

## Urban Housing Supply and Affordability in Yemen

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**Abstract.** Housing supply and affordability are apparently the most critical problems facing urban areas in Yemen. This paper examines urban housing from the perspective of supply and affordability in major Yemeni cities. The methods used in this study include an extensive process of secondary and primary data collection and analysis. The main finding of the study is that the housing problem in urban Yemen is not so much a matter of number of units, but one of housing unit suitability and affordability, difficulty in accessing housing units and a mismatch between supply and demand.

### 1. Introduction

Housing is a basic need for the inhabitants of the rapidly growing cities in Yemen<sup>(1)</sup>, and is a major economic sector. However, access to housing in Yemen is a critical problem due to a major gap between housing costs and affordability. According to the most recent urban program indicators, the house price-to-income ratio in Yemen is 17.2, which is generally the highest in the Middle East and North Africa (MENA) region. Such a high ratio reflects a crisis of affordability, which consequently underscores significant supply-side constraints to the housing and land markets that increase housing and land prices beyond what people could afford, as well as demand-side constraints in the form of inadequate access to housing finance and limited purchase power.

According to the final census results of 2004 that categorized as 'urban' all settlements with more than 5,000 inhabitants, urban housing in Yemen accounted for nearly 850,000 units representing 29.9% of Yemeni dwellings. Moreover, 28.6% of the Yemeni population, or 5.6 million people, lived in urban areas (see Fig. 1). With national urban growth rates averaging more than 5% per annum, the current

number of urban dwellers may well be nearly 7 million (CPO, 2004).



Fig. 1. Major and secondary towns in Yemen. Source: <http://www.ezilon.com/maps/asia/yemen-maps.html>

Therefore, this paper aims to:

- Undertake a rapid assessment of the urban housing sector;
- Examine the state of urban housing in Yemen; and
- Propose a framework for housing policy formulation.

The methods adopted in this study include:

- An extensive process of data collection and review of existing reports and documentation

(1) In 50 years, Sana'a city has grown 400-fold in size and 40 times in population. It has expanded from merely 3.7 km<sup>2</sup> in 1962 to more than 1,600 km<sup>2</sup> at the end of the 2010. Its current population is approximately two million, up from 50,000 in 1962 (Al-Abed, 2011a).

related to housing and urban development in Yemen;

- Data analysis that often require data reworking (i.e., re-aggregation and retabulation) to extract information for assessments and projections;
- Meetings with senior officials in the field of housing and urban development; and
- Field investigations in Sana'a, Ibb, Dhamar, Taiz and Aden.

In addition to the Introduction and Conclusion, this paper consists of three main sections as follows:

- Housing Supply and Affordability (Literature Review);
- Review of the Existing Urban Housing Situation; and
- Urban Housing Affordability and Housing Demand.

## 2. Housing Supply and Affordability (Literature Review)

### 2.1. Definitions (need, demand and supply)

Bramley *et al.* (2010) defined the concept of need as follows. 'Need is the shortfall from the certain normative standards of adequate accommodation'. In contrast, they defined demand as '[t]he quality and quantity of housing which households will choose to occupy given their preferences and ability to pay at a given price'.

Therefore, 'need' is used to denote the inadequacy of existing housing provision when compared with the socially desirable norm, and the prescription is that provision should be improved to at least attain that norm. In contrast, 'demand' is a descriptive term used by economists to denote the relationship between the price of housing and the quantity and quality of housing for which people are able and willing to pay.

The review of literature on the housing supply in developing countries suggests that actors in housing sectors consist of politicians and the public sector (public housing departments), suppliers of land (landowners, landlords, speculators, real estate agents), housing capital (building societies, banks, savings and loans associations), labor (public direct labor, co-operatives, building companies, contractors, private enterprises, builders) and consumers (owners, occupants and tenants). Each actor has objectives and incentives. The production and consumption of housing by these actors is typically categorized into two sectors, namely, conventional (formal) and non-conventional (informal) as shown in Fig. 2.

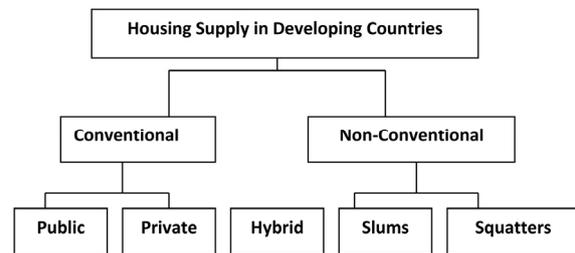


Fig. 2. Housing supply in developing countries. Source: Drakakis-Smith (1981).

### 2.2. Housing affordability

A variety of approaches have been used to assess affordability (Salam, 2006; Salama *et al.*, 2006; Susiluwakhat, and Alshuwaikhat, 2004; Katz, Bruce *et al.*, 2003; Black and James, 1985; Anglin, 2004). One approach considers the rent-income ratio as a coefficient of affordability. However, this approach has been criticized on the grounds that money spent on rent is of a short-term nature, whereas payment of a mortgage is of a long-term nature. Different from a tenant, a house buyer is expected to make a large down payment, in addition to paying mortgage interest and savings rent over a long period. In other words, house buyers and tenants are not identical.

The most extensively used definition of affordable housing is a residential unit that is priced to require no more than 30% of a household's annual income on rent or mortgage plus taxes. This definition assumes that a family should not purchase a home worth more than two and two and one-half times its annual income, and monthly carrying costs should not exceed one percent of the house value.

Housing affordability is likewise affected by several factors. Figure 3 outlines the components of housing affordability for households. Affordability is principally set by two main variables, namely, capital and occupation variables.

- Capital variables (house purchase costs): These variables affect the ability of a household to purchase a house (i.e., the total cost of land, infrastructure, building materials and labor and profit) and the ability to finance the purchase (principally set by the finance down payment requirement and the balance of household savings).
- Occupation variables (costs associated with keeping the house): These variables affect the ability of the household to occupy and pay after purchasing a house (i.e., land lease and rates, services costs, and building maintenance) and finance inputs (loan repayment period and

interest rates, and household income minus non-housing expenditure).

A realistic policy in housing should aim to resolve the contradictions among ‘need’, ‘demand’ and supply in the housing market; that is, by increasing the household income to meet housing demand, lowering housing cost to satisfy housing need, or a combination of these two approaches (see Fig. 4).

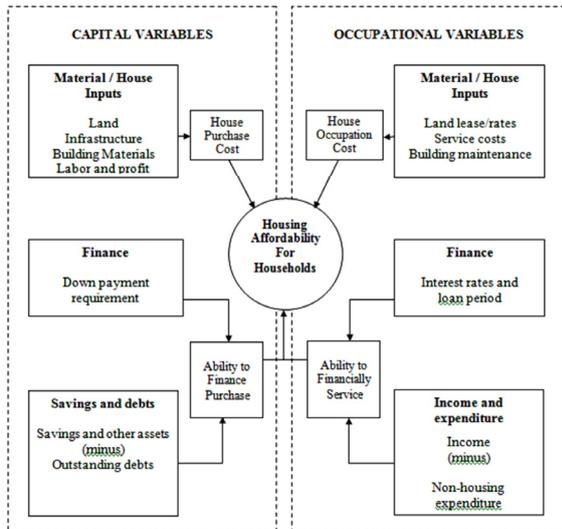


Fig. 3. Basic components of housing affordability. Source: United Nations Human Settlements Program (UN-HABITAT) (2011), affordable land and housing in Asia.

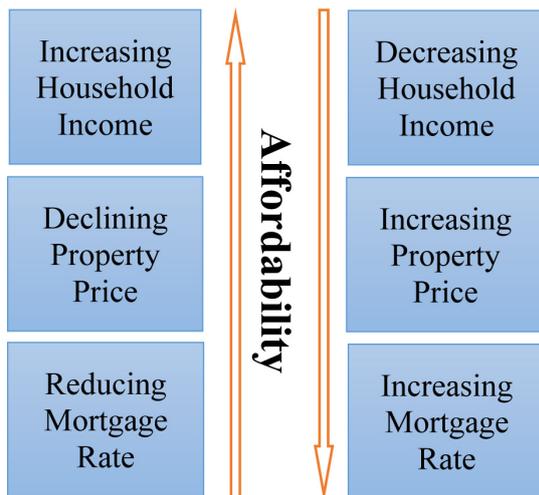


Fig. 4. Contradictions among need, demand, supply and affordability.

The Jeddah Economic Forum (2013) highlights that affordable housing delivery requires government contribution; however, the government cannot solely tackle the challenge. The widening gap between effective demand and affordable housing proves that the existing government frameworks require greater support in succeeding years.

Both supply-side and demand-side strategies can mobilize the private sector, and hence further expand government resources. Housing affordability lies at the intersection of supply side (more homes) and demand side (more financing). To tackle the growing crisis, MENA governments should simultaneously engage the private sector on both the supply and demand sides. Figure 5 shows the level of satisfaction with housing services provided in MENA countries.

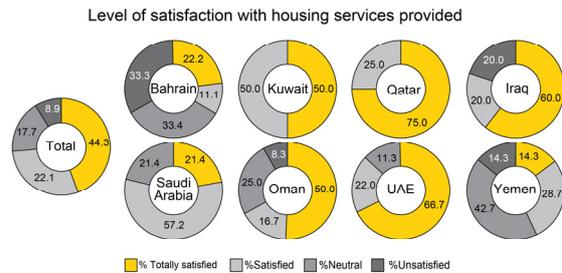


Fig. 5. Level of satisfaction with the housing services provided. Source: <http://www.saudigazette.com.sa/index.cfm?method=home.egcon&contentid=20130116149422>

Despite the excessive need for housing either as owners or tenants by urban households in Yemen, their purchasing power is limited by their respective incomes. The next section reviews the existing housing situation in urban Yemen.

### 3. Review of the Existing Urban Housing Situation

#### 3.1. Current housing situation

The last two censuses in 1994 and 2004 generated a massive amount of data; nevertheless, these data have not been consistently organized and analyzed from the housing sector perspective. However, the following interesting facts are extracted from the data:

- The proportion of renting households considerably differs from one town to another. In Sana’a and Aden, 47.7% and 16.9% of households are renting, respectively. No information could be obtained for other towns.
- The percentage of ‘huts and shacks’ is relatively low (approximately 2.3% in urban areas), but a

substantial proportion of urban households lack urban infrastructure. For instance, in 2004, 26% of urban 'buildings' were not connected to any water supply network.

- Most of the housing in urban Yemen is characterized by detached, individual houses. However, apartment housing is on the rise. From 1994 to 2004, the number of entrances found in multi-unit or collective housing blocks increased from 16.5-26.2% of the urban total.
- The surplus of housing units over households is small. This surplus is especially noticeable in urban areas. For instance, 6% more units than households are found in the cities of Sana'a, Taiz, Aden and Hodeidah. This surplus is only 2.8% for the entire nation (see Table 1).
- Housing overcrowding in urban areas is alarming. Roughly 6,000 households in Sana'a and 9,500 households in Aden share housing units, and between 50-75% of households in these cities live with more than two people in one room. A recent poverty study in Taiz reported that 68% of households in Taiz live in similarly crowded conditions.

Yemeni cities suffer from poor land management and unplanned urban sprawl. The recently completed master plan revisions for Taiz, Hodeidah, Mukalla and Aden, as well as the recent City Development Strategy (CDS) exercise in Sana'a, highlight a host of housing-related planning problems (W.B. and City Alliances, 2008).

In most urban areas (Sana'a, Taiz, Hodeidah and Dhamar), uncontrolled urban expansion is far ahead of plans. Urban sprawl already covers large areas which, if used efficiently, could accommodate the expected urban populations of these cities until 2025. Uncontrolled urban expansion is driven by two main forces, namely, (1) the demand for affordable land for individual housing, and (2) speculative investment. Government institutions and their urban planning teams feel helpless and frustrated in the face of this urban expansion process; they argue that this process causes chaos and stretches cities beyond feasible servicing limits.

The phenomenon of uncontrolled and inefficient urban sprawl is especially prominent in highland cities in Yemen, where most land is privately owned. In Aden, Mukalla, Hodeidah and other coastal towns, land is mainly in state hands. The problem in these cities is more severe: State lands have been wastefully distributed in the past, causing the extreme scarcity of land suitable for affordable housing.

In such circumstances, greenfield urban development is purely a theoretical exercise. Moreover, 'post-planning' is useless if it is not based on the realities on the ground. Unfortunately, current planning standards are unrealistically high, and existing neighborhood unit plans largely ignore realities on the ground and they themselves have become stimuli for land speculation. Recent maps and satellite imagery are lacking. Moreover, local urban planning agencies are understaffed and under-equipped, lack practical planning capacities and are constantly under pressure from vested interests.

### 3.2. Current housing supply

Except for incidental resettlement, disaster relief projects and the recently started public housing program, virtually all the instances of housing production in Yemen are undertaken by the private sector or private individuals. Table 2 shows several categories of private investment in housing.

Housing supplied by the first three categories does not cater to the bulk of the existing demand and is unaffordable for the majority of urban households<sup>(2)</sup>, which often results in empty units (see Figs. 6, 7 and 8).

In contrast, the last three categories answer the actual housing demand. Owner-builder construction is estimated to provide more than 90% of all usable new urban housing stock, and it clearly appears as the principal mode of effective housing supply (see Figs. 9 and 10).

However, most of the owner-builder housing construction occurs on an 'own risk' basis in largely unplanned (cheap) urban fringe areas<sup>(3)</sup>, on plots of land with ownership that is often disputed or are squatted upon altogether. Houses may be constructed in unsafe locations, and people are unsure whether the new plans would respect their investments.

Precious private investments may not be secure or optimized. Based on interviews, owner-builders felt insecure and unsupported in their efforts to house themselves.

(2) See also Al-Abed (2011a), "Housing Supply and Affordability: Who Can Afford the Private Housing Schemes in Aden?" *Mansoura Engineering Journal*, Vol. 37, No. 1, pp. 27-35.

(3) See also Al-Abed (2011b), "Top Gated Communities vs. Bottom Squatted Settlements: A New Direction of Social Segregation in Sana'a City." *Journal of Engineering Sciences*, Assiut University, Vol. 39, No. 5, pp. 1157-1174.

**Table 1. Housing unit surpluses per main urban area and total Yemen, 2004**

|                    | Population        | Number of Households | Number of Housing Units | Surplus of Housing Units |            | Average Number of Households per Housing Unit |
|--------------------|-------------------|----------------------|-------------------------|--------------------------|------------|---|
|                    |                   |                      |                         | #                        | %          |   |
| Sana'a City        | 1,747,834         | 254,866              | 267,125                 | 12,259                   | 4.6        | 0.95  |
| Taiz               | 466,968           | 71,303               | 77,707                  | 6,404                    | 8.2        | 0.92  |
| Hodeidah           | 415,283           | 61,193               | 64,737                  | 3,544                    | 5.5        | 0.95  |
| Aden               | 589,419           | 90,667               | 97,408                  | 6,741                    | 6.9        | 0.93  |
| <b>Total Yemen</b> | <b>19,685,161</b> | <b>2,755,833</b>     | <b>2,834,437</b>        | <b>78,604</b>            | <b>2.8</b> | <b>0.97</b>                                   |

Source: Based on the the final 2004 census results by district.

**Table 2. Current urban housing and its typologies with the estimated percentage of total supply**

| Category of Private Urban Housing |   | Supplied Housing Typology  | Example   | Estimated % of Total Housing Production | Estimated % of used Housing Production |             |
|-----------------------------------|---|--|---|---|--|-------------|
| 1                                 | Commercial housing development 'for sale'   | Villas and condominium-type housing  | Aden Islamic Bank Project   | 2%                                      | 1%                                     | 7%          |
| 2                                 | Investment in real estate as alternative to bad internative return in the banking system                      | Typically apartment buildings with commercial ground floor along main roads    | Dominant construction mode along main roads in Sana'a, Dhmar, Ibb, Taiz and Aden            | 20%                                     | 4%                                     |             |
| 3                                 | 'Prestige' investment in nice 'retirement homes' built by Yemeni who had lived and worked abroad              | Mostly villas and 'urban villa'-type apartment housing                         | Seven prestigious villas in Ibb built by brothers who had worked in the United States       | 10%                                     | 2%                                     |             |
| 4                                 | Owner-builder housing construction on private or squatted upon land for own use                               | Ground-bound single family houses, often expanded over time                    | Dominant housing supply mode in existing urban areas and the outskirts of nearly all cities | 50%                                     | 66%                                    | 93%         |
| 5                                 | Owner-builder housing construction for the rental-income generation, as part of the household income strategy | An extra room/apartment (home extension) or extra small house in the outskirts | Everywhere: accompanies owner-builder housing construction                                  | 13%                                     | 19%                                    |             |
| 6                                 | Owner-builder housing construction to ensure that a claimed/acquired plot is inhabited                        | Low-cost 'guard houses' to protect the overtaking of a plot                    | Modestly built rented housing units in the outskirts  | 5%                                      | 8%                                     |             |
| <b>Total</b>                      |   |  |   |   | <b>100%</b>                            | <b>100%</b> |

Source: The author.

#### 4. Housing Affordability and Housing Demand

##### 4.1. Household affordability to spend on housing

How much can Yemeni households mobilize to spend on housing? Figure 11 shows the monthly household expenditure profile for urban households (2005 to 2006), categorized into seven expenditure groups (A to G).

Expenditure group A, which accounts for approximately 5% of the population, with an estimated average income of 20,000 YR, cannot be expected to pay more than 3,000 YR per month, assuming that 15% of the monthly household budget is allotted for housing. Expenditure group B,

accounting for 10% of the population, could only afford slightly more, that is, 5,000 YR per month. The other expenditure groups could afford from roughly 10,000 YR to 25,000 to 35,000 YR per month, depending on their monthly budgets.

The proposed range considers the fact that essential expenses for food and water become relatively more important within the budgets of poorer households, and that utility costs remain a top priority of basic housing costs.

Figure 11 does not show household savings and other equity contributions to housing. Unfortunately, survey results on the equity of urban households in Yemen are unavailable. For all its

positive effects on what households would be able to afford, a large household equity for housing cannot simply be assumed.



Fig. 6. Category 1: Condominium Housing Investment Project by two banks in Aden.



Fig. 7. Category 2: Examples of the dominant construction mode along main roads in Sana'a, Dhamar, Ibb, Taiz and Aden.



Fig. 8. Category 3 'Prestige Investment' in Ibb, which consists of seven retirement villas built by seven brothers who have lived and worked in the United States.



Fig. 9. Category 4: Owner-builder housing construction in Dhamar.



Fig. 10. The construction of a '1,000,000 YR house' in Dhamar with the help of an informal contractor. Unfortunately, the house is built along the city fringe on an unplanned (cheap) plot of land that is very close to a power line.

#### 4.2. Loans for housing

Under current financial conditions<sup>(4)</sup> with interest rates for loans between 18-23%, the present value of future repayments is low. For instance, assuming a 20% interest rate, the present value of a 20-year repayment of 10,000 YR per month is only 584,400 YR. Moreover, in the current context of high cost for capital, a loan period of 20 years has little effect compared to a loan period of 10 years.

The Yemeni Credit Bank for Housing currently applies a maximum loan period of five years. A loan duration of 10 years seems to still provide an acceptable 'value for money', and would substantially improve the affordability situation.

#### 4.3. Housing cost

The housing cost has three components, namely, land cost, infrastructure cost and construction

(4) The inflation rate is 20%.

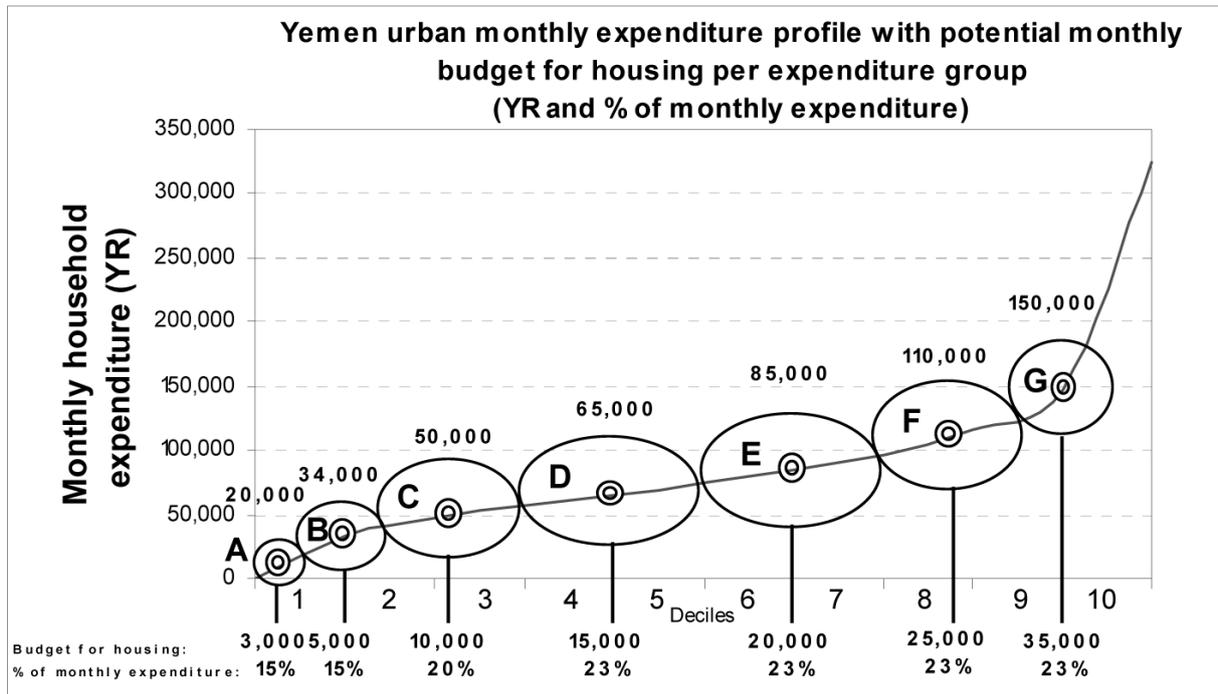


Fig. 11. Yemen urban monthly expenditure profile with potential monthly budget for housing per expenditure group (YR and % of monthly expenditure).

cost of the housing unit. Cost of finance should be added in case a housing loan is used.

Land cost is considerably dependent upon location—the distance to a city's center, and the attractiveness of the plot's location in terms of access, commercial potential and 'standing'. Plots along main roads fetch higher prices than plots accessed by pedestrian lanes. This affordability assessment assumes that small plots are accessed by pedestrian lanes (2 to 3 meters), and larger plots by gradual wider roads (4, 6 and 8 meters). All plots are imagined to be located in partly developed outskirts. A self-targeting effect is expected to help maintain the low prices for the smaller plots. Land price is a highly fluctuating component, which causes difficulty in 'setting' prices. Current land prices in Sana'a city range from 60,000 YR per lubna<sup>(5)</sup> to easily 2,000,000 YR per lubna, depending upon context and location.

The infrastructure cost per unit depends upon layout efficiency and plot size (i.e., higher population densities drastically reduce the cost of infrastructure supply per inhabitant). Infrastructure supply costs should be calculated over the marketable area of a layout and 'sold' according to m<sup>2</sup> marketable area that a housing unit uses. Large plots reduce layout

efficiency and increase the servicing cost per unit; thus, they logically are to pay more than smaller plots. Infrastructure costs used in this affordability assessment are taken from the World Bank-assisted resettlement village in Taiz. With its population density of roughly 400 persons per hectare, this resettlement village provides a valid reference for efficient future urban neighborhoods of similar density. After a 20% increase to extrapolate 2005 costs up to 2008, infrastructure costs per m<sup>2</sup> marketable area are tentatively set at 4,680 YR per m<sup>2</sup>. Considering that condominium-type housing requires extra treatment of the public space between the blocks, with typical designs incorporating parking spaces, green areas, pathways and children's playgrounds, a cost of 9,000 YR per m<sup>2</sup> marketable area is considered for condominium-type layouts.

The construction costs shown in Table 3 are based upon an extensive enquiry among owner-builders and contractors in Sana'a, Taiz and Dhamar. Construction costs for different housing typologies range from 330,500 YR for a self-help 18 m<sup>2</sup> starter unit to 5,558,700 YR for a 105 m<sup>2</sup> apartment.

#### 4.4. Housing affordability situation

A preliminary affordability assessment has been made for those seeking to build or own their

(5) Sanani lubna = 44.44 m<sup>2</sup>.

own housing<sup>(6)</sup>. The assessment is based on the urban monthly household expenditure profile, a 20% annual interest rate, a 10-year loan duration and the assumption that all households would qualify for a housing loan and be able to put up a 20% down payment. The result, as shown in Fig. 11, indicates a severe affordability problem.

**Table 3. Overview of April 2008 average construction costs per housing typology**

| Option No. | Description                     | m <sup>2</sup> Built Area | Price Per m <sup>2</sup> (YR) | Construction Cost |
|------------|---------------------------------|---------------------------|-------------------------------|-------------------|
| 1a         | One-room core house (self-help) | 18                        | 18,360                        | <b>330,500</b>    |
| 1b         | One-room core house             | 18                        | 21,600                        | 388,800           |
| 2          | Two-room starter house          | 30                        | 21,600                        | 648,000           |
| 3          | Three-room basic family house   | 60                        | 21,600                        | 1,296,000         |
| 4          | Four-room basic family house    | 80                        | 33,000                        | 2,640,000         |
| 5          | Four-room villa                 | 100                       | 45,600                        | 4,560,000         |
| 6          | 75 m <sup>2</sup> apartment     | 75                        | 52,940                        | 3,970,000         |
| 7          | 85 m <sup>2</sup> apartment     | 85                        | 52,940                        | 4,499,900         |
| 8          | 105 m <sup>2</sup> apartment    | 105                       | 52,940                        | <b>5,558,700</b>  |

Source: The author.

As Fig. 12 shows, even with subsidized infrastructure, about 20% of urban households would have difficulty to afford the bare minimum 18 m<sup>2</sup> starter house on a 60 m<sup>2</sup> plot and 48% of urban households could not afford a 30 m<sup>2</sup> two-room house on a 90 m<sup>2</sup> plot.

Under the preceding assumptions, it appears that about 20% of urban households are in need of

special assistance on top of subsidized infrastructure to afford even the most basic housing.

Figure 13 indicates that an affordability gap exists for household expenditure groups A, B, C and D. The subsidy required to assist low-income households in obtaining a minimum housing solution ranges from 304,126 YR to build one room on a 60 m<sup>2</sup> plot to 87,840 YR to build two rooms on a 90 m<sup>2</sup> plot. These subsidies would be in addition to subsidized infrastructure. In contrast, household expenditure groups E, F and G can build two rooms on a 90 m<sup>2</sup> plot without subsidy.

#### 4.5. Actual urban housing demand

Within the current urban income and expenditure pattern in Yemen, and assuming the mobilization of household equity to come up with a 20% down payment, the majority of urban households (at least 85%) can only afford ground-bound expandable starter housing units of 1 to 2 rooms.

Moreover, to be able to afford such units, 20-50% of urban households would need extra assistance in the form of free infrastructure supply and additional capital grants to bridge the gap between payment capacities and the costs for land and housing construction.

Ground-bound housing options are certainly preferred over apartment-type housing, and that ground-bound housing options are relatively affordable and lend themselves to the popular practice of incremental extension; therefore, the bulk of the urban housing demand is for ground-bound expandable starter housing units.

### 5. Conclusions and Recommendations

To summarize, the following three main conclusions are drawn:

- The urban housing challenge in Yemen is not so much a quantitative problem and a shortage of units, but one of affordability of housing units, difficulty in accessing housing units by low-income groups and a mismatch between supply and demand.
- Informally developed areas in and around Yemeni cities and their importance for accommodating the bulk of urban housing demand within the next 20 years imply that a workable strategy for upgrading and re-planning urban fringe areas will be one of the major components of a realistic urban housing policy.

(6) Small and low-standard rental units are said to exist in cities, although most information on rentals is anecdotal. Typical down-market rental prices range from 3,000 YR to 5,000 YR per month for one room. However, renting is culturally unpopular. Moreover, renting does not provide the security of property, the lawful maximum rental contract period is only three years and the quality of rental units is often questionable. Although some investors are assumed to supply new affordable rental units for the lowest income groups, housing development costs play a part in determining rent levels. Therefore, assessing household capacity to pay for, or repay, basic housing development costs is sensible.

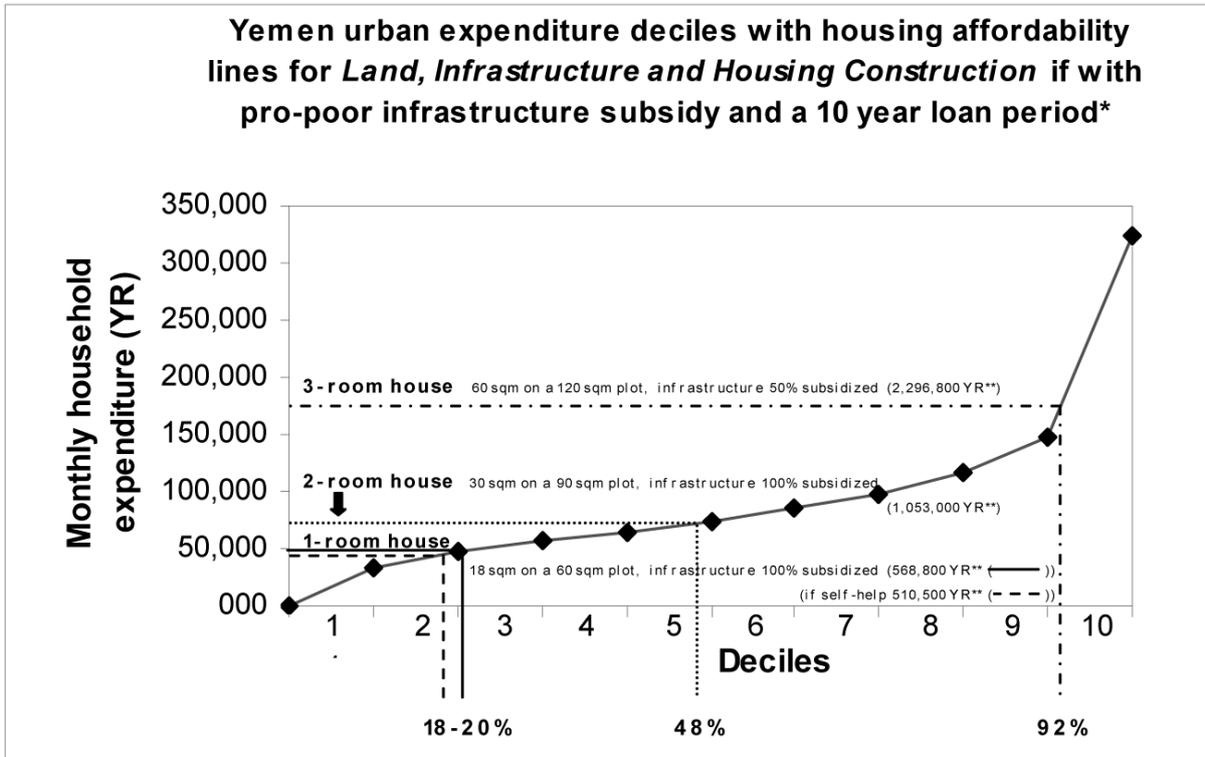


Fig. 12. Yemen urban expenditure deciles with housing affordability lines for land, infrastructure and housing construction if with pro-poor infrastructure subsidy and a 10-year loan period.

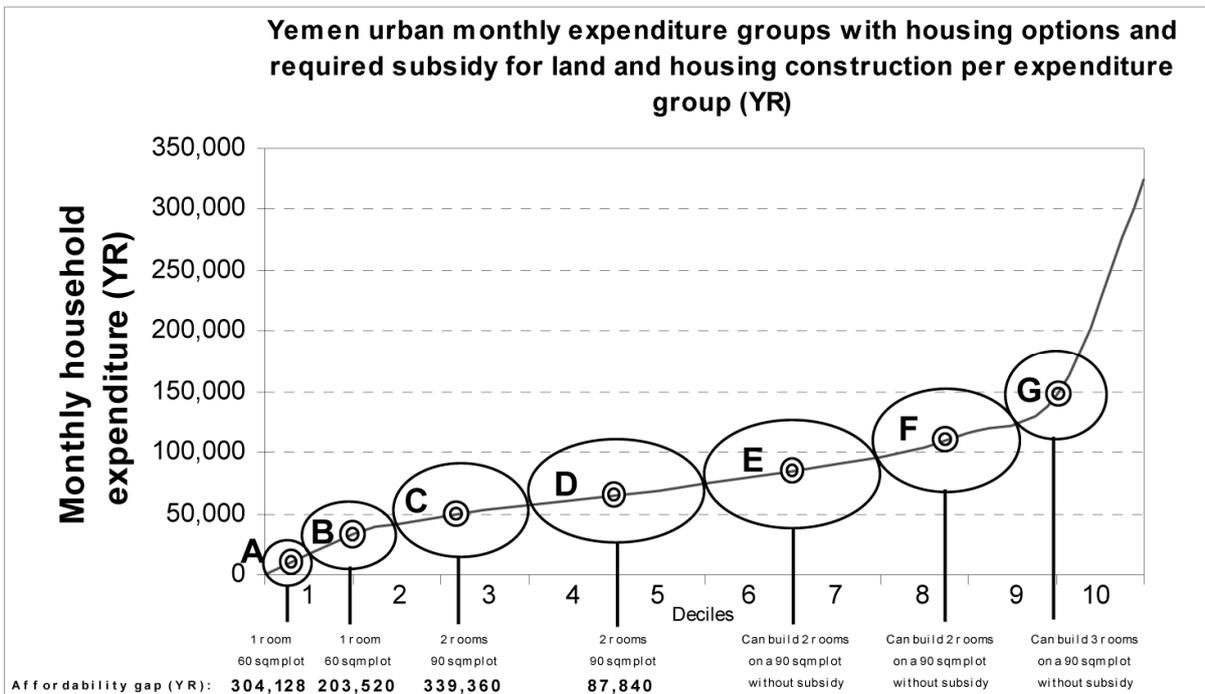


Fig. 13. Yemen urban monthly expenditure groups with housing options and required subsidy for land and housing construction per expenditure group (YR).

- Instead of being absent or a direct supplier of housing, the government may become an engaged partner in the processes that are underway, guiding ongoing investments towards more sustainable forms of urban development and targeting special assistance at those households that require it the most.

The recommendations derived from this paper are briefly described as follows.

### **5.1. Matching supply with demand mainly by supporting owner-builders**

The main urban housing demand is for ground-bound housing options that can be extended over time. Developer-built apartment housing cannot be made affordable except at unsustainable and disproportionate high levels of subsidy. Whether developers would be interested in providing starter house-type housing units remains questionable. Considering the know-how of Yemeni households in building and the convenient combination of the elements of demand and supply by owner-builder construction, the currently dominant owner-builder mode of construction apparently deserves continuation and support. Moreover, this mode of housing production produces affordable rental units, which adds to the mix of choices facing individuals with housing demands.

The main supporting measures would include:

- Providing more security for owner-builders, especially through secure tenure and secure and safe neighborhood planning;
- Facilitating access to affordable plots of land by (1) initiating sites and services projects on state land, and (2) planning efficient neighborhood layouts on private land, both with a majority of self-targeting small plots. This approach would apply to greenfield sites and to the focused re-planning of informally developed urban fringe areas;
- Increasing access to housing finance, for instance, by setting up a loan guarantee fund for households that lack collateral, and through micro-credit for house improvements and expansion; and
- Implementing infrastructure services progressively, with initially lower standards.

### **5.2. Adopting pro-poor housing targeting mechanisms**

In addition to creating a more supportive context for owner-builder housing supply, targeted assistance for the very poor urban household is

necessary. As previously demonstrated, if a two-room house is set as the minimum standard, roughly 48% of households would require extra assistance to obtain such housing. Some of these households will benefit from affordable rental units supplied by the owner-builder process, which reduces the percentage of households that require direct assistance, and other households might have family equity that would further reduce the need. Nevertheless, subsidies and special housing projects apparently should be effectively directed at serving urban households with the lowest household incomes. The following measures can be undertaken to effectively assist and target this poorest sector:

- Directing projects and assistance to geographic areas, such as slum pockets (i.e., urban upgrading);
- Identifying households that require special assistance and setting up a system to reach/target those groups (potentially in cooperation with employers, NGOs and the Social Fund for Development);
- Introducing self-targeting housing project standards; that is, applying realistic low-cost standards that reduce the risk that housing options attract under-servicing households;
- Reconsidering the standards and the variety of housing options currently provided in planned public housing programs; and
- Providing workable mechanisms for the development of urban fringe areas to accommodate future urban housing needs.

As indicated in this study, the urban fringe informal areas are expected to house most of the additional urban housing units that are required within the next 20 years. Thus, urban upgrading and focused neighborhood re-planning will constitute a crucial component of a realistic housing policy. Workable strategies for the development of the urban fringe are necessary. Hence, the following steps can be undertaken:

- Testing the development concepts with pilot projects, and such feedback can result in working solutions that can be promoted on a larger scale;
- Revising current planning standards for neighborhood units, reconsidering road widths and plot sizes and increasing plot variety and layout efficiency;
- Raising the capacities of local urban planning teams (equipment and manpower); and
- Introducing a field-based, participatory planning approach.

For Aden, Mukalla and Hodeidah, land readjustment mechanisms should be put in place, such that the already allocated urban expansion areas can be used more efficiently to serve actual urban housing needs. The land readjustment mechanisms should allow for a rigorous re-planning of the now wastefully distributed State lands.

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## إنتاج الإسكان والإسكان الميسر في المناطق الحضرية في اليمن

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**الكلمات المفتاحية:** الإسكان الحضري، إنتاج الإسكان، الإسكان الميسر، اليمن.

**ملخص البحث.** الإسكان بشكل عام والإسكان الميسر بشكل خاص هما أحد أهم إشكاليات إنتاج الإسكان الحضري في اليمن. الهدف من هذه الورقة هو دراسة الإسكان في المناطق الحضرية من منظور العرض والإسكان الميسر في المدن الرئيسية في اليمن. تضمنت المنهجية جمعاً وتحليلاً مستفيضاً للبيانات الثانوية والأولية. وتوصلت هذه الورقة إلى أن مشكلة الإسكان في المناطق الحضرية في اليمن ليست في قلة عدد الوحدات السكنية المنتجة، بل في الملائمة واليسير، وبالتالي صعوبة الحصول على وحدات سكنية، وذلك لعدم تطابق العرض مع الطلب.