ After reviewing the previous scientific literature related to urban design criteria (specifically in the Kingdom of Saudi Arabia, in a hot weather climate, in conservative societies...), and evaluating the development strategy by conducting an appropriate survey with experts. The following criteria have been identified that are compatible with the development strategies in the Kingdom of Saudi Arabia, and they are as follows:

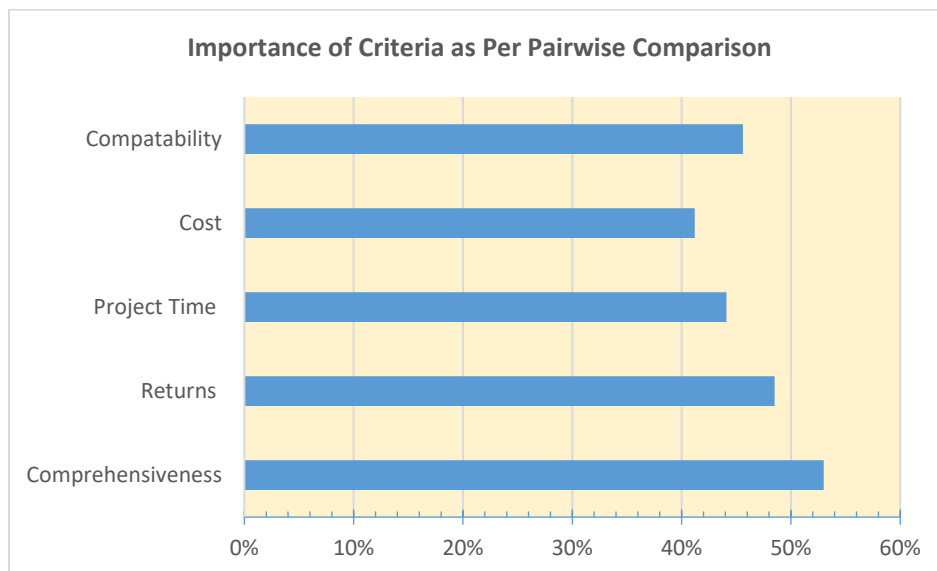
- 1. Comprehensiveness (area, residents, place, time).**
- 2. Returns (Economic, Social, both economic and social).**
- 3. Project time (Project time).**
- 4. Cost (Economic, Social, both economic and social).**
- 5. Compatibility (Customs & Traditions, Goals -Values of the city).**

#### **4.2 Design an Evaluation Scale (AHP):**

It is a method used in evaluation using AHP (Analytical Hierarchy Process) which aims to determine the relative weight of the criteria, (define how much it is important to each other).

This was done through the following steps:

1. The researcher determined the relative weight of each pre-selected criterion by comparing each two criteria together to reach a quantitative number that determines the importance (the weight of each criterion to the other) using the Saaty scale:
  - The number 1 is assigned to each criterion if they are of (equal importance)
  - Number 3 is given (if you describe a particular criterion as: It has moderate significance when compared to other criteria)
  - Number 5 is given (if you describe a particular criterion as: having strong significance when compared to other criteria).
2. Then the researcher Compare each two criteria to dine which one is more important to the other using pairwise comparison.
3. Perform AHP using tables as it shows in table (4).
4. Conclude the proportional weight for each criterion (their total weight should be out of (10) or (100) as it shows in table no. (5).



**Figure No.20:** The Importance of Criteria as Per Pairwise Comparison  
**Source:** by researcher

Criteria	Sub-criteria	Comprehensiveness				Returns			Time	Cost			Compitability		Sum	Median
		Area	Residents	Place	Time	Economic	Social	Both Economic & Social	Project Time	Economic	Social	Economic and Social	costumes & Traditions	Goals - Values of the city		
<b>Comprehensiveness</b>	Area	1				1.09			1.2	1.28			1.16		5.73	1.146
	Residents															
	Place															
	Time															
<b>Returns</b>	Economic	0.91				1			1.1	1.17			1.06		5.24	1.048
	Social															
	Both Economic & Social															
<b>Project Time</b>	Project Time	0.8				0.9			1	1.06			0.96	4.72	0.944	
<b>Cost</b>	Economic	0.77				0.84			0.93	1			0.9		4.44	0.888
	Social															
	Economic & Social															
<b>Compatibility</b>	costumes & Traditions	0.86				0.94			1.03	1.1			1		4.93	0.986
	Goals -Values of the city															
<b>Total value</b>		4.34				4.77			5.26	5.61			5.08	25.06	5.012	

**Table No. (4):** Pairwise comparison Matrix

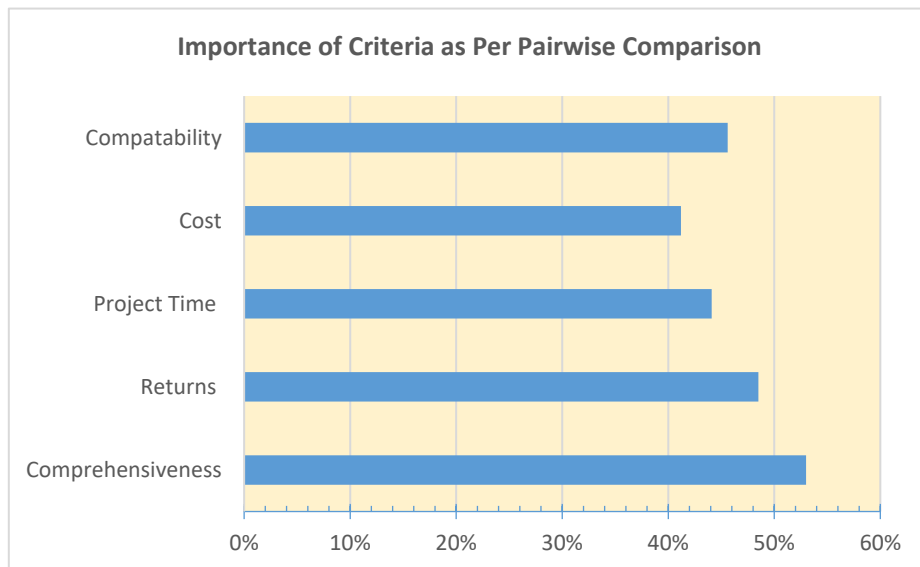
Source: by researcher

Criteria	Sub-criteria	Comprehensiveness				Returns			Time	Cost			Computability		Sum	Median	Weight
		Area	Residents	Place	Time	Economic	Social	Both Economic & Social	Project Time	Economic	Social	Both Economic and Social	with costumes & Traditions	Goals - Values of the city			
<b>Comprehensiveness</b>	Area	0.230				0.229			0.228	0.228			0.228		1.14	0.23	<b>1.144</b>
	Residents																
	Place																
	Time																
<b>Returns</b>	Economic	0.210				0.210			0.209	0.209			0.209		1.05	0.21	<b>1.046</b>
	Social																
	Both Economic & Social																
<b>Project Time</b>	Project Time	0.184				0.189			0.190	0.189			0.189	0.94	0.19	<b>0.941</b>	
<b>Cost</b>	Economic	0.177				0.176			0.177	0.178			0.177		0.89	0.18	<b>0.886</b>
	Social																
	Both Economic & Social																
<b>Compatibility</b>	with costumes & Traditions	0.198				0.197			0.196	0.196			0.197		0.98	0.20	<b>0.984</b>
	Goals -Values of the city																
<b>Total value</b>		1.000				1.000			1.000	1.000			1.000	5.00	1.00	5.000	

**Table No. (5):** shows the weight of the criteria

Source: by researcher

- We note that the proportional weight of Comprehensiveness (area, residents, place, time) is the highest, followed by the return (economic, social, both economic and social), then compatibility, then the project time, then the cost.
- After that, the researcher conducted a survey to determine the value of each criterion. During this survey, the following question was asked: "If a group of users and a group of urban experts and urban officials evaluate the quality of an urban design project. What is the percentage of each average that may form the final evaluation (what is the percentage of each group value that are forming the total project value)?
  - The results were as following:
  - 53% answered the (Comprehensiveness).
  - 49% answered the (Returns).
  - 45.5% answered the (Compatibility).
  - 44.1% answered the (Project time).
  - 41.2% answered the (Cost).



**Figure No. (20):** shows the importance of Criteria as Per Pairwise Comparison  
**Source:** by researcher

### **4.3 Evaluation of the effectiveness of urban development approaches to informal settlement areas**

#### **4.3.1 Experts' questionnaire:**

This section describes the research distributed to urban development experts to obtain their perspective on evaluating the effectiveness of each of the urban development approaches for informal settlement areas with the aim of achieving the previously defined sub-criteria represented in (Comprehensiveness, Returns, Project Time, Cost, and Compatibility) to express the effectiveness of intervention projects in addressing informal settlement areas on a scale of (1-10) according to the experts' point of view, where (1) is the least important and (10) represent the most important.

**The following is the definition of each Methods\Approaches to urban development of the informal settlement to grade:**

#### **1- Methods associated with degraded urban areas that suffer from environmental and urban problems:**

##### **A. Rehabilitation.**

Returning the informal settlement area to a certain level of efficiency and repairing public facilities and services in it so that the buildings within it acquire a new function that either matches or differs from its original function for which the building was built.

##### **B. Improvement.**

It refers to the works that aim to increase the value of the informal settlement area in the urban and environmental field, improve the facilities and public services therein, and remove all influences that bring down the level of the area.

##### **C. Urban Renewal.**

It refers to the removal of old residential buildings in order to make room for the construction of modern residential buildings.

#### **D. Upgrading.**

It means improving the status quo of an informal settlement to a better situation by developing the urban environment in all aspects of architecture, urban, functional, environmental, economic and social aspects.

#### **2- Methods that bring about radical changes in the built environment:**

##### **A. Redevelopment.**

Removing informal settlements with investment from the private sector or through partnership between the public and private sectors re-form the functional and residential spaces in them, depending on the strategic plan of the city and the detailed plan of the area.

##### **B. Clearance.**

It means completely removing everything in the area due to the inability to treat this type of area in any way, and then setting up a new organizational scheme for the area.

##### **C. Removable.**

It means demolishing buildings in the area and rebuilding them again according to a new organizational scheme and this method is very expensive, as it requires the construction of new housing with new services

##### **D. Replacement.**

It relies on replacing the buildings in the same site to avoid the negative effects of replacing the residents with their original environment.

#### **4.3.2 Experts' questionnaire analysis:**

- **Determine the importance of Urban development methods \ Criteria& sub criteria to Methods associated with degraded urban areas that suffer from environmental and urban problems:**

##### **1. Comprehensiveness:**



- **Comprehensiveness of the total areas**
  - 9 points are given to Upgrading method.
  - 7 points are given to Urban Renewal method.
  - 5 points are given to Improvement method.
  - 4 points are given to Rehabilitation method.
- **Comprehensiveness of all residents' groups in the informal settlement area**
  - 8 points are given to Upgrading method.
  - 7 points are given to Urban Renewal method.
  - 4 points are given to Improvement method.
  - 2 points are given to Rehabilitation method.
- **Comprehensiveness of time (time set for the project includes all times of all phases)**
  - 5 points are given to Upgrading method.
  - 5 points are given to Urban Renewal method.
  - 5 points are given to Improvement method.
  - 5 points are given to Rehabilitation method.

Urban development methods \ Criteria& sub criteria		Methods associated with degraded urban areas that suffer from environmental and urban problems			
		Rehabilitation	Improvement	Urban Renewal	Upgrading
<b>1. Comprehensiveness</b>	1- of the total informal settlement Area	4	5	7	9
	1- of all residents' groups in the informal settlement area	2	4	7	8
	3- of time (time set for the project includes all times of all phases)	5	5	5	5

**Table No. (6):** shows the comprehensiveness to Methods associated with degraded urban areas that suffer from environmental and urban problems  
**Source:** by researcher

**2. Return:**

- **Economic Return (different forms of monetary revenues and profits)**

- 7 points are given to Upgrading method.
- 5 points are given to Urban Renewal method.
- 5 points are given to Improvement method.
- 9 points are given to Rehabilitation method.

- **Social Return (improved social connections- better life style) .....etc.**

- 8 points are given to Upgrading method.
- 7 points are given to Urban Renewal method.
- 4 points are given to Improvement method.
- 2 points are given to Rehabilitation method.

- **Economic & Social Return**

- 8 points are given to Upgrading method.
- 7 points are given to Urban Renewal method.
- 5 points are given to Improvement method.
- 8 points are given to Rehabilitation method.

Urban development methods \ Criteria& sub criteria		Methods associated with degraded urban areas that suffer from environmental and urban problems			
		Rehabilitation	Improvement	Urban Renewal	Upgrading
<b>2.Return</b>	Economic Return (different forms of monetary revenues and profits)	9	5	5	7
	Social Return (improved social	7	5	7	9

	connections- better life style) .... etc.				
	Economic & Social Return	8	5	7	8

**Table No. (7):** shows the Returns to Methods associated with degraded urban areas that suffer from environmental and urban problems

**Source:** by researcher

### 3. Project implementation time:

- 8 points are given to Upgrading method.
- 8 points are given to Urban Renewal method.
- 8 points are given to Improvement method.
- 8 points are given to Rehabilitation method.

Urban development methods \ Criteria& sub criteria	Methods associated with degraded urban areas that suffer from environmental and urban problems			
	Rehabilitation	Improvement	Urban Renewal	Upgrading
<b>3. Project implementation time</b>	8	8	8	8

**Table No. (8):** shows the Project implementation time to Methods associated with degraded urban areas that suffer from environmental and urban problems

**Source:** by researcher

### 4. Cost:

- **Economic Cost (different forms of financial cost and profits)**
  - 7 points are given to Upgrading method.
  - 7 points are given to Urban Renewal method.
  - 7 points are given to Improvement method.
  - 7 points are given to Rehabilitation method.
- **Social Cost (family instability- Reduction in life style.... etc.)**
  - 7 points are given to Upgrading method.

- 7 points are given to Urban Renewal method.
- 7 points are given to Improvement method.
- 7 points are given to Rehabilitation method.
- **Economic & Social Cost**
- 7 points are given to Upgrading method.
- 7 points are given to Urban Renewal method.
- 7 points are given to Improvement method.
- 7 points are given to Rehabilitation method.

Urban development methods \ Criteria& sub criteria		Methods associated with degraded urban areas that suffer from environmental and urban problems			
		Rehabilitation	Improvement	Urban Renewal	Upgrading
<b>4. Cost</b>	Economic Cost (different forms of financial cost and profits)	7	7	7	7
	Social Cost (family instability- Reduction in life style.... etc.)	7	7	7	7
	Economic & Social Cost	7	7	7	7

**Table No. (9):** shows the Cost to Methods associated with degraded urban areas that suffer from environmental and urban problems

**Source:** by researcher

**5. Compatibility of the city:**

- **Comply with customs and traditions**
- 9 points are given to Upgrading method.
- 9 points are given to Urban Renewal method.
- 9 points are given to Improvement method.
- 9 points are given to Rehabilitation method.

- **Follow the goals or values of the city (religious, tourism/entertainment, economic/political)**
- 9 points are given to Upgrading method.
- 9 points are given to Urban Renewal method.
- 9 points are given to Improvement method.
- 9 points are given to Rehabilitation method.

Urban development methods \ Criteria& sub criteria		Methods associated with degraded urban areas that suffer from environmental and urban problems			
		Rehabilitation	Improvement	Urban Renewal	Upgrading
<b>5. Compatibility of the city</b>	comply with customs and traditions	9	9	9	9
	follow the goals or values of the city (religious, tourism/entertainment, economic/political)	9	9	9	9

**Table No. (10):** shows the Compatibility of the city to Methods associated with degraded urban areas that suffer from environmental and urban problems

**Source:** by researcher

- **Determine the importance of Urban development methods \ Criteria& sub criteria to Methods that bring about radical changes in the built environment**

**1. Comprehensiveness:**

- **Comprehensiveness of the total areas**
- 4 points are given to Replacement method.
- 5 points are given to Removable method.

- 5 points are given to Clearance method.
- 7 points are given to Redevelopment method.
- **Comprehensiveness of all residents' groups in the informal settlement area**
- 4 points are given to Replacement method.
- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 9 points are given to Redevelopment method
- **Comprehensiveness of time (time set for the project includes all times of all phases)**
- 6 points are given to Replacement method.
- 7 points are given to Removable method.
- 7 points are given to Clearance method.
- 7 points are given to Redevelopment method

Urban development methods \ Criteria& sub criteria		Methods that bring about radical changes in the built environment			
		Redevelopment	Clearance	Removable	Replacement
<b>1.Comprehensiveness</b>	1- of the total informal settlement Area	7	5	5	4
	2-of all resident's groups in the informal settlement area	9	5	5	4
	3-of time (time set for the project includes all times of all phases)	7	7	7	6

**Table No. (11):** shows the Compatibility of the city to Methods that bring about radical changes in the built environment **Source:** by researcher

## 2. Return:

- **Economic Return (different forms of monetary revenues and profits)**
- 5 points are given to Replacement method.

- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method
- **Social Return (improved social connections- better life style).....etc**
- 5 points are given to Replacement method.
- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method.
- **Economic & Social Return**
- 5 points are given to Replacement method.
- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method.

Urban development methods \ Criteria& sub criteria		Methods that bring about radical changes in the built environment			
		Redevelopment	Clearance	Removable	Replacement
<b>2.Return</b>	Economic Return (different forms of monetary revenues and profits)	5	5	5	5
	Social Return (improved social connections- better life style) ....etc.	7	5	5	5
	Economic & Social Return	5	5	5	5

**Table No. (12):** shows the Return to Methods that bring about radical changes in the built environment

**Source:** by researcher

### 3. Project implementation time:

- 8 points are given to Replacement method.
- 8 points are given to Removable method.
- 8 points are given to Clearance method.
- 6 points are given to Redevelopment method.

Urban development methods \ Criteria& sub criteria	Methods that bring about radical changes in the built environment			
	Redevelopment	Clearance	Removable	Replacement
<b>3. Project required time period</b>	6	8	8	8

**Table No. (13):** shows the Project required time period to Methods that bring about radical changes in the built environment

**Source:** by researcher

#### **4. Cost:**

- **Economic Cost (different forms of financial cost and profits)**

- 7 points are given to Replacement method.
- 7 points are given to Removable method.
- 7 points are given to Clearance method.
- 7 points are given to Redevelopment method.

- **Social Cost (family instability- Reduction in life style....etc)**

- 5 points are given to Replacement method.
- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method.

- **Economic & Social Cost**

- 5 points are given to Replacement method.



- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method.

Urban development methods \ Criteria& sub criteria		Methods that bring about radical changes in the built environment			
		Redevelopment	Clearance	Removable	Replacement
<b>4. Cost</b>	Economic Cost (different forms of financial cost and profits)	7	7	7	7
	Social Cost (family instability- Reduction in life style....etc)	5	5	5	5
	Economic & Social Cost	5	5	5	5

**Table No. (14):** shows the Cost to Methods that bring about radical changes in the built environment

**Source:** by researcher

### **5. Compatibility of the city:**

- **Comply with customs and traditions**
- 5 points are given to Replacement method.
- 5 points are given to Removable method.
- 5 points are given to Clearance method.
- 5 points are given to Redevelopment method.
- **Follow the goals or values of the city (religious, tourism/entertainment, economic/political)**
- 9 points are given to Replacement method.
- 9 points are given to Removable method.
- 9 points are given to Clearance method.

- 9 points are given to Redevelopment method.

Urban development methods \ Criteria& sub criteria		Methods that bring about radical changes in the built environment			
		Redevelopment	Clearance	Removable	Replacement
<b>5. Compatibility of the city</b>	comply with customs and traditions	5	5	5	5
	follow the goals or values of the city (religious, tourism/entertainment, economic/political)	9	9	9	9

**Table No. (15):** shows the Compatibility of the city to Methods that bring about radical changes in the built environment

**Source:** by researcher

#### **4.3.3 Average of Criteria Efficiency Value after proportional weight modification**

- **The average value of the efficiency of the standards after adjusting the relative weight for Methods associated with degraded urban areas that suffer from environmental and urban problems:**
  - Through this method, the average of each of the previously identified criteria for (Rehabilitation, Improvement, Urban Renewal, and Upgrading) is calculated by collecting the values provided by the experts in the previous questionnaire, then dividing the total by the number of answers.
  - Then, the average of (Comprehensiveness, Return, Project implementation time, Cost, Compatibility of the city) criteria is added separately for (Rehabilitation, Improvement,

Urban Renewal, and Upgrading) so that we get (Average of Criteria Efficiency Value) for each of these criteria.

- Then the Average of Criteria Efficiency Value after proportional weight modification.
- **The results that were calculated were explained as shown in Table No. (16).**

	Criteria	Sub-criteria	Methods\Approaches to urban development of the informal settlement			
			1-Methods associated with degraded urban areas that suffer from environmental and urban problems			
			A. Rehabilitation	B. Improvement	C. Urban Renewal	D. Upgrading
1	Comprehensiveness	1-The total informal settlement Area	6.83	7.75	5.91	7.75
		2- All residents groups in the informal settlement area.	7.75	8	3.41	8.16
		3- The time set for the project includes all times of all phases	5.58	5.33	8.42	6.5
<b>Average of Criteria Efficiency Value</b>			<b>6.72</b>	<b>7.03</b>	<b>5.92</b>	<b>7.47</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>7.7</b>	<b>8.04</b>	<b>6.77</b>	<b>8.55</b>
2	Return	1- Economic Return (different forms of monetary revenues and profits)	7.75	7	5.2	7.42
		2- Social Return (improved social connections- better life style) .....etc.	8.42	7.75	4.75	8.3
		3- Economic & Social Return	8.6	7.91	4.58	8.1
<b>Average of Criteria Efficiency Value</b>			<b>8.25</b>	<b>7.55</b>	<b>4.83</b>	<b>7.88</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>8.62</b>	<b>7.90</b>	<b>5.05</b>	<b>8.25</b>
3	Project implementation time		5.58	6.08	7.67	7
<b>Average of Criteria Efficiency Value</b>			<b>5.58</b>	<b>6.08</b>	<b>7.67</b>	<b>7</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>5.25</b>	<b>5.72</b>	<b>7.21</b>	<b>6.59</b>
4	Cost	1-Economic Cost (different forms of financial cost and profits)	4.33	4.42	8.42	5.5
		2- Social Cost (family instability- Reduction in life style.... etc.)	7.25	7.42	5.33	7.67
		3-Economic & Social Cost	3.83	4.08	8.25	3.42
<b>Average of Criteria Efficiency Value</b>			<b>5.14</b>	<b>5.30</b>	<b>7.33</b>	<b>5.53</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>4.55</b>	<b>4.70</b>	<b>6.49</b>	<b>4.89</b>
5	Compatibility of the city	1-comply with customs and traditions	8.08	8.16	3.75	7.83
		2-follow the goals or values of the city (religious, tourism/entertainment, economic/political)	7.75	7.58	7.2	7.91
<b>Average of Criteria Efficiency Value</b>			<b>7.91</b>	<b>7.87</b>	<b>5.45</b>	<b>7.87</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>7.79</b>	<b>7.749</b>	<b>5.371</b>	<b>7.75</b>
<b>Total value of Average of Criteria Efficiency Value after proportional weight modification</b>			<b>33.91</b>	<b>34.11</b>	<b>30.91</b>	<b>36.03</b>

**Table No. (16):** shows the Average of Criteria Efficiency Value after proportional weight modification to Methods associated with degraded urban areas that suffer from environmental and urban problems

**Source:** by researcher

- **By comparing the results of Average of Criteria Efficiency Value after proportional weight modification to Methods associated with degraded urban areas that suffer from environmental and urban problems, we find the following:**
  - Average of Comprehensiveness is the highest relative to Upgrading with the value of (8.54).
  - Average of Return is the highest relative to Rehabilitation with the value of (8.62).
  - Average of Project implementation time is the highest relative to Urban Renewal with the value of (7.21).
  - Average of Cost is the highest relative to Urban Renewal with the value of (6.49).
  - Average of Compatibility of the city is the highest relative to Upgrading with the value of (50.594).
- **After that it was calculated Total value of Average of Criteria Efficiency Value after proportional weight modification and the results were as following:**
  - **Upgrading:** obtained the highest value for the five previously defined criteria with a value of (78.87) .
  - **Improvement:** with a value of (34.12).
  - **Rehabilitation:** with a value of (33.91).
  - **Urban Renewal:** with a value of (30.907).
- **The average value of the efficiency of the standards after adjusting the relative weight for Methods that bring about radical changes in the built environment:**
  - Through this method, the average of each of the previously identified criteria for (Redevelopment, Clearance, Removable, and Replacement) is calculated by collecting the

values provided by the experts in the previous questionnaire, then dividing the total by the number of answers.

- Then, the average of (Comprehensiveness, Return, Project implementation time, Cost, Compatibility of the city) criteria is added separately for (Redevelopment, Clearance, Removable, and Replacement) so that we get (Average of Criteria Efficiency Value) for each of these criteria.
- Then the Average of Criteria Efficiency Value after proportional weight modification.
- **The results that were calculated were explained as shown in Table No. (17).**

	Criteria	Sub-criteria	Methods\Approaches to urban development of the informal settlement			
			2-Methods that bring about radical changes in the built environment			
			A. Redevelopment	B. Clearance	C. Removable	Replacement
1	Comprehensiveness	1-The total informal settlement Area	8.17	4.58	7.08	6.33
		2- All residents groups in the informal settlement area.	8.42	4.25	7.16	6.5
		3- The time set for the project includes all times of all phases	4.25	9	5.41	5.91
<b>Average of Criteria Efficiency Value</b>			<b>6.94</b>	<b>5.94</b>	<b>6.55</b>	<b>6.25</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>7.94</b>	<b>6.80</b>	<b>7.49</b>	<b>7.15</b>
2	Return	1- Economic Return (different forms of monetary revenues and profits)	8.25	4.16	7.16	7.33
		2- Social Return (improved social connections- better life style) .....etc.	8.33	5.16	7.41	7.58
		3- Economic & Social Return	8.5	5.16	7.75	7.75
<b>Average of Criteria Efficiency Value</b>			<b>8.36</b>	<b>4.83</b>	<b>7.44</b>	<b>7.55</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>8.74</b>	<b>5.05</b>	<b>7.78</b>	<b>7.90</b>
3	Project implementation time		6.91	8.16	6.58	6.75
<b>Average of Criteria Efficiency Value</b>			<b>6.91</b>	<b>8.16</b>	<b>6.58</b>	<b>6.75</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>6.50</b>	<b>7.68</b>	<b>6.19</b>	<b>6.35</b>
4	Cost	1-Economic Cost (different forms of financial cost and profits)	5.33	7.91	4.41	4.91

		2- Social Cost (family instability- Reduction in life style.... etc.)	4.08	8.5	4.25	4.66
		3-Economic & Social Cost	4.41	8.41	4.58	4.25
<b>Average of Criteria Efficiency Value</b>			<b>4.61</b>	<b>8.27</b>	<b>4.41</b>	<b>4.61</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>4.08</b>	<b>7.33</b>	<b>3.91</b>	<b>4.08</b>
5	Compatibility of the city	1-comply with customs and traditions	8.25	2.83	5.33	6.75
		2-follow the goals or values of the city (religious, tourism/entertainment, economic/political)	8.08	5	5.91	6.33
<b>Average of Criteria Efficiency Value</b>			<b>8.16</b>	<b>3.91</b>	<b>5.625</b>	<b>6.54</b>
<b>Average of Criteria Efficiency Value after proportional weight modification</b>			<b>8.03</b>	<b>3.85</b>	<b>5.53</b>	<b>6.43</b>
<b>Total value of Average of Criteria Efficiency Value after proportional weight modification</b>			<b>35.32</b>	<b>30.72</b>	<b>30.92</b>	<b>31.92</b>

**Table No. (17):** shows the Average of Criteria Efficiency Value after proportional weight modification to Methods that bring about radical changes in the built environment

**Source:** by researcher

- **By comparing the results of Average of Criteria Efficiency Value after proportional weight modification to Methods that bring about radical changes in the built environment, we find the following:**
  - Average of Comprehensiveness is the highest relative to Redevelopment with the value of (7.94).
  - Average of Return is the highest relative to Redevelopment with the value of (8.74).
  - Average of Project implementation time is the highest relative to Clearance with the value of (7.68).
  - Average of Cost is the highest relative to Clearance with the value of (7.33).
  - Average of Compatibility of the city is the highest relative to Upgrading with the value of (Redevelopment).
- **After that it was calculated Total value of Average of Criteria Efficiency Value after proportional weight modification and the results were as following:**

- **Redevelopment:** obtained the highest value for the five previously defined criteria with a value of (35.32) .
- **Replacement:** with a value of (31.92).
- **Removable:** with a value of (30.92).
- **Clearance:** with a value of (30.72).

#### 4.4 Summary

- The criteria related to the development project in Makkah Al-Mukarramah were determined by studying and reviewing the previous literature related to this topic, and then developing a survey Sixty-eight experts participated in it, during both of them (5) basic criteria were identified as follows:
  - Comprehensiveness (Area, Residents, Place, Time).
  - Returns (Economic, Social, Both Economic & Social)
  - Project Time.
  - Cost (Economic, Social, both Economic & Social).
  - Compatibility (with costumes & Traditions, Goals -Values of the city).
  - After that, a method AHP (Analytical Hierarchy Process) was adopted to determine the relative weight of each criterion, and then a survey of experts was conducted to give a percentage for each criterion and accordingly, by comparing the results of this questionnaire with the relative weight of each criterion, the following was concluded:
    - Criteria (Comprehensiveness) comes first, followed by (Returns), then (Compatibility), then (Project time), and at the last comes (Cost).
    - After that, Total value of Average of Criteria Efficiency Value after proportional weight modification was calculated for each of (Methods associated with degraded urban areas



that suffer from environmental and urban problems, and Methods that bring about radical changes in the built environment), and we found that each of (Upgrading, and Redevelopment) is the highest value for the five criteria that were previously specified.

5

**CHAPTER FIVE: CONCLUSION AND  
RECOMMENDATIONS**

## **5. Conclusion**

The study examined the concept and characteristics of informal settlement areas, their role in providing housing to residents and the problems they face, and identify the informal settlement areas of Makkah Al-Mukarama city in relation to their size. Focus on investigating the reason for their creation is to analyze the current situation and analyze the opinions of experts, property developers and residents through a series of interviews, questionnaires and data on the location of informal settlements in Mecca Al-Mukarama.

The study attempted to determine the reasons for the emergence and spread of informal settlements in the city of Makkah Al-Mukarramah, their general characteristics and the problems that these areas suffer from, and shed light on the most important strategies used to develop these areas. Without resorting to the complete removal works, represented by the process of urban development of these areas. Where urban development criteria were extracted to preserve the built environment, which can be used to evaluate development strategies and judge their effectiveness and degree of success in directing development operations towards the desired goals.

The results of the research confirm that the urban development process must be a Comprehensiveness for (area, place, time, residents), in addition to that it must provide returns included (economic, social, both economic for the government and the population and social) Comprehensiveness, project time, provide also cost included (economic, social, both economic), and the urban development process must be compatible with the (customs and traditions, Goals - Values of the city of Makkah.

This study reached out that some of these strategies that would be effective to deal with informal settlement are to activate role of regulations and law to limit these informal settlement areas, also, providing rural areas with services and public utilities, including informal settlements in the general plan for the city, as well as providing these informal settlements with basic services as education and other.

## **5.1 Recommendations**

- The need to update regulations and laws for monitoring continuous encroachments on public and private lands and imposing appropriate penalties on violators with the aim of limiting the expansion of informal settlement areas in the city of Makkah Al-Mukarramah.
- Seeking to develop rural areas and provide them with services and public utilities to be suitable urban environments that contribute to reducing internal migrations to the holy city of Makkah and the spread of informal settlements therein.
- The need to try to contain informal settlements within the general plan of the city as much as possible and link them to services.
- The need to develop regulations for the urban development of informal settlement areas that will help specialists identify the mechanism for upgrading buildings and improving the general quality of life for residents on the economic and social level.
- The need to develop a special strategy to deal with informal settlements for each municipality.
- The necessity of local awareness and introducing the mechanisms of community participation and the preparation of local cadres and training courses in order to optimally activate the role of citizens to choose the most appropriate strategies for their communities and their needs.

- The necessity of granting municipalities the local authority, as it is the main party that has a direct relationship with citizens and neighborhood committees, and because of its important role in preparing notes and reports on citizens' visions and aspirations for local plans to deal with informal settlement.
- The need to take advantage of modern techniques and technology in knowing the opinions, needs and priorities of citizens to deal with their informal settlement areas in a way that guarantees shortening the time and transparent implementation based on the opinions of the majority and in accordance with the strategies used to deal with these areas.
- Providing informal settlements with basic services (educational, commercial, religious, cultural, etc...) and reforming the infrastructure and opening new plans to accommodate population growth.
- Not separating urban development projects from integration with the customs, traditions and values of the city within them, which ultimately lead to the integration of development and upgrading processes.

## References

**Abdel Alim, A.** (2007). Popular Participation and Sustainable Development Lessons from Informal settlements in Egypt, Housing Symposium -3 - Residential Neighborhood is More Than Just Housing, High Authority for the Development of Riyadh, p.639

**Abdel Alim, A.** (2007). Popular Participation and Sustainable Development Lessons from Informal settlements in Egypt, Housing Symposium -3 - Residential Neighborhood is More Than Just Housing, High Authority for the Development of Riyadh, p.639

**Abdel Wahed, M. M. , & Abdel Moneim, N.** (2019). State Policies in Developing Degraded Residential Areas and Their Sustainability: A Case Study: Al Asmarat Neighborhood and Maspero Triangle, King Abdulaziz University Journal: Engineering Sciences, 30(2), p.57-77

**Abdel Wahed, M. M. , & Abdel Moneim, N.** (2019). State Policies in Developing Degraded Residential Areas and Their Sustainability: A Case Study: Al Asmarat Neighborhood and Maspero Triangle, King Abdulaziz University Journal: Engineering Sciences, 30(2), p.57-77

**Abdel, S., & Eid, M.** (2004). Lessons learned from informal housing in the context of housing facilitation, published research, Journal of the Faculty of Engineering, Assiut University, p. 2

**Abdel, S., & Eid, M.** (2004). Lessons learned from informal housing in the context of housing facilitation, published research, Journal of the Faculty of Engineering, Assiut University, p. 2

**Abid, A., Nida ,H., & Meer, H .A.** (2018). New Urbanism and the City Planning, Implications of the Application of the New Urbanism Principles on the Land Uses in Al Karkh in Baghdad City, Postmodern Urban and Regional Planning in Iraq, p. 149-166

**Abid, A., Nida ,H., & Meer, H .A.** (2018). New Urbanism and the City Planning, Implications of the Application of the New Urbanism Principles on the Land Uses in Al Karkh in Baghdad City, Postmodern Urban and Regional Planning in Iraq, p. 149-166

**Aboul Gheit, H.** (2018). State policies to achieve sustainable development in informal settlements in Cairo Governorate, Journal of the College of Economics and Political Science, 19(2),p.208-232.

**Aboul Gheit, H.** (2018). State policies to achieve sustainable development in informal settlements in Cairo Governorate, Journal of the College of Economics and Political Science, 19(2),p.208-232.

**Abu Bakr, H. M.** (2007). Participation between private sector developers and residents in developing degraded areas in cities, Housing Symposium-5 - Residential neighborhood is more than just housing, High Commission for the Development of Riyadh, p.389

- Abu Bakr, H. M.** (2007). Participation between private sector developers and residents in developing degraded areas in cities, Housing Symposium-5 - Residential neighborhood is more than just housing, High Commission for the Development of Riyadh, p.389
- Ahdy ,A.** (2008). AN Analytical study of pattern of informal regions, Journal of Engineering Sciences, Assiut University,36(1), p. 233- 249
- Ahdy ,A.** (2008). AN Analytical study of pattern of informal regions, Journal of Engineering Sciences, Assiut University,36(1), p. 233- 249
- Ahmed, L. A. A..** (2001). The Upgrading of Valuable Heritage Domains, Master Thesis, Faculty of Engineering, Cairo University, p7
- Ahmed, L. A. A..** (2001). The Upgrading of Valuable Heritage Domains, Master Thesis, Faculty of Engineering, Cairo University, p7
- Akbar, J.** (1992). The Architecture of the Earth in Islam, Dar Al-Qibla for Printing and Publishing, Jeddah, p.109
- Akbar, J.** (1992). The Architecture of the Earth in Islam, Dar Al-Qibla for Printing and Publishing, Jeddah, p.109
- Al Fakhiri, A. M., Atallah. Th. & Wafaa, L.** (2019). A study "Urban Upgrading to Development of Random areas to a sustainable urban environment": Al -Hawari is a study case, the second engineering conference of the Syndicate of Engineering Professions in Zawia, p. 89-109.
- Al Fakhiri, A. M., Atallah. Th. & Wafaa, L.** (2019). A study "Urban Upgrading to Development of Random areas to a sustainable urban environment": Al -Hawari is a study case, the second engineering conference of the Syndicate of Engineering Professions in Zawia, p. 89-109.
- AL Qadie, J.** (2009). Random urbanization, Dar Al-Ain for Publishing and Printing, Cairo, first edition, p. 27
- AL Qadie, J.** (2009). Random urbanization, Dar Al-Ain for Publishing and Printing, Cairo, first edition, p. 27
- Al-Anzi, F., Al-Anzi, O., &Al-Zamel, W.** (2016). Policies for Rehabilitation of Informal settlements in Arar District: Al-Aziziyah Neighborhood as a Case Study, p.1-14.
- Al-Anzi, F., Al-Anzi, O., &Al-Zamel, W.** (2016). Policies for Rehabilitation of Informal settlements in Arar District: Al-Aziziyah Neighborhood as a Case Study, p.1-14.
- Al-Hamdan, I. Y.** (1999). The housing need of the city of Baghdad, unpublished doctoral thesis, Institute of Urban and Regional Planning, University of Baghdad, p. 73
- Al-Hamdan, I. Y.** (1999). The housing need of the city of Baghdad, unpublished doctoral thesis, Institute of Urban and Regional Planning, University of Baghdad, p. 73
- Al-Jubouri, H., &M. Sh.** (2008). The phenomenon of random housing in some Arab cities (analytical study of the causes of emergence and planning perceptions of treatment possibilities), Master's thesis, Urban and Regional Planning Institute, University of Baghdad, p.83

**Al-Jubouri, H., & M. Sh.** (2008). The phenomenon of random housing in some Arab cities (analytical study of the causes of emergence and planning perceptions of treatment possibilities), Master's thesis, Urban and Regional Planning Institute, University of Baghdad, p.83

**Al-Kaabi, M.** (2019). Applied solutions to address random housing in the city of Basra, University of Basra, College of Education for Girls, Arabian Gulf Magazine,47(3-4), p. 362-412

**Al-Kaabi, M.** (2019). Applied solutions to address random housing in the city of Basra, University of Basra, College of Education for Girls, Arabian Gulf Magazine,47(3-4), p. 362-412

**Al-Masry, H., & Hawass, F.** (2003). The negative impact of random extensions and how to treat them, Fifth International Architectural Conference: Urbanism and Environment, Assiut University, Assiut, Egypt, p.2-69

**Al-Masry, H., & Hawass, F.** (2003). The negative impact of random extensions and how to treat them, Fifth International Architectural Conference: Urbanism and Environment, Assiut University, Assiut, Egypt, p.2-69

**Al-Mohammed, F., & Al-Zamil, W.** (2020). Challenges of developing marginal informal settlements in the Al-Jouf region from the reality of municipal work, College of Engineering, Al-Jouf University, p.1-145.

**Al-Mohammed, F., & Al-Zamil, W.** (2020). Challenges of developing marginal informal settlements in the Al-Jouf region from the reality of municipal work, College of Engineering, Al-Jouf University, p.1-145.

**Al-Momeni, S. A.** (2000). The role of the Public Corporation for Housing and Urban Development in housing production, a working paper presented within the proceedings of the Housing Sector Assessment Symposium, Amman, p. 152

**Al-Momeni, S. A.** (2000). The role of the Public Corporation for Housing and Urban Development in housing production, a working paper presented within the proceedings of the Housing Sector Assessment Symposium, Amman, p. 152

**Al-Qubati, S. A.** (2002). Urban development and the phenomenon of informal housing, the first engineering conference, College of Engineering, Sana'a University, p. 170

**Al-Qubati, S. A.** (2002). Urban development and the phenomenon of informal housing, the first engineering conference, College of Engineering, Sana'a University, p. 170

**Al-Sarafandi, F.M,** previous reference, p.28

**Al-Sarafandi, F.M,** previous reference, p.28

**Al-Sarafandi, F.M. (2011).** Strategies for Developing Informal settlements in Gaza Governorate: A Case Study - Al-Mughraqa, College of Engineering, Islamic University of Gaza, p.27

**Al-Sarafandi, F.M. (2011).** Strategies for Developing Informal settlements in Gaza Governorate: A Case Study - Al-Mughraqa, College of Engineering, Islamic University of Gaza, p.27

**Al-Zamel ,W.** (2018). Characteristics of informal settlements near the Haram al-Sharif in Makkah Al-Mukarramah: Quoz Al-Nakasah Case Study, Architecture and Planning magazine, 30(2), p.247-273

**Al-Zamel ,W.** (2018). Characteristics of informal settlements near the Haram al-Sharif in Makkah Al-Mukarramah: Quoz Al-Nakasah Case Study, Architecture and Planning magazine, 30(2), p.247-273



**Al-Zanbarakji, L.**, previous reference, p.24

**Al-Zanbarakji, L.**, previous reference, p.24

**Al-Zanbarakji, L.** (2016). Analytical study of the structural and urban applications in reconstruction towards local planning: A case study of the eastern region of the city of Damascus, Faculty of Architecture, Damascus University, p.26

**Al-Zanbarakji, L.** (2016). Analytical study of the structural and urban applications in reconstruction towards local planning: A case study of the eastern region of the city of Damascus, Faculty of Architecture, Damascus University, p.26

**Baghdad Municipality.** (2008). Random housing, an unpublished study, p.7

**Baghdad Municipality.** (2008). Random housing, an unpublished study, p.7

**Beltayab, K.** (2017). Urban upgrading in the informal settlements of the city of Khenchela: a case study of Al-Hasnawi neighborhood, Oum El Bouaghi University, p.8

**Beltayab, K.** (2017). Urban upgrading in the informal settlements of the city of Khenchela: a case study of Al-Hasnawi neighborhood, Oum El Bouaghi University, p.8

**Ben Slimane, R.** (2009). Urban improvement tidal city, Mentouri University, Constantine, p. 14

**Ben Slimane, R.** (2009). Urban improvement tidal city, Mentouri University, Constantine, p. 14

**Daief, M. Ayman, A. M.,** previous refrence, p. 8

**Daief, M. Ayman, A. M.,** previous refrence, p. 8

**Dhaif, M. A.** (2001). Informal settlement development strategy, published research, Journal of the Faculty of Engineering, Beirut University, Beirut, p. 6-7

**Dhaif, M. A.** (2001). Informal settlement development strategy, published research, Journal of the Faculty of Engineering, Beirut University, Beirut, p. 6-7

**Egyptian Ministry of Housing, Utilities and Urban Development, General Authority for Urban Planning.** (1993). towards a unified definition of random housing, Cairo, p. 2

**Egyptian Ministry of Housing, Utilities and Urban Development, General Authority for Urban Planning.** (1993). towards a unified definition of random housing, Cairo, p. 2

**Hafiz, L.** (2009). New Cities and the Problem of Urban Housing, Master's Thesis, Faculty of Social Humanities, Mentouri University, Constantine, Algeria, p. **62 - 93**

**Hafiz, L.** (2009). New Cities and the Problem of Urban Housing, Master's Thesis, Faculty of Social Humanities, Mentouri University, Constantine, Algeria, p. **62 - 93**

**Helali, A.** (2020). The living conditions of the families of informal settlement dwellers in the holy city of Makkah: a field study on the Darb Al-Mashaer area, Umm Al-Qura University, Umm Al-Qura,p.1-65.

**Helali, A.** (2020). The living conditions of the families of informal settlement dwellers in the holy city of Makkah: a field study on the Darb Al-Mashaer area, Umm Al-Qura University, Umm Al-Qura,p.1-65.

- Jais, A. M. A., & Ahmed, K. A. N.** (2000). A study for the development of informal settlements in the Egyptian city - a case study on the Al-Ghanama Darb in Assiut, Fourth International Architectural Conference, Assiut University, Assiut, p.2-38
- Jais, A. M. A., & Ahmed, K. A. N.** (2000). A study for the development of informal settlements in the Egyptian city - a case study on the Al-Ghanama Darb in Assiut, Fourth International Architectural Conference, Assiut University, Assiut, p.2-38
- Khalil, A.H.** (2015). The right to housing as an entrance to the development of informal settlements, "Arab and international experiences, p.1-28.
- Khalil, A.H.** (2015). The right to housing as an entrance to the development of informal settlements, "Arab and international experiences, p.1-28.
- Khroufa, O. H.** (2014). Urban Renewal Policies According to Sustainability Principles: An Evaluation of Traditional Cities - Mosul as a Model, Al-Qadisiyah Journal of Engineering Sciences,7(3),105-133
- Khroufa, O. H.** (2014). Urban Renewal Policies According to Sustainability Principles: An Evaluation of Traditional Cities - Mosul as a Model, Al-Qadisiyah Journal of Engineering Sciences,7(3),105-133
- Mukhasha, M., & Al-Zamel, W.** (2018). The strategic principle for the development of marginal areas in Makkah Al-Mukarramah: Al-Shara'i Al-Muhajireen neighborhood a case study, Emirates Journal for Engineering Research,24(1), p.1-10.
- Mukhasha, M., & Al-Zamel, W.** (2018). The strategic principle for the development of marginal areas in Makkah Al-Mukarramah: Al-Shara'i Al-Muhajireen neighborhood a case study, Emirates Journal for Engineering Research,24(1), p.1-10.
- Munir, A.** (1997). Policies of Shelter for the Urban Poor, Architectural Scientific Journal, ninth and tenth issues, Faculty of Engineering, Beirut University, p.9
- Munir, A.** (1997). Policies of Shelter for the Urban Poor, Architectural Scientific Journal, ninth and tenth issues, Faculty of Engineering, Beirut University, p.9
- Mutlaq, B.** (2016). Determining proposals to solve the problem of squatter housing, an analytical study of the city of Baghdad for the period from (33), Journal of the Scheme and Development, p.84-118
- Mutlaq, B.** (2016). Determining proposals to solve the problem of squatter housing, an analytical study of the city of Baghdad for the period from (33), Journal of the Scheme and Development, p.84-118
- NurAlden, M. E., Dahlan, A S. & Nassif, A. A.** (2009). Public Participation Efficiency in Informal Settlements for Upgrading Participation as an Approach to upgrade Informal Settlements in Jeddah, Saudi Arabia, Journal of Building Technology. 8-9
- NurAlden, M. E., Dahlan, A S. & Nassif, A. A.** (2009). Public Participation Efficiency in Informal Settlements for Upgrading Participation as an Approach to upgrade Informal Settlements in Jeddah, Saudi Arabia, Journal of Building Technology. 8-9
- Patel K.** (2013). A successful informal settlement upgrade in Durban: A case of formal change and informal continuity, Habitat International, 40, p. 216

**Patel K.** (2013). A successful informal settlement upgrade in Durban: A case of formal change and informal continuity, Habitat International, 40, p. 216

**Report of the Organization (Al-Habitat) of the United Nations.** (2003). Commission on Human Settlements.

**Report of the Organization (Al-Habitat) of the United Nations.** (2003). Commission on Human Settlements.

**Rihan, G. M.** (2000). Upgrading processes in informal settlements in the effectiveness of the implementation of plans - With a special mention for Al-Munira Al-Gharbia, Giza Governorate, Master's thesis, University of Cairo, p.50

**Rihan, G. M.** (2000). Upgrading processes in informal settlements in the effectiveness of the implementation of plans - With a special mention for Al-Munira Al-Gharbia, Giza Governorate, Master's thesis, University of Cairo, p.50

**Informal settlements in Aleppo from the Syrian-German Technical Cooperation Program for Sustainable Urban Development.** (2009). The Integrated Urban Development Project in Aleppo, p.8

**Informal settlements in Aleppo from the Syrian-German Technical Cooperation Program for Sustainable Urban Development.** (2009). The Integrated Urban Development Project in Aleppo, p.8

**Touma, G.** (2013). Factors affecting the emergence of informal settlements and upgrading policies, Tishreen University, Tishreen University Journal for Research and Scientific Studies, 35(3),p. 47-76

**Touma, G.** (2013). Factors affecting the emergence of informal settlements and upgrading policies, Tishreen University, Tishreen University Journal for Research and Scientific Studies, 35(3),p. 47-76

**UN-Habitat.** (2003), The Challenge of Informal settlements: Global Report on Human Settlements, Earth scan Publications. URL: [https://www.un.org/ruleoflaw/files/Challenge %20 ofpercentage20Informal settlements.pdf](https://www.un.org/ruleoflaw/files/Challenge%20ofpercentage20Informal%20settlements.pdf). Accessed on 3.12.2019

**UN-Habitat.** (2003), The Challenge of Informal settlements: Global Report on Human Settlements, Earth scan Publications. URL: [https://www.un.org/ruleoflaw/files/Challenge %20 ofpercentage20Informal settlements.pdf](https://www.un.org/ruleoflaw/files/Challenge%20ofpercentage20Informal%20settlements.pdf). Accessed on 3.12.2019

**United Nations Human Settlements Program.** (2003). Urban Development Strategies, Nineteenth Session, p. 40-48

**United Nations Human Settlements Program.** (2003). Urban Development Strategies, Nineteenth Session, p. 40-48

**United Nations, ESCWA,** previous reference, p. 24

**United Nations, ESCWA,** previous reference, p. 24

**United Nations, ESCWA.** (2003). Housing Policies and Urbanization, New York, p. 6-8

**United Nations, ESCWA.** (2003). Housing Policies and Urbanization, New York, p. 6-8

**World Cities Report.** (2016), Urbanization and Development, Emerging Futures, UN-Habitat, Nairobi, Africa. URL: <https://unhabitat.org/wp-content/uploads/2014/03/WCR-%20Full-Report-2016.pdf>. Accessed on 23.10.2019

**World Cities Report.** (2016), Urbanization and Development, Emerging Futures, UN-Habitat, Nairobi, Africa. URL: <https://unhabitat.org/wp-content/uploads/2014/03/WCR-%20Full-Report-2016.pdf>. Accessed on 23.10.2019

**Yassin, S. M., Mohamed, O. H., & Abuqrain, A.** (2018). Appropriate urban policies to deal with informal settlements in the cities of northern Upper Egypt, *Minia Journal of Engineering & Technology*, 37(1), p.43-72

**Yassin, S. M., Mohamed, O. H., & Abuqrain, A.** (2018). Appropriate urban policies to deal with informal settlements in the cities of northern Upper Egypt, *Minia Journal of Engineering & Technology*, 37(1), p.43-72

**Nazrul Fattah, K., & Walters, P.** (2023). Locating agency at the urban grassroots: Resistance and reworking in the everyday politics of informal settlements. *Geoforum*, 141(December 2022), 103703. <https://doi.org/10.1016/j.geoforum.2023.103703>

**Sofianou, P.-K.** (2015). Regeneration of Informal Settlements towards Sustainability: A Case Study Paraskevi-Kali SOFIANO, Greece. *Challenges of the Modern World Sofia, May*, 17–21. [http://www.fig.net/resources/proceedings/fig\\_proceedings/fig2015/papers/ts02i/TS02I\\_sofianou\\_7627.pdf](http://www.fig.net/resources/proceedings/fig_proceedings/fig2015/papers/ts02i/TS02I_sofianou_7627.pdf)

Abdul Samie E. (2004). Informal housing: Concepts and models. Egyptian Society for Planning and Development.

Akbar J. (1992). The crisis of the unorganized areas. Egyptian National Housing Association, Cairo.

Daief M A. (2001). Crisis of informality in Egyptian settlements. Doctoral thesis, Department of Architecture, Faculty of Engineering, Ain Shams University.

Egyptian Ministry of Housing Utilities and Urban Development. (1993). Upgrading informal areas. Scientific conference on upgrading informal areas.

Nazrul Fattah, N., & Walters, B. A. (2023). Developing a New Framework for Understanding the Formation and Typology of Informal Settlements. *International Journal of Urban Sustainable Development*.