

Haphazard Housing Issue in Yemen
Al-Kodah Neighborhood in Mukalla - Case Study

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Abstract :

Since the 60s of the last century, Yemen has faced the consequences of rapid urbanization, which has led to the emergence of the phenomenon of haphazard human settlements around the major cities. This research tackles the concept of haphazard housing, its classification, the reasons for its spread in general and the approaches of dealing with it. It also highlights one of the slums in the city of Al-Mukalla in Hadramout Governorate as a special case study wherein the urban and architectural situation is analyzed in addition to identifying the economic and social status of the segment of the residents. In order to document all aspects related to the

completion and construction of the houses, it has been relied on field tours and surveys, as well as direct conversations with the beneficiaries to observe cases of the present situation. This served as well to assess existing designs and to study the actual use of the architectural and urban realm by the relevant social segment. In addition, multiple-target questionnaires have been adopted to complete the observation of the current state with all its material and social data to come up with the results related to the theoretical and practical study. This research concludes with drafting some recommendations that have been reached to achieve the aims of the research

Key words: Haphazard housing - incremental way – Self-help approach – Occupancy rate – Overcrowding rate – Upgrading approach.

1 The field study carried out has been based on a full survey of the neighborhood, which was carried out by a team whose members are the students: Abdul Rahman Hamid, Mohammed Bin Othman, and others. This was done as part of their preparation for their own graduation project for the year 2014-2015, under the supervision of the researcher.

الملخص باللغة العربية:

المباشر مع المستفيدين لرصد حالات الوضع الراهن وتوثيق جميع الجوانب المتعلقة بإنجاز وبناء المسكن. بالإضافة إلى تقييم التصاميم القائمة ودراسة الاستخدام الفعلي للحيز المعماري والعمراني من قبل الشريحة الاجتماعية ذات العلاقة. وقد تم اعتماد استبيان متعدد الأهداف لاستكمال رصد الحالة الراهنة بكافة معطياتها المادية والاجتماعية وصولاً إلى النتائج الخاصة بمجمل الدراسة النظرية والتطبيقية. ويخلص البحث إلى صياغة بعض التوصيات التي تم التوصل إليها تحقيقاً لأهدافه^(١).

تعرضت اليمن منذ ستينات القرن الماضي إلى تبعات التحضر السريع، الأمر الذي أدى إلى نشوء ظاهرة المستوطنات البشرية العشوائية حول المدن الكبرى. يتعرض هذا البحث إلى مفهوم السكن العشوائي وتصنيفه وأسباب انتشاره بشكل عام. والأساليب العامة للتعامل معه، ويسلط الضوء على أحد الأحياء العشوائية في مدينة المكلا في محافظة حضرموت كحالة دراسية خاصة يتم فيها تحليل الوضع العمراني والمعماري إضافةً إلى التعريف بالوضع الاقتصادي والاجتماعي لشريحة القاطنين فيه. لقد تم الاعتماد على الجولات والاستطلاعات الميدانية والحديث

(٢) تمت الدراسة الميدانية استناداً إلى المسح الكامل للحي الذي قام به فريق عمل مكون من الطلاب: عبد الرحمن الحامد، محمد بن عثمان، وآخرون وذلك في إطار تحضيرهم لمشروع التخرج الخاص بهم للعام ٢٠١٤-٢٠١٥. بعنوان تخطيط وتطوير منطقة الكودة العشوائية. بإشراف الباحثة.

1.Introduction:

Haphazard housing is considered to be an urban phenomenon that has spread in developing countries as a result of several factors, and it has multiple patterns and types. Thus, its concept varies from one country to another, depending on its nature and the circumstances that accompanied its inception, as well as the social and economic level of the society in which it arises. Many of those who have studied this kind of housing consider it the sector that arises basically as a result of the seizure of State territory and the establishment of residential buildings that are mostly located on the outskirts of cities. For decades, a lot of attempts have been made to solve this phenomenon, but this phenomenon has not stopped. According to some studies, about one billion people are living in unofficial areas (slums) and 90% of these areas are found in developing countries (The Management Council of the United Nations Human Settlements, 2007).

This paper aims to shed a light on the phenomenon of haphazard housing in Yemen in general and in Al-Kodah Neighborhood in the city of Al-Mukalla in particular by assessing its urban and designing situation, understanding the mechanisms used by residents to construct their houses, and analyzing the designing characteristics of those houses and their functional relations in order to provide a theoretical base that makes it possible to start developing this neighborhood and addressing its problems.

2.Literature review:

This section serves to identify the theoretical background of the subject matter which includes several points; the definition and classification of haphazard housing, the reality of this type of housing in Arab cities, and the different ways to deal with it.

2.1 Haphazard Housing:

The concept of haphazard housing: This concept was first introduced upon the industrial revolution which has started in London in the nineteenth century, and it began to spread widely around the

world. Haphazard housing is also known as cancerous housing and illegal housing in addition to terms such as slums and shantytowns. Random housing can be defined according to:

1. The Arab Institute of Urban Development that defines haphazard housing as areas where buildings were constructed without license and on lands that are owned by the government or other parties. These buildings are often found in areas where governmental services are not found, and it lacks infrastructure and other services because they are not recognized by the government (AlNaiem, 2004, p. 2).
2. The recommendations of the Haphazard Housing and Slums that was held in AlRibat in 1985 defines this form of housing as any house that is contrary to concerned laws and systems, including architectural, health and public safety laws, and that is considered to be dangerous for its residents and the community and harmful for public interest regarding its building or density or its conditions.

2.1.1 Definition:

Haphazard housing is defined as:

- The Housing that individuals seek as one of the solutions to the existing housing problems. It is an illegal housing because it is contrary to laws and systems and because it is built through purely personal methods away from the various government actions and facilities (E'ed, 2004).
- On the level of urban planning, it is called *unplanned growth* which means growth in the absence of urban planning without taking into account the planning principles and standards of the ratios of streets and open spaces (Sulaiman, 1996).

2.1.2 Classification:

According to some studies on haphazard housing, and on the basis of the way in which the residents get hold of land, haphazard housing can be classified into three categories (Sheikh, 1999,p 50):

2.1.2.1 The residents illegally seize vacant land and set up inferior housing buildings using temporary building materials.

Neighborhoods growing out of this method are known as Squatting Housing Areas and the residents of these areas are very poor and the houses are very inferior.

2.1.2.2 Land is divided unofficially and the resulting plots are rented out to residents to construct houses.

2.1.2.3 Semi-unofficial Housing is located on the outskirts of and outside the administrative borders of cities and agricultural areas adjacent to it, where it is divided unofficially and sold for housing. The reason for this label is that this kind of housing has a legal status in terms of land ownership, but it lacks the necessary official building licenses because the agricultural lands and neighborhoods developed according to this method are known widely as the irregular neighborhoods. According to some studies, this category has arisen as an unofficial action in Asia, Africa, Latin America and Southern Europe since the seventies.

2.1.3 The reality of the phenomenon of haphazard housing in

Arab cities:

Most Arab cities, in particular big ones, encounters the phenomenon of haphazard housing due to the growing population growth in addition to the increase in urbanization. Rapid urban growth has led to the emergence of many informal settlements on and off the outskirts of cities, most of which lack basic services. The existence of these slums is not confined to the Arab countries, which suffer from economic problems, but it also appears in rich countries although less seriously. The percentage of people living in unplanned neighborhoods in most Arab countries ranges between 30-60%.

In addition, a study that was conducted by the Arab Institute of Urban Development in 1997 shows that 60% of the slums in the Arab countries are found on the outskirts of cities, whereas 30% are found outside the urban range and 8% in the middle of the capital. Besides, the study asserts that 70% of these slums were built by individuals while 22% of them were built by group of people. The percentage of rented building within haphazard housing does not exceed 70%. Moreover, this study states that the majority of the slums in Arab

countries lack sewerage services, clean water and food, while unemployment, crime, drugs and property abuse are widespread.

2.1.4 Approaches of addressing slums: according to referential specialized studies, there are three ways of approaching slums that can be summarized as follow:

2.1.4.1 Slum Clearance and replacement: where an entire area is wholly cleared out and is rearranged. This approach is not desirable though unless it is necessary because of the many economic and social problems that it might cause.

2.1.4.2 Ways that handle slums from an urban point of view in order to improve its conditions. This includes fixing and renewal in a way where the area gets developed. This way is suitable for the cases in which the buildings' condition is either good or mediocre. In addition, there is the site and services approach which deals with haphazard areas that are surrounded by vacant land in order to provide the planned expansion in future. This approach must depend on both the government and the residents' work, where the government divide the land, provide the facilities and services in it and then sell it, whereas residents build their houses using their own efforts (self-help approach).

2.1.4.3 Upgrading approach: which is an overall way that addresses slums from urban, environmental, economic and social side in order to gradually improve its condition, and consequently develop it. This approach usually includes other approaches such as clearance, replacement, fixing as well as renewal.

3. Research Methodology:

The research methodology is based on two axes:

3.1 The Theoretical Axis: it addresses the most important causes that have led to the emergence of this pattern in Yemen in general, depending on official reports issued by the concerned authorities.

3.2 The Practical and Applied Axis: Al-Kodah Neighborhood in Al-Mukalla City was chosen as a case study in order to identify the pattern implemented by residents to observe the general urban and

architectural features of the neighborhood in addition to the residents' social and economic characteristics through field tours and direct conversations with them to identify the different aspects that accompanied the construction process. Finally, the research concludes with a set of results, on which recommendations are based in order to achieve the aims of the research.

4. Analysis and Findings:

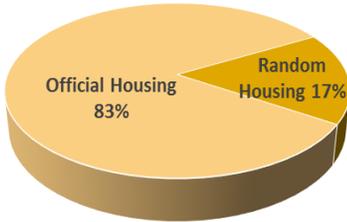
This section tackles the reality of haphazard housing in Yemen and the reasons of emerging this form of housing in addition to its types. This section also presents an analytical study of some of selected samples from one of the Neighborhoods in AlMukalla city.

4.1 Haphazard Housing in Yemen:

4.1.1 An Overview of Haphazard Housing in Yemen: According to official studies, the total number of houses in Yemen reached more than 2,619,571 houses, of which 443,225 are tents, huts, wooden and tin houses (Yemen in Figure, 2012). These types of houses make 17% of the overall housing in Yemen (The Management Council of the United Nations Human Settlements, 2007).

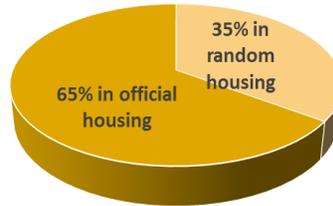
The capital Sanaa is considered one of the top cities where this kind of housing has arisen. Its beginning dates from the first phase of the Revolution in 1962 when illegal neighborhoods emerged outside the walls of the old city in the east, including: Dhahr Himyar Neighborhood, Mseek Neighborhood, and Naqam Neighborhood, which have been restructured in the early '90s with the support of the World Bank. After the announcement of the unification of Yemen in 1990, the city witnessed a rapid development of its domain due to the increasing pace of internal and external migration. This development in the population has had a major impact on construction activity and the quality of implemented housing (Haphazard Building in Yemen - a special study in Sanaa City), in which case residents of random housing came to be 35% of the overall residents in the city of Sanaa (The Management Council of the United Nations Human Settlements, 2007). (Figure 1-2)

Housing in Yemen



Source: (Haphazard Building in Yemen – a special study in Sanaa City)

Residents Percentage in the city of Sanaa



Source: (The Management Council of the United Nations Human Settlements, 2007)

Figure (1)

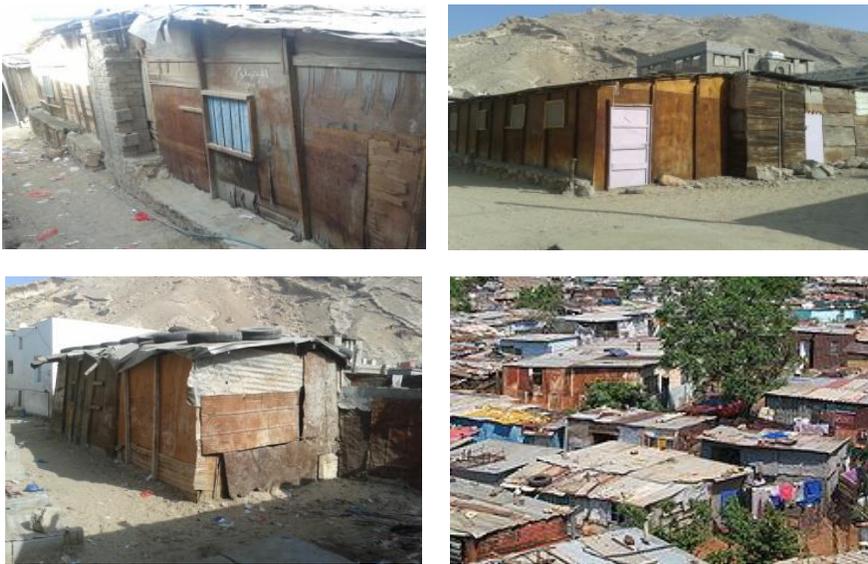


Figure (2) Haphazard Housing in Sanaa City - Source: (Haphazard Building in Yemen - a special study in Sanaa City)

The most important factors that led to the spread of this phenomenon can be summed up as follows:

- The accelerated urban growth of major cities and the lack of detailed plans for the urban domain as well as the lack of their comprehensiveness.
- The housing deficit and the lack of housing policies that provide all kinds of housing for different social segments.
- The fragile control over state land and public property.

4.1.2 Kinds of Haphazard Housing in Yemen:

According to the above classification, the following three types are found in Yemen:

1. Unlicensed building.
2. Building on land that is not intended for construction.
3. Building on usurped land or land that is not owned by the builder.

4.2 The Practical (Field) Study:

For the purpose of examining the current conditions of haphazard housing in Yemen, AlKodah Neighborhood in AlMukalla-Hadramout was chosen as a case-study, where the constructional characteristic of the area were defined as well as the social and economic characteristics of the residents, in addition to highlighting the design characteristics of the houses along with all aspects related to the completion of the house.

4.2.1 Introducing the Study Area (Al-Kodah Neighborhood) and Reasons for the Choice:

The word *Kodah* means “moving sea sands”; in other words, it is piles of sand that have been washed away by sea waves in the past. The word has been distorted later to become the word *Kodah* instead of a *sand pile*. Al-Kodah neighborhood is located on the western side of the Sharj commercial area. It was chosen as a case study for the following reasons:

- It has a vital location which overlooks the two major roads that represent the main movement in the city of Al-Mukalla.

- The lack of studies on the neighborhood in particular and the city in general that aim to develop and upgrade them, as there are no previous statistics or studies available. (Figure 3).
- It is considered one of the biggest challenges facing the housing policy in the governorate, as it is the most haphazard area in the city (Figure 4).



Figure (3) AlMukalla city with the investigated area highlighted



Figure (4) Al-Kodah Neighborhood site

4.2.2 Urban Characteristics of the Neighborhood: The urban characteristics of the neighborhood have been studied in order to identify the planning framework and available public services.

1. **Planning Data:** The neighborhood's area is about 24.4 hectares inhabited by a population of 8419 persons. The gross density amounts to 345 persons per hectare, which is relatively high. Table (1) shows the planning data of the neighborhood:

Table (1) planning data of Al-Kodah Neighborhood
- Source: field survey – the work team

Planning Data	Corresponding number
The total area	24.4 hectares
Population	8419
Residential area	18.55 hectares
Gross density	345 persons per hectare

According to the survey carried out, it was found that the urban land is distributed as follows: 74.7% housing, 0.9% public services, 16.6% vacant land, 0.7% streets and footpaths, and 0.0% green areas. Table (2) shows the land uses in the neighborhood according to the current situation and comparing it with the planning foundations adopted in residential areas. It is noted that the percentages show the low level of public services due to the lack of public facilities and the high proportion of housing due to the haphazard increase in housing. Most of the streets are neglected dirt roads. Figure (5).

Table (2) land uses in the neighborhood according to the current situation -
Source: field survey – the work team

The type of use	Area (Hectare)	Land occupancy factor	Ratio according to planning foundations (Marteny, 1990, p. 157)	Notes
Housing	18.55	74.7 %	45 – 55 %	High
Public services	0.19	0.9 %	10 – 12 %	Lower than the planning foundations
Green areas	0	0	8.11 %	Non-existent
Roads and footpaths	1.68	7 %	18 – 22 %	Low
Vacant land + cemeteries	4	16.6 %	---	
Total	24.4	100 %	100 %	

2. **The Essential Facilities:** There are a number of facilities in the neighborhood: religious ones (two mosques), educational (a kindergarten in a residential building), residential tourism (a hotel) and health (a health unit in a residential building too). The commercial services are merely small shops scattered in the residential ground floors, Figure (6).



Figure (5) neglected dirt streets



Figure (6) a shop in a residential building

3. **Services and Utilities:** Al-Kodah Neighborhood suffers from many problems at the level of infrastructure equipment, most important of which are the lack of sanitary sewerage, Figures (7-8), the weakness and wearing down of the network of usable water, Figure (9), haphazard extensions of feeding electrical wires, lack of specific places in the neighborhood to collect garbage and lack of mechanisms for garbage disposal, Figure (10). It is, thus, considered a source of visual pollution for the area and the neighborhood.



Figure (7) the resulting contamination of the area from sewage overflow.



Figure (8) the absence of sanitation services and the residents' reliance on sewage pits.



Figure (9) the weakness in the network of usable water supply



Figure (10) the garbage pollution because of throwing waste away on the streets due to the lack of garbage cans.

4.2.3 Social Characteristics of the Beneficiaries:

The social characteristics of beneficiary social classes in the neighborhood have been identified through field studies and surveys. (Appendix 1)

1. **The Primary House of the Beneficiaries:** According to the survey carried out, 59% of the residents come from abroad, compared to 41% who come from the countryside of the city.
2. **The Family Type:** The majority of families are independent families with a number of children living with their parents in the housing unit after their marriage.
3. **The Family Size:** The average number of family members is 6.2, and according to the field survey, there are 18% of families numbering more than eight members.

4.2.4 Economic Characteristics of the Beneficiaries

1. **Beneficiaries' Work:** Table (3) demonstrates the labor force in the area:

Table (3) - Source: field survey – the work team

Kind of work	Number of employees	Percentage
Government employee	120	10.9 %
Private sector employee	115	6.5 %
Social work	343	19.6 %
Marginal work	417	23.8 %
Unemployed	688	39.2 %

The table demonstrates the high percentage of unemployment and disguised employment in the neighborhood which leads to problems on the social and economic level of the residents in general.

2. **Women's Work:** The absence of women's contribution to work is noted, because, according to the families surveyed, 97% of the women do not work as opposed to 3% who do marginal work. This reflects on the weakness of the economic level of the family.
3. **Average Monthly Household Income:** The following Table (4) shows the average income in the neighborhood. The low level of income is noted.

Table (4) the average income of the residents

- Source: field survey – the work team

Average monthly household income (\$)	Number of families	Percentage
100 \$ or below	326	39 %
100 – 200 \$	361	43 %
200 – 300 \$	132	15.5 %
300 \$ and above	19	2.5 %

4. **Kind of Tenure:** 84% of the beneficiaries own their houses compared to 16% who benefit from houses through rent.

4.2.5 Architectural Characteristics of the Studied Cases

The most important architectural features of the houses in this neighborhood have been identified by documenting the present situation of some of the examples that have been selected and that represent the dominant types.

4.2.5.1 Completion of the House:

- **Obtaining the Land:** 82.2% of the residents obtained land through getting hold of the lands of public ownership, and 17.7% of them obtained it through official ways.
- **Stages of Completing the Construction:** 92% of houses were completed in two stages or more, and the construction process was completed through personal efforts and getting the help of individual construction workers.
- **The Beneficiary's Contribution to the Construction Process:** 87% of the beneficiaries were able to contribute to the construction process and completion, and this contribution was made in many ways: building rooms with temporary materials (concrete blocks and metal-sheet roofs), sanitation and electrical works of the house, installing metalwork or woodwork, etc.
- **Construction Financing:** The construction process had been completed through self-made efforts. It is noted that the beneficiaries had recourse to multiple financing ways. This indicates the presence of potential and capabilities that they have to provide the necessary funding in order to secure housing.

4.2.5.2 House Properties:

- **Age of Houses:** Most of the houses in Al-Kodah area range from 10 years to 40 years old, representing 80% of the number of buildings.
- **Physical Condition of Houses:** There is a clear disparity in the level of houses and a difference in their physical condition where 29% of the houses are physically good; 34% of them are mediocre; and 37% of them are in a bad condition. Most of the houses are acceptable in terms of ventilation and natural lighting.
- **The Architectural Type:** The detached type exists in the neighborhood as follows:

- 69.5 % of the houses are one-family dwelling with an inner courtyard or without a courtyard style, and this is the dominant type.
 - 25 % of the houses follow the multi-family dwelling type of two-story height.
 - 5.5 % of the houses follow the multi-dwelling type of three-story height, which are completed by construction dealers.
- **Building Materials:** in 79.5% of the houses, building materials and construction methods were the same as those used in official housing, Figures (11-12). The temporary building materials suitable for rapid housing are used in 20.5% of the houses and they could be replaced as a family income improves, Figures (13-14).



Figure (11)



Figure (12)

The use of building materials and construction methods that are used in official housing



Figure (13)



Figure (14)

The use of temporary building materials (metal sheets) that are suitable for rapid housing –Al-Kodah Neighborhood– photographed by the work team.

4.2.6 Analysis of Some Residential Models

Some residential models have been analyzed in order to examine the items of the designing solution in addition to identifying the suitability of the house socially and environmentally. (Appendix 2)

4.3 Discussion

1. The total area of the property ranged from 65 to 120 m².
2. The similarity of the functional components of houses is in terms of area and distribution with their counterparts, which are completed officially, and some of them lack a private bathroom.
3. The occupancy rate of housing units amounted to (1 to 4) family/house, leading to many social problems. The number of rooms in the houses ranged from one room to four rooms, but the dominant percentage was three rooms.
4. The number of occupants of the examined residential units ranged from 6 to 12 members, while a member's share of area ranged from 5 to 14 m² per person.
5. The overcrowding rate amounted between 1.5 to 4.7 people per room. This high rate leads to significant problems in terms of privacy and meeting the residents' social needs³.
6. In some of the houses, it appears that the vacancy in the ground floor is used as a shop to improve the family income and to service the area.

4.4 The study concluded with the following results:

1. Haphazard housing spreads in Yemen, especially in major crowded cities as a result of many reasons, the most important of which are the deficiency of organizational plans and the absence of housing policies concerned with providing housing for all segments of the society.

The recommended rate of overcrowding is 1.3 to 1.5 person per room according to the recommendations of ESCWA, United Nations.

2. This type of housing (despite the previous problems) contributes to raising the population of the city and providing quick solutions to the poor and marginalized groups in the light of a clear governmental inability to secure an alternative. These simple solutions, although they are not decent enough, show the potential of the population in terms of securing funding and building their own houses through personal efforts which should be taken into account in the housing policies of the state.
3. Al-Kodah Haphazard Neighborhood is one of the important neighborhoods in the city of Al-Mukalla and, with its current situation, is considered an obstacle to the growth and development of the city in an orderly fashion, for it suffers from major problems on architectural and urban levels. On the designing level, the deterioration of the physical condition of some houses is noted as well as the high occupancy rate per house in addition to the high overcrowding rate per room. This consequently leads to the loss of privacy within the house and to problems of ventilation and natural lighting. On the urban level, the neighborhood suffers from a significant lack of services, negligence in existing facilities, and infrastructure problems of sanitation, garbage disposal, lighting and telephone networks, etc...
4. The sequence of development in Al-Kodah Neighborhood and how to construct a house can be an important base for the development of new trends in securing land and housing for the low-income and limited-income segment of the population.

Recommendations:

According to the previous results, the research suggests the following general recommendations:

1. The need to expedite the preparation of the general and detailed organizational plans to secure the land intended for building within a comprehensive regional scheme with the system process of the

- growth of cities. Also, the scheme should secure the protection of public property.
2. Working on the development of housing policies that provide adequate housing for all segments of the society and support low-income groups. The research here recommends applying "the self-help" approach in haphazard areas so that the public authorities responsible for housing provide facilities and services and secure key resources for individuals, while individuals design, build and manage their houses under the supervision of responsible engineering parties.
 3. Working on providing all the means that can achieve the success of self-help principle in securing housing, most important of which are:
 - Developing technical and managerial skills needed to apply it and working on the development of local building materials.
 - Making use of the experiences of countries that have applied this method.
 - Continuing the residential trials carried out and evaluating them in order to determine and take advantage of the positives and to avoid the negatives in future projects.
 4. Commencing urban and designing treatments for Al-Kodah Neighborhood in Al-Mukalla to resolve the problems that have been highlighted by applying the upgrading approach and investing in the personal capabilities of the population as follows:
 - Maintaining the existing houses with a good physical condition with the aim of not wasting the property balance, and working on improving their conditions.
 - Removing the buildings with a bad condition and dividing the land intended for building to plots of varying areas, which provide appropriate designing alternatives for the potential of low-income people.
 - Adopting the incremental way in the process of housing construction, developing the site, and providing the necessary services in the neighborhood.

References :

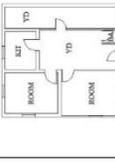
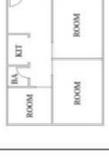
1. Neuwirth, R. (2005). *Shadow Cities- A Billion Squatters, A New Urban World*. London: Routledge.
2. Payne G. & Majale M. (2004). *The Urban Housing Manual Making Regulatory Frameworks Work for the Poor*. London: Earthscan.
3. *Haphazard Building in Yemen - a special study in Sanaa City*, public administration of urban planning, the interest of the basic plans. The Ministry of Urban Housing and Planning. Part I, no date.
4. Sheikh M, Zakaria. (1999). *Cross National Comparison of Strategies to Deal with Unauthorized Colonies in Selected Asian Cities*.
5. United Nations, the Management Council of the United Nations Human Settlements, sustainable urbanization, local actions for urban poverty reduction, with a focus on financing and planning. 21st session, Nairobi 16 to 20 April (2007).
6. *Yemen in Figure*. (2012). Report of Central Statistical Organization. Ministry of Planning and International Cooperation, Republic of Yemen.
7. Sulaiman, A. Munir. (1996). *Housing and sustainable development in developing countries*. Beirut. AlRateb Publishing House.
8. E'ed, M. Abd AlSamee'. (2004). *Learned lessons from random housing within the frame of housing facilitation*. AIRyad. Second Housing Conference (Facilitated Housing).
9. Marteny, O. Wasfi & Sakkal, Salwa. (1990). *Urban planning theories*. Aleppo: Alepo University Publications.
10. Yosuf, W. Hussein & E'ed, M. Abd AlSamee'. (2004). *Investing the community's energies in the facilitation of house obtaining (self-built housing)*. AIRyad. Second Housing Conference (Facilitated Housing).
11. AlNaiem, A. AlAli. (2004). *Haphazard Housing and its security impacts*. Security impacts and population and development issues conference. Cairo.

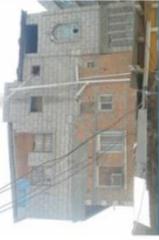
Appendix 1

هذا الاستبيان لدراسة بحثية ولا علاقة له بأي جهة كانت

الموطن الأساسي	ريف	مدينة		خارج اليمن
العمل	موظف حكومي	موظف قطاع خاص	عمل خاص	عاطل
كم عائلة في المسكن	عائلة واحدة	عائلتين		
كم فرد في المسكن	٣ - ٥	٦ - ٩		
هل تعمل المرأة	نعم / ما العمل؟		لا	
مقدار الدخل الشهري	\$١٠٠ فما دون	\$٢٠٠ - ١٠٠	\$٣٠٠ - ٢٠٠	\$٣٠٠ وما فوق
صفة حيازة المسكن	ملك		إيجار	
هل لديك صك بملكية الأرض؟	نعم		لا	
هل بنيت المسكن على مرحلة واحدة أو أكثر؟	مرحلة واحدة؟		أكثر من مرحلة؟	
هل شاركت بعملية البناء؟	نعم / كيف؟		لا	
كيف حصلت على المال للبناء؟	ادخار	هبات ومساعدات		طرق أخرى؟ ماهي؟

Appendix 2

	The First Example	The second example	The third example	The fourth example	The Fifth example	The Sixth example
						
						
Building Material	Blocks and wood.	blocks and metal-sheets house	metal-sheet and wood	metal-sheet and wood	metal-sheet house (fragile materials)	Concrete, blocks
Approximate area / m2	82	110	74	97	65	120
Rooms	2.	3	2	2	3	4
kitchen	1	1	1	1	1	1
bathroom	1	1	1	1	1	2
Yard	-	1	1	1	-	-
Store	-	-	-	shop	-	-
Number of residents	6	7	12	12	12	16
Occupancy rate	1	1	2	1	3	4
Overcrowding rate	2	2.2	3.6	4	4	4.7
Physical condition	bad	good	bad	bad	bad	bad
Ventilation and natural lighting	bad	good	bad	mediocre	mediocre	mediocre
Notes	completed in two stages	completed in two stages; needs internal finishing	completed in two stages	Completed in two stages.	completed in two stages	completed in two stages

	The seventh example: A multi-dwelling residential building	The eighth example: A residential building (for an extended family)	The ninth example: A Multi-dwelling residential building
			
			
			
	Ground floor Two residential units Concrete, blocks	Ground floor Two floors Concrete, blocks	First floor Second floor Concrete, blocks
Building Material	Concrete, blocks	Concrete, blocks	Concrete, blocks
Approximate area / m2	97	91	94
Functional Components	Rooms kitchen bathroom Yard Store	Rooms KIT BA ROOM	Rooms KIT BA ROOM
Number of residents	4	12	3
Occupancy rate	1	3	1
Overcrowding rate	4	2.4	2
Physical condition	bad	mediocre	Good
Ventilation and natural lighting	Mediocre	mediocre	Good
Notes	completed in three stages	completed in two stages	completed in two stages