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HOUSING SUPPLY VS. AFFORDABILITY: WHO CAN AFFORD THE PRIVATE HOUSING SCHEMES IN ADEN (YEMEN)?

إنتاج الإسكان والقدرة على الشراء: من يستطيع الحصول على السكن في مشاريع إسكان القطاع الخاص في مدينة عدن (اليمن)؟

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الملخص:

منذ السبعينات و قضية الإسكان الميسر أحدى القضايا الرئيسية لدى غالبية السكان في مدينة عدن. كان سكان المدينة يستفيدون من نظام دعم الإسكان الذي كان من ضمن سياسة النظام الاشتراكي قبل الوحدة اليمنية حيث كانت الدولة هي المنتج الرئيسي للإسكان والإيجارات محده من قبل الدولة وفي حدها الأدنى. وبعد عام ١٩٩٠ م أصبح القطاع الخاص هو المنتج الرئيسي للإسكان وتخلت حكومة الوحدة عن دعم الإسكان فأصبحت آلية السوق هي المسيطرة على أسعار المساكن. ومع تدني دخل سكان المدينة وارتفاع أسعار المساكن أصبح من الصعب على الغالبية العظمى من سكان المدينة الحصول على سكن ميسر.. والسؤال "من يستطيع الحصول على السكن في مشاريع القطاع الخاص؟" ومع ذلك فإن قلة العرض سيؤدي إلى زيادة الطلب وبالتالي صعوبة الحصول على سكن ميسر. يتناول هذا البحث التالي:

- مقدمة عن الوضع الحالي للإسكان وخاصة ما يتعلق بتطور السياسة الإسكانية في مدينة عدن.
- تعريف ومعوقات السكن الميسر بالرجوع إلى آخر الأدبيات.
- إعداد نموذج لقياس الإسكان الميسر في مشاريع القطاع الخاص.

هذا البحث لا يقدم وصفة لعلاج مشكلة السكن الميسر في مدينة عدن ولكن يهدف إلى رفع مستوى الوعي لدى ذوي المهنة وصناع القرار تجاه محددات وعوائق الحصول على سكن ميسر.

ABSTRACT

Since the early 1990s, the housing affordability issue has been the main concern of the majority of the urban sector in Aden. The urban sector before unification were benefited from the welfare housing system and paid only nominal rents. They were unaccustomed to home purchase. After unification in 1990, however, the government decided to terminate the previous welfare housing allocation system. Housing supply, therefore was dominated by the private sector. The urban sector was forced to enter the market for housing service provision.

There is a changing housing price-to-income ratio (PIR) since 1990. The rapid increase of house prices has eroded the capability for homeownership. As a result, affordable private housing have experienced higher demand pressure. Without additional residential supply, demand will pull the price up and, therefore, reduce the amount of affordable accommodation.

This paper will discuss:

- The current housing situation regarding housing policy evolution in Aden.
- Housing affordability definition and housing affordability barriers by reference to current literature.
- A model of housing affordability will be set to examine the affordability of housing schemes provided by private housing developers.

In this paper, it is not attempted to present a prescription for problem remedy. Nonetheless, identification and developing understanding of the affordable housing constraints could perhaps serve as an initial step towards informing policy and practice.

Key words: *Housing supply, housing affordability, housing policy, private housing developers.*

1. INTRODUCTION

The urban sector before unification were benefited from the welfare housing system and paid only nominal rents. They were unaccustomed to home purchase. After unification in 1990, however, the government decided to terminate the previous welfare housing allocation system.

In fact the period after 1990 is an era refers to the free play of housing market, which advocates the liberal housing conception. A housing market is the structural mechanism for the production, exchange and consumption of housing[1]. The policy adopted towards the provision of housing was depended upon three principles. In 1998 the Government established 138 housing co-operatives. In this policy 3300 land plots (10X12m) were allocated to private residential sector. That was to benefit 47,000 members [2].

The second principle was public housing provision policy to house the low-income sector. The Presidential low-income housing programme was initiated in many governorates and Aden was not an exception [3]

The third principle was leaving housing in the hands of private developers who cater to a large majority who could afford to purchase or to build their own homes.

Therefore, the housing policy depends upon the integration of public and private housing provision. The significance of a such housing policy lies not only in the construction of public housing units, but even more in stimulating people efforts whose contribution plays major influences in housing development.

Despite the fact that there is a recordable private housing schemes in Aden city, the question is are they offering affordable and adequate housing schemes to the target population?

Affordability and barriers of housing affordability, therefore are presented in the following sections

2. HOUSING AFFORDABILITY

A variety of approaches have been used to assess affordability [4] [5] [6] [7] [8][9]. One approach considers the rent/income ratio as a co-efficient of affordability. However this approach has been criticised on the grounds

that while money spent on rent is of a short-term nature payment of a mortgage is of a long-term nature. Unlike the tenant the house-buyer is expected to make a large down-payment, in addition to paying mortgage interest and savings rent over a long period of time. In other words house buyers and tenants are not identical.

The most widely used definition of affordable housing is a residential unit that is priced to require no more than 30 percent of a household's annual income on rent or mortgage plus taxes. This assumed 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's value"[10].

3. BARRIERS OF HOUSING AFFORDABILITY

3.1 LAND AND LAND USE BARRIERS

Land is considered to be the most important barrier of housing affordability. The cost of land constitutes the largest share of the total cost of a dwelling.

In some cases it may reach 50 per cent of the total cost. Moreover the cost of land near places of work, in particular in inner cities, is likely to be high [11].

In many countries there is a plenty of land in hands of few. However, Turner, A. (ed.) [12] affirmed that unless land is available through public ownership in a larger part of a city, the acquisition of land becomes a major barrier of housing affordability.

Along with this is the continued use of planning and building codes and regulations which were developed in response to settlement problems of Europe or North America. Negative as some of these codes and regulations are, they have tended to accelerate income segregation and raise housing prices. There is an active land market that prices land according to the characteristics of different location, distance from main centers and physical land use of the site.

More generally, restrictive land use policies add to the costs of housing development by restricting land supply [13].

Regulations can make housing unaffordable to low-income groups. Land use and zoning regulations can also restrict the availability and hence raise the price of residential land [14]

Consequently, low income groups and real estate housing developers may be forced to buy lands in peripheral areas where land is cheap and out of land use regulations. However, it may not actually be a cheaper option if the relatively high servicing costs, especially for new services to be supplied to outlying areas, are taken into account. Rakodi [15] argued that the combined cost of housing and the journey to work may lead to a household abandoning the plot and moving back to slum areas near the inner-city which are closer to places of work.

3.2 BUILDING MATERIALS BARRIER

Building materials form an essential factor in the cost and building of a house. The escalating of materials cost is considered one of the main barriers of housing affordability.

As indicated by Sultan [16] the construction cost as presented in Table (1) in local currency increased 11.7 times.

Table (1)
Construction Cost and GNP pc with Time

year	GNP pc	Construction cost	Construction cost
	US\$	US\$/ m ²	YR/ m ²
1990	664	273	4500
1991	520	280	7000
1992	-	352	12000
1993	-	362-	25000
1994	280	-	-
1995	270	327	36000
1996	260	301	38000
1997	330	295	41000
1998	360	324	41000
1999	370	270	42000
2000	380	309	45000
2001	420	345	48000

Source[17]

3.3 INFRASTRUCTURE BARRIER

Infrastructure is one of the main barriers to housing affordability. According to World Bank [14] it affects the housing supply in three ways:

First, if infrastructure is in short supply, housing then becomes more expensive.

Second, if infrastructure is unresponsive to demand, that in consequence will quickly result in increase in land and housing prices.

Third, if the spatial arrangement of the infrastructure is ineffective, that in turn will affect the housing affordability by escalating the cost of the dwelling unit.

4. OBJECTIVE AND METHODOLOGY

Three terms are used in this paper to investigate the problem of affordable housing: These terms will be utilised to test the affordability of two housing schemes supplied by private housing sectors in Aden. These three measures are affordability, affordability index, and adequacy. Each will be defined as following:

Affordability measures the extent to which there are enough housing units of different costs to provide each household with a unit it can afford (based on the 30 percent of income standard mentioned above).

Affordability is the broadest measure of housing stock sufficiency, addressing whether there are sufficient housing units if allocated solely on the basis of cost. The *affordable* stock includes both vacant and occupied units.

- *Housing Affordability Index (HAI)* a ratio of average household disposable income to the income required to meet payments on a typical dwelling.

Housing Affordable Index (HAI) =

$$\frac{\text{Average household income}}{\text{Income required to meet payments on a typical dwelling}}$$

Rahman [17] and Hui [18] identified four main categories of household affordability and as a consequence four (HAI) indices could be monitored. These are A, B, C and D.

As shown in Figure (1) x-axis represents the quantity of housing (H) whereas the y-axis represents the quantity of non-housing (N) consumed by a household.

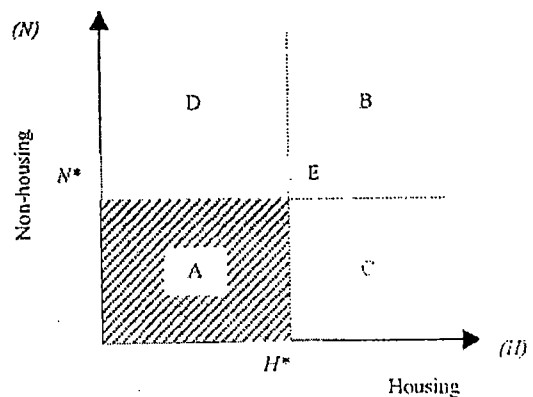


Figure (1)
Household Affordability Model

Source [18]

Then, any point in the figure indicates the combination of the consumption of the two merit goods. N^* and H^* represent the socially acceptable minimum standards of consumption of non-housing and housing goods as defined by the society, such as government and pressure groups. Point E in the figure therefore presents the combination of (N) and (H).

A. Household paying for less than the minimum standard of both living and housing cost. The affordability of household in Zone A is categorised as "over consumption of housing". i.e. and as shown below the value of (HAI) tends to be less than one

Housing Affordable Index (HAI) < 1

B. Household income allows them to have housing and living condition above minimum standard without any problem of affordability. The affordability of household in Zone B is categorised as "Under consumption of housing".

Affordable Index (HAI) > 1

C. Household paying housing costs above minimum standards, but living below the poverty line.

Affordable Index (HAI) <1

D. Household budget for living is larger than the poverty standards. Consuming housing at costs less than what secures the minimum standard.

Affordable Index (HAI) =1

Adequacy extends the concept of availability by considering whether the housing schemes supplied are physically adequate as well as affordable.

To conduct the research field work the housing affordability model was applied to two private housing schemes (see Figure 2). The research questions were:

Who can afford the private housing schemes in Aden?

If they were affordable were they adequate?

Before applying the above mentioned model to measure housing affordability, the next section reviews the housing characteristics of the two schemes.

5. HOUSING CHARACTERISTICS

The research findings are based on two case studies in Aden Metropolitan Area. These two private housing schemes are Enma apartment buildings and Alkadra detached one and two storey houses. As shown in Fig. (2) Enma is located across the free zone area about 10 kilometres from the city center, while Alkadra is sited at a desert land at the northern part of the city. It is about 20 kilometres from the city centre.

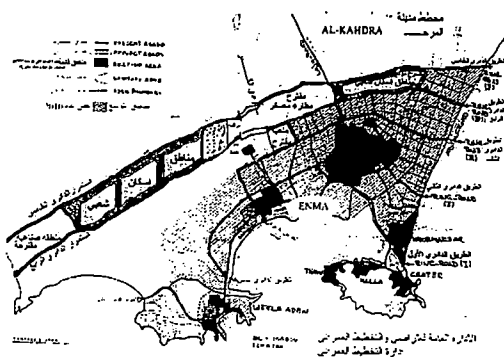


Figure (2)

The Location of the Two Housing Schemes Source [2]

The following part examines the housing characteristics in relation to two main aspects: Spatial organization of the site and space organization of the dwelling.

5.1 SPATIAL ORGANIZATION OF THE APARTMENT SCHEME

The overall pattern of the apartments was based on linear back to back rows. Linear detached blocks are one of the most frequent features of the private sector developers. This pattern follows neither the orientation nor the ventilation of the residential blocks (see Fig.(3).

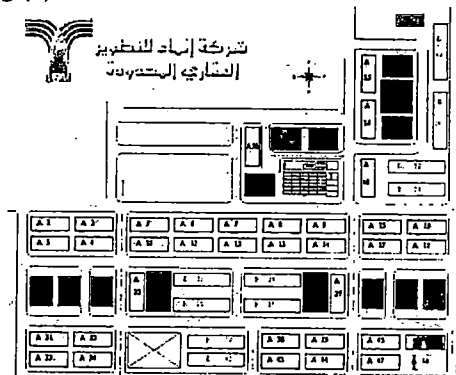


Figure (3)
Enma Site Plan
Source [19]

5.1.1 SPACE ORGANIZATION OF THE DWELLING

As illustrated in Fig.(4) Enma housing scheme is four storey walk-up apartment buildings. Each floor comprises of two apartments. These are three and four bedrooms. Each dwelling unit consists of habitable rooms, a kitchen and usually two toilets.

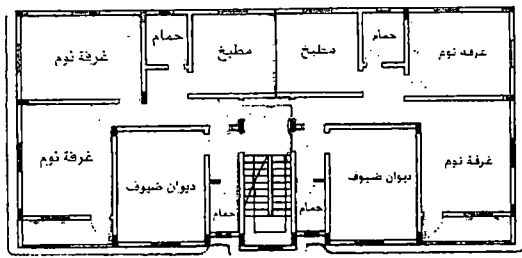


Figure (4)
Typical Dwelling Unit
Source [19]

The common features of the apartment buildings of Enma housing scheme are as follows:

The entrance into the building is usually through a single gate at the centre of the ground floor. The entrances are small and about three to four square meters, leading almost instantly to narrow stairs accommodating with extreme difficulty the movement of two persons at a time and of furniture. Natural lighting and ventilation of stairs and entrances are good in many cases.

5.2 SPATIAL ORGANIZATION OF VILLA HOUSING SCHEME

Housing blocks are the main feature of this scheme. The formulation of cluster blocks is presented as detached houses. As given in Fig.(5) the neighbourhood then constituted of many clusters. As the project is built on desert land it needs a special planning concept to overcome the arid climate. The project layout is exactly similar to the settlements located in the mountain areas. Housing blocks layouts do not fit the sandy site, or the harsh climate. More vegetation (as called *Alkadra*) is required to protect the project from the seasonal sand storms (*gowbah*).

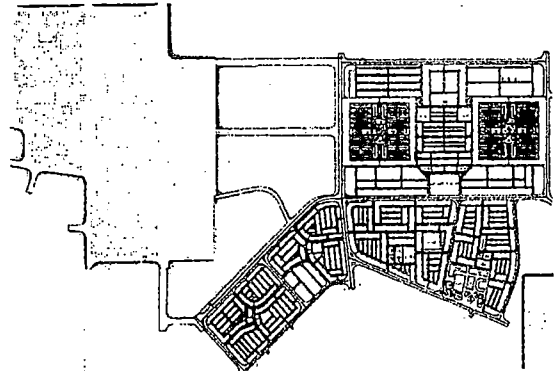


Figure (5)
Alkadra Site Plan
Source [20]

5.3 SPACE ORGANIZATION OF THE VILLA.

The one storey detached house has two entrances. It consists of one bedroom and a toilet for the males and their guests and visitors. The family section contains two bedrooms, bathroom and a kitchen (see Fig.(6)).

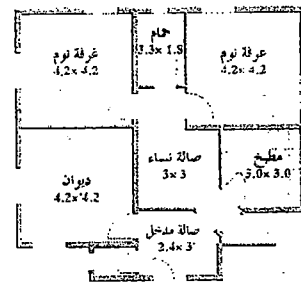


Figure (6)
One-storey Detached House
Source [20]

6. AFFORDABILITY MEASUREMENTS AND ADEQUACY

6.1 AFFORDABILITY

Dwelling cost determines the target group of beneficiaries. If the dwelling cost is right, it is plausible to argue that the package of housing delivered to beneficiaries will be affordable to them.

As illustrated in Table (2) the selected two case studies identified three categories of dwelling cost. These are low, medium and high.

Table (2)
Dwelling Cost Categories

Housing Scheme	Dwelling Cost Categories (US\$)*		
	Low	Medium	High
Enma Apartments** [19]	24,10-33,600	41,600-48,100	53,600-62,600
Al-khadra Villas*** [20]	23,90-27,300	38,100-41,100	78,500-110,350

* US\$= 200YR

** key hand over apartment

*** one storey conc. skeleton Villa in a fenced plot (20X15 m²)

The minimum cost of an apartment measured 83 m² in Enma housing scheme is 24,100 (US\$) to be paid in advance, whereas the minimum cost of unfinished one storey villa measured 96 m² in Al-Khadra scheme is 23,900(US\$) to be paid in cash.

Table (3)
Dwelling Type, Area, Cost and AMFI

Dwelling Unit Type	Area (M2)	Cost (US\$)	(AMFI) */ Dwelling cost	No. of years to meet payment
Enma Apartment [19]	83	24.100	HAI= 0.029	34 years.
Al-khadra Villa [20]	96	23.900	HAI= 0.029	33.7 years

* Aden Median Family Income/year (AMFI)= 141,562YR/year[21]

As shown in Table (3) housing affordability index (HAI) for Aden Median Income (AMFI) is only 0.029 for the two schemes. The total cost of the low cost apartment and villa equals 34 years of (AMFI) annual income. The low cost dwelling units in the two housing schemes supplied by the private developers is beyond the affordability of Aden Medium Income.

Housing affordability model was applied to low cost dwelling unit in the two schemes. That is to answer the research question.

Table (4)
Affordability Categories

Dwling Unit Type	Area m ²	Cost (US\$)	Affordability Categories			
			A Over Housing HAI<1	B Under Housing HAI>1	C Housing HAI=1	D Oppor tunity Housing HAI<1
Enma Apartment [19]	83	24,100	None	25%	62.5%	12.5%
Al-khadra Villa [20]	96	23,900	None	77%	23%	None

As presented in Table (4) 62.5% of the household in Enma apartment scheme were capable to afford it. That was the case only when their Housing Affordability Index(HAI) was one. This group's income therefore is consequently five times their annual income. The survey moreover revealed that 25 % of the household is considered under housing. Their living condition is above minimum standard without any problem of affordability. On the contrary 12.5% of the household their living condition is under minimum standard yet they managed to afford a dwelling unit. The research also pointed that majority of this scheme (80%) has moved to this apartment from Aden area.

On the other hand 77% of the household in the villa schpme were the target beneficiaries. Housing Affordability Index (HAI) of this group was more than one, i.e. the dwelling cost is less than five times of their annual income.

6.2 ADEQUACY

In the two case studies the practice is "sell then build"(STB) i.e. houses are offered for sale prior to its construction or completion or even prior to the clearing of land. The payment of the purchase price of houses is made progressively according to the stages of completion of construction (see Table (5)

Table (5)
Payment stages

Dwling Unit Type	Area m ²	Cost US\$	Instalments			
			In advance	2 nd payment	3 rd Payment (when delivering)	Monthly Payment for 5years
Enma Apartme nt* [20]	83	29.056 *	25%	20%	5%	256US\$
Al-khadra Villa [21]	96	23.900	Cash in advance			

*cost = 24100 in cash before delivery

STB system does not allow house buyers to view the houses they purchased while having to accept the delivery of houses irrespective of their quality.

There are no regulations to protect house buyers from sub-standard construction. In fact there is no benchmark to measure the standard of quality of housing supply constructed by developers. Build then sell (BTS) private delivery system rather has to be advocated. To set up guidelines to supply quality housing free from defects is beyond the limits of this paper.

7. CONCLUSIONS

Despite the fact that housing policy depends upon the free play of housing market and the outcome was huge private housing projects, it failed to offer affordable for the median family income in Aden.

The issue of housing affordability is a nagging one. The adoption of various rules of thumb for affordability definitions, family housing expenditures and the use of various imported standards make most completed projects unaffordable for the majority of the population.

From the formula of Housing Affordability Index (HAI) there are three ways to achieve affordability: increasing the household income, lowering housing cost, or a combination of these two.

The two housing projects were tailored to meet the 33times Aden Median Family Income. Therefore, the cost was quite beyond the reach of most of the population. Even when the housing scheme is affordable to a certain group housing adequacy should be taken in consideration. Sell then build practice should be regulated.

As long as partnership of public and private sectors missed to promote popular housing provision and to remove barriers of housing affordability informal quarters will consequently have the chance to mushroom.

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