

# Analyzing affordable housing programs and projects in Egypt in the light of the positives of global experiences

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## Abstract

The concept of housing in many countries has become more comprehensive than many simple considerations by which the house itself can be defined. The concept has expanded to include the possibility of achieving housing for economic, social and urban appropriateness, although housing from the point of view of some people see housing as a product or commodity that has material characteristics in terms of price and construction costs only, but the goal of housing projects should not provide housing only, it must meet multiple economic, social and urban needs [1], as housing is a system in which the economic, social, urban, organizational, administrative, design and planning aspects are integrated, and any deficiency in one of them leads to a defect in the plans and projects raised to solve this problem.

It is worth noting that housing policies used in some countries, including Egypt, do not cover some or all of the previous aspects, which entails the emergence of many housing problems in each of them, especially in the field of affordable housing projects, and then many countries of the world have developed various plans and projects to subsidize and funding for low-income and poor families to obtain adequate shelter is at its lowest levels

## 1. Introduction

The opportunity to obtain suitable housing has become extremely difficult for many categories of Egyptian society, especially the low-income group, where the lack of an integrated housing policy for urban development included integrated programs and projects linking between housing and sustainability led to deficiency in providing adequate housing meeting the urban needs [2], [3] for different classes of people, especially the low-income group.

**Research problem:** Whereas the affordable housing programs for the youth and low-income groups established in the new Egyptian cities did not achieve the required urban efficiency and economic suitability For the low-income group, this research dealt with this problem, analyzed its causes and presented some appropriate solutions to it by studying some experiences at the global level in the field of affordable housing

**Research objective:** The aim of the research paper is to determine the factors of success of housing plans and programs that can be applied in the new Egyptian cities in light of studying and evaluating some of the housing projects implemented in some countries at the global level by identifying the strengths and weaknesses of these projects, and extracting a set of criteria to evaluate the Egyptian experience

**Research Methodology** The methodology used was based on theoretical thought and its emphasis on practical reality, through

a presentation of urbanization, affordable housing, poor and low-income people problems in Egypt. and then listed the plans and programs of affordable housing followed in the new Egyptian cities, followed by an analytical study of some international experiences in affordable housing projects and extract criteria for preparing affordable housing projects to reach a set of results that represents the strengths and weaknesses that can be taken into account in the Egyptian experience, and finally put some recommendations that help in the development of affordable housing projects and programs in Egypt in the light of lessons learned from global experiences in order to achieve the urban efficiency and economic suitability desired for the low-income group

### The research paper study this problem as follows:

1. Basic definitions (poverty - low-income people - urbanization - affordable housing)
2. The problem of affordable housing in Egypt.
3. Theoretical study of the Egyptian experience in the new cities.
4. An analytical study of some international experiences (Thailand - India - Algeria - Jordan).
5. Criteria for preparing affordable housing projects.
6. Analysis and evaluation of various global experiences.
7. Comparing and evaluating the Egyptian experience in light of analyzing and evaluating the various international experiences.
8. Results and Recommendations.

## 2. Basic definitions

It is important, before starting to present the research problem, to review some basic concepts related to the problem of affordable housing, including: poverty - low-income people in Egypt - urbanization - affordable housing.

**2.1. Poverty** is defined as the situation arising from insufficient income for individuals to provide their basic needs [4], in the Central Agency for Public Mobilization and Statistics (capmas) study of poverty indicators about income, expenditure and consumption for 2017 / 2018 the national poverty limit for the individual increased from 482 pounds [person /month] in 2015 to 66 pounds [person /month] in 2017/2018 , That is, a family of five needs 3678 pounds a month in order to meet their basic needs [5].

**2.2. Low-income class** (target class of the study) defined as whose income does not match its living requirements, and it does not have the possibilities of obtaining adequate housing through the formal market mechanisms for housing [6].

In 2017, the Central Bank established a classification for the Egyptian society according to the income within the regulations of the Central bank's initiative for mortgage, as shown in (Table 1), which indicates that the family with a minimum monthly income of 4,750 pounds is a family with limited income [7], Finally, the study of the Central Agency for Mobilization and Statistics of income, spending and consumption in 2017/2018 approved a decrease in the average monthly family income from 3682 pounds (441993.8 pounds per year) in 2015 to 2986 pounds (35839.1 pounds per year) in 2017/2018 with a decrease of 18.9 % [8].

**Table 1:** Egyptian society categories, according to income [7].

categories of income	minimum monthly income
above the middle	20 , 000
Middle income	14 , 000
low-income 2	4 , 750
low-income1 "poor"	> 2,100

**2.3. Urbanization** is increasing concentration of population in cities and urban areas as a result of migration from rural to urban areas searching for jobs and better life [9].

**2.4. Affordable housing** is the suitable housing for the needs of low-income families, which its cost is appropriate to their financial conditions, and does not exceed 25: 30 % of the income of individuals so that they can meet others basic living costs [10],[11]. The rate of demand for affordable housing in Egypt is estimated at 70 % compared to the total number of housing units required in Egypt's in 2017 [12].

In 2017, the Egyptian Central Agency for Public Mobilization and Statistics "capmas" announced that affordable housing ranked first according to the quality of construction, with 186.2 thousand units, or 58.7 %, followed by the middle housing with 96 thousand units at a rate of 30.2 %, then housing above the middle with 25.3 thousand units at a rate of 8 %, and in the last rank in terms of the number came luxury housing with 9,8 thousand units at a rate of 317.2 % the general total of implemented housing units during 2016/2017 [13] as shown in (Table 2)

**Table (2)** Number of housing units between 2016- 2017 [13].

Type of Housing	housing units number "thousand"
low	0
Affordable	186,2
middle	96
above middle	3.25
deluxe	9.8
total	317,2

## 3. Affordable housing problem in Egypt.

Urbanism represents a true reflection of the economic, political and social conditions of society, and Egypt has been suffering not so long ago from the housing problem and the issue of providing adequate health housing for all categories of society, However, that problem may not appear in luxury housing, where housing units are available that suit the desire and purchasing power of the high income class, but the real problem appears with regard to the low-income class that represents a broad class of Egyptian society due to the limited purchasing power that enables them to provide housing units suitable for their economic potential

(Table 3) includes some statistics that clarify the size of the affordable housing problem in Egypt and its impact on the existing urban area through: population conditions, monthly

**Table 3:** Factors affect the housing problem in Egypt (Demographic, monthly income and deficit in affordable housing units).

		A statement of the situation in Egypt
Population Conditions	Population	<ul style="list-style-type: none"> <li>Population 98, 10 million inhabitants in 2019.</li> <li>In the case of continuation of the demographic increasing on the current level, Egypt will add to the current population of about 23 million people by 2025, and almost 45 million people by 2050 [14].</li> </ul>
	The density	<ul style="list-style-type: none"> <li>Inhabited population density is 1162,9 person/km2, while the total population density 4.90/km2</li> </ul>
	Urbanization	<ul style="list-style-type: none"> <li>The urbanization rate 38.8% in 2017.</li> </ul>
	Poverty	<ul style="list-style-type: none"> <li>The poverty rate 27.8 % in 2017.</li> </ul>
	Income	<ul style="list-style-type: none"> <li>In 2017 led to major political and economic changes experienced by the country, accompanied by a big rise in the dollar and the flotation of the Egyptian pound to the high incidence of poverty, where the per capita income of 900 pounds a month, which equals \$60 under the poverty line, the family of 5 people income is 4,500 pounds per month is poor [15].</li> </ul>
	The deficit in the housing units	<ul style="list-style-type: none"> <li>According the World Bank studies about undeveloped areas in Egypt, the indicators of the annual deficit in the supply side of affordable housing units indicated that need for 300,000 housing units a year between the years 2005 until 2017, and there remains an annual deficit of up to 220 thousand units for low income between 2005 and 2017 [16].</li> <li>The decrease in number of housing units during the period 2016- 2018 of 186200 units to 169754 units [16].</li> </ul>

income, and deficit in affordable housing units.

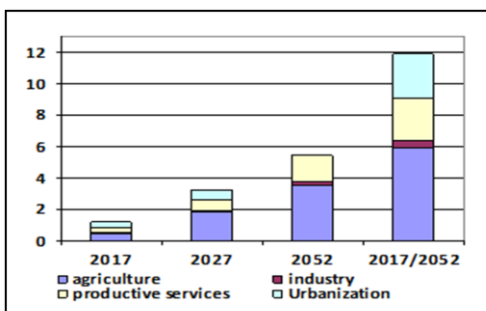
By analysis of the previous (Table 3), it became clear the following

- The increase of the population to 98.10 million people in 2019 [17], which was accompanied by the increase in population density to 98.4 people / km<sup>2</sup> [18], the spread of the phenomenon of urbanization in many cities until it reached 38.8% [19] of the total
- The poverty rate increased in 2017, as the major political and economic changes that happened, which were accompanied by a large rise in the price of the dollar and the floating of the Egyptian pound, led to an increase in the poverty rate, as the individual who had an income of 900 pounds per month (equals 60 dollars) below the poverty line, and a family of 5 people whose income is 4,500 pounds a month is a poor family [20].
- World Bank studies on urbanization in Egypt have determined that indicators of deficits in the annual supply of housing units indicate that there is a need for 300 thousand units per year nationwide between 2005 and 2017. Also, there remains an annual deficit of 220 thousand units for low-income people during the same period [15].
- The number of implemented affordable housing units decreased during the period 2016-2018 from 186,200 units to 169,754 units [16].

In view of the overcrowded population and the limited built-up area, the state tended to develop a strategy for urban, economic and social development aims to double the urban space in Egypt during 40 years (2012/2052) to reach 11% instead of 8,37%, Where the total area required to accommodate the population increase and its activities during that period is estimated at 12 million acres, of which 1.1 million acres is required to be provided during the urgent period (2012/2017) [21] as shown in (Table 4) and (Figure 1).

**Table 4:** Future needs of the urban area to accommodate the increase in population and various activities in the period from 2017 until 2052 in Egypt [21].

sectors	Land needs (million acres) in 2017	future land needs (million acres) 2027	future land needs (million acres) 2052	total future needs (million acres) 2017 /2052
agriculture	0.5	1.8	3.5	5.9
industry	0.07	0.1	0.25	0.5
productive services	0.3	0.7	1.7	2.6
urbanization	0.3	0.6	2,00	2.9
<b>total</b>	<b>17.1</b>	<b>3.2</b>	<b>6.6</b>	<b>11.9</b>



**Figure 1:** Urban land required to accommodate the population increase and its activities in Egypt from 2017- 2052 [21].

#### 4. A theoretical study of the Egyptian experience in new cities

In the context of finding solutions to the housing problem and achieving the goal of equal access to adequate housing at an affordable price for the economic situation of the low-income class, the government has implemented since 1996 successive groups of housing projects in new cities the state bears about 40% of the cost of this unit, including utilities and services, in order to provide adequate housing for the low-income group, the most important of these projects (Mubarak housing for youth - developed affordable housing - future housing - free housing project - national housing - social housing)

The following is a presentation of the Egyptian experience through the problem of affordable housing in Egypt, plans and programs used in Egypt, affordable housing projects implemented in the new Egyptian cities

##### 4.1. Housing plans and programs used in Egypt

The lack of an integrated housing policy for urban development and a clear strategy that includes integrated programs between housing and settlement have resulted in the failure of those programs and projects to meet urban needs and providing adequate housing for the various classes of the people, especially the low-income group [3], [2] where successive Egyptian governments followed a set of plans and projects that are developed and implemented according to the political conditions in the country, This is evident in the fact that the majority of studies that dealt with the history of housing policies in Egypt find that they divide the stages of those policies according to time periods during which the state went through a set of prominent policy changes, on the basis of which programs and projects are developed that suit each stage.

The most prominent stages which the state has political changes that have a direct and clear impact on the programs followed in affordable housing projects are:

**a. First stage Pre-War 1973 war preparation period:** This period was marked by the trend of the state's economy to equip the army in preparation for war. The state possessed the capabilities that would make it able, without others, to accomplish what individuals cannot achieve in all sectors, including the housing sector, Where it relied on the central administration policy by the state that was the only one responsible for developing housing plans in terms of design, construction, maintenance and management [22].

**b. Second stage from 1973 to 1981 the "Economic opening period":** That stage witnessed a major economic recovery in the country, and the government moved to a policy of consolidating the enabling approach to work by individual participation and private sector with public sector in building their houses.

**c. Third stage from 1981 to 2017 "the political stability period, the 2011 revolution and beyond":** One of the most important features of that period is the consolidation of the

mixed capitalist trend that dominated dealing with all issues of society, the most important of which is the housing issue., After realizing housing units was the responsibility of the state alone, that problem became the responsibility of the individuals who represent the demand side, and the private sector (the investor) and the civil society that represents supply side.

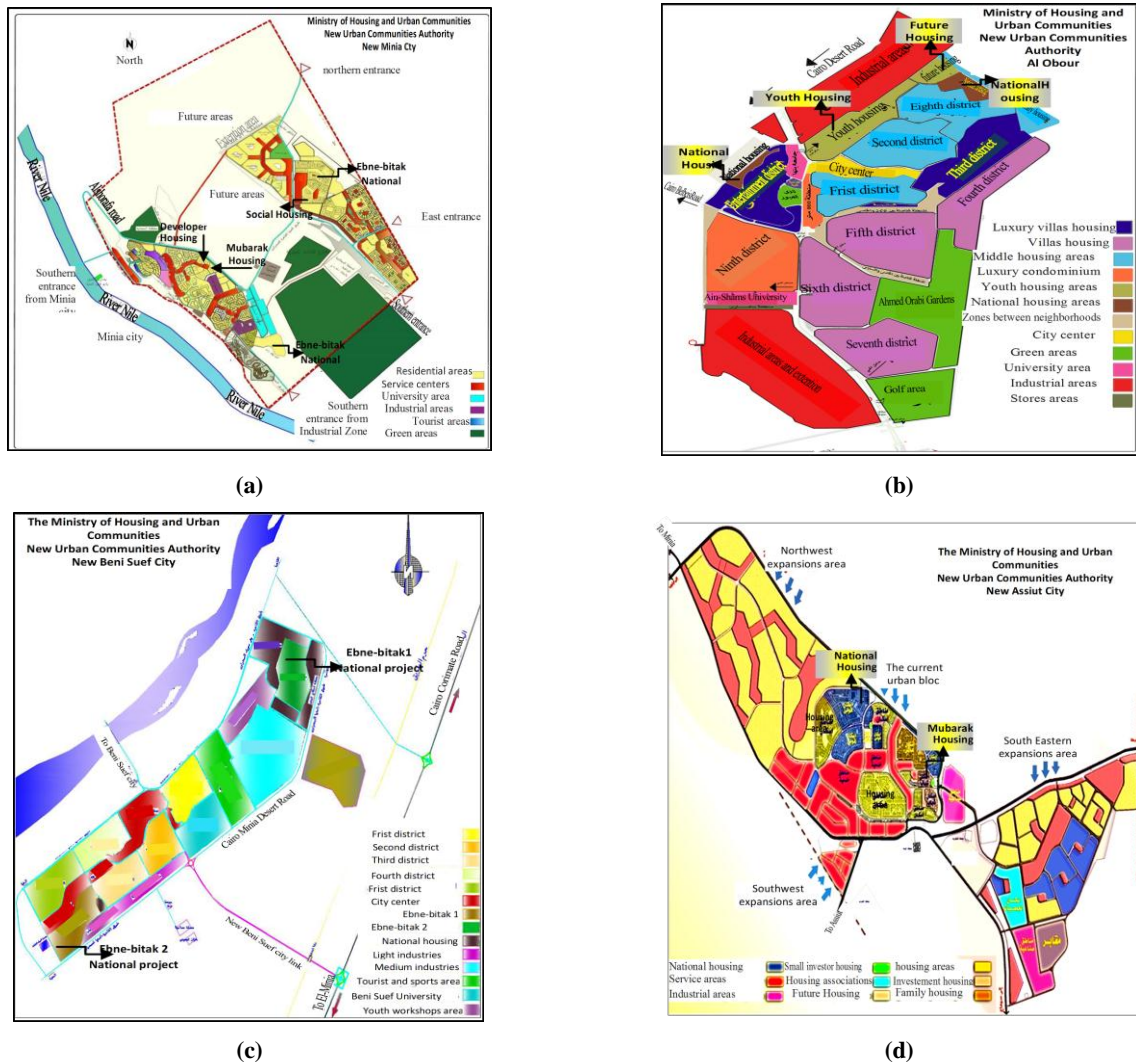
The main entities involved in providing housing and financing these projects are in the following entities [23]:

- **The government:** Represented by the Ministry of Housing, Utilities and New Urban Communities, which is the supervisor of localities, governorates, The New Urban Communities Authority”, the Ministry of Social Solidarity, the Ministry of Endowments, the Housing Finance Fund funded by the state budget and the Construction Bank.
- **Private sector:** Represented by investors involved in some affordable housing projects.
- **Individuals:** shows in participation of individuals in building many housing units, whether it is formal housing that individuals build within planned areas in existing or new cities, or informal housing, which are illegal housing projects.
- **Civil Society:** In the recent period, the role of the "Together

for the Development of Slums" institution has emerged as a non-profit organization registered with the Ministry of Solidarity, aiming to build integrated societies from affordable housing, services and livelihoods in new cities, residents of dangerous and unsafe areas are transferred to them within the framework of a program supervised by the Slum Development Fund.

**4.2. Affordable housing projects implemented in new Egyptian cities**

By studying and analyzing affordable housing projects in new Egyptian cities, which included Mubarak’s housing projects, developed affordable housing, future housing, free housing, the national housing project, and the social housing project, the research presents in (Figure 2 - a,b,c,d) projects sites in some new cities, and (Figure 3) shows Models of some projects, then (Table 5) explains a study of the plans followed" in each project, with regard to the goals, the parties involved in implementation and the funding and subsidy, in order to reach weaknesses and strengths in the plans followed in each of them, in preparation for comparison with what was followed with other global experiences



**Figure 2- a,b,c,d:** Affordable housing projects sites in some new Egyptian Cities





Figure 3: Models of Affordable housing projects in some new Egyptian cities

Table 5: Comparison between the affordable housing projects implemented in new Egyptian cities

	housing Mubarak [24, 25]	economic developer [26, 27]	Future Housing [25]	free housing [28]	national project for housing [28,28,29]	Social Housing [30, 31,32,33]
project objective	Establishing 74,433thousand units with an area of 63m2 for youth and low-income groups with soft financial loans subsidized by the state	Establishing 5,260 housing units with an area of 63 m2 for low-income youth.	Establishing 15636 thousand housing units with an area of 63 m2 for low-income youth, on lands liking with facilities	Establishing 3483 housing units to accommodate low-income families at a price that suits their economic potential	Establishing 500 thousand housing units for youth and low-income people, with an area of 63m2	Establishing one million housing units for low-income people with an area of 63 m2, and residential plots with full facilities covering an area of 250 m2 and 300 m2
Implementation actors	<ul style="list-style-type: none"> <li>public sector "New Urban Communities Authority"</li> </ul>	<ul style="list-style-type: none"> <li>public sector "New Urban Communities Authority"</li> </ul>	<ul style="list-style-type: none"> <li>public sector "New Urban Communities Authority"</li> </ul>	<ul style="list-style-type: none"> <li>public sector "New Urban Communities Authority"</li> </ul>	<ul style="list-style-type: none"> <li>public sector "New Urban Communities Authority"</li> <li>private sector "investors"</li> <li>individuals</li> </ul>	<ul style="list-style-type: none"> <li>public sector, "New Urban Communities Authority"</li> <li>private sector "investors."</li> </ul>
funding and support the	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>*The investment value of the project 4 million pounds:</li> <li>* The state bears about 1.5 billion pounds to subsidize youth .</li> <li>*Land is provided free, as the subsidy does not include the cost of the land.</li> <li>*The state bears (20: 45%) of the cost of the unit, the cost of the unit (51 to 28.5 thousand pounds) subsidize ranges from15000 to 20,000pounds) in accordance the unit area.</li> </ul>	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>The beneficiary of the housing unit has two loans:</li> <li>*A cooperative loan of 15 thousand pounds, with 5% interest, payable over a period of 40 years.</li> <li>*supplementary loan of 10 thousand pounds without interest, to be paid over 40 years, at a premium of 80 pounds per month.</li> </ul>	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>*Total cost of 1.2 mealier pounds.</li> <li>*The beneficiary bears15,000 pounds from the unit cost with a reservation provider up to 1000 pounds only.</li> <li>*The youth enjoys obtaining a cooperative loan of 14,000 pounds, to be paid in monthly installments of no more than 67 pounds per month, with an annual interest of 5%.</li> </ul>	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>*The beneficiary of the housing unit enjoys a cooperative loan of 15thousand pounds, payable over 40 years, with an interest of 5%.</li> </ul>	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>*The state provided direct support 1 million pounds annually to implement the housing units.</li> <li>*The beneficiary of the unit has an amount of 15,000-25,000pounds, a non-refundable grant.</li> <li>*The citizen pays 5,000 pounds as a reservation provider for the unit and then pays a monthly premium after receiving the unit of 160 pounds at an interest that increases by 7.5% for a period of 20 years.</li> </ul>	<ul style="list-style-type: none"> <li>public sector "The state"</li> <li>The estimated cost of the project is 150 million pounds.</li> <li>*The Real Estate Finance Fund offers "subsidy of 25 thousand pounds according to the income of the citizen".</li> <li>*The central bank, through real estate banks, contributed 7%discount interest and does not change throughout the financing period.</li> <li>*The Engineering Authority of the Armed Forces contributed 2 mealier pounds</li> <li>*The New Urban Communities Authority contributed 12.1 mealier pounds</li> <li>*The Central Development Authority contributed 5.8 mealier pounds</li> </ul>
			<ul style="list-style-type: none"> <li>private sector "business men"</li> <li>'Future association' provided subsidie amounting to 1 mealier pounds .</li> </ul>			<ul style="list-style-type: none"> <li>Civil Society.</li> <li>*The UAE government provided a grant to construct 50,000 housing units</li> <li>* The citizen pays the provider5,000pounds, and pays 15% of the unit price within a month, and a monthly premium starts from 480 pounds, with an annual increase of 7% as a maximum for 15 years .</li> </ul>

### We conclude from the previous (Table 5) the following:

- All projects were similar in their occurrence at the outskirts of the new cities, they lack the road network that connects them with the rest of the city or the mother city, and they are located far from the services in the city.
- The main goal in all projects was to provide housing only, without thinking about creating an integrated community with job opportunities that help in settling in the new society.
- The common feature of all housing projects is that the public sector is the main body responsible for implementing and financing in all projects except some projects in which other sectors have participated, like:
  - "Future housing" was co-financed by businessmen.
  - "National Housing project" was co-funded by investors and individuals.
  - "Social housing project" was co-funded by the private sector.
- All projects relied on the public sector for "project financing and subsidizing" except "Future housing" as the private sector provided "businessmen" financing for the project, we also find the participation of civil society in "Social housing project" through the Emirati grant provided by the United Arab Emirates in the establishment of the project.

**After presenting** the housing problems in Egypt, plans and programs and affordable housing projects in new Egyptian cities, the research will show an analytical study of global experiences through a presentation of affordable housing problems, analyzing plans, programs and projects in different countries, and devising criteria to evaluate these experiences and compare them with the Egyptian experience.

## 5. An analytical study of global experiences

This part of the research deals with analyzing some affordable housing projects in some countries, "Thailand, India, Algeria, and Jordan", through reasons for choosing those experiences, problems of affordable housing, review the plans and programs used, and explain affordable housing projects implemented in different global experiences, then analyze and evaluate each one of them.

### 5.1. Reasons for choosing countries

These countries were chosen for the success of these experiences in dealing with affordable housing projects, and the

similarities between them and Egypt in some problems they face in the issue of affordable housing as follows:

**a. Thailand:** is a developing country with a high rate of urbanization, and suffering from the deficit in affordable housing, but its plans for developing low-income housing projects were notable, especially in encourage people to live in new urban areas, and using new methods of construction to reduce costs to be appropriate for the financial conditions of low-income people.

**b. India:** is a developing country suffering from the population increases and the corresponding increase in poverty ratio and the deficit in affordable housing available to the poor and low-income groups.

**c. Algeria:** suffers from a very high rate of urbanization, especially in its major cities, with a shortage of affordable housing units. Also, the Algerian experience was internationally evaluated and won the UNESCO Prize as the best cooperative housing for low-income people, using the available human resources and local resources, and adapting them to obtain an integrated, environmentally, socially and economically integrated housing product with low-income residents.

**d. Jordan:** The urbanization rate in Jordan rises significantly with the low level of monthly income for a large groups of the population, where the proportion of the low-income group reaches 45% of the total population, making it difficult to obtain housing appropriate to its social and economic conditions. Many previous studies examined each of these experiences and approved their success in affordable housing projects, Hence, the aim of studying these experiences to identify strengths and weaknesses of them, which enables the researcher to extract basic indicators and success criteria that can be relied upon to develop affordable housing projects for low-income people in Egypt.

### 5.2. Problems of affordable housing in some different experiences

Several factors affect the emergence of housing problem in general and affordable housing in particular, the research presents most important of these factors in the countries experiences (Thailand - India - Algeria - Jordan), including high population numbers and population density, the increasing proportion of urban residents in these countries and the corresponding increase in poverty rate and deficit in the number of affordable housing sector. The attached (Table 6) shows a comparison between these factors in the countries of experience.

**Table (6)** Comparison between economic factors increase the housing problem in the world experience demographic monthly income 2017

Working Group		Thailand [34]	India [35]	Algeria [36]	Jordan [37]
conditions of population	<b>Population</b>	69 Million People	922 Billion	41.5 Million People	9.7 million people
	<b>The density</b>	135 inhabitants/km <sup>2</sup>	450 inhabitants/km <sup>2</sup>	17 inhabitants/km <sup>2</sup>	109 inhabitants/km <sup>2</sup>
	<b>Urbanization</b>	51.6 %	32.8%	73%	68.5 %
	<b>Poverty</b>	10.5%	30%	23%	14.4 %
<b>Monthly family income</b>		The average income 1250 dollars [38]	The average income 82 dollars	The average income 1770 dollars	The average income 564 dollars

By analysis (Table 6), we note:

- The increase of the population in the different experimental countries, with which the population of low-income population is increasing, as in Jordan, where the proportion of the low-income group has reached 45% of the total population.
- Increase in population density in India 450 people / km2, and Jordan that reaches 109 people / km2.
- The rate of urbanization is the highest in Algeria, where it reaches 73% of the total population, then Jordan 68.5 %, followed by Thailand 51.6%, while in India it reaches 32.8%.
- India suffers from a high poverty rate of 30% of the population, followed by Algeria 23%.

The housing studies of each country also indicate a noticeable deficit in affordable housing units as follows:

- **Thailand:** The housing market in Thailand depended heavily on the private sector from "1993 to 1997", where the average production of housing units during that period was 800,000 housing units, with an average of 160,000 units per year, However, the situation changed from 2007, where the rates of building housing units decreased significantly to only 90,000 units per year, which created a deficit in the number of housing units offered, which resulted in a problem in housing, especially for low-income groups [39].
- **India:** The number of housing units in Indian cities reached 78,48 million units compared to 78,86 million families in 2011 [40], which indicates a narrow gap between the number of units and the number of families. However, the reality is otherwise, as a large part of the housing units have become dilapidated and uninhabitable, which led people to

random housing and overcrowding in narrow housing, The Ministry of Housing has studied the actual gap between the number of housing units suitable for housing and the number of families during the past fifteen years and counted only 24.71 million units compared to 66.30 million families, 88% of that deficit was for poor housing, while 11 % for low-income housing, Whereas, middle and high income housing was not affected by more than 0.04 % of that deficit in housing units, and if deficits continue as they are, 30 million housing units will be required by 2020 [41].

- **Algeria:** According to the occupancy rates of housing units in Algeria, there is an estimated deficit of 1,200 million housing units, compared to 120 thousand families formed each year [42].
- **Jordan:** The number of housing units required to be provided annually in Jordan is about 32 thousand units, while the average number of housing units offered annually is approximately 20 thousand units only, most of which are suitable for high-income groups, resulting in a greater deficit in housing units available for low-income people

### 5.3. Plans and programs in various experiences

Successive governments in different countries have endeavored to develop different plans and programs to solve the problem of low-income housing. The attached (Table 7) shows a comparison between the countries experiences in the plans adopted in the field of affordable housing in terms of subsidy provided for these projects, And the methods used in construction and the parties involved in implementing those projects to derive criteria and factors for the success of each country's plans in dealing with the problem of affordable housing.

Table 7: Affordable housing plans and programs in various global experiences

	Thailand [43,44]	India [45]	Algeria [46, 47]	Jordan [48, 49]
plans and programs of the global experiences in housing projects economic	<ul style="list-style-type: none"> <li>• <b>Subsidize affordable housing programs</b> since 1970.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Subsidize for the economic and housing programs to facilitate the role of the public sector</b> since 1994 as the main pillar of the pillars of affordable housing plans in India.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Subsidize the affordable housing projects</b> within the 10-year plan of the ministry of housing for low - income housing and public sector. The</li> <li>• <b>establishment of a new urban communities</b> through local units which attracted to many people.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Subsidize the affordable housing projects</b> and sites and services projects, and facilitate loans to support those projects. The</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Use of modern methods of construction</b> "previous installations Processing". The</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Use of modern methods of construction</b> to reduce the cost of the maximum with the preservation of the integrity of the building "prefabricated installations".</li> </ul>	_____	_____
	<ul style="list-style-type: none"> <li>• <b>providing the economic base housing projects</b></li> </ul>	_____	<ul style="list-style-type: none"> <li>• <b>Dealing with economic development venture housing projects</b>, either for rent or for sale.</li> </ul>	_____
	<ul style="list-style-type: none"> <li>• <b>Establishment of a community-based organization</b> under the auspices of the ministry of social housing development and the protection of human rights.</li> <li>• a huge housing projects with the participation of more than one "National Ministry of Housing, Community Development Organization, the Government Savings Bank."</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cooperation with the community institutions</b> for low-income housing projects</li> </ul>	_____	_____

Thailand [43,44]	India [45]	Algeria [46, 47]	Jordan [48, 49]
	<ul style="list-style-type: none"> <li>● <b>Increase the role of the private sector</b> to participate in the housing projects.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Increase the Role of the private sector</b> to participate in the housing projects in general and low-income housing in particular.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Increase the Role of the private sector</b> to provide the facilities in the sale and purchase of lands Housing projects to <b>encourage local and foreign investors to participate in the investment in the residential sector.</b></li> </ul>
	<ul style="list-style-type: none"> <li>● <b>Follow the policy of decentralization of the management of projects.</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>Policy of decentralization of the management of the projects</b> since the early 1980s of the 20th century through: <ul style="list-style-type: none"> <li>- encouraging local units to create new urban communities attracted to it many of the population away from the capital</li> <li>- the government granted land for the construction of housing projects and providing the necessary support to complete these projects to promote that policy [50].</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>● <b>Establishment</b> of service projects and sites housing projects and the kernel from 1977 until 1980, when poor regions 5500 in 300 cities and 25.8 million people do not have access to adequate housing.</li> <li>● <b>upgrading slums</b> since 2000</li> </ul>			<ul style="list-style-type: none"> <li>● year 1980 was the establishment of a body Urban Development of Jordan to <b>develop slums</b></li> </ul>
	<ul style="list-style-type: none"> <li>● <b>encourage popular participation.</b></li> </ul>		
<ul style="list-style-type: none"> <li>● <b>Huge</b> housing project Baan Mankong Housing Program" to solve the housing problem and the elimination of slums in 2003.</li> <li>● <b>implementation</b> of the project of million housing units for low-income 200 city, established by the Ministry of National Housing 600 thousand units, Community Development Organization (300,000 units, the Government Savings Bank of 100,000 units from 2003 to 2008.</li> <li>● <b>National</b> Housing Ministry has established 730 thousand residential units for low-income established in 2010 [51].</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Providing</b> appropriate housing for low-income in 2007 through the national urban housing and the Organization of the world housing National Urban Housing and Habitat Policy" support: <ul style="list-style-type: none"> <li>- encouraging popular participation.</li> <li>- Encourage the private sector to</li> <li>- cooperate with the community institutions for low-income housing projects.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Deal</b> with the housing problem Low-income countries in the 1990s through: <ul style="list-style-type: none"> <li>- support housing projects in accordance with the category benefiting from the project.</li> <li>- The financing of social housing projects for low-income from more than one quarter (50% of the Ministry of Finance - Housing banks 40% - 10% of the beneficiaries of the project.)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Establish</b> programs of housing projects highlighted in the program of "adequate housing and a decent life" Decnet Housing for Decnet Living" were funded by foreign investors, including the Kingdom of Saudi Arabia.</li> </ul>

source : researcher preparation from the above sources.

From analysis, study and comparison of the data mentioned in (Table 7), it is possible to reach the most important following points:

- In housing policy, all countries relied on government subside for affordable housing projects.
- Both India and Thailand have tended to use modern building methods to reduce the cost of housing units with safety of

the building.

- Thailand and India have sought to cooperate with international community organizations and form local community institutions to build up low-income housing projects.
- India, Algeria and Jordan were interested in encouraging the private sector to participate in affordable housing projects by




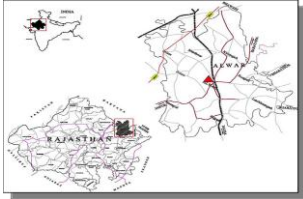
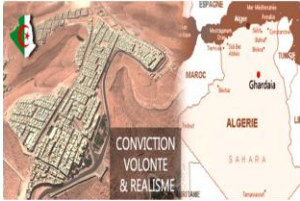





providing land, reducing taxes, and providing the facilities required to establish projects.

- The governments of India and Algeria have encouraged a policy of decentralization to encourage the creation of new urban communities.
- Thailand resorted to establishing projects to upgrade slums, and the government of Jordan established the Urban Development Authority for slum development.

### 5.4. Affordable housing projects implemented in various experiences

We review in that part (Table 8), which clarifies a comparison between the affordable housing projects implemented in the various global experiences by analyzing the elements of similarity or difference between them in terms of project location, goals of the project, the parties involved in implementation, and the funding and subsidy destinations.

**Table 8:** Comparative Economic housing projects implemented in various global experiences

	"Rum Beh Klaw. Bangkok – Thailand [28,42]	"Alwar-India [29]	Tafilette project "New - ghardaia – Algeria [30, 31]	Ramtha in Jordan [32, 33]
project site	<ul style="list-style-type: none"> <li>• Located 5.5 km from the capital Bangkok.</li> </ul> 	<ul style="list-style-type: none"> <li>• The city of Alwar is located in the northern Indian state of Rajasthan, and the project is located 3 km from public services in the city, and is close to the Muwa Roads.</li> </ul> 	<ul style="list-style-type: none"> <li>• Located north of the Algerian desert, just 1 km from the town of Ghardaia, and connected by means of transportation</li> </ul> 	<ul style="list-style-type: none"> <li>• The project is located in the city of Ramtha (the province of Irbid in northern Jordan)</li> </ul> 
goals of the project.	<ul style="list-style-type: none"> <li>• Provision of adequate housing for low-income people who monthly income no more than 1,250 dollars, direct subsidy up to 2000 dollars to the family.</li> </ul> 	<ul style="list-style-type: none"> <li>• Provision of 3,000 housing units for poor and low-income people in Alwar city" of families whose income average 82 dollars a month.</li> </ul> 	<ul style="list-style-type: none"> <li>• Provision of appropriate housing for each of:                             <ul style="list-style-type: none"> <li>- Families with limited income 1.77 dollars per month.</li> <li>- The poor who could not provide the government is responsible for the payment of the value of the dwelling unit.</li> </ul> </li> </ul> 	<ul style="list-style-type: none"> <li>• Provision of adequate housing for families with monthly income of 564 dollars.</li> </ul> 
The actors involved in implementation	<ul style="list-style-type: none"> <li>• Encouraging economic activities in new residential areas in order to improve entry for low-income groups.</li> <li>• society subsidizing and development</li> <li>• Small Business subsidizing.</li> <li>Implementing training programs for population through the National Authority for Health and Population.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> Housing and Development Corporation (HUDCO)</li> <li>• <b>The private sector</b> some private sector companies are involved in building housing units.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector.</b></li> <li>• <b>The private sector.</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> Jordan Urban Development and Housing Authority</li> <li>• <b>Civil Civil Society</b> (Habitat for Humanity in Jordan) organizes various programs to provide adequate housing for low-income people).</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>The public sector</b> National Housing Authority.</li> </ul>			
	<ul style="list-style-type: none"> <li>• <b>Civil Society</b> (Community Development Corporation)</li> </ul>		<ul style="list-style-type: none"> <li>• <b>Civil society</b> Community organizations</li> </ul>	
	<ul style="list-style-type: none"> <li>• <b>Individuals</b> (popular participation)</li> </ul>			

**Table 8:** Comparative Economic housing projects implemented in various global experiences (cont.)

	"Rum Beh Klaw. Bangkok – Thailand [28,42]	"Alwar-India [29]	Tafilelte project "New - ghardaia – Algeria [30, 31]	Ramtha in Jordan [32, 33]
<b>Funding and support</b>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> <ul style="list-style-type: none"> <li>- Direct subsidy from the government, \$ 2000 per family.</li> <li>- A loan from the State Housing Bank of 300 million baht, equivalent to 7.5 million dollars, to the National Housing Ministry for each housing project, provided that the government repays the loan in quarterly installments.</li> <li>- The family pays the unit price in monthly installments not exceeding 15% of the monthly income, at annual interest 5: 7% over 30 years.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> <ul style="list-style-type: none"> <li>- Land provision and project planning through the Urban Development Sector (UIT).</li> <li>- Providing loans through the Indian government sector housing finance company.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> <ul style="list-style-type: none"> <li>- Subsidy from the government and the Housing Bank as follows:               <ul style="list-style-type: none"> <li>- %50 Ministry of Finance - 40% Housing Banks - 10% project beneficiaries</li> </ul> </li> <li>- The government subsidizes more than half of the unit's price if it is confirmed that the beneficiary of the unit is unable to pay for it.</li> </ul> </li> <li>• <b>Civil society</b> AMIDU Association</li> <li>• <b>Individuals</b> The beneficiaries of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>The public sector</b> <ul style="list-style-type: none"> <li>- Providing loans from local and Islamic banks amounting to 13,000 Jordanian dinars (the value of the housing unit ranges between 15000: 16000 Jordanian dinars, and the beneficiary in the case of ownership has the right to obtain a loan from a real estate or Islamic bank to be paid in installments of 150 Jordanian dinars per month for a period of 10 years)(</li> <li>- Providing lands for projects and services through the government.</li> </ul> </li> <li>• <b>Civil society</b> <ul style="list-style-type: none"> <li>- Organization of Habitat.</li> <li>- Support from the Government of Switzerland.</li> <li>- The support of the Danish.</li> </ul> </li> </ul>

Source : researcher from the above sources.

**From the analysis, study and data comparison (Table 8), the following points can be reached:**

- All experiences were similar in the good site selection by connecting it to a road network for easy access and providing the necessary services to the project sites.
- The main objective in all projects was to provide housing, but Thailand's experience was characterized by providing job opportunities to increase stability and settlement in new societies.
- The public sector is the main responsible for implementing housing projects in all experiences, however we note:
  - The participation of civil society in the experiences of Thailand, Algeria and Jordan.
  - The participation of the private sector in the experiences of India and Algeria, and this was a confirmation of the greater role of the private sector in participating in affordable housing projects.
  - The popular participation and participation of individuals in the implementation of their housing appeared in Thailand experience to confirm the spirit of belonging to and linking to their new society.
- All experiences relied on the public sector in financing and subsidy projects, but the most important characteristic of Algeria's experience is the involvement of civil society and individuals in financing these projects, also more than one community institution participated in the financing of the Jordan experience.

## 6. Criteria for preparing affordable housing projects

In this part the research will present some of the criteria which help to evaluate what the affordable housing projects achieved in economic, social and urban requirements of the targeted groups "low-income people", these standards include previous global and local studies as follows.

### 6.1. The United Nations affordable housing criteria

- Legal security of tenure (lease or ownership of land or house).
- Providing utility and services (drinking water, sanitation and energy).
- The appropriate cost (rent, installments, taxes, utility bills, maintenance)
- Housing capacity (overcrowding, area, distribution and quality of blanks, health and construction safety)
- Availability for different classes of people (people with special needs)
- Location (availability of employment, health and education services, shopping, and entertainment)
- Culturally appropriate (expression of identity).

### 6.2. Criteria for evaluating the effectiveness of the performance of urban development projects and achieving their goals from previous studies [58]

- Social criteria (Reducing social and political pressures on new settlers - maximizing the potential of health and social

services - maximizing women's employment opportunities - raising the level of public health).

- Urban criteria (balance of urban spread in the region - suitability of space and design to the needs of the population - compatibility of the environment with the needs of the population - linking between urban communities and each other - easy access from housing to workplaces and services).
- Environmental criteria: (Preserving the region's ecosystem - achieving the minimum level of air and water pollution and the cost of treating waste - minimizing the negative aspects of urban development).
- Infrastructure criteria: (Reducing the total cost of energy used to achieve a certain level of performance - maximizing the use of renewable energies - achieving a network of communication in the region at the national and global levels).
- Transport criteria: (Achieve the minimum level of movement for people and products and thus the demand for transportation - Achieve ease of movement for the population between urban communities within the region –

Reduce the total length of transportation lines within the region).

- Economic criteria (diversity in available employment opportunities - maximizing wealth utilization).

### 6.3. Evaluation criteria resulting from global research experience

The criteria resulting from the analysis of low-income housing projects in the various international experiences indicated in the previous (Tables 7, 8).

- The country's plans in dealing with affordable housing projects.
- Project location.
- Aims of the project.
- Actors involved in implementation
- The parties involved in the financing

From the foregoing, the researcher extracted a set of criteria in the light of which will measure the success of affordable housing projects with international experiences in preparation for comparison with the Egyptian experience, which is shown in (Table 9).

**Table 9:** Extracted criteria to evaluate affordable housing projects in global experiences

Criteria	indicators	Criteria	indicators	Criteria	indicators
Legal security of tenure	- The variety of the tenure pattern	Social Security	-Reduction of social and political pressure on the new settlers - Maximize the potential of health and social services. -Maximize jobs opportunities for women	The state plans to deal with economic housing projects	- subsidies for projects  -Using new construction methods -Participation of local community and international organizations -Encourage popular participation -Economic Development complement the development projects -Encourage the private sector -Decentralization of the projects management.
	○		-Raising the general health level		◇
Providing utility and services	-Supply of basic services of the site. -Provide facilities	Urban	-Balance of urban expansion in the region  - Space and design fit the needs of the population -Approve the environment with the needs of the population -Connecting urban communities with each other -Easy access to work places and services	The project site	-Good site selection and linking to transportation ways - Provision of services
	● ◇				● ◇
Appropriate cost	-Economic appropriate	Environment	-Preserving the region's ecosystem -Achieving the minimum of air and water pollution and cost of waste treatment -Reduce the negative aspects of urban development.	Project goals	- Providing adequate housing -Provision of adequate housing and jobs opportunities
	○ ■				● ◇

**Criteria extracted to evaluate the success of affordable housing projects in global experiences**

First criterion  
Integration of country's plans in dealing with affordable

Second criterion  
Suitability of

Third criterion  
Integration

Forth criterion  
Multiple parties

Fifth criterion  
Diversity of funding and

**Table 9:** Extracted criteria to evaluate affordable housing projects in global experiences (cont.)

Criteria	indicators	Criteria	indicators	Criteria	indicators
Housing capacity	-Architecture appropriate.	Infrastructure	- Reduction of the total cost of energy used in achieving a certain level of performance	Implementation actors	- Public Sector
	-Construction Safety		-Maximize the use of renewable energies		- Civil Society
			-Achieve a communications network		- Private Sector
					- Individuals
Availability	-Appropriate economic and social development.	Transport	-Achieving the minimum movement of people and products and thus the demand for transport	Funding and subsidy	- Public Sector
			-Achieve the easy movement between urban communities		- Civil Society
			- Reduce the total length of the transport lines within the region		- Private Sector
					- Individuals
The site	-Provision of adequate housing and jobs opportunities	Economic	- Diversity of available jobs		
	-Provision of transport		- Maximize the exploitation of the wealth		
Culturally appropriate	Appropriate social development.				

Symbols indicate that the indicator follows a specific evaluation criterion

Source : researcher preparation from previous data

### 7. Analysis and evaluation of various experiences.

The researcher extracted from the analysis of (Table 9) some of the criteria that can be pointed out as one of the most important reasons for the success of affordable housing projects with global experiences, and the researcher included a set of indicators to measure each criterion as follows:

**The first criterion:** "Integration of country's plans in dealing with affordable housing projects" includes the following indicators": subsidy projects, using modern methods of construction to reduce the cost of establishments - the participation of local and international community organizations - encouraging popular participation- Economic development complements the development of housing projects - encouraging the role of the private sector - decentralization in project management.

**The second criterion:** "Suitability of project site" includes the following indicators: Good selection of the site and linking it to transportation - providing services.

**The third criterion:** "Integration of project aim" includes the following indicators providing housing only - providing housing and job opportunities for the population.

**The fourth criterion:** "Multiple parties involved in implementation" includes the following indicators": the public sector, civil society - the private sector - individuals.

**The Fifth criterion:** "Diversity of funding and subsidies" includes the following indicators: the public sector - civil society - the private sector - individuals.

(Table 10) clarifies those criteria and its indicators, and the extent to which the different experiences of these indicators are achieved through indicators number achieved in each criteria and its ratio, to determine the most successful experiences by achieving them for the most number of these indicators.

The researcher divided the criteria in (Table 10) into 19 indicators within five basic criteria, those criteria were analyzed according to the results obtained, and determined the ratio of each of them to the total indicators in the criteria, as follows:

#### 7.1. Achieved indicators in each experience

- a) Algeria's experience has achieved the highest number of indicators, indicating the success of its experience in dealing with affordable housing projects by 73.7% of the total indicators (14 indicators) within the five criteria. The experiment focused on:

**Table 10:** Criteria and indicators achieved in affordable housing projects implemented in global experience

The criterion	The indicators	Thailand	India	Algeria	Jordan	Number of experience achieved for each indicator	
First Integration of country's plans in dealing with affordable housing projects	Projects subsidies	√	√	√	√	4	
	New construction methods to reduce houses cost	√	√			2	
	The participation of local community and international organizations	√	√			2	
	Encouraging popular participation	√	√			2	
	Economic development complementary to the development of housing projects	√		√		2	
	Encouraging the role of private sector		√	√	√	3	
	The decentralization of projects management		√	√		2	
<b>Achieved indicators for each experience</b>	<b>number</b>	<b>5</b>	<b>6</b>	<b>4</b>	<b>2</b>		
	<b>%</b>	<b>71%</b>	<b>85.7%</b>	<b>57%</b>	<b>28.5%</b>		
Second Suitability of project site	Good site selection and providing transport	√	√	√		3	
	The provision of services	√	√	√	√	4	
	<b>Achieved indicators for each experience</b>	<b>number</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	
	<b>%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>50%</b>		
Third Integration of project aim	Provision adequate housing	√	√	√	√	4	
	Provide job opportunities	√		√		2	
	<b>Achieved indicators for each experience</b>	<b>number</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	
	<b>%</b>	<b>100%</b>	<b>50%</b>	<b>50%</b>	<b>50%</b>		
Fourth Multiple parties involved in implementation	Public sector	√	√	√	√	4	
	Civil society	√		√	√	3	
	Private sector		√	√		2	
	Individuals	√				1	
	<b>Achieved indicators for each experience</b>	<b>number</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	
	<b>%</b>	<b>75%</b>	<b>50%</b>	<b>75%</b>	<b>50%</b>		
Fifth Diversity of funding and subsidies	Public sector	√	√	√	√	4	
	Civil society			√	√	2	
	Private sector		√	√		2	
	Individuals			√		1	
	<b>Achieved indicators for each experience</b>	<b>number</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>2</b>	
	<b>%</b>	<b>25%</b>	<b>50%</b>	<b>100%</b>	<b>50%</b>		
<b>The total number of indicators in all criteria (19)</b>		<b>number</b>	<b>13</b>	<b>13</b>	<b>14</b>	<b>8</b>	
		<b>%</b>	<b>68.4%</b>	<b>68.4%</b>	<b>73.7%</b>	<b>42%</b>	

- Applying the indicators of the second criterion with 100% (Suitability of project site) by making good selection of the site and providing services to achieve the population attraction factor for the new urban community.
  - The experiment also focused on the participation of several parties to finance and subsidize affordable housing projects in new societies. This is evident from the achievement of all indicators of the Fifth Standard by 100% (Diversity of funding and subsidies), which ensures the continuity of the implementation of the project and ensure its completion to provide the required financial budget.
- b) The experiences of Thailand and India ranked second in achieving 68.4% of the total indicators by the five criteria (13 indicators). By analyzing these indicators, we note:
- Both experiments concerned with achieving the highest indicators number of the first criterion (the state's plans for dealing with affordable housing projects), as

Thailand achieved 71% of the total indicators, and India achieved 85.7% of the total indicators, which indicates the importance of that standard to ensure the success and efficiency of housing projects implemented.

- Thailand's experience was distinguished from the rest of the experiences by achieving the indicators of the third criterion 100% (Integration of project aim) by providing housing and jobs opportunities in to ensure the attraction of residents, stability and settlement in the new society.
- c) Jordan experience achieved 42% of the total indicators (8 indicators only), despite the achievement of some indicators of the fourth criteria (Multiple parties involved in implementation) by 50% of it, and the fifth (Multiple parties involved in implementation) 50% of it also. However, that decline came as a result of a deficiency in the first criterion (the state's plans in dealing with affordable housing projects), in which it achieved only 28.5% with a total of two indicators of 7 indicators, which directly affected the success and progress of the experiment.



## 7.2. Achieved experiences for each indicator

### a) The first criterion, "Integration of country's plans in dealing with affordable housing projects"

- 4 experiences "Thailand, India, Algeria, Jordan" focused on achieving the first indicator, which is the interest in providing the necessary subsidy for affordable housing projects, This indicates that this indicator is a key factor in any country that develops an effective plan for establishing affordable housing projects.
- 3 experiences "India, Algeria, Jordan" have combined in achieving the indicator (encouraging the role of the private sector), which subsidizes the establishment of many affordable housing projects.

### b) The second criterion "Suitability of project site".

- Although the first indicator (good site selection and providing the necessary transportation) was achieved in 3 experiences "Thailand, India, Algeria", it is an important indicator in the success of those experiences, Jordan experience overlooked that indicator.

### c) The third criterion "Integration of project aim"

- All experiments agreed to achieve the first indicator (providing housing), and although the second indicator (providing job opportunities) was only achieved in one experiment, "Thailand", it was one of the most important factors for the success of the experiment because of its stability and settlement in the new society.

### d) Fourth criterion "Multiple parties involved in implementation"

- The first indicator (the public sector) was the primary indicator achieved in all trials.

- The second indicator, the participation of (civil society), appeared in 3 experiments "Thailand, Algeria, Jordan".

### e) Fifth criterion: "Diversity of funding and subsidies".

- The "public sector" is the main indicator upon which the four experiences are based.
- "Algeria and Jordan experiences interested with "the participation of civil society", which is the second indicator in financing affordable housing projects to provide the necessary subsidy from multiple sides to ensure the implementation of the project and not stop work on it.
- (Private Sector), which is the third indicator in financing housing projects, participated in the experiences of India and Algeria.
- It is clear from the analysis that Algeria's experience achieved 4 indicators in the standard of financing and subsidizing affordable housing projects This confirms that it is the most successful experiment, as shown in the previous analysis.

In light of the previous two analyzes, the research will compare and evaluate the Egyptian experience to determine the weaknesses and strengths of it.

## 8. Comparing and evaluating the Egyptian experience in light of and evaluating various experiences.

After presenting affordable housing projects in Egyptian cities, and analyzing the experiences of affordable housing projects implemented in international countries, (Table 11) shows the extent to which affordable housing projects in new cities achieve standards and indicators derived from global experiences.

**Table 11:** Criteria and indicators achieved in affordable housing projects implemented in in the new Egyptian cities

The criterion	The indicators	Mubarak Housing	Developer Housing	Future Housing	Free Association	National Housing	Social housing	The tests achieved for each indicator	
First Integration of country's plans in dealing with affordable housing projects	Projects subsidies	√	√	√	√	√	√	6	
	New construction methods to reduce houses cost							0	
	The participation of local community and international organizations						√	1	
	Encouraging popular participation					√		1	
	Economic development complementary to the development of housing projects							0	
	Encouraging the role of private sector			√		√		2	
	The decentralization of projects management							0	
Achieved indicators for each experience (total of 7 indicators)	number %	1 14 %	1 14 %	2 28.5 %	1 14 %	3 42.8%	2 28.5 %	/	
Second Suitability of project site	Good site selection and providing transport							0	
	The provision of services	√	√	√	√			4	
	Achieved indicators for each experience (total of 2 indicator)	number %	1 50 %	1 50 %	1 50 %	1 50 %	0 0	0 0	/
Third Integration of project aim	Provision adequate housing	√	√	√	√	√	√	6	
	Provide job opportunities							0	
	Achieved indicators for each experience (total2indicator)	number %	1 50 %	1 50 %	1 50 %	1 25 %	1 50 %	1 50 %	/
	Achieved indicators for each experience (total of 4 indicators)	number %	1 25 %	1 25 %	2 50 %	1 25 %	1 25 %	2 50 %	/

**Table 11:** Criteria and indicators achieved in affordable housing projects implemented in in the new Egyptian cities (cont.)

The criterion	The indicators	Mubarak Housing	Developer Housing	Future Housing	Free Association	National Housing	Social housing	The tests achieved for each indicator	
Fourth Multiple parties involved in implementation	Public sector	√	√	√	√	√	√	6	
	Civil society						√	1	
	Private sector			√		√		2	
	Individuals					√		1	
	number	1	1	2	1	3	2		
	Achieved indicators for each experience (total 4 indicators)	%	25 %	25 %	50 %	25 %	75 %	50 %	
Fifth Diversity of funding and subsidies	Public sector	√	√	√	√	√	√	6	
	Civil society						√	1	
	Private sector			√				1	
	Individuals							0	
	number	1	1	2	1	1	2		
	Achieved indicators for each experience (total of 4 indicators)	%	25 %	25 %	50 %	25 %	25 %	50 %	
	The total number of indicators in all criteria (19)	number	5	5	8	5	8	7	
		1	26 %	26 %	42 %	26 %	42 %	36.8 %	

Source : researcher preparation from the preceding analysis

Comparing the indicators achieved by global experiences (in Table No. 10) and affordable housing projects in the new Egyptian cities (Table 11), we find that Only two projects (Al-Mustaqbal and Al-Watani) achieved 8 indicators by the five criteria, , "such as the Jordan experience". We also notice a large variation in the number of experiments achieved for each indicator, which will be explained by the following analysis:

### 8.1. Achieved indicators in each experience.

a) **The first criterion:** "Integration of country's plans in dealing with affordable housing projects" severe deficiencies in its indicators for all projects, except simple variation in achieving a percentage of indicators in some projects as follows:

- The indicators of "state subsidy for projects" is achieved in all projects.
- "Future housing" project achieved 28.5% of the indicators, when (the role of the private sector) appeared in participating of the affordable housing market.
- The social housing project achieved 28.5% of the indicators of the first criterion as well, as a result of the participation of (local and international community organizations) in the field of affordable housing.
- While "the national project" achieved 42.8% of the indicators due to the activation of the two indicators (encouraging popular participation) and (encouraging the role of the private sector).

b) **The second criterion,** "Suitability of project site", we find that one of the most prominent problems of affordable housing projects in new cities is the choice of the site and the provision of services in it, where we note:

- All projects are missing the "Good Site Selection" indicator, as these projects are located on the outskirts of most new cities, as there are no transportation links for easy access.
  - Some projects, such as "The National Project and the Social Project," lack a standard (providing services).
- c) By analyzing **the third criterion,** "Integration of project aim", we find that all projects achieve only the first indicator, which is (housing provision) only, while all of them lack the second indicator "providing job opportunities", which is the most important factor that helps in settling in new societies.
- d) Analysis of **the fourth criterion,** "Multiple parties involved in implementation" and the fifth "funding and subsidy agencies", we note:
- All projects depend on the public sector for implementing and financing projects except for the future projects (private sector participation) and social project (civil society participation) in implementing and financing projects.
  - We note the participation of both the private sector and individuals in the implementation of housing units in the national project.

### 8.2. Achieved experiences for each indicator

a) **The first criterion "Integration of country's plans in dealing with affordable housing projects"**

- 6 experiences have united to achieve the first indicator providing the necessary subsidy for affordable housing projects, which is similar to global experiences, which proved that this indicator is a key factor in any country that puts an effective plan for establishing affordable housing projects.

- Despite the importance of the second indicator (encouraging the role of the private sector) to participate in the establishment of affordable housing projects that have focused on global experiences, we find only two "future and national" experiences that have achieved that indicator.
- The third indicator (the participation of local and international community organizations) was achieved only through one experiment, "social housing", despite its importance in contributing to this type of project.
- The "popular participation" indicator was achieved in one experiment "national project", and it was not activated in the remaining experiments.
- The effect of the rest of the indicators did not appear in any of the experiments, unlike the global experiences, which indicates a deficiency in the plans followed in dealing with this category of housing projects.

**b) The second criterion "Suitability of project site":**

- 4 experiences "Mubarak housing, developer, future, free," achieved the second indicator (providing services), while none of them considered the achievement of the first indicator (Good choice of location and providing the necessary transportation) which is considered a deficiency in the experiences as happened in the Jordan experiment.

**c) The third criterion "Integration of project aim":**

- All experiments agreed to achieve the first indicator (providing housing) as a primary goal, but none of them achieved the second indicator (providing job opportunities), which was considered one of the most important factors for the success of the Thailand experience.

**d) The fourth criterion "Multiple parties involved in implementation":**

- The first indicator (the public sector) was the primary indicator achieved by all experiments, and on which the state relied on in implementing its projects, which is similar to global experiences.
- The indicator (the private sector) appeared in only two experiments, "the future and the national", which is consistent with achieving the same experiences of the indicator (encouraging the private sector) with the first criterion.
- The individuals participation indicator was achieved in the "national" project only, Then we find that this experiment achieved 3 indicators in the criterion of the parties involved in implementation, which confirms that it is the most successful experiment that has achieved success criteria as shown in the first analysis.

**e) The fifth criterion "Diversity of funding and subsidies"**

- (The public sector) is the main indicator upon which all experiences relied on financing and subsidizing all projects.

- One experiment "The social project" concerned with the participation of (civil society) in financing the project.
- (Private Sector), which is the third indicator, participated in financing the "Future" project only.

## 9. Results and Recommendations

### 9.1. Results

In light of what has been previously presented from the global and local experiences to develop affordable housing for low-income people in Egypt, the researcher extracted some results as follows:

- Egypt suffers from a deficit in the number of affordable housing units, which was estimated at 220 thousand housing units between 2005 and 2017
- The number of implemented affordable housing units decreased during the period 2016-2018 from 186.200 thousand to 169.754 thousand units, at a rate of 16.700 thousand units.
- The high poverty rate in the various study countries, reached its highest rates in Egypt by 38.8%, followed by India 30%, then Algeria 23% of the total population
- Housing plans and projects do not meet the requirements of low-income people, as it doesn't provide job opportunities or ensure the stability of the project beneficiary in the new society, as in the experiences of Egypt and Jordan.
- The private sector had an effective role in participating in affordable housing projects with global experiences, as in India, Algeria, and Jordan, while this role did not appear clearly in local experiences.
- One of the most important indicators of the success of global experiences is the good choice of housing project sites and the provision of services and transportation.
- The occurrence of affordable housing projects on the outskirts of cities, with a decrease in the volume of services and transportation, led to sufficient success for those projects, as in the Egyptian experience.
- The small number of funding and implementation agencies involved in affordable housing projects has led to a deficiency in project success as in the Jordan experience.
- One of the most important indicators of a successful Thailand experience is the complementary economic development of affordable housing projects.
- The use of modern methods of building has contributed to reducing the cost of the installations while maintaining the integrity of the building and the quality of its finishing, as in the experiences of Thailand and India.
- The creation of community organizations, and cooperation with them in implementing and financing affordable housing projects, have helped the projects succeed, as in the experiences of Thailand and India.

- Encouraging popular participation has strengthened the spirit of belonging to the beneficiary of the project with his new home and community, as in the experiences of India and Algeria.
- Providing direct subsidy "as a non-refundable grant" for people with limited incomes (and the monthly installment does not exceed 15% of the citizen's income), as in the experience of Thailand, Facilitating housing for the poor free of charge and facilities for paying people with limited incomes (the state pays 90% of the unit price and the beneficiary bears only 10%), as in the Algerian experience, for those groups to obtain adequate housing for living.

## 9.2. Recommendations,

**From the above we can recommend the importance of the following:**

- The necessity of making a real economic study to suit the unit price or the actual income of the low-income people and the subsidy provided to them.
- Interest in thinking about the development of low-income people, not only by providing housing, but by:
  - Subsidizing small businesses for residents, such as providing commercial projects in the ground floors of some housing units "as in the Thai experience".
  - Implementing training programs for the population "improving education and health" as in the Algeria experience.
  - Encouraging economic activities in new residential areas with the aim of improving incomes for targeted groups of low-income "as in the experience of Thailand".
- The need to encourage the private sector and international community organizations and provide the necessary facilities for participation in affordable housing projects.
- Carrying out a careful planning, urban and economic study to choose the locations of affordable housing projects in the new cities by providing facilities, services and transportation suitable for low-income people to reconstruction these areas and motivate them to live in it.
- Developing the construction methods used in affordable housing projects, which contributes to reducing the total cost of housing units and raising the efficiency of buildings, Such as the use of prefabricated facilities as in the experience of Thailand, and the use of building materials from the surrounding environment help reduce costs such as the use of stone and the style of load-bearing walls in proportion to the climatic environment in the region "as in the Algeria experience".
- The need to encourage and stimulate popular participation to strengthen the spirit of belonging to the new society by facilitating financing and subsidy and providing the necessary services for the beneficiary to establish his residence, especially the Egyptian experience.

- The necessity of making a study and actual counting of the eligible individuals for affordable housing projects to ensure that the low-income groups have access to adequate housing

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