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Measuring the Quality of Life in Low Cost Residential Environment

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Abstract

The level of satisfaction with the residential environment affects the quality of life. Thus, the aim of this paper is to measure the quality of life on the current low cost residential environment under the management of City Hall Kuala Lumpur (CHKL). A questionnaire survey was distributed among occupants of public low cost residential. The findings indicate that the quality of life is measured using the objective and subjective indicators. Generally, occupants of the lower cost residential are satisfied with the physical design element but are unsatisfied with the physical environment elements.

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Keywords: Safety management system; construction organisations; safety officers; building contractors

1. Introduction

The Malaysian government has implemented a housing strategy of constructing low cost housing for lower income groups. During the economic decline within the late 1997, the four-tier pricing system for PPR schemes in metropolitan areas and major towns for the resettlement of squatters was implemented to ensure citizens, particularly lower income groups to continue to have advantages of affordable and quality housing (Ai Tee and Ahmad, 2012). This four-tier pricing system was created due to the economic recession in the late 1997. However, it is important to ensure that this system is able to create a harmonious society. Shiud (2004) highlighted that 32.7 per cent of the households in Kuala Lumpur have

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monthly incomes of less than Ringgit Malaysia (RM) 2,000 whereby 19.9 per cent have monthly incomes of less than RM 1,500 in the year 2002. This portray that 32.7 per cent of households in Kuala Lumpur can only afford to buy a low cost house. Low cost housing is generally defined as the appropriate housing units of which the construction is in accordance with identified minimum standards complying with a code of practice specially created for low cost houses (Wang, 1980). As a result of the implementation of the four tier system, all public low-cost housing units developed in urban areas are built as high rise flats. The flats can be up to 18-storeys high with 20 units per floor. According to Adam (1984), housing satisfaction is recognized as an important component of home owners' general quality of life. Moreover, the degree to which home owners' needs and aspirations are met by their housing conditions is a concern for housing developers. Besides that, measures of housing satisfaction offer necessary information to appraise the performance and achievement of the current and future housing projects (Preiser 1989, Natham 1995). The Development of Public Low Cost Residential and the The Quality of Life. According to the Helmi (1999), low cost housing can be built in various concepts of designs. The concepts can be core housing, single-storey housing, double-storey housing, quadrant, cluster links and walk up flats. The development of the Low Cost Flats in Kuala Lumpur is limited to those under the supervision of the City Hall Kuala Lumpur (CHKL). The public low cost flats scheme has been adopted in Kuala Lumpur with the introduction of Perumahan Awam Kos Rendah (PAKR) during the Third Malaysian Plan (1976 – 1980). Project Perumahan Rakyat (PPR) was then introduced, improved through the 7th Malaysian Plan as a result of the National Economic Action Council (NEAC) in December 1998 which was established to generate economic growth through construction activities, particularly in the development of low cost housing and to provide housing for rent to squatters in the Federal Territory of Kuala Lumpur and other major cities towards the goal of zero squatters by 2005 (Department of National Housing, 2008). "PPR Dasar Baru" is carried out under a new strategy enforced on 27 February 2002. One unit of PPR provides 3 bedrooms, 1 living room, 1 toilet and 1 bathroom. The implementation of this programme uses the design specification in CIS 2 to improve the quality of life of the low cost flats' occupants. The Department of Economic Planning Unit (1999) defines quality of life as, "Self-development, healthy lifestyles, access and freedom to pursue knowledge and standard of living beyond basic needs individual and psychological needs, to accomplish the level of social welfare equivalent with national aspirations". Nurizan (1998) highlighted that quality of life in the early stages has been measured through the development of social-economy and is followed by education, health, housing and other common facilities. According to the Economic Planning Unit (1999), quality of life refers to the changes in the community and social system from the unsatisfactory situation to a satisfactory situation. Thus, Quality of life has also changed due to the evolution of the development of the public low cost residential. A typical new design specifications that were introduced by the Ministry of Housing and Local Government to be implemented for all low cost houses is tabulated in Table 1.

Table 1. Low-Cost Houses : New design specifications

Element	Terrace Houses	Flats
Floor space	48-60 m2	45-56 m2
Bedroom		
Minimum number and minimum area of habitable room	3	3
1 st room		
2 nd room	11.7 m2	11.7 m2
3 rd room	9.9 m2	9.9 m2
	7.2 m2	7.2 m2
Kitchen	4.5 m2	4.5m2
Living and dining rooms	Provided as one combined space or separated with adequate area according to internal layout.	Provided as one combined space or separated with adequate area according to the internal layout
Bedroom and toilet	Provided separately with a minimum area of 1.8 m2 each.	Provided separately with a minimum area of 1.8 m2 each.
Storage space and porch	Adequate provision for resident's comfort.	Adequate provision for resident's convenience and comfort.
Drying area	-	Adequate provision for each unit.
(*) Launderette facilities		

Note: (*) Must be provided according to the Guidelines for the provision of launderette facilities in multi-storey building” prepared by Local Department.

Sources : Ministry of Housing and Local Government (1998)

2. The measurement indicators for quality of life

According to Haryati Shafii et al., (2003). The approach presented in this study combines aspects of home comfort and the level of satisfaction upon the physical elements used as an indicator of quality of life which are the physical design elements and the physical environment elements. Housing satisfaction is an important component to achieve good quality of life. A household's housing satisfaction is a major factor affecting the feeling of general well-being (Campbell, C. et.al, 1976; White & Schollaert, 1993) and an indicator of quality of life (Wish, 1986). Good quality houses can give a higher quality of life for the occupants. A house that cannot fulfill the needs and values of families can cause problems such as mental and physical problems, environmental pollution, congestion, and various family problems. Nurizan,1998). According to the Nurizan (1998), Haryati Shafii and Nurasyikin Miskam (2011), the quality of life can be measured using two indicators which are objective indicators and also subjective indicators. Objective indicators involve physical aspects such as physical attributes of the house, the physical environment, surroundings and facilities (Morris and winter, 1978; Peck and Steward, 1986; Nurizan and Halimah, 1993; Lawrence, 1995). Subjective indicators involve human feelings, thoughts and behavior toward the culture, living and experience in their house (Nurizan and Halimah, 1993; Lawrence, 1995). Subjective indicators are measured by the satisfaction level towards the physical elements based on the objective indicators. Objective indicators are usually easier to obtain because the data are already published such as the population census in Malaysia and other statistical reports.

However, reports for objective indicators are required to obtain the subjective indicator data (Azahan et al., 2008). Fig. 1. shows the quality of life measurement indicators.

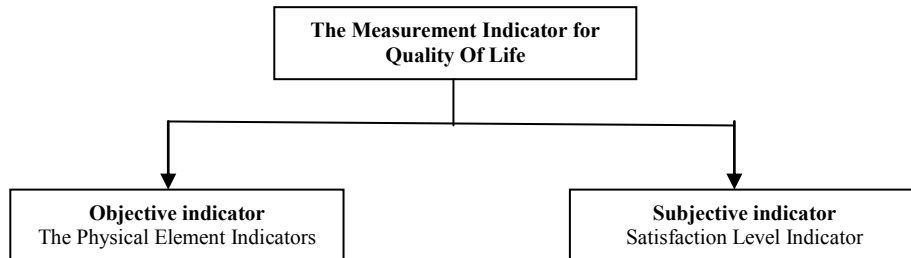


Fig. 1. The Measurement Indicators of Quality of Life

2.1. The physical Element Indicators

The effect of physical attributes of the quality of life can be measured by the assessment of the physical elements indicator through the analysis of physical characteristics of public low cost flats. The physical elements of the houses can be objective indicators to measure the quality of life. Since the approach presented in this study combines aspects of home comfort and the level of satisfaction in the physical elements to be used as an indicator for quality of life, the elements that need to be considered are the physical design elements and physical environment elements.

2.1.1. Physical design elements

According to the Zappetini (2001) physical design aspects include the size of interior division, material and workmanship.

a) Size of the interior division

The floor space of low cost flats is 650 square feet and is small compared to other types of houses. On the other hand, the limited floor space in low cost flats contains only a maximum of three rooms and combines the living room and the dining hall. Besides that, there is only one toilet to be shared among many people in the house. The internal layout of low cost flats has shown vast differences in terms of the activities that can be carried out in the houses. The average number of people in a Malaysian household is 4 to 5. More space are required for a growing family (Isnin, Ramli, Hashim., 2012). Usually, the first bedroom is for parents and another bedroom is used by teenage girls. The limited number of bedrooms and the size of the bedrooms result in the teenage boys sleeping in the living room. According to research by Ai Tee and Ahmad (2011), the design from JPN for each unit of high-rise low cost flats is for a family with the average household size of 5 persons.

b) Quality of material

The quality of the materials in construction can also affect the quality of life. This is because poor quality material results in house defects, which increases costs for maintenance. Besides that, the occupants will feel uncomfortable staying and carrying out activities in that house.

c) *Quality of workmanship*

The quality of workmanship is the quality of the house's construction. Poor workmanship also leads to defects in the house which can incur costs for repair work. The implementation of low cost housing schemes has changed the living patterns of the lower income group. They want a house that they can afford and want it to be in good quality. However, according to Lim and Nath et. al. (2001), most of the external walls of low cost flats had not been painted in a long time.

2.1.2. *Physical environment element*

Based on research by Khair et. al., (2012) the environment aspects around the house such as the provision of the facilities and amenities, the health and safety, the maintenance of houses, ventilation, noise, density, location of the house, humidity, privacy and management of the houses.

a) *Privacy*

Besides the need of comfort for sleep, privacy is also needed to ensure that the occupants can have enjoyment in the house. The limitation of space reduces the number of the activities that can be done in the house. According to Norhazlinah (1995), indoor activities are usually done in the living room which only measures 24.194 square meters in a low cost unit. They spend their time watching television and have meals in the living room. In addition, the living room is also used for children to study.

b) *Facilities provided*

Besides the physical elements of the house, the provision of facilities and utilities can also be used to measure the quality of life. Areas around the residential block serve as a suitable unit for analysis of residential social life (Abdul Aziz, Ahmad & Nordin (2012). Basic facilities are clinic, shops, public transportation and etc. These basic facilities are provided for people living in urban areas. The provision of these utilities for low cost flats can increase the quality of life of the occupants.

c) *Ventilation*

Ventilation in the public low cost area is very important for good ventilation can create a more comfortable environment for the occupants. Ventilation depends on the location of the houses. Housing units on higher levels have better ventilation. Ventilation is very important since the floor space of flat units is limited. The interior design in a housing unit must ensure ventilation and daylight penetration into every major living area (Department of Town and Country Planning, 2002).

d) *Lightings*

Proper orientation of the building is the major factor which affects the performance of daylight penetration (Syed Husin and Hanur Harith, 2012). This is because the provision of the natural lighting for the house can give comfort to the occupants. They can carry out activities without the need for artificial lighting is a basic requirement for all buildings. Lighting is a physical attribute that influences mental health, whereby the lack of lighting will result in mental disorders (Ibem and Amole, 2011). Lightings can be categorized according to natural lighting, artificial lighting (Djebuarni and Abed, 1998) and quality of lighting (Kincaid, 1994).

e) *Noise*

Noise in this research refers to noise pollution occurring in public low cost flats' areas. Usually noise is from the neighborhood activities and external environments such as from traffic and adjacent construction. Noise can bring discomfort to the occupants. Noise from neighbours causes harm and

negative impacts to the relationships between neighbors and may lead to social problems and crime (Parkers et al., 2002).

f) Management

Management in this research refers to the three types of management provided in public low cost flats which are maintenance management, rental management and also garbage management. Maintenance management provided by the City Hall of Kuala Lumpur (CHKL) is electrical maintenance, building maintenance and civil maintenance. The rental is paid monthly according to the rate determined by the CHKL. Garbage management in public low cost flats is also under the supervision of the CHKL. A specialist contractor is appointed to manage garbage in low cost flat area.

g) Humidity

Humidity is also important to indicate the temperature in public low cost flats. The temperature depends on the location of the house and also the level of the house. High temperature results in an uncomfortable environment and decreases the quality of life. The occupants will feel uncomfortable staying in the house and carrying out their activities. Design plays an imperative role in regulating the indoor and outdoor temperature. Good design will provide natural cooling and minimise heat inside the housing unit.

h) Location

The location of this research refers to the location of the occupants' blocks and also the level of the house. This is because the location of the house can affect the quality of life. Some of the occupants are not comfortable staying on high levels. This is because the high risk of contingencies such as non-functioning lifts. Strategic locations give benefit to the owners and users as it will enable them to perform their daily activities easily and will also contribute to better living conditions (Nicola, 2003).

i) Density

According to Nurizan (1998), an element that can affect the quality of life in low cost flats is the high density. The term density refers to the capacity of the house in terms of the number of people that can be fitted in the limited size and number of rooms. High density in a house can cause congestion. Wong (1990) stated that the average number of people in one house is 6. However, Norhazlinah (1995) said that the number of people that can fit in the house is 7. Further, high density living creates discomfort among the residents.

2.1.3. Satisfaction level indicators

Satisfaction level indicators are the subjective measurement indicators for quality of life. According to Sheldon and Land (1972), measurement of the subjective indicator refers to the occupants feeling, perception and also the experience of the occupants toward their house. In a research by Nurizan (1998), there are a few aspects to be measured as subjective indicators which satisfaction level of housing condition, facilities and external environment. She revealed that people are not satisfied with the number of the bedrooms, space for study, privacy and also the size of the living hall and dining hall. It shows that subjective indicators refer to the satisfaction of the occupants towards their house. It is done by expanding factors indicated in the objective measurement.

3. Methodology

This study involves public low-cost flats under the management of City Hall of Kuala Lumpur (CHKL). The public low cost flats under the management of the City Hall of Kuala Lumpur consist of four zones which are Zone 1, Zone 2, Zone 3 and Zone 4. Four public low-cost flats located in Zone 4 were selected for this survey since all of these flats have similar sizes, designs and layouts. They are Wangsa Sari Flats, Jelatek Flats, Sg. Bonus Flats and Hiliran Ampang Flats. Table 2. shows the total number of respondents in this survey. There is a total of 2,293 housing units in the area in which 5% for each is taken as the sample. The total number of samples is 115, where 71 respondents completed the questionnaire survey, which makes up the response rate of 61.73%. Average index was used based on responses on a Likert Scale of five ordinal (1= strongly not satisfied and 5 = strongly satisfied) measuring the satisfaction level. The classification off scale index adopted from Mc Caffer and Zaimi Majid ((1977) as illustrated in Table 3.

Table 2. Total number of respondents

Areas	Total Population (No of housing units)	Percentage	Total sample of Respondents	Total Responds
Wangsa Sari	272	5%	14	14
Jelatek	441	5%	22	17
Sg. Bonus	632	5%	32	19
Hiliran Ampang	948	5%	47	21
TOTAL	2,293	5%	115	71

Table 3. Classification of average index

CLASSIFICATION	RATING SCALE
Strongly not satisfied	$1.00 < \text{Mean Index} \leq 1.50$
Not satisfied	$1.50 \leq \text{Mean Index} \leq 2.50$
Moderate	$2.50 \leq \text{Mean Index} \leq 3.50$
Satisfied	$3.50 \leq \text{Mean Index} \leq 4.50$
Strongly Satisfied	$4.50 \leq \text{Mean Index} \leq 5.00$

4. Results and discussions

The selected respondents are from three different areas of public low cost flats. 44% of the respondents were Malay, 28% respondents Indian, 6% of the respondents were Chinese, and the remaining 3% were from other races. The other races, as stated in the questionnaire, where the Sikh.69% of the respondents have 1 to 5 household members in the house, 31% of the respondents have 6 to 10 household members, and none has more than 10 household members. . 50% of the respondents are from the household income range of RM1100 to RM2000. 30% of the respondents' households' income fall within the range of RM2100-RM3000. The remaining 20% of the respondents have a household income of less than RM1000. 49% of the respondents have occupied the house for 6 to 10 years, 35% of respondents have occupied the house for 1 to 5 years, 10% of the respondents have occupied the house for more than 10 years, and the remaining 6% of the respondents have occupied the house for not more than 1 year. 34% of

the respondents' house levels were within levels 16 to 18, 32% of respondents were from levels 1 to 5, 20% of the respondents were from levels 11 to 15, and only 14% of respondents live on levels 6 to 10. Table 4. shows the satisfaction level in the size of interior division. The occupants can still adapt to the size of the living hall and dining hall with a mean score in the moderate category. Since the size of the overall floor space is limited, they can tolerate the size of the toilet and the kitchen. However, the respondents were not satisfied with the size of the bedroom and the size of the yard.

Table 4. Satisfaction in the size of interior division

INTERIOR DIVISION	SCALE					LIKERT SCALE	
	1	2	3	4	5	Average Index	Classification
Bedroom	12	42	14	3	0	2.11	Not Satisfied
Toilet	11	18	32	10	0	2.58	Moderate
Kitchen	6	20	45	0	0	2.55	Moderate
Yard	17	27	27	0	0	2.14	Not Satisfied
Living Hall	0	18	53	0	0	2.75	Moderate
Dining Hall	3	20	48	0	0	2.63	Moderate

Table 5. shows the four elements to be measured based on the quality of workmanship as factors that affect the satisfaction of the occupants which are all in the moderate category. The quality of the construction material that occupants were satisfied with was the use of glass windows (3.56 Mean Index). Further, the physical environmental aspects which are not limited to but revealed that 54% of the respondents gave a moderate rating towards the ventilation provision, 24% of the respondents gave a satisfactory rating towards the ventilation in their house and 15% of the respondents were not satisfied. In addition, 6% of the respondents were strongly satisfied, and 1% of the respondents were strongly not satisfied. 37% of the respondents were satisfied, 25% of the respondents gave a moderate rating, 14% of the respondents were strongly satisfied and not satisfied each and the remaining 10% of the respondents were strongly dissatisfied.

Table 5. Satisfaction in quality of workmanship

QUALITY OF WORKMANSHIP	SCALE					LIKERT SCALE	
	1	2	3	4	5	Average Index	Classification
FLOOR FINISHES	2	7	57	5	0	2.92	Moderate
PAINTING	6	18	41	6	0	2.66	Moderate
DOOR AND WINDOW	0	14	21	36	0	3.31	Moderate
PIPE	3	1	53	14	0	3.10	Moderate

The provision of lighting shows that 37% of the respondents were satisfied, 25% of the respondents gave a moderate rating, 14% of the respondents were strongly satisfied and not satisfied each and the remaining 10% of the respondents were strongly dissatisfied. The satisfied and more satisfied are those living at higher levels, whereas the dissatisfied are those at the lower levels. Majority represented by 59% of the respondents were not satisfied with the noise pollution in their housing area. The respondents showed satisfaction in terms of the location of their blocks and the level of their house. 79% of the respondents gave moderate ratings in the aspect of humidity. 48% of the respondents indicated their level

of satisfaction as moderate in terms of the density. Majority, represented by 61% of the respondent gave a moderate rating on their satisfaction towards privacy in their homes. The maintenance managements that received a moderate rating are electrical maintenance and building maintenance. However, they are unsatisfied in mechanical maintenance of the lift. The majority, 83% of the respondents were strongly satisfied with the rental management and shows that the City Hall Kuala Lumpur (CHKL) is well managed. 69% of the respondents gave moderate ratings for the garbage management. The facilities provided are satisfactory except for the lift. However, The religious and social amenities and parking provision are not adequate and received an unsatisfactory rating. A moderate rating for Health and Safety, but unsatisfied with the cleanliness and crime prevention were recorded.

5. Conclusion

In this paper, the analysis and discussion of the research instruments used; the questionnaire survey supported by literature was presented. Thus, the aim of this paper is to measure the quality of life on the current low cost residential environment under the management of City Hall Kuala Lumpur (CHKL). For physical design elements, there was a higher level of satisfaction towards the interior division and a moderate level of satisfaction for the size of the toilet, kitchen, living hall and dining hall. For the quality of workmanship, there was a moderate level of satisfaction for the quality of doors, piping, flooring and paint. In terms of the quality of construction material, the use of glass windows was rated as satisfactory. The occupants of the public low cost flats are satisfied with the usage of the glass windows in their house. Generally, the residents were satisfied with the existing public low cost lopments and schemes are properly directed and managed. However, under the physical environment elements, there was a higher level of satisfaction towards the provision of ventilation, lighting, rent management, garbage management and the electricity supply. Thus, it can be concluded that the quality of life in the public low cost flats can be measured based on a combination of the objective and subjective indicators. This measurement can be used by the local governments to create comfortable homes and shelter for the people. The government's efforts to improve the quality of life in the city will be realized when the housing developments and schemes are properly directed and managed.

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