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ANALYSIS OF LIVING ENVIRONMENT SETTINGS IN RESIDENTIAL AREAS IN KUALA LUMPUR AND PUTRAJAYA

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Key words: Living environment; perceptions of residents; questionnaire survey; Kuala Lumpur.

Structured Abstract

The rise in population in Malaysia has been exerting tremendous pressure on housing needs and other related physical infrastructure. As a result, residents are subjected to deteriorated living environmental conditions. This paper examines the existing living environmental conditions of the residents in terrace houses, through use of a questionnaire survey. Three old residential areas namely Taman Gombak (TG), Taman Sri Rampai (SR) and Desa Setapak (DS) in Kuala Lumpur city which were built before 1980, and one new residential area at Putrajaya (PP), located outside Kuala Lumpur and built after 2000, were selected. The findings showed that the residents in the old residential areas were dissatisfied with existing living environmental conditions such as level of crime, the bad smell of garbage, and noise levels. Whereas the residents in the new residential area were dissatisfied with the level of conveniences such as regional facilities and traffic networks.

1. Introduction

Malaysia has been experiencing rapid economic growth due to a steady influx of foreign investments and strong domestic goods productions and consumptions. The population of Malaysia was 28,59 million in 2010, growing at an annual average growth rate of 1,3% over the past 5 years (Department of Statistics, 2011). The population of Kuala Lumpur was 1,62 million in 2005 and expected to reach 2,2 million in 2020 in tandem with realizing the visión of achieving a world class city in 2020 (Draft KL City Plan 2020). The strong economic growth has caused increased vehicle population growth and the need for better living standards in Kuala Lumpur. Additionally, it has exerted significant pressure on the existing living environmental parameters such as increase in air pollution level, noise level, and decrease in safety level,

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thereby affecting the well-being of the community in Kuala Lumpur. To exemplify, the noise level exceeding 75 dBA and NO_2 level more than 0,02 ppm along the major arterial roads near to the residential areas in Kuala Lumpur were highlighted. As a result, it has impacted the living environmental conditions of the residential areas with 60% of the residents had expressed dissatisfaction with noise level and 55% with air pollution level (Ling, 2002; Yusoff et al. 2002; Mardiah, 2005). In Malaysia, the crime rate has been increasing beginning from 1997 to 2007 (Md Sakip and Abdullah, 2012). This increase in the crime rate is mainly of crimes against property type than violent crimes (Sundramoorthy, 2008; Md Sakip and Abdullah, 2012). The street crimes were made up of 17% of the overall crime index in 2008 of which 72% of the crimes were happened in the major states including Kuala Lumpur (Sunday Star, 2009).

The deteriorating living environmental conditions in the residential areas have prompted to evaluate the perceptions of the residents on the existing living environment settings in old residential areas in Kuala Lumpur and new residential area in Putrajaya. The perceptions of the residents on the existing living environmental conditions are considered very important because it provides a valuable insights on the living conditions of the residents in the selected residential areas. The purpose of this paper is to analyse the existing living environmental conditions of few residential areas in Kuala Lumpur and Putrajaya, as perceived by the residents, through a carefully prepared questionnaire survey. It is important to note that this study is also the continuation of other earlier studies on living environment which were undertaken at other residential areas in Kuala Lumpur (Kadar Hamsa et al., 2006 and 2009). The objectives of this paper are: 1) to investigate the perceptions of residents on the existing living environmental parameters that they are subjected to and 2) to propose measures for the improvement of the existing living environmental conditions of the residential areas.

2. Literature Review

The living conditions in a residential area are important for the social and economic well-being of the community. The deteriorating living conditions in many developing countries have caused serious concerns on the health and economic prosperity of these countries. Residential environment quality is one of the basic conditions for quality of life, as well as the main support for the economical, cultural and societal activities (Ge and Hokao, 2006). Studies have shown that residents' satisfaction on the living environment would help to identify and address their areas of concern for a better quality of life. Residential satisfaction is one of the most studied themes in the field of residential environment in which it has been proven to be a part of the domain of satisfaction with life in general (Campbell et al., 1976; Ge and Hokao, 2006). Montgomery and Johansson (1988) also noted that life satisfaction is closely related to residential satisfaction (Ge and Hokao, 2006). Ge and Hokao (2006) stated that housing component, safety and comfort component, convenience component and leisure and entertainment component were the major components of urban residential choice in Japanese cities. The living environments in which residents are subjected to are important to characterize the satisfaction level of the residents. It is indicated that the characteristics of the person, characterisitcs of the environment itself and characterisitcs of the person-environment fit are the important key factors in determining residential satisfaction (Moser, 2009). The people-environment fit focuses on four physical and two social aspects of neighborhood environments, viz. physical amenities and resources, aesthetics, safety, stimulation vs. peacefulness,

homogeneity vs. heterogeneity of the population, and interaction vs. withdrawal (Moser, 2009). In a similar context, Horelli (2006) speaks of human-friendly environments (Moser, 2009). A human-friendly environment is a complex multidimensional and multi-level concept, which refers to environments or settings that provide support to individuals or groups so that they can implement their goals or projects, that bear a potential impact on subjective well-being at both the individual level (person-environment congruity) and the group level (collective-environment congruity). Those developments are demanding attention for the role of satisfactory interpersonal relationships and community ties in people's well-being and residential satisfaction, providing interesting cues for neighborhood satisfaction assessments (Moser, 2009).

In many places throughout the world, individual health and well-being suffer from environmental quality shortages such as lack of adequate infrastructures (water, energy, sewerage system, etc.), polluted air, traffic noise, crowding and criminality, which together are *perturbing* the individual's living environment (Moser, 2009). A great and growing environmental problem in urbanized areas is noise from transport. It has been estimated that about 80 million (approximately 20%) of the European Union's population suffer from noise levels that are considered unacceptable (above 65dB in so called *black areas*) (EC, 1996; Anita Gidlof-Gunnarsson and Ohrstrom, 2007) and an additional 170 million are living in *grey areas* exposed to noise levels between 55 and 65 dB (EC, 1996; Gidlof-Gunnarsson and Ohrstrom, 2007; Harrop and Nixon, 1999; Moser, 2009). Research about residential satisfaction has typically utilized perceived environmental quality indicators combined with objective records (e.g., Carp and Carp, 1982; Craik and Zube, 1976; Marans, 2002; Moser, 2009). In an extensive study on the perceived quality of the residential environment, Van Poll (1997 and 2003) showed that urban quality is determined by physical as well as social and planning aspects. It appeared that perceived residential quality not only depends on the quality of buildings and open space characteristics, but includes aspects like social ties in the neighborhood, safety and environmental deterioration (Moser, 2009). There is much evidence to demonstrate that many people are environmentally concerned, and that lack of environmental quality is being seen as an important threat to their well-being. Noise and pollution, problems of security, inadequate facilities in the neighborhood and lack of satisfactory transport, are repeatedly mentioned by city dwellers as threatening their quality of life (Rizk, 2003; Moser, 2009). From extended surveys in the USA (e.g., Marans, 2003) as well as in Europe (DEFRA, 2002) it is reported that approximately three quarters of the respondents are willing to pay higher taxes in order to improve living conditions in their immediate environment (Moser, 2009). Only if people are satisfied with the different aspects of their environment, then the (environmental) requirements of sustainable development be met (Pol, 2002; Bonaiuto et al., 1999; Moser, 2009). In another study it was identified that noise and pollution along with health problems of a family member, are obviously considered the most severe problems by the study respondents (Moser, 2009).

Greenberg (1999) claimed that residents want neighborhoods that are safe, clean and stable, and that poor quality of neighborhoods is associated with crime and physical deterioration (Frank et al., 2005). Factor such as vandalism, graffiti, litter, abandoned cars and properties, poor maintenance of houses and gardens, and lack of green spaces and trees may contribute to the poor reputation of an area and both Macintyre et al. (1993) and Forest and Kearns (1999) suggest that such factors may influence the morale, self-esteem and perceptions of self-worth of the residents who live there (Frank et al., 2005). Another study on residential living

environment showed an overall agreement on the attractiveness of the area that the residents were living, although there was little agreement on issues concerned with green space (Frank et al., 2005).

The feeling of safe living is another environmental element where residents aspired to achieve. Beginning from the late 1960s, fear of crime has become a major social problem demanding scientific understanding and social reaction (Renauer, 2007; Abdullah et al., 2012). Crime is a social problem commanding national attention. According to the National Crime Victimization Survey Report (Bureau of Justice Statistics, 2002), an estimated 24,2 million crimes occurred in 2001 (Abdullah et al., 2012). Research showed that fear of crime is influenced by five factors, which are the physical environment (Harang, 2003; Nasar and Fisher, 1993; Abdullah et al., 2012), social environment (Ross and Jang, 2000; Abdullah et al., 2012), victimization (Banks, 2005), crime-specific (British Crime Survey, 2008; Abdullah et al., 2012) and crime problems in the neighborhood (Gibson et al., 2002; Abdullah et al., 2012). Any communities want to live in a society with free of crime. Some of them apply measures such as installing security gates at the entrance of the residential area to control the flow of intruders unnecessarily. Others apply neighborhood vigilance programmes such as having a strong community ties, taking measures to inform concerned authorities if they witnessed any suspicious movement of persons or activities in the neighborhood. Irrespective of the types of measure they apply, it is very clear and understandable that many communities are thriving to achieve a safe living for both personal and social well-being.

3. Study Area

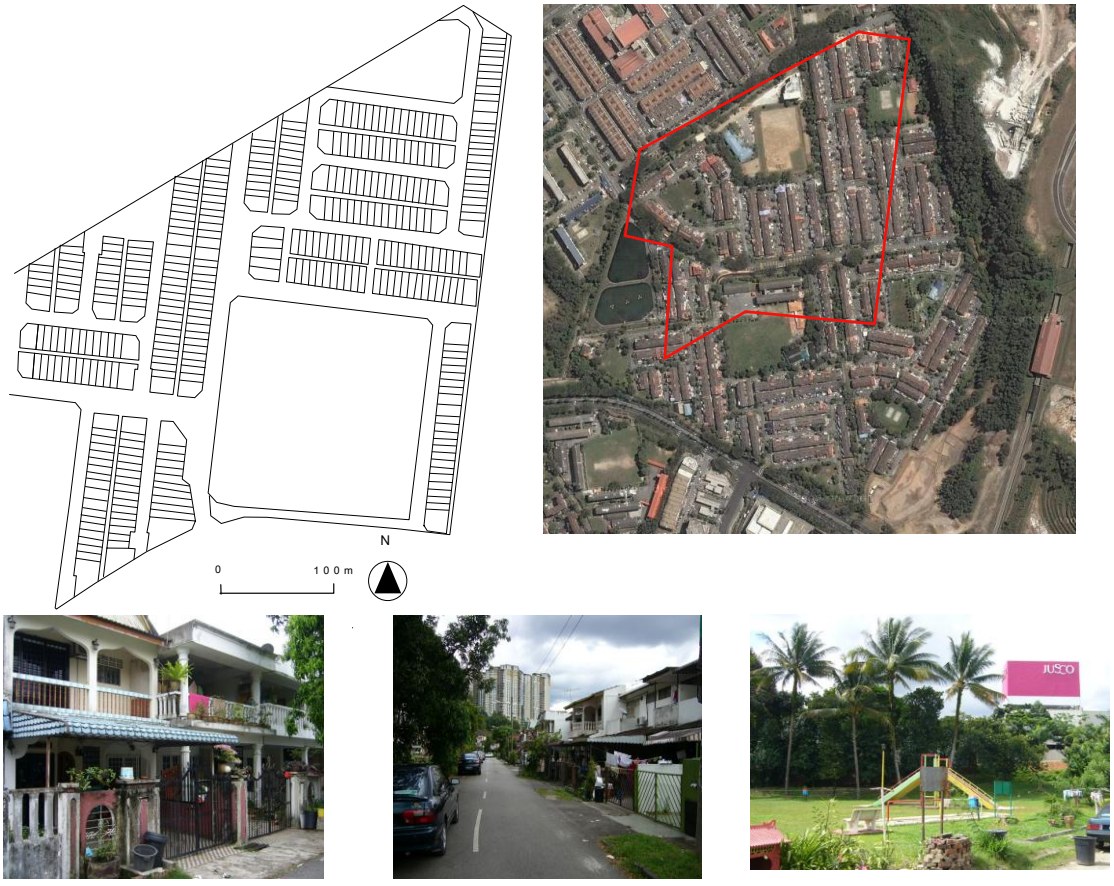
The growing concern on the living environment by the residents is one of the important areas to address especially in many developing countries. Though actual measurement on the environmental elements is vital, however, this study focuses mainly on the perceptions of the residents on the living environmental elements. It would help to understand the environmental conditions in the residential areas that the residents are subjected to. In this context, three old residential neighborhoods in Kuala Lumpur city and one new neighborhood in Putrajaya (a well-planned township accommodating mainly federal government offices and located outside Kuala Lumpur) were selected. The three old residential areas in Kuala Lumpur are *Taman Sri Rampai* (SR), *Desa Setapak* (DS), *Taman Gombak* (TG), which were built before 1980; and a new residential area is *Presint 9* (PP) in Putrajaya, which was built after the year 2000. Figure 1 shows the location of the four residential areas. The block layouts, aerial photographs and existing conditions of the four residential areas are illustrated in Figures 2, 3, 4 and 5 respectively. The reason for the selection of old and new residential areas, among others, is to identify the differences in the planning aspects, residents' satisfaction level and factors contributing to the existing living environmental conditions.

Figure 1. **Location of the four areas**

Source: Google map and Primary analysis.

The number of households in SR area was about 1.000 and it is located at about 1Km from a Light Rail Transit (LRT) station (Wangsa Maju) and also near to Kuala Lumpur monorail line. Built in 1970's, this area has facilities such as an elementary school and narrow road network.

Figure 2. **Block layout, aerial photograph and pictures of SR area**



Source: Local authority, Google map and Primary survey

The number of households in DS area was about 1.200 and this area, like SR area, was also built in 1970's. This area is located very near to Wangsa Maju LRT station. The storage of garbages in front of the shopping areas is commonly seen in this area.

The number of households in TG area was about 1.000 and built in 1950's. Light rail transit was not provided near to this area, however, a major highway carrying high traffic volume is aligned very close to this area. The gross floor area of terrace houses in this area is relatively small as compared to other residential areas because the terrace houses in this area were single-storey whereas in other areas double-storey. A commercial retail open-air bazaar was seen operating businesses in this area on every Sunday morning from 7 am to 1 pm and it was found crowded with people at most of the time. All these three old residential areas are generally categorized as middle-income category and located within the Kuala Lumpur conurbation.

Figure 3. **Block layout, aerial photograph and pictures of DS area**

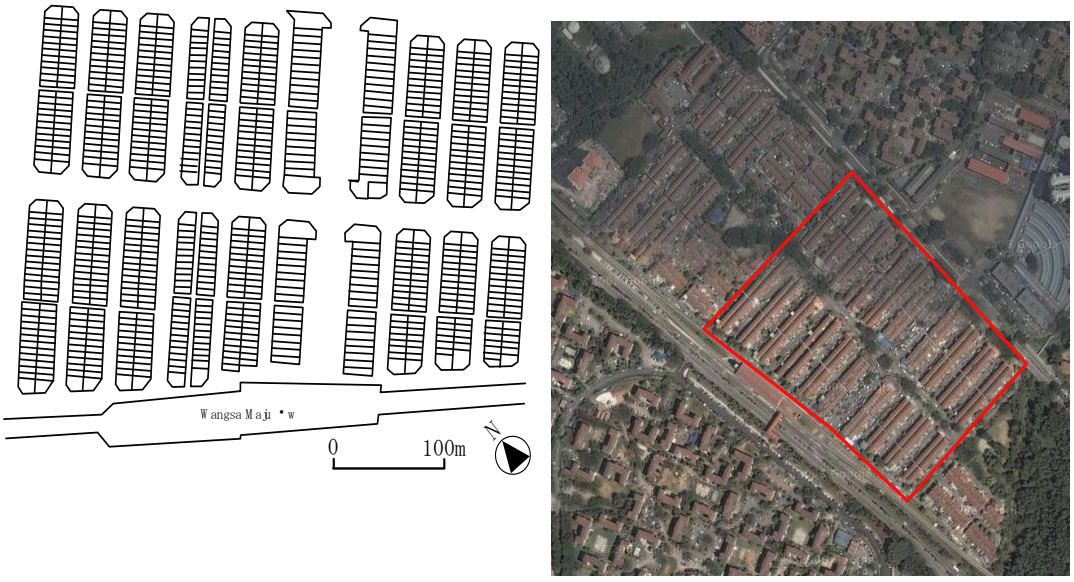


図３－３ DS のアンケート対象範囲とその周辺

Source: Local authority, Google map and Primary survey

The number of households in PP area was about 1.200 and this area is located at about 2Km from Putrajaya and Cyberjaya railway station along the Kuala Lumpur International Airport (KLIA) express railway line. This area is located outside Kuala Lumpur conurbation at a

distance of about 50Km from Kuala Lumpur city centre. Putrajaya is a well-planned and relatively a new township comprising mainly federal government ministries and its related agencies. This area was equipped with modern types of housing mainly for the officers working at the federal government ministries and its related agencies. This area was built after the year 2000 and all housing schemes in this area were constructed based on the concept of non-gated community. This concept was applied to promote continuous interactions between the neighbors in the residential areas in order to strengthen their social integration and bonding. Generally, the road width in this area was wide with the provision of sidewalks for the pedestrian movements as compared to other three residential areas. On the outlook, the environmental conditions in Putrajaya were seen very clean, attractive and pleasing as compared to other three residential areas. The physical image and visual appearances in this area was very attractive. Moreover, the traffic volume in and around Putrajaya was generally low as compared to other three areas. Mostly, high-income communities are living in Putrajaya.

Figure 4. **Block layout and pictures of TG area**

Source: Local authority and Primary survey

4. Study Approach and Methodology

4.1 Questionnaire data

Residents' perceptions on the existing living environmental parameters, socio-economic and household characteristics were measured by using a questionnaire survey approach. The major living environmental parameters included in the questionnaire are: *noise*, *streetlight illuminance*, *air pollution*, *home environment and facilities*, *traffic and transport conditions*, and *environmental settings and facilities in the residential areas*.

Each of the main existing living environmental parameter is further categorized into few specific elements characterizing the living conditions of the residents. Table 1 shows the number of sub-elements under each of the main living environmental parameter which is being included in the questionnaire.

Figure 5. **Block layout, aerial photograph and pictures of PP area**

図 3－5 PP のアンケート対象範囲とその周

Source: Local authority, Google map and Primary survey

The sub-elements under each main living environmental parameter included in the questionnaire are:

A. Noise
Noise by cars; noise by motorcycles; noise by trains; noise by neighborhood; noise from shops; noise by cats or dogs; noise from immediate neighbors either living upstairs or next doors.

B. Streetlight illuminance
Illuminance of street lighting in front of your house; illuminance of street lighting to the LRT station or bus stops; illuminance of street lighting in recreational parks; illuminance of street lighting at bus stops.

C. Air pollution
Air pollution by traffic; air pollution by haze; odor from solid waste dumped outside the house; odor from shops nearby; odor from house drainage.

D. Home environment and facilities
Size and number of romos; storage spaces; size of the garden; parking space; infringement of the privacy from outside; quality of tap water; ventilation; security systems; mosquitoes; ants or flies.

E. Traffic and transport conditions
Number of through traffic in residential streets; speed of vehicles in residential streets; road maintenance and improvement; pedestrian crossing and traffic signals; pedestrian walkways; traffic congestion; frequency of LRT schedule; frequency of bus schedule.

F. Environmental settings and facilities in the residential area
Communications with the neighbors; neighbors' behaviour of disposing garbage; fallen leaves; burglaries or vehicle thefts; bag-snatchings; vandalism; number of mosques; number of libraries; number of public phones; number of recreational parks; number of clinics; number of supermarkets; sports and recreational facilities.

Table 1. **Sub-elements of the Main Living Environmental Parameters**

No.	Main Living Environmental Parameter	Number of Sub-classification Item
1	Noise	7
2	Streetlight Illuminance	4
3	Air Pollution	5
4	Home Environment and Facilities	11
5	Traffic and Transport Conditions	9
6	Environmental Settings and Facilities	14

Source: Primary survey and analysis

Residents were asked to respond on the existing conditions of each of the sub-elements by using a four-point scale indicating *very dissatisfied*, *dissatisfied*, *satisfied* and *very satisfied*. The

perceptions of the residents on the overall living environmental parameters were measured by using a five-point likert scale ranging from *very dissatisfied* to *very satisfied*.

4.2 Administration of questionnaire survey

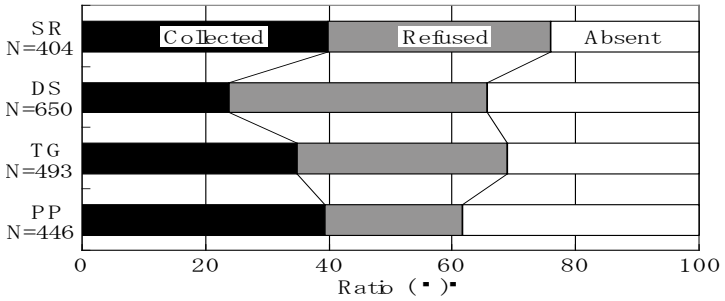
The questionnaire survey was administered targeting 404 households at SR area, 650 households at DS area and 493 households at TG area in November 17-18, 2007, and 446 households at PP area in December 8, 2007. One Japanese student from Shibaura Institute of Technology (SIT) and twenty Malaysian students from International Islamic University Malaysia (IIUM) were participated in the questionnaire survey (Figure 10 and 11). This survey was administered targeting the residents mainly living in the terrace houses because it consitutues a high proportion of houses (approximately 60%) in Malaysia.

A briefing on the administration of the questionnaire survey was given to IIUM students. One week prior to the survey, the students who were involved in the survey were asked to distribute a letter *requesting for participation* to all the targeted residents in the four residential areas. The languages used in the questionnaire include both English and Bahasa Melayu (the official language of Malaysia).

4.3 Response rate

Figure 6 shows the response rate of the questionnaires distributed in the four residential areas. The response rate was 40% (number of respondents responded = 161) in the SR area, 24% (number of respondents responded = 154) in the DS area, and 35% (number of respondents responded = 172) in the TG area and 40% (number of respondents responded = 176) in the PP area. The average response rate was 33% in the three old residential areas which were slightly lower than the new residential area (40%). The percentage of respondents who *refused* to answer the questionnaire was relatively higher in the DS area because of the high frequency of crimes in this area.

Figure 6. **Response rate in the four areas**



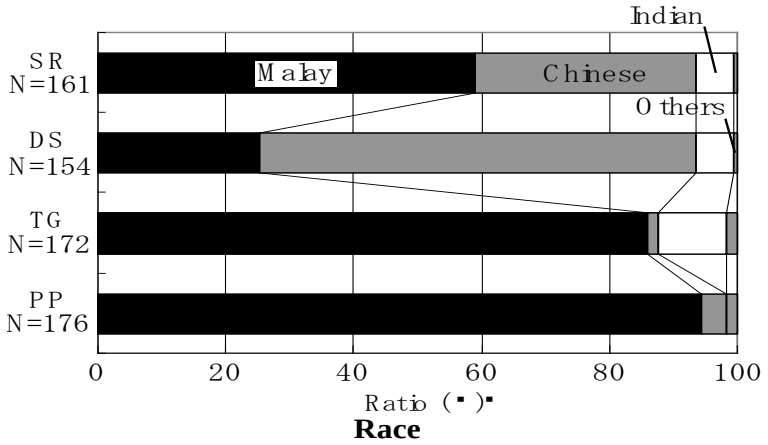
Source: Primary survey and analysis

5. Analysis and Findings

5.1 Basic attributes of the residents

Figure 7 shows the percentage of each ethnic group of the residents in the four residential areas. Ethnic Malays were predominant in the SR (59%), TG (86%) and PP (94%) areas, but ethnic Chinese constituted almost two-thirds (68%) in the DS area.

Figure 7. **Ratio of ethnic group of the respondents**



Source: Primary survey and analysis

The number of male and female residents was almost the same in the four areas. The average age of the residents was about 38 years in each of the four residential areas. The average tenure of residence in the present house was 13 years in the SR area, 10 years in the DS area, 15 years in the TG area and 3 years in the PP area. The average household size was five persons in each of the four areas. The percentage of houses owned was 87% in SR area, 75% in DS area, 76% in TG and only 48% in PP area (because of high housing cost). The monthly income of the residents was relatively high in PP area (72% have earned RM 4000 and above) (1 US$ = RM 3,1 at the time of analysis) and relatively low in TG area (42% have earned RM 2000 and below). Many residents who were living in the terrace houses in PP area are federal/national government employees. Table 2 shows the summary of the residents' attributes in the four residential areas.

Table 2. **Residents' attributes in the four residential areas**

Variable	Categories	Residential Area			
		SR	DS	TG	PP
Gender (%)	Male	45	48	42	43
	Female	55	52	58	57
House ownership (%)	Owned	87	75	76	48
	Rented	13	25	24	52
Monthly income (%)	<RM 1000	2	2	16	-
	RM 1000-2000	20	18	26	6
	RM 2001-3000	20	36	22	10
	RM3001-4000	20	22	18	12
	RM4001-5000	18	12	8	32
	>RM5000	20	10	10	40
Age (years)	Average	38	38	38	38
Tenure of current residence (years)	Average	13	10	15	3
Household size	Average	5	5	5	5

Source: Primary survey and analysis

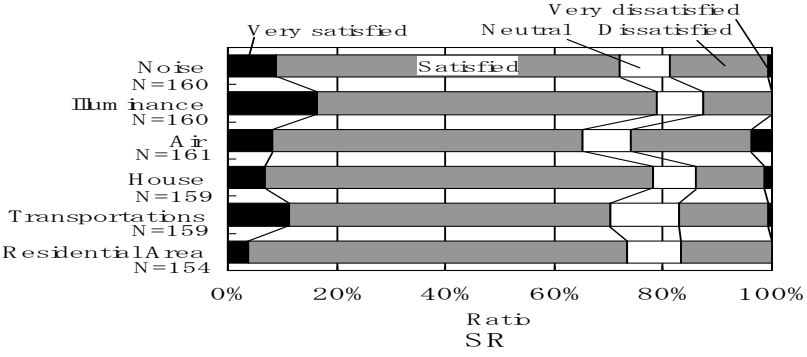
5.2 Perceptions of the residents on the living environmental parameters

A - Residents' overall degree of satisfaction

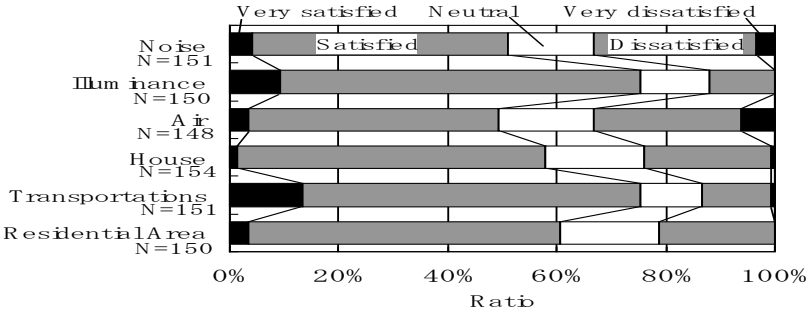
Figure 8 shows the degree of satisfaction level on each of the main living environmental parameter in the four residential areas. The residents in PP area who felt *very satisfied* on *noise*, *streetlight luminance*, *air pollution*, *home environment and facilities*, *traffic and transport conditions*, and *environmental settings and facilities in the residential area* was much higher than SR, DS and TG areas. It is important to highlight that PP area is relatively a new residential area (built after the year 2000) which is predominately resided by high income groups. Moreover, this area houses predominantly federal/national government employees. The residents' perceptions on the living conditions in this area corroborate the overall outlook of the living environmental settings which is clearly seen as clean, attractive, pleasing and very conducive.

Figure 8. **Degree of satisfaction on each living environmental element in the four areas**

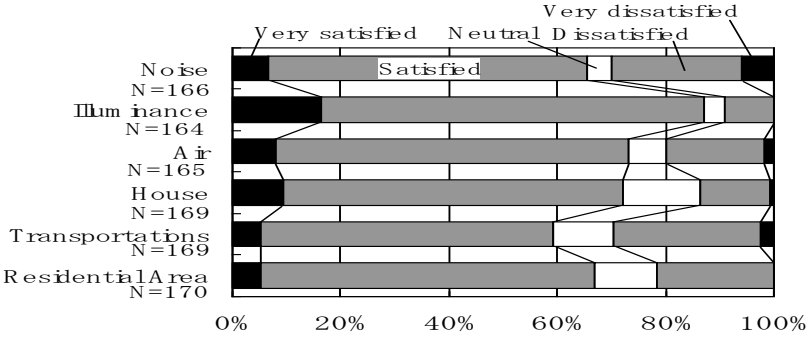
(1) SR area



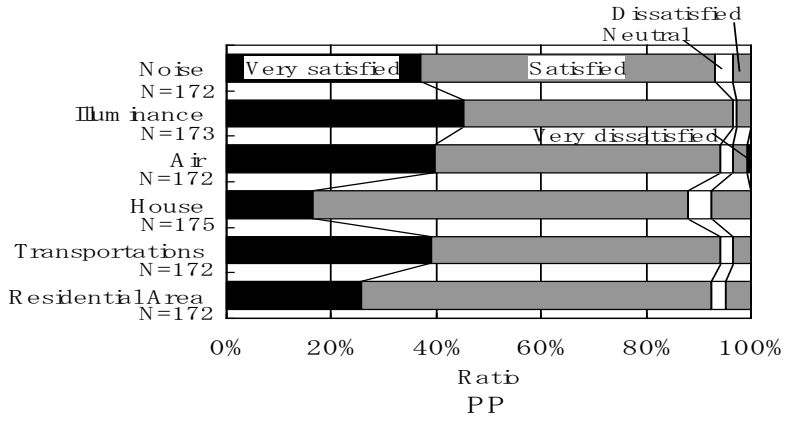
(2) DS area



(3) TG area



(4) PP area



Source: Primary survey and analysis

On the other hand, the residents who expressed *dissatisfied* and *very dissatisfied* on *noise*, *streetlight luminance*, *air pollution*, *home environment and facilities*, *traffic and transport conditions*, and *environmental settings and facilities in the residential area* was found almost identical in SR and TG areas, but slightly higher in DS area. Obviously, the living environmental conditions in these areas are generally poor as they were built between 1950s and 1970s. Though old residential areas are not necessarily pose poor image and cleanliness (if properly maintained through strong social and community ties among the neighbors), however, the level of cleanliness, safety and other environmental settings in these areas were generally seen at a low level. It is due to poor maintenance of public facilities, high residential density, high traffic volume, lack of community bonding and low income level of the residents.

B - Residents' level of dissatisfaction on the main living environment

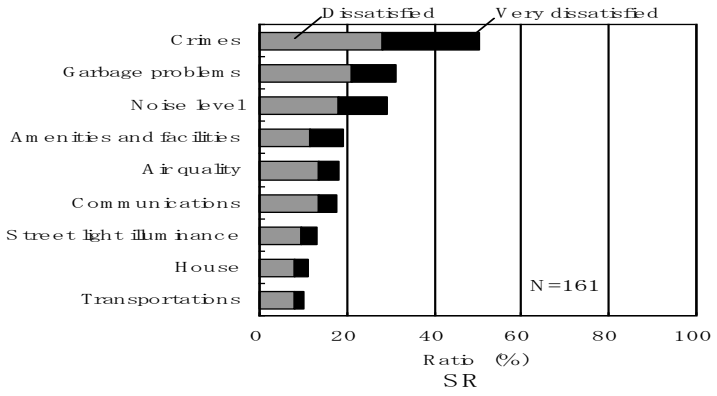
Figure 9 shows the residents' level of *dissatisfaction* or *very dissatisfaction* on each of the main existing living environmental parameters namely crime, garbage problems, noise level, amenities and facilities, air quality, communications, streetlight illuminance, house and transportation. The findings show about 60% of the residents in SR, DS and TG residential areas have expressed either *dissatisfied* or *very dissatisfied* towards *crime* incidents and obviously a very major concern in these areas. To counter this problem, many residents have proposed measures such as *constant and vigilant patrol by police* to reduce the number of crimes in order to make them feel *safe*.

The other major concern was *garbage problems* in their residential areas as expressed by 32% of the residents in SR area, 55% in DS area and 39% in TG area. A very high percentage of residents in DS area expressed *dissatisfaction* on *garbage problems* because of the storage of pile of garbage near to their residential area by many retail commercial activities including retail stores and restaurants. Obviously, it has portraited very unhygienic living conditions for the residents who live in this area. About 30% of the total residents in SR area expressed *dissatisfaction* or *very dissatisfaction* on noise level, 46% in DS area and 44% in TG area. On the other hand, surprisingly, only 10% of the residents in PP area have expressed either *dissatisfaction* or *very dissatisfaction* on *crimes*, *garbage problems* and *noise level*. It shows that *crimes*, *garbage problems* and *noise level* are very serious concerns among the residents in the old residential areas (SR, DS and TG areas) than the new residential area (PP area).

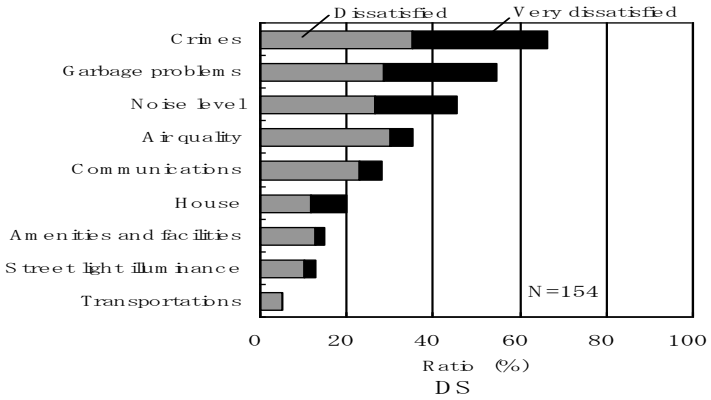
The findings also showed that less than 15% of the residents in PP area have expressed either *dissatisfaction* or *very dissatisfaction* on *air quality level* and other living environmental parameters. Despite the fact that all the houses in PP residential area were non-gated, the dissatisfaction level on each of the living environmental parameters was very low. The *dissatisfaction* level on the existing living environmental parameters in PP area was lower than other areas because this area is a new residential area and at the same time it is predominately occupied by federal/national government employees and high income groups. Low traffic volume, extensive landscape settings, frequent garbage collection, and frequent police patrols are the other reasons for this trend.

Figure 9. **Degree of dissatisfaction on the living environment elements**

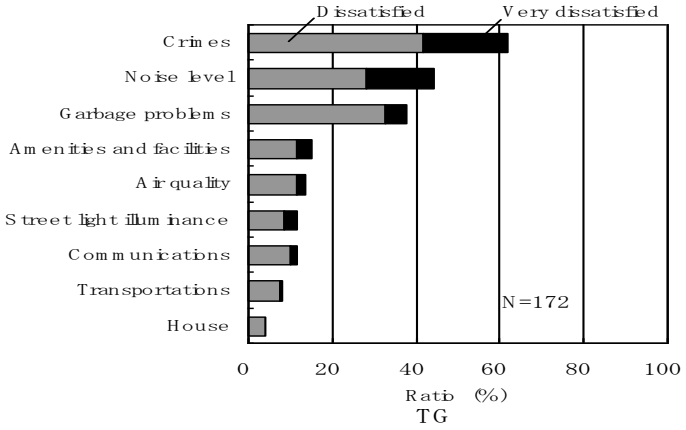
(1) SR area



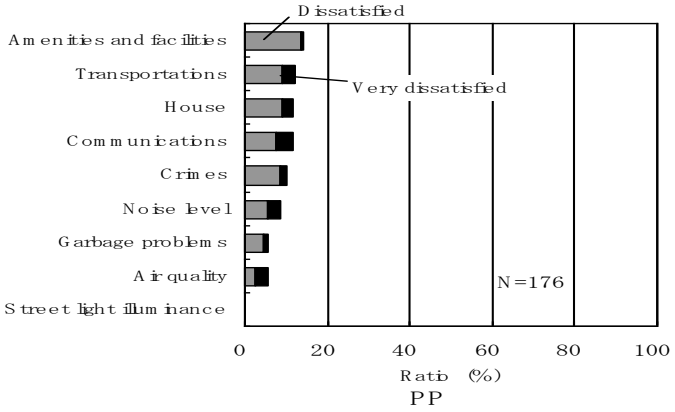
(2)
DS area



(3)
TG area



(4)
PP area



Source: Primary survey and analysis.

C - Residents' level of dissatisfaction on the sub-elements of the living environment

Residents were asked to rate whether they are either *dissatisfied* or *very dissatisfied* on each of the 47 sub-elements of the living environment in their respective residential areas. Fig.12 shows, however, the residents' responses on only top ten sub-elements of the living environment. The residents have expressed that nuisance due to *mosquitoes* is one of the most serious concerns in the SR (60%), DS (52%), TG (78%) and PP (55%) residential areas. *The noise by cars* and *burglaries and vehicle thefts* are among the other major concerns as

expressed by the residents in all the four residential areas. Generally, the nuisances due to *mosquitoes*, *the noise by cars* and *burglaries and vehicle thefts* were found to be typical and common problems in both old and new residential areas.

A high percentage of residents (40% and more) especially in the SR, DS and TG areas have expressed *the odor from solid waste dumped outside the house* and *the noise by motorcycles* as among the other major concerns for their conducive and peaceful living. About 29% of the residents in PP residential area have expressed that the *number of mosques* in their area is inadequate and hence suggested it should be increased. The number of new housing neighborhoods has been increasing steadily in and around Putrajaya because of the growing demand for housing. As a result, the number of ethnic Malay population (Muslim community) has been increasing which, in turn, increases the demand for new *mosques* in this area. The residents in SR area have felt dissatisfied (more than 40%) with the *number of parking spaces* and the *road maintenance conditions* in their residential area. It is imperative to highlight that the roads in this area are, generally, narrow. One resident in this area pointed out that *the local authority should take a proactive role in overcoming the situations whenever requests to improve it were made*.

Figure 10. **Interviewer in terrace house in SR area**

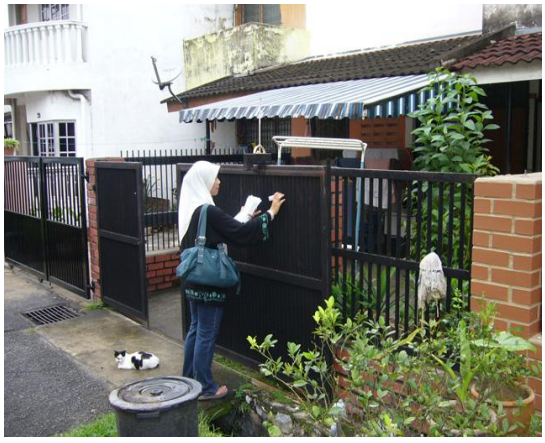


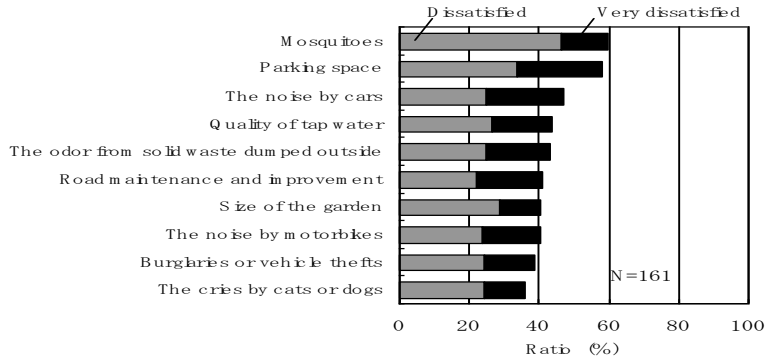
Figure 11. **Interviewers in terrace house in DS area**

Source: Primary survey.

The other major concern for the residents in SR area (more than 40%) was *quality of tap water*, *noise produced by motorcars*. Besides narrow roads, there exist less buffer zone between the road network and the houses in this area contributing towards unacceptable noise level. The residents in DS area were dissatisfied (more than 40%) with the *manner in which garbage was disposed by neighbors*, and *odor from the nearby drainage system*. *Increase in the number of through traffic* and *high speed of vehicles especially by motorcars and motorcycles* were the major concerns for the residents in TG area. One resident in TG area said *roads in this area were frequently inundated with rainwater whenever it rains because of poor drainage system and it, eventually, makes the walls of the houses stained due to water splash by the moving cars*. The common concern by the residents in all the four residential areas was *quality of water supply*. One resident commented that *many residents need to change the filter of the water purifier every two days*.

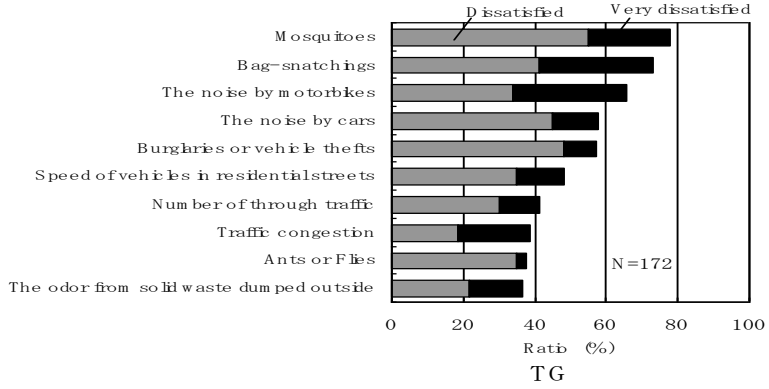
Figure 12. **Degree of dissatisfaction on the sub-elements of the main living environment**

(1) SR area

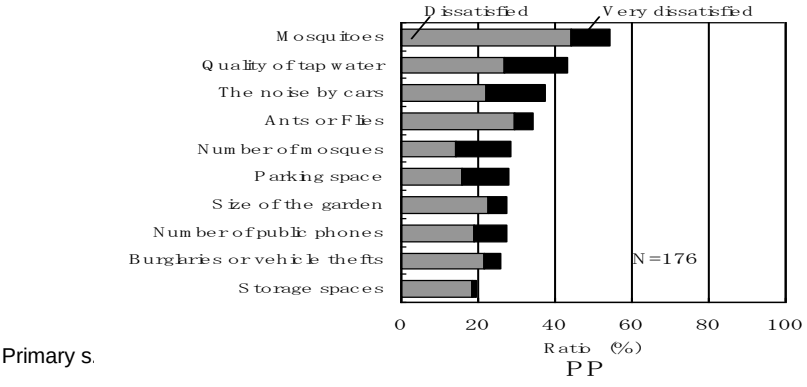


(2) DS area

(3) TG area



(4) PP area



Source: Primary s.

D - Relationships between residential characteristics and living environmental conditions

The following sub-sections provide relationships between certain key elements of the residential characteristics and living environmental conditions.

Relationship between type of residential areas and living environmental conditions

The relationship between type of residential areas (old or new) and the satisfaction level of the living environmental conditions was investigated. The oldest neighborhood, among the selected areas, is Taman Gombak (TG) which was built in 1950s and the new neighborhood is Putrajaya (PP) built after the year 2000. Obviously, the newer the residential areas, the higher the satisfaction level of the residents on the living environmental conditions. Surprisingly, the satisfaction level of the DS area (built in 1970s) was lower than that of TG area (built in 1950s). It was found that those who expressed *very dissatisfaction* on *crimes*, *garbage* and *noise level* in DS area was higher (more than 20%) than that of TG area. The likely reason is that DS area is surrounded by many retail commercial activities which attract shoppers and others to move freely within this residential area and thus making this area prone to criminal activities. The frequency of *crime* in this area was higher than other areas. The other reasons are: the storage of uncollected garbage and movement of high volume of vehicles producing high and unacceptable noise level. Evidently, the dissatisfaction level on the living environmental elements in PP area was much lower than that of other three areas because this area is a new residential area and at the same time it is predominately occupied by federal/national government employees and high income groups. Low traffic volume, extensive landscape settings, frequent garbage collection, and frequent police patrols are the other reasons for this trend.

Relationship between the status of the environmental elements and satisfaction level

Apparently, the existing status of the environmental elements in the residential areas is found to affect residents' level of satisfaction on the living environmental conditions. The higher the number of *crimes*, *noise level* and infrequent *garbage collections*, the lower the satisfaction level of the residents on the existing living environmental conditions. As it can be seen in Figure 9, the level of *dissatisfaction* on the number of *crimes*, *garbage problems* and *noise level* in all the three old residential areas was relatively high which, eventually, makes the living conditions of these residential areas poorer. On the contrary, the *satisfaction* level of the residents on the living conditions of PP area was very high because this area has very low number of *crimes*, *noise level* and regular collection of *garbage*.

6. Discussion

Economic growth, inevitably, accelerates the development of a city (Wang et al., 2005). At present, the urbanization vitality of the developing country is quite alarming, and the disorderly development not only increases energy consumption but also air pollution and the aggravation of the living environment and creates other serious problems (Wang et al., 2005). It is highly desirable for people to live in a safe, harmonious, healthy and pleasant environment in the residential areas because of the active involvement in the daily work routine and business related activities. As the population of the cities grows, it becomes a huge challenge to achieve a healthy and safe living environment. The perceptions of the residents on the living environmental parameters showed that the occurrences of crimes, a noisy environment,

infrequent disposal of garbage are some of the prevalent issues confronting residents in the older residential areas namely in SR, DS and TG areas. This fact is also corroborated by other studies narrating that residents were generally less satisfied with individual living environmental parameters (Kadar Hamsa et al., 2010). However, these problems were less prevalent in the new PP residential area. Evidently, it is significant to highlight that *greater cooperation among the neighbors to avert the occurrence of crimes*, *improved landscaping*, *regular maintenance of the area by the relevant authorities*, *frequent police patrols* are the contributing factors towards better living conditions in PP area. Therefore, drastic changes are needed, especially in the old residential neighborhoods, to make the communities in these residential neighborhoods to help manage their neighborhood activities for a better quality of living. Among others, *getting to know neighbors*, *caring for neighbors*, *formation of residents' association*, and *frequent community gatherings for social and welfare activities* are some of the common and effective means to strengthen their social bonding in these residential neighborhoods. The strong social bonding among neighbors will eventually help to prevent or reduce the number of crimes within their neighborhoods. Additionally, taking appropriate measures such as reporting of *unhealthy* existing living environmental aspects to the concerned local authorities in a coordinated and concerted manner by the residents would help to expedite the implementation of remedial measures in order to achieve healthy, peaceful and safe living environmental conditions in their residential neighborhoods.

7. Conclusions

As the population of the cities grows, the demand for housing and other related infrastructure also increases. It is the aspirations of the residents in the cities to live in a peaceful, calm, safe residential neighborhoods with adequate faciliites and conducive living enviornmental conditions. However, the overutilization of the existing infrastructural facilites due to greater demand has made the present living conditions in the cities poor and vulnearable. In this context, it is imperative to evaluate the residents' perceptions on the existing living environmental parameters in their residential areas to ascertain the level of dissatisfaction on the living conditions that they are subjected to. A questionnaire survey on the existing living environmental conditions was admnistered targeting residents at three old residential areas in Kuala Lumpur city and one new area in Putrajaya (a newly developed and well-planned township accommodating mainly federal government offices and located outside Kuala Lumpur). The three old residential areas in Kuala Lumpur are Taman Sri Rampai (SR), *Desa Setapak (DS)*, *Taman Gombak (TG)*, which were built before 1980 and one new residential area namely *Presint 9 (PP)* in Putrajaya, which was built after the year 2000.

Some of the major findings are: 1) the exposure to crimes, *garbage*, and *noise* are the most serious living environmental problems of the residents, especially in the old residential areas. About 60% of the residents in SR, DS and TG (old neighborhood) areas had stated either *dissatisfied* or *very dissatisfied* with this issue. However, only 10% of residents in PP area (the new neighborhood), were either *dissatisfied* or *very dissatisfied* with *crime* activities in their residential area. It clearly shows that the residents in the old residential areas were very much subjected to *crime* and other environmental problems than in the new areas. Frequent police patrols and strong community bonding in the new residential area, among others, are the reasons for this trend; 2) a high percentage of residents in all four residential areas stated either

dissatisfied or *very dissatisfied* on the issues related to *nuisance due to mosquitoes*, *the noise from cars* and *burglaries and vehicle thefts*. Generally, these problems were also noticed in other old and new residential areas in Kuala Lumpur; 3) *The odor from uncollected solid waste*, and *the noise from motorcycles* were other problems expressed by a high percentage of residents in the old residential areas such as SR, DS and TG areas. The residents in PP area have suggested that the *number of mosques* in their area should be increased.

The findings show that the existing living environmental conditions in the old residential areas were more apparent and appalling than the new residential area. The *dissatisfaction* level of the residents on the existing living conditions in the old residential areas were higher than the new area. The findings also show that there was a clear gap between the existing living conditions and what is normally expected of from the improved living conditions, especially in the old residential areas. The findings clearly demonstrates that the living environmental problems were more prevalent in the old areas than new area. It is imperative that concerted efforts should be taken to reduce this gap in order to promote safe, healthy and pleasant living environmental conditions in the residential areas especially in the old residential areas. The residents' active involvement in various programmes such as *caring for neighbors*, *getting to know the neighbors*, *involvement in cleaning-up activities*, *frequent social gatherings* and at the same time applying some of the successful programmes from the new residential area to old areas are some of the recommendations that should be considered in order to improve the physical, social and environmental appearances of the residential areas. As a result, it would help the residents to live in a peaceful, calm, clean, healthy and safe living environmental conditions.

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