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## Residents' Perception of the Affordability of Private Housing Schemes: Lessons from Aden, Yemen

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### Abstract

Over decades, the housing sector in Yemen has suffered from housing supply shortages and the inability to meet the households' housing demands. Since the Unification of Northern and Southern territories of Yemen in the 1990s, the issue of housing affordability has become a major concern in the growing urban sectors of the Yemeni cities including Aden. While, before Unification, the people in Aden have utilized public welfare housing where only they paid a nominal rent for their housing. The people were unaccustomed to a home purchase. After Unification, however the government has discontinued the welfare housing system, and the private sector has dominated the market for the housing service provision. This paper aims to investigate the residents' perception of the affordability of housing provided by the private sector, and the extent to which the private housing schemes are able to meet the housing needs of Aden (the economic and commercial capital of Yemen) population. A questionnaire survey was conducted. The sample of the study was 369 of resident's respondents. The results of the study showed that the housing cost in Aden was beyond the reach of the majority of the population and that most families in Aden were financially incapable of purchasing the private houses without credit availability. It also showed that the majority of the respondents in both projects assisted that their housing condition is inadequate in quality. The study recommends that efforts should be undertaken by the local housing authority to facilitate financial support to potential home buyers of low-cost housing projects as well as enforcing more flexible house purchase mechanism for the benefit of the people. On the supply side, it is also important for the housing developers to enhance their performance level during the housing construction stages. More concerted efforts are necessary to resolve Aden housing problems in the long term.

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## 1. Introduction

The housing industry is a vital sector all over the world. The fulfillment of residents' housing needs is a challenge for planners, architects, and governments alike. A dwelling is usually the largest purchase that a person makes throughout his or her entire life (Maliene & Malys, 2009). Therefore, meeting residents' housing needs is a basis for residents' satisfaction, which in turn influences their quality of life. The housing sector is dynamic and changes rapidly in terms of quality and quantity based on changes in population, economy, technology, people's needs and other related aspects. Over the decades, many developing countries have relied on public production of housing. Housing production, land ownership and public role in land development in some developing countries have followed the socialist economic model of the former Soviet Union. Such socialist system of housing supply existed in Aden, South Yemen before the unification of Yemen in 1990. National legislation for housing in Aden at the time did not recognize private sector investment in housing construction. Therefore, the system is less effective than the process of the development of public lands. One of the main provisions of the laws prohibited households to own more than one house. Thus, the private sector in Yemen stopped constructing houses for nearly ten years, which consequently worsened the housing situation in Aden. However, by early 1980 a new law was passed to allow construction of private housing pending permission to obtain specific land from the Ministry of Housing. Accordingly, the Ministry charges a nominal price for housing construction and related housing facilities. Nonetheless, evidence from developing countries showed that in cases where public ownership is high or rent controls are extensive, the housing stock is usually under-maintained and runs down (United Nations, 2005).

Similar to many developing countries, Yemen also suffered from various housing issues, including a shortage of low - cost housing. A national census report estimated that the magnitude of housing shortage in Yemen is about 214,866 dwelling units, while the total current housing in Yemen is 2,619,571 units, including 443,225 dwellings of tents and huts as well as houses made of wood and tin, with a total of 2,834,437 households nationwide (Yemen National Census, 2004). A report issued by the Ministry of Public Works and Highways Yemen (MPWH, 2007) stated that the rate of depreciation of the existing housing stock is estimated at 5% of the total housing, which is equivalent to 130,978 dwelling units. However, the actual housing need in Yemen is projected at 787,069 dwelling units until 2010, which leads to an issue of the housing shortage in the future. A report by the Halcrow Company on the Aden Master Plan, (2006) highlighted that in Yemen, most of the housing in urban areas consists of houses and apartment units (about 82%), but there is also a large stock of units below the level which defines squatters housing and includes parts of buildings and units temporarily different which is occupied by 8 or more people approximately 36% of housing in the urban areas of Yemen. It is a cultural norm in Yemen to have a large household size and extended families living together in a conventional dwelling unit. Overcrowding is also prevalent in Yemen housing with an estimated average of 4 m<sup>2</sup> per person. Overcrowding is reported in 20% of the temporary substandard units, occupied mainly by the poor. Hence, the issue of housing in Yemen is a priority issue which may be similar to those of other developing countries, particularly in terms of importance and causes. Based on this scenario, this paper aims to investigate the extent to which the private housing schemes in Yemen are able to meet the housing need of the bulk of population in Aden, the capital of Yemen in order to resolve the issues of housing shortage.

## 2. Conceptual framework

### 2.1. Housing demand and supply

The housing demand is more unstable than supply; the former is a measure or approximation of how many households wish to obtain accommodation in an area. Several studies have considered the notion of demand in the housing market. Housing demand defined as the quantity and quality of type of housing that household able to afford to purchase or rent (Leunig and Overman, 2008). According to Jesus et al., (2007), various aspects that have all led to an increase in the demand for housing in urban areas such as economic growth, the changes of habits, population concentration in urban centers, lower interest rates and new well-being requirements. There are five key factors reflecting on the housing demand, namely the number of households wanting to buy dwellings; the ability of households to buy housing; the cost of owning compared to renting; the cost and availability of the housing finance

for the people; and the desirability of house purchase as affected by future changes in the housing price or availability. In brief, demand relates to the quantity of housing that household's want and can afford to buy or rent at all price levels of the open market, using financial arrangements such as rent, mortgage and full-price cash payments without subsidy. According to the Limin (2007), it is assumed that the demand is equal to the needs of the housing in the public sector, while there are restrictions in the private sector lead to constrain demand for affordable housing.

Morris and Winter (1978) asserted that housing supply comprises both the existing houses in the market being resold principally by owner-occupiers, as well as newly built or converted houses being sold by building developers. A measure of the housing supply begins with the knowledge of the number and quality of housing units in existence at a given time at any locality, also known as the housing stock. The supply of housing is usually fixed in the short-run, driving up the price of housing as demand increases during times of economic growth. As housing supply lags behind demand, the housing situation in the developing countries continues to deteriorate and it becomes necessary to adopt a new model to meet the on-going housing challenge (Ogu and Ogbuozobe, 2001).

Al-Homoud et al., (2009), explained that there are a number of factors that shaped the level of production and provision of housing in the housing market. The attributes of the macroeconomic environment and the security of property rights both play an important role in determining the risk of investing in housing. This is indicated by the availability and affordability of serviced land, land use regulation, construction and production costs, levels of co-operation of key - players through various forms of public/private partnership, facilitating procedures in commercial banks, and the number of housing units that share services and infrastructure. Furthermore, housing will be provided only when these costs are exceeded by the risks and the expected price in the market. These factors determine not only the quantity of housing supplied, but where and to whom it was built. In addition, the intersections of a strong demand and a limited supply always indicate higher prices and vice versa. This condition in the supply side really matters in practice and is unaffected by the presence of a strong negative correlation between the housing and the level of permits house prices within the market. The highest price markets tend to be less allowed. The factors affecting the supply of housing units include the return to builders of new units and owners of existing units. If profit margins are at stake, developers are more likely to switch from new construction or conversion of existing housing to other more profitable submarkets. Analysis of supply and demand in the housing market illustrates the factors that affect household indebted cost. A family who usually spends between two and three times the annual income when buying a house is also required to make a large down payment (O'Sullivan, 2003 and Davenport, 2003). This situation puts a strain on households on issues of housing affordability.

Jeddah Economic Forum, (2013), highlighted that an affordable housing delivery requires a certain degree of government contribution. However, many governments in the Middle East and North Africa (MENA) region lacked the financial resources and were unable to attempt the housing challenge on their own. A widening gap of the actual demand for affordable housing, which continued in these countries is evidence that the existing government frameworks will need to support the private sector in the near future. As a therapeutic measure, MENA governments and the private sector has strategized on both the supply side and the demand side to mobilize the private sector and housing to stretch government resources are limited even further (Jeddah Economic Forum, 2013). The decisive factor affordability of housing lies at the intersection of the supply side (more houses) and the demand side (more funding) in order to address the growing housing crisis in the Middle East region.

In Yemen, an undersupply of low-income housing was affected by various factors such as rapid urbanization rates, policies, and planning. It is argued that housing need is not solely driven by economic variables per se, but influenced by other factors including demographic, social and environmental factors (Alaghbariet al. 2009). Since the need is part of a normative concept, housing need implies a case of a housing supply mismatch with the affordability of the median income of society. The society is in desperate need for housing, but they simply could not afford the supply of housing available in their locality. In essence, housing need may be understood as a shortfall from certain normative standards of adequate housing; while housing demand refers to the quantity and quality of housing which households will choose to occupy given their preferences and ability to pay at a given price. Therefore, subsidies may well reduce house prices and encourage homeownership for low-income households based on their housing need as well as ability to pay (Barker, 2003). Therefore, a private-public partnership provides a practical mechanism to resolve the need and demand gap of low-income housing and housing affordability (Adams and Watkins, 2002).

## 2.2. Housing affordability

The term housing affordability became popular in the past two decades, replacing 'housing need' at the center of the debate by providing adequate housing for all (Whitehead 1991; Swartz and Miller 2002). Affordability in essence is the ability of a person to provide for items, usually referred in financial terms. Norazmawati Md. Sani et al. (2006) stated that the concept of affordable housing refers to the amount of income needed to pay for housing and relevant household expenses. It is a form of subsidized housing to meet the needs of people who cannot afford decent housing in the open market either to rent or buy. Based on a widely accepted definition, the monthly housing costs for adequate housing should not exceed 30% of the household income.

This fact is supported by Babade (2007) who defined affordability as a value which is equal or slightly more than twice the household annual income; or renting a house not more than 30 per cent of the total monthly income of the household. Therefore, households, who buy more than 30 per cent as a bench mark are considered to be under housing stress (Onyike, 2007; Aribigbola, 2008). In other word, the 30 percent limit is based on the financing of affordable housing and a reference to the risk of serious funding (Jose, 2002). Lau (2001) further opined that households may encounter housing affordability problems if they are unable to afford to stay in the housing unit that meets the social norms of adequate housing standards.

In short, "the affordability of housing" refers to the ability of households to meet housing costs, while maintaining the ability to cover other basic living costs (AHURI, 2004). According to UN-Habitat, (2011), affordable housing is widely defined as what is appropriate in terms of quality and location and does not cost so much that it prevents households meet other basic living expenses or threaten the enjoyment of fundamental human rights. Bramley (1990, p. 16) further specified that "households should be able to occupy housing that meets well established (social housing) norms of adequacy (given household type and size) at a net rent which leaves them enough income to live on without falling below some poverty standard."

Putting these elements together, Freeman, et al (1997) confirmed that the affordability of housing focuses on the relationship between housing costs and household income and determines the standard (relative or absolute) in terms of that income above which housing is regarded as unaffordable. The affordability considers not just housing, but also the quality of housing within any neighborhood should be such that satisfies minimum health standards and good living standard, and whether the family has enough residual income for other necessities of life after compensating the cost of housing. Based on these definitions, affordability refers to the various measures of housing costs to income or the size of the loan in respect of income and generally influenced by the level of house prices, interest rate and income level. This ratio indicates the affordability capability of individual households for existing homeowners or first-time home buyers. On the other, hand the affordability is the result of the interplay at property price, mortgage rate and household income (Linneman and Megbolugbe, 1992).

Therefore, the affordability house is behavioral concept that changes with time (Oruwari 1993), while pointed Onyike (2007) that the affordability of housing is a multi-faceted that should be addressed in the social and cultural context of the occupants of the conditions of building housing. This indicates that the affordability of housing is an individual perception about how many families are willing to pay the price of housing in the range of incomes. So consider the affordability of housing in this study as an individual perception of the ability to access and pay for and live in private housing in the study area.

## 3. Political changes and housing policies in Yemen

Population growth and housing needs are the major issues faced by the larger cities of Yemen, which posed a considerable concern among political, financial and social planners. Urban dwellers comprised 28% of the whole population of the Yemeni Republic in 2002. The households of four major cities in Yemen, two of Aden and Sanaa, Taiz and Hodeidah and represent 12% of the population of Yemen (World Bank, 2000). The growth rate of the urban population in the four major cities in 2000 increased by 10%, mainly due to natural growth (3%) and internal migration (7%). This study focuses on the city of Aden because it is the main port and commercial capital of Yemen, Aden city is experiencing a rapid urban growth, many housing schemes has been built in the last few years through private sector claiming that it met all majority need for housing at all levels low, medium and high class. there are abnormal situation in Aden: a chronic shortage of affordable housing, and overcrowding in existing

settlements, and vast tracts of land were distributed for the purposes of housing, but empty, and large numbers of luxury apartments uninhabited (The master plan of Aden, 2006).

Historically, Aden has witnessed three different political periods, namely the colonial period, post independent period and post - Yemen unity period. 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. However, this study is focusing on this important period and discussed as follows:

(a) Post Yemen Unity (1990 - present). The urban sector before the unification benefited much from the welfare housing system and people paid only nominal rents. The population was used to buy a house. However, after unification in 1990, the government decided to end the previous system of social housing allocation. The period after 1990 is referred to as an era of free housing market, which advocates a liberal housing conception. Housing policies in Aden, Yemen have also evolved to accommodate the changes in the national housing market. In addition, a housing market is a structural mechanism for the production, exchange, and consumption of housing. The policy adopted towards the provision of housing in Yemen has been dictated by three key principles (Al-Hazmi, 2004) as follows:

The first principle: the policy 3,300 land plots (of 10m x 12m dimension) were allocated to the private residential sector to benefit 47,000 members (Mobarak, 2008). This policy aims to increase housing supply and to allow more land to be zoned for residential purposes.

The Second Principle: The public sector housing provision policy aims to house the low-income households. Aden's pilot housing projects within the framework of urban development is to alleviate poverty by providing adequate housing for the low-income group. The project aims to sub-divide a large parcel of land into housing plots and provide infrastructure services to be distributed to eligible low-income groups at affordable prices and comfortable installments so they can build private houses at affordable cost. The project was scheduled for completion in 2001, but it was put on hold due to funding constraints (Housing and the Requirements of Future Generations - Arab Forum, 2000).

Third Principle: The private developers are responsible to cater the housing needs of a majority of people who could afford to purchase or build their own homes. The houses within this sector are built through the conventional institutional channels and may be offered in the open market for rent or sale.

The Aden Master Plan Report (2006) mentioned that a persistent problem in housing development was not in response to the actual demand in the market, but more of the consideration for profit maximization. Thus, virtually all housing development in Aden was of up market apartments, with little attempt to provide affordable housing. As a result, many of the high-end residential development were either incomplete or uninhabited. Large tracts of land dedicated to residential neighborhoods laid idle, empty and unused for many years after being planned, and there is great pressure to allow more land to be earmarked for residential purposes. Attempts, to deal with affordable housing issues have met with unattractive and frustrating situations that do not meet the basic needs or meet the needs of potential users (Salama, 2006). It is clear that the absence of the public sector's role in housing delivery for a majority of people and the failure to meet their needs has led to a dominant role of the private sector, which carried out about 95 per cent of all housing construction in many developing countries (UN-HABITAT, 2011). By the same token, the private sector built most of the conventional housing available in Aden, but nonetheless very few of these units can be afforded by the urban poor (Aden Master Plan Report, 2006). When the private sector housing aged and deteriorated, they may be subdivided into smaller units. Only then do these houses become affordable to house the lower-income groups. The failure of the housing policies to respond to the changing societal needs is regarded as a major cause of the housing crisis particularly in Aden.

Despite the fact that there are substantial private housing schemes in Aden city, a question remains unanswered: how well does the private housing scheme to meet the housing needs of the target population? For this reason, this paper focuses on the housing private schemes in Aden City to investigate the extent to which the private housing schemes in Yemen are able to meet the housing need of the bulk of population in Aden, Yemen. Issues of affordability and accessibility to the housing market are analyzed as they are the major obstacles for people to obtain affordable housing in the private market.



#### 4. Study methodology

To achieve the objective of the study, residents were chosen from two different private housing schemes, which were the Abu Harba - Enma project developed through bank's funding (housing finance program in installments) and Al Madina Al Takania - Kabota Project was developed through self-financing (Figure1). These projects have different multi story housing types zones that named A, B, C, and D. This study focusing on Residential zone "D" was targeted because it includes low cost housing class, which will enhance the research with limited areas (77.3-84.5) square meters that which represents part of the housing project. The purchasing system in those projects either by cash or installment system, 36 months (3 years) is the minimum period and the 60 or 84 months (5 – 7 years) is the maximum period given to the house buyers to complete monthly payments and become the homeowners.

The study adopted a quantitative approach for data collection. A questionnaire survey was conducted to achieve the objective of the study. The main objective is to examine the respondent's perception on the affordability of their houses. The population for the study was 720 households living in Abu Harba housing area and 340 households living in Al Madina Al Takania housing area. Since the population of both areas is homogenous, the study adopted a random sampling method to select 270 households in Abu Harba area and 193 households from Al Madina Al Takania for the survey, based on the sampling procedures (Yamuane, 1967). A total of 463 questionnaires was completed by households in both project areas.



Fig.. 1. Location of two housing schemes - Abu Harba housing project (through bank financing) and Al Madina Al Takania housing project (through self-financing) in Aden, Yemen.

The questionnaire designed for the research had three main sections. 'Section-1' comprised eight items related to socio-economic and demographic characteristics of the residents. 'Section-2' had six items related on residents' perception of affordability, and 'Section-3' had the overall evaluation on overall quality of the housing units and the surrounding environment. The variables related to socio-economic and demographic characteristics of the residents investigated were age, education, income, marital status, tenure status, employment sector, household size and Size of dwelling units. Likert-type scale ranging from '1' for very unaffordable to '5' for very affordable was used to capture their responses on perception of housing affordability with House price, Mortgage, Down payment requirements, Interest rates, Maintenance cost and Water and Electricity fees.

Data on residents' perception of overall adequacy of the dwelling units, neighborhood environment and management were obtained using a Likert-type scale ranging from '1' for very inadequate '2' for inadequate; '3' for neutral; '4' for adequate to '5' for very adequate.

## 5. Results and discussion

### 5.1. Socio-economic characteristics of respondents

Table 1 depicts s the Socio-economic characteristics of respondents occupying the housing units in two housing areas of Aden. From this result, it is evident that majority of them in Abu Harba project (Bank finance) were between ages 31yaers and 40 years, while the majority (52.3%) of those in the Al Madina Al Takania project (Self Finance) were 21 years and 30 years. On the employment status of the respondents, it was observed that most of those in the two projects were public sectors workers, while 30.7 % and 33.2 % respectively, and were employed in both public and private sector. The result (table 1) also shows that a significant proportion of respondents in two projects earned monthly income higher than Yemeni Rial [YR] 50000 (44.1 % and 40.9), respectively and YR 40000 – YR 50000 (37 % and 33.2). This result suggests that both the two projects were targeted at low and middle income groups. On tenure status, as would be expected, the majority (82.2 % and 83.4 %) of the respondents in the Abu Haba and Al Madina were mortgage holders, while 17.8% and 16.6% respectively were owner-occupiers. It is evident from the result that the majority of households choose to live in those projects because they offered the installments system. In addition, the results, as displayed in table 1 shows that the majority (36.7% and 56.5 %) of the respondents in the two projects had household sizes of 5 - 7 persons. About 96.6 % in both projects were live in two bed rooms, while 30.4% of respondents lived in one bed room. However, the survey results showed that the houses were too small for the large household size

Table 1. Respondents' Socio – economic characteristic.

	<u>Abu Harba</u> N= 270	<u>Al Madina Al Takania</u> N= 193	<u>Total</u> N= 463
<b>Marital Status</b>			
Single	0 (0.0)	0 (0.0)	0 (0.0)
Married	213(78.9)	153 (79.3)	366 (79)
Separated	29 (10.7)	22 (11.4)	51 (11)
Widow/Widower	28 (10.4)	18 (9.3)	46 (10)
<b>Age</b>			
21- 30	55 (20.4)	101 (52.3)	156 (33.7)
31-40	118 (43.7)	41 (21.2)	159 (34.3)
41 and 50	97 (35.9)	51 (26.4)	148 (32)
Above 51	0 (0.0)	0 (0.0)	0(0.0)
<b>Employment Sector</b>			
Public sector	170 (63)	80 (41.5)	250 (54)
Private sector	17 (6.3)	24 (12.4)	41 (8.9)
Mixed	83 (30.7)	64 (33.2)	147 (31.7)
Unemployed	0 (0.0)	25 (13)	25 (5.4)
Own business	0 (0.0)	0 (0.0)	0 (0.0)
<b>Household Income</b>			
Lower than YR 20000	11 (4.1)	18 (9.3)	29 (6.3)
YR 20000 - YR 30000	11 (4.1)	12 (6.2)	23 (5)
YR 30000 - YR 40000	29 (10.7)	20 (10.4)	49 (10.6)
YR 40000 – YR 50000	100 (37)	64 (33.2)	164 (35.4)

Above YR 50000	119 (44.1)	79 (40.9)	198 (42.8)
<b>Household size</b>			
Lower than 4 persons	72 (26.7)	37 (19.2)	109 (23.5)
5 - 7 persons	99 (36.7)	109 (56.5)	208 (44.9)
8 – 10 persons	72 (26.7)	39 (20.2)	111(24)
10 – 12 persons	27 (10)	8 (4.1)	35(7.6)
Higher than 12 persons	0 (0.0)	0 (0.0)	0 (0.0)
<b>Size of housing unit occupied</b>			
One bedroom	82 (30.4)	58 (30.1)	140 (30.2)
Two bedroom	188 (69.6)	135 (69.9)	323(69.8)
<b>Tenure Status</b>			
Outright purchase	48 (17.8)	32 (16.6)	80 (17.3)
Own a house with mortgage	158 (82.2)	160 (83.4)	383 (28.7)

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Numbers outside bracket represent frequencies; Figures in bracket represent percentages.

## 5.2. Housing affordability

The percentage of households' monthly instalment spent on housing units was also examined to ascertain their affordability and challenges on the household expenditure patterns. The results found that 51.7 % and 53.2 of the respondents in the both projects pay 40% of their monthly income on housing, while another 29.7 % and 29.5 of the respondents pay 50% of their monthly income as monthly housing instalments. From the literature review, the lower-income households in MENA countries generally spent between 30% and 40% of their monthly income on housing, but the amount of housing expenditures was found to be higher in Yemen between 40% and 50%. In addition, the investigation shows that the majority of households facing the difficulties in pay other charges like electricity bills, water, sanitation, and cost of maintenance. All of these added up (Plus monthly payment) to the total housing cost to the households in private housing schemes. For this reason, the lower and middle income households in Aden could not afford housing. Hence, there is an urgent need to increase their monthly income or to obtain some form of financial support to enable them to afford housing (Al Abed, 2012). Table 2 shows the results of descriptive analysis of residents' perception regarding affordability. The respondents answered the items for measuring affordability of housing projects on a five-point Likert scale, with 1 referring to "Highly Unaffordable", and 5 being "Highly affordable".

The mean value of responses from the residents for affordability items are low. The lowest mean value refers to "Water and Electricity fees" (1.73), which shows this item is unaffordable for residents more than other items. The other highest unaffordable items for residents are "Mortgage repayment to household income ratio", "Maintenance cost", "Down payment requirements" respectively. The largest mean value among the items of Affordability belongs to "Interest rate" which is followed by "House price to income ratio", however these largest mean values still are lower than 3 and show these items are unaffordable for residents. In Yemen, the housing finance is still not developed (Baharoglu et al., 2005). The people, especially the low-income group, build their own houses by saving money or by getting loans from family and friends. They could not afford to obtain loans from the commercial banks due to difficult mortgage conditions and high interest imposed and housing prices are also very high as shown in the results.

Furthermore, a lack of legislations on housing investment and construction in Yemen have resulted in a dearth of financial authorities and housing developers in the country, subsequently affecting the grant available for housing projects. The study findings found that 82.5% of the respondents could not afford new housing because of the high housing cost and the absence of a bank loan or government financial support and subsidy. A majority of respondents



(93.3%) mentioned that they needed a more flexible housing instalments for 15 years or more with a monthly payment of less than 20% of household income

Table 2. Resident's perception on the housing affordability.

Items	Abu Harba N= 270		Al Madina Al Takania N= 193		Total N=463	
	Mean	Std. Dev.	Mean.	Std. Dev.	Mean	Std. Dev.
House price to income ratio	2.53	0.63	1.78	0.73	2.22	0.77
Mortgage repayment to household income ratio	2.27	0.45	1.64	0.61	2.01	0.61
Down payment requirements	2.38	0.58	1.67	0.68	2.08	0.72
Interest rates	2.53	0.54	1.85	0.68	2.25	0.69
Maintenance cost	2.21	0.63	1.88	0.68	2.07	0.67
Water and Electricity fees	1.71	0.61	1.75	0.64	1.73	0.62

Source: Derived from author's survey data (2013)

### 5.3 Condition of housing

In this study, the two housing projects were undertaken by two different developers on the basis of '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. The results shows 38 % of the households in the two projects bought the house before construction or was under construction from the start, while 47.1% of the households bought the houses without complete finishing. For adequacy of the housing units and environment, the results from the collected data were unexpected and showed that 52.5% of the respondents perceived the housing units and their environment in the Abu Harba project was implemented through commercial bank funding as inadequate. This in parallel with the findings of the Madina Al Takania project that developed through self-financing were 75.9 % of the respondents evaluate their housing units and environment very inadequate. This finding showed that the overall quality of the housing units and the surrounding environment were considered as flawed and inadequate by the majority of the respondents. According to Al Abed, (2012), the Sell then Build system does not allow house buyers to view the houses they purchased while having to accept the delivery of houses irrespective of their quality . Furthermore, there were complaints from the respondents regarding the quality of maintenance and communal activities of the project management, as well as the poor provision of housing services, infrastructure and neighborhood facilities. These findings should impress upon the relevant authorities in Aden specifically to pay more attention to the architectural design of housing units, as well as improving the provision of housing support services and basic social infrastructure in public housing estates in Aden (Shaqraa and Badarulzaman, 2009). The study results also support prior housing research in Yemen (Sultan and Kajewski, 2003) which revealed the state of an inadequate supply and quality of building materials in the Yemeni market, and the inefficient project design and management of housing projects in Yemen as a whole.

## 6. Conclusion

This study examined the issue of affordable housing from residents' perception in the private housing schemes in Aden city in Yemen. Following the unification policy in Yemen in 1990, the national housing policy has shifted gear to allow more rooms for the free play of the housing market. The outcome has been rather impressive in the development of large-scale private housing projects in the large cities of Yemen. The study, therefore, found that the majority of the people in these private housing schemes facing housing affordability problem particularly with

reference to adequacy of housing. The majority of the householders could not view or assess their completed house since they bought their houses through the 'sell then build' system.

Findings of this study have a number of implications. The chief among them is that the government should pursue a housing delivery strategy that is 'end-users driven' which may be implemented through housing cooperatives, development agencies, and Public Private Participation (PPP) and focusing on affordable housing for the low and middle income market. It is also important that government should adopt policies that promote mortgage-based housing schemes for low and middle-income earners in Yemen.

Another implication is that the adequacy of housing can be enhanced by giving adequate attention to the design of the housing units as well as the provision and maintenance of key services and social infrastructure. In this case, the government has to be more stringent in implementing the law and acts to continuously monitor the construction phase in the private sector projects

Finally, since this study is focused on the affordable of housing provided in the private housing schemes, perhaps other studies can explore residents' housing satisfaction and quality of life in these housing projects.

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