

Management and Viable Solutions to Slum Housing in Diyala Governorate

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Abstract

One of the biggest problems facing growth in many developing countries is slum housing. The Diyala governorate is afflicted by unregulated expansion, stemming from informal housing clusters caused by demographic, social, and economic factors that adversely impact the organization of land use, particularly residential applications. This paper aims to identify and analyze the factors influencing the growth of slum housing in terms of economic, social, and legal aspects, as well as evaluate proposals to address the problem of slum housing. A questionnaire was used to achieve the goal of this paper. The results showed that the most important factors that increase the growth of slum housing in Diyala Governorate in terms of the economic and social axis are the cost of purchasing housing compared to the average per capita income and the cost of equipment and machinery, while in terms of the legal axis the most important factors are the weakness of the state law, the increase in population, and the housing deficit. The results concluded that some of the slums require low-cost housing complexes, while others require infrastructure improvements.

Keywords: Slum housing, Factors, Housing management, Economic axis, Legal axis.

1. Introduction

One of the biggest problems facing growth in poor countries today is slum housing [1]. More than one-third of the world's urban population lives in slums or places that resemble slums, and the developing world is plagued by poverty, inadequate social and physical infrastructure,

and an energy crisis [2]. Lack of access to energy, water, or sanitary facilities is a defining feature of slums [3], [4]. The persistent problem of cities in developing countries that cannot provide affordable housing for low-income populations, who usually reside in slums, resort to the slum rehabilitation system, a common strategy used by most countries to rid urban areas of slums [5]-[8].

Slums can be understood in two ways: first, as areas where the city's ability to absorb development is limited, and second, as areas where city expansion puts pressure on geographic distribution. Slums are always associated with poverty in the region [9]. Groups of people living together under one roof without access to better water, better sanitation, enough room for living, long-term housing, and durable housing are referred to as slums [10]. The paper aims to identify the factors affecting the increase in slum housing in Diyala Governorate and to propose appropriate solutions to reduce this phenomenon.

2. Factors that contribute to the emergence of Slum Housing

Demographic causes that result from internal migration from rural and remote areas to cities. And organizational reasons that relate to the absence of real organizational strategies that guide planning processes and organize expansion procedures, as well as the ignorance of many officials and decision-makers of the importance of involving the various segments of society collectively in the decision-making process and planning structure [11].

As for the economic reasons that result from structural underdevelopment and weak capital growth in the developing world. This has caused waves of rural-urban migration, as well as the high cost of urban land and its unavailability in cities. The political reasons are related to the laws and policies put in place to address the issue of informal housing, as well as Poverty, high costs of land outside urban areas, and unemployment are all factors that may contribute to the spread of informal housing [12].

3. Slum Upgrading

According to Cities Alliance (2006), slum upgrading is the process of improving, formalizing, and integrating informal settlements by giving residents access to public infrastructure, property rights, and services to which they are legally and constitutionally entitled [13]. According to (UNESCAP, 2000) Slum upgrading can help to improve existing housing stock while also ensuring that new investment in the low-income housing is not solely. Slum-upgrading policies have been thought to provide considerable advantages over other forms of effort. Slum upgrading entails making economic, physical, organizational, social, and environmental changes to existing slums and informal settlements. The result of upgrading the Slum include [14], [15]. Improved access to education and health care; Improvement of basic infrastructure; and improved chances for income earning According to [16].

Gilbert (2007), on the other hand, observes that the dynamic and diversity of slums make formulating an absolute answer to the various slum concerns difficult. Similarly, the interaction between diverse actors in the regularisation process is a source of concern, as each stakeholder has their own motivations and goals. This can lead to sensitive partnerships that are crucial to the intervention's effectiveness [17].

4. Methodology

The study relied on a descriptive-analytical approach, and primary data were collected through a closed-ended questionnaire designed to achieve the research objectives related to the management of slum housing, the factors contributing to their spread, and proposed solutions to address them in Diyala Governorate. Evaluation of the factors affecting the increase of slum housing in Diyala Governorate from the economic, social, and legal sides.

4.1 Questionnaire Design

The questionnaire was prepared based on relevant previous literature and studies on the research topic, and it consists of four main parts as follows:

4.1.1 General Data of Respondents:

Includes a set of personal and professional information that describes the characteristics of the sample individuals.

4.1.2 Management of slum Housing:

It includes five questions aimed at measuring awareness levels and overall assessment of the issue of slum housing and its management.

4.1.3 Factors Affecting the Spread of slum housing:

It consists of 19 questions to evaluate the most important factors affecting the spread of slum housing in Diyala Governorate and includes economic, social, legal, and administrative factors.

4.1.4 Proposed Solutions for Managing Slum Housing:

It includes 9 questions aimed at evaluating the effectiveness of the proposed solutions and treatments to reduce the problem of slum housing in Diyala Governorate.

4.2 Study Scale

A five-point Likert scale was used to measure respondents' opinions. Response levels were determined according to the following scale: (very high, high, medium, low, very low), to measure the evaluation level of each item in the questionnaire.

4.3 Sample Size and Sampling Strategy

The questionnaire was administered to a sample of 50 respondents, including experts and professionals from institutions and authorities directly related to the research topic, including departments (municipalities, urban planning, Baquba Municipality, and the Engineering Department in Diyala Province). The sample members were selected for their practical experience and academic qualifications related to urban planning, housing, engineering, and project management, ensuring an objective evaluation of the issue of slum housing, the factors affecting it, and the proposed solutions for addressing it.

4.4. Data Collection

Field data were collected over a period of 45 days, during which questionnaires were manually distributed and received after all respondents had completed their answers, then reviewed and confirmed to be valid for statistical analysis.

4.5. Statistical Analysis

To get a complete picture of the viewpoints from experts in Iraqi architecture, construction, and engineering, a set of quantitative statistical approaches was applied to examine the questionnaire results (AEC) regarding the issue of slums in terms of the factors affecting the spread of slums and solutions to address this phenomenon. These methods were selected because they provide a clear description of the data distribution and facilitate the assessment of respondents' perceptions regarding slum housing management, the factors contributing to its spread, and the proposed solutions. Such statistical methods will be detailed below:

4.5.1 Descriptive Statistics

Descriptive statistics are statistical techniques used to organize, summarize, and make sense of data [18]. The following descriptive statistics have been applied:

4.5.2 Central Tendency Measurement

A key component of the statistical trend is the representative (average) value notion, which seeks to describe the distribution of values that is of the best single value [18].

5. Analysis of Sample Questionnaire

The following are responses to questions about personal information in the questionnaire form:

Fig. 1 shows the percentage of respondents in the work sector (governmental and private), with the government sector accounting for 86% and the private sector for 14%.

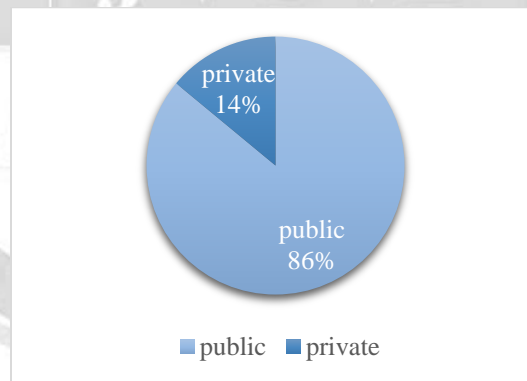


Fig. 1. The sector of work for study work

Fig. 2 shows the educational qualifications of the respondents, with the percentage for B.Sc. 52%, Masters 32%, and Ph.D. 16%.

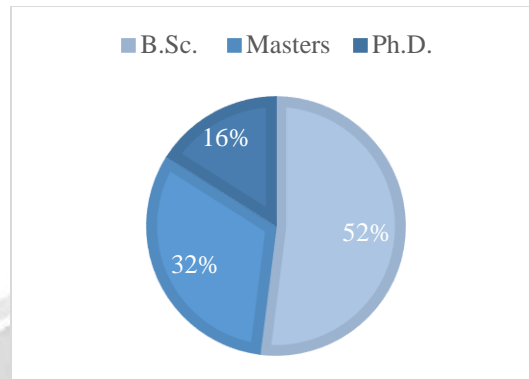


Fig. 2. The educational level of the respondents

Fig. 3. shows the percentage of engineers in different fields, and the largest percentage who filled out the questionnaire was civil engineering 52%, and the lowest percentage was electrical engineering 4%, while architectural engineering and mechanical engineering received 22%, 10%, respectively, and others 12%.

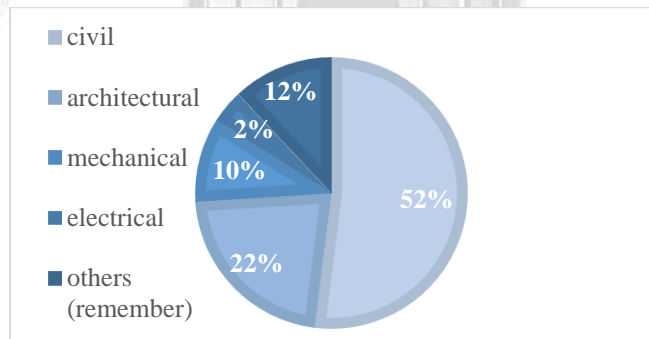


Fig. 3. Various engineering fields for a research sample

Fig. 4. shows the percentage of the nature of the work, and the largest percentage of filling out the questionnaire was implementation 30%, and the lowest percentage of estimation was 6%, while planning and follow-up, and designs got 28%, 19%, respectively, and consulting and some others 10%.

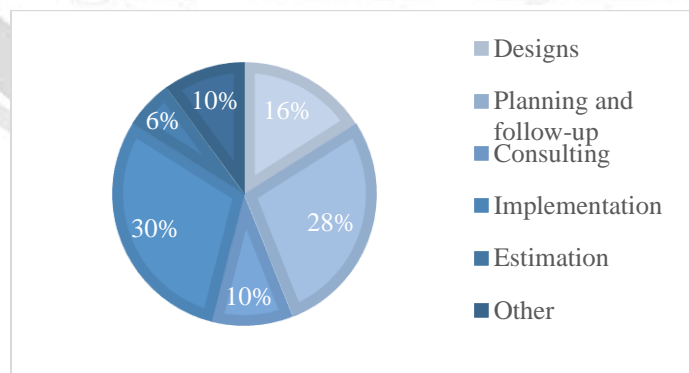


Fig. 4. The nature of the different work of the research sample

Fig. 5. shows the number of years of experience for engineers who filled out the questionnaires, where the number of years Less than 9 years by 22%, from (10-19) by 50%, and the number of years (20-29) by 24%, while the number of years of experience for engineers is higher from 30 years it was 4%.

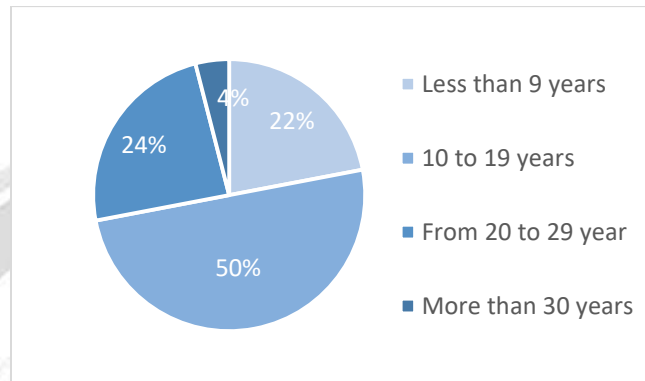


Fig. 5. Percentage of respondents' years of experience

6. Reliability of Questionnaire

One of the most used methods for determining dependability is the Alpha Cronbach constant, whose value ranges from 0 to 1, and the closer to 1 the value, the higher the degree of reliability [19]. Based on the degree of the alpha-Cronbach coefficient, the reliability level is categorized in Table 1 below.

Table 1. The Reliability Cut-off Values [19]

Cronbach's alpha	Degree of Reliability
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

When applying the method (Alpha Cronbach) for the questionnaire, the results were presented and it was found that the values of Alpha Cronbach were in the range (0.810 - 0.949). This range is considered high, so it ensures the reliability of each axis in the questionnaire. Table 2 represents the Alpha Cronbach values for the questionnaire axes.

Questionnaires Table 2. The Value of Alpha Cronbach for

	Cronbach's alpha	Degree of Reliability
Part Two	0.810	Good
Part Three		
Economic Axis	0.849	Good
Legal Axis	0.870	
Part Four	0.949	Excellent

7. Results and Discussion

The questionnaire was statistically analyzed using the SPSS program, version 26. The data were analyzed in order to evaluate the influencing factors that cause an increase in slum housing and to evaluate the proposed solutions to reduce this phenomenon.

7.1 The management of slum housing

The second part includes 5 questions about evaluating the perception of slum housing. Table 3 shows the analysis of the second part, the arithmetic means, and the standard deviation for each paragraph.

Table 3. Statistical analysis of items' perception of slum housing

Item	Mean	SD	Assessment
Existence of overrun buildings on government lands	3.74	1.026	High
Do not meet the mandatory requirements	3.78	0.887	High
No energy consumption considerations	4.1	0.788	High
The lack of standards for the correct construction	4.22	0.763	Very High
Difficulties in balancing environmental, social, and economic issues	4.02	0.769	High

Table 3 shows the evaluation of the perception of randomness, as it ranked first, which states (The lack of standards for the correct construction), where the value of the standard deviation is 0.763, and the value of the arithmetic mean is 4.22. Where it is followed in second place, which states (No energy consumption considerations), where the value of the standard deviation was 0.788, and the value of the arithmetic mean was 4.10. It came in the last rank, which states (Existence of overrun buildings on government lands), where the value of the standard deviation was 1.026, and the value of the arithmetic mean was 3.74.

7.2 The Factors Influencing the spread of slum housing

The third part includes 19 questions about evaluating the Factors Influencing the spread of slum housing from economic, social, and legal perspectives. Table 4 shows the analysis of the third part, the mean, and the standard deviation for each paragraph.

Table 4. Statistical Analysis of Factors Influencing the Spread of Slum Housing

Item	Mean	SD	Assessment
Economic, social Axis			
The cost of buying a home compared to the average per capita income	4.44	0.76	Very High
design cost	3.28	0.881	Medium
Optimal use of the land	2.94	0.998	Medium
power consumption cost	3.50	0.952	High

Maintain high and stable levels of economic growth	2.84	0.976	Medium
The cost of transportation to services	3.08	0.965	Medium
Energy Efficiency in Housing construction life	2.86	1.069	Medium
Long-term housing cost	3.10	0.863	Medium
Cost of equipment and machinery used in the stages (manufacture, implementation, and use)	3.46	0.973	High
Cost of equipment and machinery used in the stages (manufacture, implementation, and use)	3.34	0.917	Medium
Possibility of saving water and other facilities at a lower cost	3.04	0.968	Medium
Legal Axis			
weakness of state law	4.44	0.674	Very High
Immigration from the countryside to the center.	4.30	0.677	Very High
Not creating any plans by the competent authorities.	4.16	0.738	High
An increase in the city's population.	4.42	0.574	Very High
The increase in the unemployment rate	4.40	0.670	Very High
Lack of strict legislation on transgressors	4.08	0.804	High
Lack of controls on urban planning	4.02	0.868	High
Housing policies have an impact on the problem of slum housing	4.04	0.698	High
Housing deficit (increase in the number of families, shortage in the housing market)	4.22	0.708	Very High

Through Table 4 the results showed through the economic axis that (The cost of buying a home compared to the average per capita income) obtained the highest response rates from the point of view of specialists with (mean= 4.44 and an SD= 0.76) because of the low level of per capita income and the high prices of housing units, this motivates them to take slum housing as a haven. As for (Maintain high and stable levels of economic growth), it got the lowest response rates from the point of view of specialists with (a mean= 2.84 and an SD= 0.976). In terms of the legal axis, the results showed that (weakness of state law.) obtained the highest response rates from the point of view of specialists with (a mean= 4.44 and an SD= 0.674), and this high percentage is attributed to the absence of any laws that prevent the expansion of this phenomenon, The absence of the law in some areas, the lack of attention to the standards and foundations of planning and design for the city as a whole, and the residential communities in particular, and the random changes in land uses, led to the emergence of many marginal areas, as well as violations of the controls of all municipalities, thus creating a random, heterogeneous fabric as well as housing deformed. Either (Lack of controls on urban planning) got the lowest response rates from the point of view of specialists, with a mean of 4.02 and an SD of 0.868. This finding is consistent with UN-Habitat (2020), which identified poverty, lack of affordable housing, rapid urbanization, weak urban governance, and inadequate land management policies as the main factors contributing to the spread of slum housing in the Arab region [20].

7.3 Suggested solutions for slum housing management

Some suggested solutions for slum housing were obtained from the theoretical study, and according to the opinions of the engineers, after using the statistical program (SPSS) to calculate the AM and SD as shown in Table 7.

Table 7. Statistical Analysis of Suggested Solutions for Slum Housing Management

Item	Mean	SD	Rank
Providing low-cost housing complexes	4.18	0.896	High
Migrate and remove	3.18	1.082	Medium
Resettlement	3.64	1.156	High
Slum Upgrading	4.08	0.965	High
Work to complete the residential projects under implementation	3.88	1.042	High
Work to reduce the spatial disparity in the housing deficit between the regions of the governorate	3.84	0.791	High
Encouraging investors to participate in the implementation of new city projects	3.84	0.888	High
Cooperation between ministries and bodies responsible for land management, such as municipalities, as well as the governorate and urban planning departments, to facilitate land sorting and distribution at nominal prices for citizens, especially the poor and vulnerable class	4.06	0.998	High
Work to establish housing in the plots of land at reasonable prices and in convenient installments, in cooperation with private and governmental banks, according to mechanisms set by decision makers.	3.86	0.926	High

The problems that caused squatter housing to emerge in different regions varied, as Table 7 illustrates. As a result, it was difficult to find a model policy to address this issue, and governments came up with a number of solutions, theories, and policies to improve these neighborhoods. Through the results of the questionnaire, the highest evaluation of the respondents was (providing low-cost housing complexes) with a mean of 4.18 and an SD of 0.896. Or by adopting policies for the development of such neighborhoods and settlements that include priorities determined by the resources. The available approaches, the nation's local conditions, and addressing the issue in a methodical and planned way that addresses all facets and associated issues over the long run. This approach aims to improve the current situation in these regions by giving the slum housing the social services and infrastructure it needs, as long as it is carried out in an integrated way. The results of the questionnaire were the second evaluation of the respondents, which is (Slum Upgrading), with a mean of 4.08 and an SD of

0.965. The policy of removal and deportation of slum dwellers had the lowest evaluation from the respondents, with an arithmetic mean of 3.18 and an SD of 1.082.

8. Conclusion

The conclusions can be divided according of the following:

1. The main problem in the regions is the lack of infrastructure and social services with an imbalance in planning and design standards for residential areas.
2. Failure to implement the housing policy leads to an increase in slum housing
3. It appeared that most of the residents of slum housing need to provide low-cost housing complexes, as well as some areas that need to upgrade their infrastructure
4. The policy of removal and deportation to slum housing scored the lowest rating.

9. Recommendations

1. Limiting the phenomenon of slum housing and urban encroachment upon lands with governmental and private ownership of agricultural lands around the cities.
2. To deal with an existing area of slum housing that is difficult to remove or resettle by awarding people a license of ownership and providing them with infrastructure to link to the city after performing a full survey and counting.
3. Preventing erosion of agricultural land around cities by preventing slums and cumulative urban expansion, because agricultural land serves as an outlet and a lung for such cities, and hence must be conserved.
4. Reduce internal migration to cities, particularly to regions of slum housing, as these cities have become overcrowded in terms of size and population.

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الإدارة والحلول الممكنة للأحياء العشوائية في محافظة ديالى

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الخلاصة

واحد من أكبر المشكلات التي تواجه تنمية العديد من الدول النامية هو السكن العشوائي. وتعاني محافظة ديالى من توسع عشوائي غير منظم، ناجم عن تجمعات سكنية غير رسمية، نتيجة عوامل ديموغرافية واجتماعية واقتصادية تؤثر سلبيًا على تنظيم استخدام الأراضي، لا سيما في المجال السكني. تهدف هذه الورقة البحثية إلى تحديد وتحليل العوامل المؤثرة في نمو السكن العشوائي من الجوانب الاقتصادية والاجتماعية والقانونية، فضلا عن تقييم المقترحات المطروحة لمعالجة هذه الظاهرة والحد من آثارها. ولتحقيق أهداف البحث، تم تصميم استبيان وجمع البيانات وتحليلها للوصول إلى النتائج والاستنتاجات المتعلقة بمشكلة السكن العشوائي. أظهرت النتائج أن أبرز العوامل الاقتصادية والاجتماعية المؤثرة في نمو السكن العشوائي في محافظة ديالى تتمثل في ارتفاع تكلفة شراء السكن مقارنة بانخفاض متوسط الدخل السنوي للفرد، إلى جانب ارتفاع تكاليف المعدات والألات. أما من الناحية القانونية، فقد برز كل من ضعف تطبيق القوانين، والزيادة السكانية، ونقص الوحدات السكنية بوصفها أهم العوامل المساهمة في تفاقم هذه الظاهرة. كما اثبتت الدراسة إلى أن بعض المساكن العشوائية تتطلب إنشاء مجمعات سكنية منخفضة التكلفة، في حين تحتاج أحياء أخرى إلى تحسين البنية التحتية والخدمات الأساسية.

الكلمات الدالة: السكن العشوائي، العوامل، إدارة السكن، المحور الاقتصادي، المحور القانوني.