

# Residents' Satisfaction with Public Housing in Hulhumale' Area of Male', Maldives

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## Abstract

This paper examines the residents' satisfaction with public housing in the Hulhumale' area of Male' in Maldives, with a focus on physical features, the provision of services, public facilities and the social environment in the housing area and their contributions to residents' overall housing satisfaction. The findings show that a majority of the residents is only slightly satisfied, though satisfaction levels are generally higher for the provision of services and public facilities, compared to the satisfaction with physical space in the housing unit and the social environment in the neighbourhood. The study infers that merely providing housing does not ensure success of housing development and policies in the Maldives.

**Keywords:** Housing satisfaction, physical features, public facilities, social environment

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## 1.0 Introduction

Urbanization rate in Male', the capital of Maldives, has been rapidly since the 1970s, requiring the need to provide housing for the growing population of the city. It was reported that housing condition in Male' and several islands are acutely inadequate as the existing housing supply cannot meet the housing demand (World Bank, 2003). Responding to this situation, the government adopted a Strategic Action Plan (SAP) in 2008, which targeted to construct public housing in Male' and Hulhumale'. Although the project is not yet complete, but several hundreds of housing units were constructed and delivered to the people. Nevertheless, there are public complaints about the quality and physical space within the housing units, the services provided in the housing area, and the selection processes (HRCM, 2008). Therefore, a need arises to examine residents' satisfaction with public housing in order to gauge the expectations, needs and preferences of the people, and determine the important factors, and the type of improvements that are required in existing and future housing development in the Maldives.

## 2.0 Literature Review

Housing satisfaction (HS) is defined as an emotional response to a person's dwelling; the positive or negative feeling that the occupants have for where they reside (Francescato et al, 1979). HS has been used as a measure to examine the success of housing projects. Since the early 1960s, resident HS has been in use as a basis for optimizing the architectural design of large housing projects, where feedback was collected from the residents with regard to their views on the physical features of proposed housing development and then feeding those views back into the design process. The method of choice for assessing housing satisfaction today uses structured surveys followed by statistical correlation of variables (Furbey & Goodchild, 1986). From the 1980s, HS has been a key tool to assess and improve the performance of housing developers, and government housing policies (Amerigo & Aragones, 1997).

Studies of HS are basically of two types - those that consider housing satisfaction as a predictor of the behaviour (intention to stay/move from existing housing), or HS as a criterion of housing quality (Weidemann and Anderson 1985). The former type assumes that satisfaction with existing housing determines the behaviour of the resident in terms of making changes to the housing unit or the decision to move to another housing unit. The basis of this assumption is that differences in the existing housing and the actual housing needs and preferences of the dwellers will result in either making changes to existing housing or move to a housing unit that meets their actual housing needs and preferences. The latter type of studies used housing unit features, services and facilities provided in the housing area and the housing environment to determine the degree to which a person is satisfied with the existing housing unit (Amerigo & Aragones, 1997).

Existing literature suggests that HS is a function of a whole spectrum of factors covering the occupant's dwelling, provision of services within the housing area, relationship with neighbour and the location of the dwelling unit. Morris (1978) found that HS depends on a

whole system of beliefs and opinions that the occupant entertains with respect to the housing unit, and it is not connected with its physical characteristics. Galster (1987) measured housing well-being using a composite sum of satisfaction with dwelling unit features, such as the number of rooms per family and the possession of a private bathroom and kitchen. On the other hand, Clarke (2008) identified dwelling types, property size, internal and outdoor space, kitchens and bathrooms, parking and external appearance as factors important to today's households. Varady and Carrozza (2000) stress that HS is related to satisfactions with a dwelling unit (i.e. Physical aspects and personal preferences), with services provided, and neighbourhood and area, including the location.

Pina and Kowaltowski et al (2005) found that the main factors related to HS in Brazil included communal services such as roads, sewer system, and basic utilities within the housing area. On the contrary, He and Zhao (2006) observed that housing demand in Beijing, is highly influenced by proximity to public transportation and facilities rather than merely based on physical factors. Physical aspects of the housing area such as common areas, ventilation and lighting, and orientation of windows also contribute towards overall HS. While Toscano and Amestoy (2008) examined HS based on individual and household attributes, housing characteristics, and social interactions within residential neighbourhood, Chin-Chun (1981) used physical space, location, neighbour, and the environment factors, to assess HS in Taichung, Taiwan.

Jiboye (2009) used three major housing components - dwelling unit features, management of housing units and the housing area environment, in his study of the public housing in Lagos, Nigeria, and found high levels of residents' satisfaction for physical features and housing area environment but lower satisfaction level for the management of the housing estate. Russell (2008) found that subsidized renters in the US reported higher satisfaction with their housing than similarly situated non-subsidized renters.

The preceding review of studies on HS shows that physical characteristics of the housing, the neighbourhood and the public facilities to determine the level of housing satisfaction; however, these may vary by the type of housing, the locale, the community, the cultural backgrounds as well as the nationality. This suggests that studies can be undertaken to determine the HS by housing types, community, housing policies and the country itself. Hence, in order to assess the level of satisfaction with public housing in the Maldives, the criteria used should be specific to Maldives, but based on or adopted from the main definitions and concepts of HS internationally and on lesson learnt through existing studies in similar countries. Due to the lack of such studies in the Maldives, this study aims to fill the existing gap, and contribute towards the development, and growth of the housing sector in the Maldives through amending existing housing policies, strategies and contributing to the development of future housing policies and projects.

### **3.0 Conceptual Model**

This study adapts the conceptual model developed by Mohit et al., (2010), in their study of HS in Malaysia. Although various approaches and concepts have been used in evaluating HS worldwide, this conceptual model most closely applies to the Maldivian context. The

model presented in Figure 1 shows the interrelationship between the descriptive and research variables (residents' satisfaction). The model shows the level of HS as perceived by the residents in terms of the influence of the physical characteristics of the dwelling unit, services provided in the housing area, the characteristics of the neighbourhood, and the quality of public facilities and services.

## **4.0 Research Objectives, Methodology and Study Area**

### **4.1 Objectives**

The main aim of this study is to improve the housing sector in the Maldives, through improved housing, living environment and societal development. In order to achieve the above aim, the following objectives have been set for this study:

- To investigate and examine the factors that influence satisfaction with public housing in Hulhumale'.
- To identify key factors that can help improve the satisfaction with public housing in Hulhumale'.
- To explore the relationship between overall satisfaction with public housing and the intention to stay or move out from the existing housing area.
- To recommend measures to improve the public housing environment in Hulhumale'.

### **4.2. Methodology**

A sample of 100 respondents (n=100), which represents 35% of the total, was selected from a total of 288 housing units (N=288), from the public housing area of Hulhumale'. Primary data for this study was collected through a self-administered questionnaire which contained seven sections to elicit residents' perception on 46 HS related variables (Table 1). The field survey was carried out for a period of four weeks in August 2011. To ensure maximum responses to the questionnaires, respondents were briefed about the purpose of the survey and assured that the information provided will be kept confidential and used for research purpose only. A total of 100 questionnaires was administered during the survey. A Likert scale ranging from "1" = very dissatisfied, "2"=dissatisfied, "3"=slightly satisfied, "4"=satisfied and "5"=very satisfied, was used to measure respondent's satisfaction level on various housing components (Table 1). The overall satisfaction for each feature of housing was analyzed based on a mean score of 3.00 as a positive indication of satisfaction, while values below 3.00 indicated dissatisfaction. The data collected was analyzed by using SPSS 17.0, for frequency distribution, mean, standard deviation and percentage scores of satisfaction. Further analysis was carried out by using cross tabulation, correlation analysis and a regression analysis.

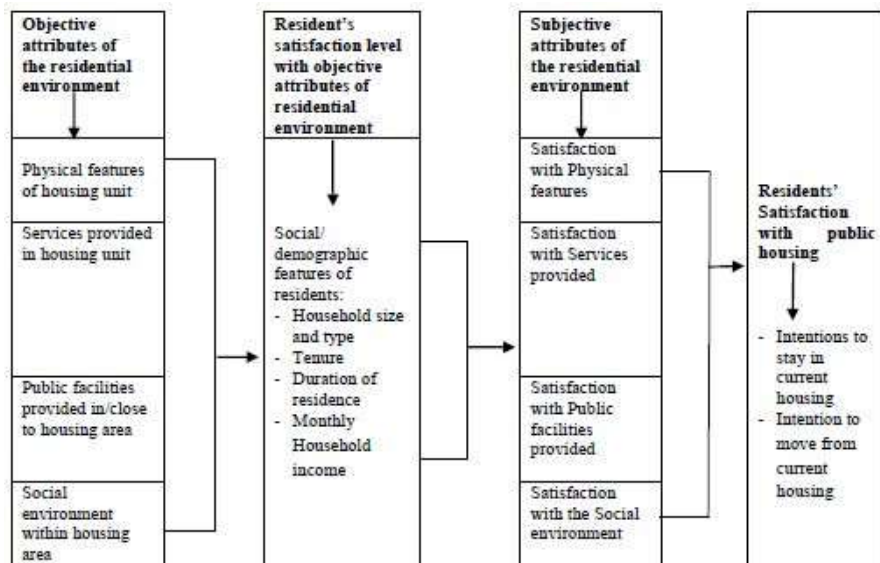


Figure 1. Model of housing satisfaction adapted from Mohit et al. (2010).

### 4.3 Study Area

The study area is located in Hulhumale', which is a reclaimed island with a new land mass development to meet the existing and future housing, industrial and commercial needs of Malé (capital of Maldives) region (Figure 2). Officially, the settlement was inaugurated on May 12, 2004. Hulhumale' is developed and managed by the Housing Development Corporation (HDC), formerly known as the Hulhumalé' Development Corporation, a wholly government-owned company. The primary reason for the development of Hulhumale' is to provide public housing in order to solve the growing housing crisis within the capital region.

Table 1. Components and variables selected for measuring public housing satisfaction in Hulhumale'.

Component-1 (11 variables)	Component-2 (11 variables)	Component-3 (20 variables)	Component-4 (4 variables)
<i>Housing unit physical features</i>	<i>Services provided in housing area</i>	<i>Public facilities provided</i>	<i>Social environment within housing area</i>
Ventilation, Bedroom1-size & condition, Living area-size & condition, Dining area-size & condition, Kitchen area-size & condition, Toilets-size & condition, Bedroom2-size & condition, Bedroom3-size &	Condition of staircase, Location of the staircase, Plumbing repair services, Lighting in corridors, Plumbing, Size of corridor, Electrical repair services, Maintenance of	Masjid, Water supply, Electricity supply, Children's play areas, Pedestrian Walkways, Local shpos & shopping area, Recreational areas, Kindergarten, Parking facilities, Distances to – bus stop, masjid, hospital, shopping areas, ferry	Neighbourhood relation, Community cohesion/ relations, Level of crime, Level of security.

condition, Washing & drying area-size & condition, Number of sockets, Number of toilets.	common areas, Garbage collection, Cleaning services for corridors & staircases.	terminal, schools, town centres, police station, fire station; satisfactions on health & ferry services.	
<b>Satisfaction with spaces within housing unit</b>	<b>Satisfaction with services within housing area</b>	<b>Satisfaction with public facilities in / close to housing area</b>	<b>Satisfaction with social environment within housing area</b>
Overall Satisfaction with Public Housing of Hulhumale'			

Land reclamation works of Hulhumale' started in 1997, and development of physical and social infrastructure and housing commenced in 2002. The settlement started in the middle of 2004, with an initial population of just over 1000 people. The total land area of Hulhumale' is 200 ha with a population of 2,866 (2006). Currently, Hulhumale' has 288 public housing units and 336 row-house units (Figure 3). In addition, land parcels for private housing, industrial development and commercial uses were allocated.



Figure 2: Location of Hulhumale'  
(Source: Housing Development Corporation)

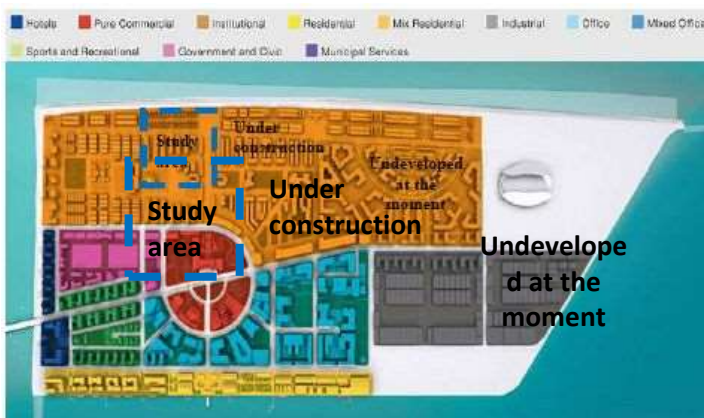


Figure 3: Hulhumale' Land-use Plan  
(Source: Housing Development Corporation, [www.hdc.com.mv](http://www.hdc.com.mv))

Hulhumalé' is linked to the capital Male' by public ferry services and is connected to Male' International Airport by road. The residents living in Hulhumalé' are served by public buses operating from the ferry terminal to different housing areas, town centre and the industrial areas. Hulhumalé' currently provides a variety of housing options such as apartment or flats, terrace houses, row houses with mixed development and public facilities such as schools, hospitals, commercial areas, recreation areas. The target for the completion of the project is 2020, and the vision for Hulhumalé is to become a world-class city, supporting a population of 60,000 people, working and living in the area.

## 4.0 Results and Discussion

### 4.1 Socioeconomic and Demographic Characteristics of Respondents

The following socioeconomic and demographic characteristics of the respondents deserve careful considerations:

- While 88% of the respondents are married, 12% have extended families.
- Average family size is four (4), against a national average of six (6).
- Whereas 65% residents of the area are living for less than 2 years, 23% of residents are living for 5 and more years, and the rest are living 2-5 years.
- While 51% of the respondents are tenants, 49% are owners.
- Whereas 84% respondents reported as civil-service employees, 16% reported as working in the private sector.
- While 71% of residents earn over Mrf 13,000 (US\$843), 29% earn between Mrf 12,000 and 13,000 per month. The national average is Mrf 15,000 (US\$ 973).

### 4.2 Satisfaction with Physical Features of the Housing Unit

- Residents conveyed a high level of satisfaction with the size and condition of Bedroom1 [Mean Satisfaction (MS) =3.59], followed by Bedroom2 (MS=3.56), Bedroom3 (MS=3.26), Kitchen (MS=3.05), Dining Area (MS=2.99), Living Area (MS=2.74), Washing and Drying Area (MS=2.74) and Toilet (MS=2.28).
- While 11% of the respondents are most satisfied with the ventilation of the housing unit, 10% are most satisfied with Bedroom1 and the Living room, respectively, followed by 9% of respondents reported satisfaction with Dining Area, Kitchen, size and condition of toilet, Bedroom2 and Bedroom3, respectively. Low satisfaction levels (8% each) are recorded with the number of electrical sockets and washing and drying area, respectively, while only 7% of respondents reported satisfaction with the number of toilets provided in the housing unit. A majority of residents (82%) was not satisfied with the number of toilets provided in the housing unit.
- The physical features most satisfied are the size and condition of the washing and drying areas (53% reported as satisfied), followed by ventilation (34% satisfied) and living room size and condition (10% satisfied).
- While 12% of the respondents reported as dissatisfied, 66% are slightly satisfied and only 22% are satisfied with the overall physical features of their housing unit.

- Tenants are more satisfied (MS= 3.27) than the owners (MS= 2.92) with physical features of the housing unit.

#### **4.3 Satisfaction with services provided within the Housing Area**

- Respondents are mostly satisfied with the condition of the staircase (MS=4.64), location of staircase (MS=4.23), plumbing services (MS=3.91), corridor lighting (MS=3.86), plumbing (MS=3.59), corridor size (MS=3.44), electrical repair services (MS=3.07), maintenance of common areas (MS=3.07), while they expressed dissatisfactions with the garbage collection (MS=2.83), street lighting (MS=2.61) and cleaning services (MS=1.93) for corridors and staircases.
- While 13% of residents are dissatisfied, 64% are slightly satisfied and 23% reported as satisfied with the services provided in the housing area.
- Duration of residence, type of tenure, and income, show significant positive correlations with satisfactions on the provision of services.
- Tenants are more satisfied (MS = 3.25) than the owners (MS = 2.94) with the provision of services.

#### **4.4 Satisfaction with Public Facilities provided within and close to the housing area**

- Residents' satisfaction with public facilities within the housing area shows mean values of 4.65, 4.30, 4.23, 4.22, 3.97, 3.58, 3.5, 3.44 and 3.27; for *masjid*, water supply, electricity supply, children play areas, pedestrian walkways, local shops, recreational areas, kindergarten schools and parking facilities, respectively.
- While the residents are satisfied with the location of the bus stops and with the distance of the *masjid*, hospital, shopping areas, and schools, however, they conveyed a lower level of satisfactions with the distance from the housing unit to the town centres, followed by the distances to the police and fire station, and the quality of the ferry services.
- While 59% of the residents are satisfied with the distance, they have to travel to use the ferry services, 41% of respondents are not satisfied with ferry services provided in Hulhumale'.
- While 22% of the residents were dissatisfied, 55% reported as slightly satisfied and 23% are satisfied with the provision of public facilities. Maintenance of corridors and staircases, garbage disposal and street lighting had a lower mean satisfaction level.
- Tenants are more satisfied (MS = 3.24) than the owners (MS=2.78) with public facilities.

#### **4.5 Satisfaction with Social Environment within the Housing Area**

- A majority of the respondents is highly satisfied with both the level of security (77%) and crime in the housing area (51%).
- Residents are most satisfied with their relationship with their neighbour (MS=3.71) and communities (MS=3.71). Residents also conveyed lower satisfaction levels with crime (MS=3.22) and security (MS=2.89) in the housing area.



- Although 20% of the respondents expressed dissatisfaction, a majority of the residents reported slightly satisfied (56%) and 24% reported as satisfied with the social environment.
- Tenants are more satisfied (MS = 3.27) than the owners (MS =2.80) with the social environment.

#### **4.6 Overall Satisfaction with Public Housing in Hulhumale'**

- Residents are in general, satisfied with the public housing in Hulhumale', with 8% reported as dissatisfied, 68% reported as slightly satisfied, and 24% reported as satisfied. The overall satisfaction with public housing indicates a moderate level of satisfaction with a mean value of 3.24. Although only 8% of the residents reported dissatisfaction with public housing, overall satisfaction was close to the moderate level and there is still a need for further improvement in the provision of public housing.
- 63% of the residents expressed intention to move out to another housing unit compared to 37% who would like to stay in their current housing unit. Most of the residents who intend to move from the housing area, are owners.

#### **4.7 Factors influencing overall satisfaction with public housing**

- Correlation between the overall HS and the components of HS shows significant results. Satisfaction with physical features of the housing unit (0.802\*\*) and satisfaction with the social environment within the housing area (0.767\*\*) show significantly higher positive correlations. Satisfactions with public facilities (0.744\*\*) and services (0.683\*\*) also have significant correlations with the overall satisfaction levels.
- The owners showed lower levels of satisfaction compared to tenants with public housing.
- Besides the household type, all the social and demographic features such as household size, duration of residence, tenure, have significant positive correlations, while income has a significant negative correlation with overall satisfaction with public housing.

#### **4.8 Factors determining overall satisfaction with public housing in Hulhumale'**

- Stepwise regression analysis (Table 2) reveals that the overall satisfaction levels are determined by enhancing satisfactions on Bedroom1 - size and condition, cleaning services for corridors and staircases, Bedroom3(size and condition), and Washing and Drying Area (size and condition).

Table 2. Regression analysis of variables influencing overall HS

Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	B	Std. Error	Beta		
(Constant)	1.812	.351		5.163	.000
Bedroom 1 - size and condition	.635	.051	.878	12.469	.000
Cleaning services for corridors and staircases	.673	.101	.473	6.646	.000
Schools and pre-schools	-.903	.106	-1.136	-8.509	.000
Number of electrical sockets	-.515	.068	-.897	-7.572	.000
Bedroom 3 - size and condition	.594	.107	.547	5.564	.000
Washing and Drying Area - size and condition	.220	.073	.254	3.033	.003
Dependent Variable: Overall Satisfaction level with public housing unit Note: Adjusted R <sup>2</sup> =0.76.					

- It is important to improve the design of the housing units and also re-evaluate the provision of services and public facilities within the housing area, in order to enhance overall satisfaction and quality of life with public housing in future public housing developments in Hulhumalé' and in other areas of Maldives.

## 5.0 Conclusion

This paper examined the residents' satisfaction with public housing in Hulhumalé', based on assessment of satisfaction with physical features of housing unit; services and public facilities provided both within and close to the housing area, and social environment within the housing area and their contributions to the overall residents' satisfaction. The study found that a majority of the residents is slightly satisfied, though satisfactions levels varied with the provision of services and public facilities, compared to satisfaction with physical features of the housing unit and the social environment within the housing area. A low level of HS was recorded for the number of toilets, size and condition of washing and drying area, number of electrical sockets, cleaning services for corridors and staircases, street lighting, garbage collection, ferry services and security level within the housing area. The study also found that satisfaction levels were low among house owners than those of the tenants. Therefore, the study recommends those features of the public housing which registered low levels of satisfaction by the residents. In conclusion, the study infers that merely providing housing does not indicate success of housing development policies, but meeting the actual housing needs and preferences of the residents will determine whether the government can achieve the goal of providing affordable housing for all citizens as stipulated in the Maldivian constitution.

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