# Sustainable livable housing: A review of what traditional urban areas residents find important

**Musibau Lukuman[ab*], Sipan Ibrahim[a], Raji Fauziah[a], Olofa S. Aderemi[c]**

[a] Center for Real Estate Studies (CRES), Faculty of Geoinformation and Real Estate, Universiti Teknologi Malaysia.

[b] Estate Management Department, School of Environmental Studies, Federal Polytechnic, Ede, Nigeria

[c] Estate Management Department, Faculty of Environmental Studies, The Polytechnic, Ibadan, Nigeria

*E-mail: thelukman@gmail.com

## ABSTRACT

Sustainable livable housing is pre-condition for healthy living, improve quality of life and critical to economic and social survival. It also encompasses various aspects that predominantly depend on economic, social, cultural and environmental (ESCE) conditions within the locality. To this end, this paper seeks to explore, classify and assess the sustainable livable housing attributes from the existing literatures through content analysis. A review of literature revealed a total of ninety two (92) constructs, which were further grouped nine (9) livable housing-related attributes groups. Well-structured questionnaires were administered to residents of traditional urban areas (TUA) of Iwo Osun State, Nigeria with ninety two (92) constructs on Likert scale. Data were analyzed using descriptive statistic and relative importance index (RII). Out of (92) constructs from nine (9) livable housing-related attributes groups, the results identified seventy eight (78) important attributes (i.e. 35 most important and 43 important) across groups and construct that TUA residents found important. Over RII was 0.409 for overall assessment of sustainable livable housing condition by TUA residents indicating that TUA residents are dissatisfied with their current housing conditions.

## 1. Introduction

Globally, 7.2 billion people (men, women or children) are struggling for their survival in the global economy. The poor among these billions are struggling for basic needs like food, housing, other basic facilities and services needed for bare survival. The poorest among them face daily life-and-death challenges of unsafe housing and other basic needs (Sachs, 2015). Despite the fact that living in house that meets one's needs is a fundamental human right to everyone, Golubchikov and Badyina (2012) reported that decent and safe housing has becomes a dream for majority of urban residents while governments perceive housing as a social burden, especially in most developing nations' and specifically their urban areas. But earlier studies opined that governments in some developing nations are persistent in their attempts at solving problem of affordable, adequate and sustainable housing provision (Ibem and Amole, 2010; Sengupta and Tipple, 2007; Sengupta and Sharma, 2009; Ademiluyi and Raji, 2008; Akinmoladun and Oluwoye, 2007; Obeng-Odoom, 2009; Mohit et al., 2010). Figure 1 shows the global housing affordability gap across major cities of the world.

However, quantity of housing provided by various government does not match the prevailing need of the populace. In the existing housing, the prevailing housing living conditions in many African countries is worrisome, consequential and unacceptable. This situation called for all-inclusive approach by all housing stakeholders i.e. governments, private sectors, communities, local authorities, non-governmental organizations, development partner organizations, international communities etc. (Ubale et al., 2013). This all-inclusive approach is in tandem Global Goals - Sustainable Development Goals (SDGs) signed by 193 countries in September 2015 and to be operational till 2030 towards dignity, prosperity, justice, partnership, planet and people. It is also important to note that SDGs are set of time-bound Goals to benchmark the success of both developing and developed countries in meeting their commitments towards 17 SDGs, with performance measured against 169 integrated and indivisible targets. Of these 17 goals with 169 targets, target 11.1 of goal 11 focuses on ensuring access for all to adequate, safe and affordable housing and basic services and upgrade slums in 2030 with a view to make housing livable and sustainable. This led to what constitute livable and sustainable housing

Concept of livability is difficult to define and evaluate (Wheeler, 2001; Balsas, 2004; Heylen, 2006; Throsby, 2005). Relatively, its actual meaning is a function of time, purpose and place of the assessment on one hand and of assessor value system on the other (Pacione, 2003). Also, it is about immediate and tangible conditions and interventions (i.e. now and here) thus more achievable (Ruth and Franklin 2014). Researches have also associated livability concept to many factors like: life quality, safety, health, services accessibility, living cost, comfort, air quality, transport/mobility, living standards, and social involvement (Howley et al., 2009; Bishop and Syme, 1995). Also, livability has also been associated, linked and emerged together with sustainability (sustainable development) as concept by some researchers (Litman, 2011; Lowe et al., 2013). This is why Litman (2011) remarked that livability is a subgroup of sustainability impacts that directly affect people in a community, such as economic development, affordability, public health, social equity and pollution exposure. It is upon this remark that Lowe et al. (2013) submitted that livability is a
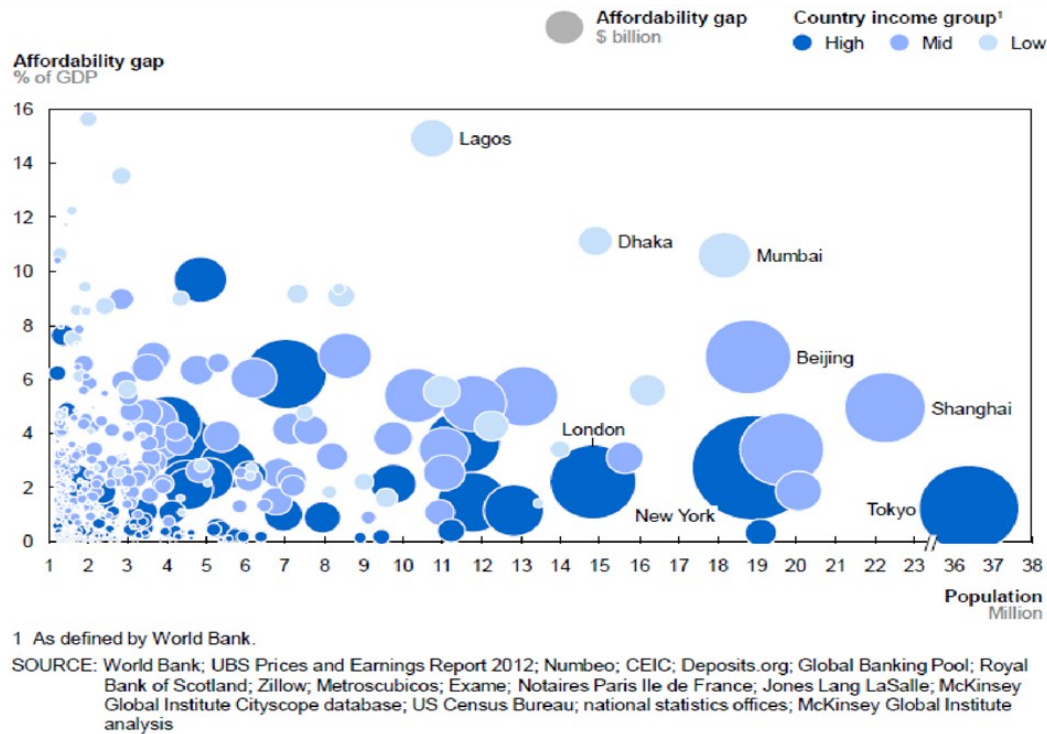
***Figure 1***: *Housing affordability gap across major cities of the world.*
*(Source: Adapted from Habitat,2015)*

subset of sustainability and that no livability attributes is against sustainability criteria and program.

In social science, livability is a classification of happiness. Researches on happiness could be trace to the field of psychology, sociology, economics and health sciences with aims of bring prosperity characterized by happiness and life satisfaction (Veenhoven, 2004). He compares happiness with quality of life which are external (in term of environment and utility of life) and internal (life-ability of the person and satisfaction). This is in agreement with Wheeler (2001); Balsas (2004); (Throsby, 2005) believe that livability covers urban environment features that make urban area pleasing places to live and that such features are tangible and intangible. It is tangible if the feature is real such as availability of facilities, public infrastructures etc. and intangible such as social networks, native/local identity, sense of place etc.

Moreover and as stated earlier, Bishop and Syme (1995); Howley et al. (2009) have associated livability concept to comfortable living standards, life quality, health, safety sense, services accessibility, living cost, comfort, air quality, transport and mobility, living standards, and social involvement. This is in tandem Heylen (2006) who sees livability as environment from individual perspective and subjective evaluation of the quality of the housing conditions in such environment and Setijanti et al. (2015) who opine that it is living/environmental conditions which produce a combination of external opportunities and quality of life. With this understanding, one can consider (Competition and Commission, 2008) submission as a broad definition of livability which define it as community's wellbeing and features that make it where individuals want to live at present and in future.

In addition, literature on sustainable livable housing (SLH) is scanty and just evolving, as earlier works on livability focus more on community/neighborhood and cities/urban areas. According to Australia (2012), livable houses are dwellings that ensure all occupants' quality life at all life stages; easily accessible, navigate inside and around; cost-effective and easy adaptation; and occupants' changing needs responsive. It is, also, define as a safe, aesthetic, socially cohesive/inclusive, and environmentally sustainable place to be; characterized with various affordable housing that is well connected to economic, environment and social (EES) facilities and services such as employment, public open space, community shops, health services, education, leisure/cultural opportunities, other community services as well as accessible through walkways, cycling infrastructure, convenient public transport (Lowe et al., 2013).

To Shared Solution America online (2015), livable homes are homes that maximize successful independent living for all family members that poses no difficulty for all to perform daily living chores and activities with minimal effort and maximal safety. It is built to operate enjoyably, efficiently and economically. It also entails esthetic and functional universal design make homes usable to all regardless of their preference, age, ability, size etc. at every life stages. These definitions and opinions are more of design/ development focus than housing consumption. However, it is not enough for housing to be livable unless it is also sustainable (Musibau et al. 2016. This is why (Chazal, 2010) argued that an area is not truly livable unless it can be sustained over the long term.

Earlier, some studies were conducted on livability and focusing on public housing (Raji et al., 2012; Djebarni and Al-Abed, 2000; Iyanda

191

and Mohit, 2015; Mohit and Iyanda, 2015; Mohit and Iyanda, 2014), neighborhood (Leby and Hashim, 2010; Asiyanbola et al., 2012; Yanmei, 2012), city/urban environment, (Omuta, 1988; Balsas, 2004; Chaudhury, 2005; Buys et al., 2013; Saitluanga, 2014; Pandey et al., 2014; Betanzo, 2011). Similarly, some studies were conducted on sustainable housing in urban area focusing on public housing (Ibem et al., 2015; Nicholas and Patrick, 2015; Ibem and Azuh, 2011; Olotuah and Bobadoye, 2011; Tan, 2011), housing production/provision/development (Van Wyk and Jimoh, 2015; Jimoh et al., 2014; Nicholas and Patrick, 2015; Jiboye, 2011a; Jiboye, 2011b). However, none of these studies focuses on traditional urban areas (TUAs) rather they all focused on public and planned housing areas and its neighbourhood/environment. This research tends to bridge the gap by exploring sustainable livable housing attributes from literature and determine therefrom important attributes to traditional urban areas residents.

## 2. Exploration of Sustainable Livable Housing Attributes from Literature

Previous studies revealed many attributes of measuring or achieving livability and sustainability depending on the focus or focuses study. Table 1 shows identified sustainable livable housing attributes based on various livability, sustainability and housing studies. As stated earlier, many of these studies has housing as an item in measuring livability and sustainability of neighborhood/community, city/urban environment , public housing estates amongst others. However, none of these studies focuses on traditional urban areas rather they all focused on public and planned housing areas and its neighborhood/environment. This research tends to bridge the gap. In this paper, through a comprehensive literature review, ninety two (92) constructs were identified with nine (9) livable housing-related attributes for sustainable livable housing assessment. An attempt was made to use the relative importance index (RII) method in identifying what traditional urban areas residents find important.

## 3. Materials and Methods

From existing literature and preliminary investigation conducted at the outset of this study, ninety two (92) constructs were identified for nine (9) livable housing-related attributes for sustainable livable housing assessment. A questionnaire was then drawn up and was divided into three sections. Section A sought to know the background of the respondents (residents), section B focused on housing characteristics while section C was focused on the nine (9) livable housing-related attributes for sustainable livable housing assessment. Also, the target population for this study are traditional urban area (TUA) residents in Iwo out of nine (9) major urban areas of: Iwo, Ejigbo, Ede and Ikire (Osun West); Ilesa and Ile-Ife (Osun East) and Ikirun, Ila-Orangun and Osogbo (Osun Central) recognized by Osun State Government, Nigeria. Being a pilot survey to an on-going PhD research work, the study focus on Osun West Senatorial District of the State. To this end, Iwo was purposely chosen because it is a major traditional urban area and headquarters of a federal constituencies and senatorial districts in the State. Unit of assessment is housing unit while household/residents of a housing unit represent the sample unit.

Moreover, stratified sampling was used on housing unit types or strata based on 2006 Housing and Population Census of Nigeria that stratified housing in Nigeria into: (i) house on separate stand or yard; (ii) traditional/hut structure made of traditional material; (iii) rooms/let in houses; (iv) informal/improvised dwelling; (v) flat in block of flats; (vi)

*Table 1: Sustainable and livable housing from previous researches*

| Attributes | Proponents |
|---|---|
| Housing unit-related. | Omuta 1988; Vergunst 2003; Visser *et al* 2005; Chaudhury 2005; Heylen 2006; Jasmin and Ahmad 2010; Namazi-Rad *et al.* 2012; Li *et al.* 2012; Buys *et al.* 2013; Saitluanga 2014; Pandey *et al.* 2014; Iyanda and Mohit 2015; Mohit and Iyanda 2015; Raji *et al.* 2016 |
| Safety and security-related. | Chaudhury 2005; Heylen 2006; Jasmin and Ahmad 2010; Leby and Hashim 2010; Asiyanbola *et al.* 2012; Lawanson *et al.* 2013; Mohit and Iyanda 2015; Raji *et al.* 2016 |
| Healthy environment-related. | Omuta 1988; Vergunst 2003; Balsas 2004; Visser *et al* 2005, Chaudhury, 2005; Heylen, 2006; Leby and Hashim 2010; Asi-yanbola *et al.* 2012; Li *et al.* 2012; Saitluanga 2014; Pandey *et al.* 2014; Iyanda and Mohit 2015; Mohit and Iyanda 2015; Raji *et al.* 2016 |
| Educational choice-related. | Omuta 1988; Asiyanbola *et al.* 2012; Namazi-Rad *et al.* 2012; Yanmei 2012; Pandey *et al.* 2014; Raji *et al.* 2016 |
| Transportation choice-related. | Balsas 2004; Betanzo 2011; Asiyanbola *et al.* 2012; Namazi-Rad *et al.* 2012; Yanmei 2012; Lawanson *et al.* 2013; Saitluanga 2014; Pandey *et al.* 2014; Raji *et al.* 2016 |
| Public amenities-related. | Djebarni and Al-Abed 2000; Vergunst 2003; Balsas 2004; Visser *et al* 2005; Chaudhury 2005; Heylen 2006; Jasmin and Ahmad 2010; Leby and Hashim 2010; Asiyanbola *et al.* 2012; Yanmei 2012; Lawanson *et al.* 2013; Saitluanga 2014; Pandey *et al.* 2014; Iyanda and Mohit 2015; Raji *et al.* 2016 |
| Community/ neighborhood-related. | Holt-Jensen 2001; Vergunst 2003; Balsas 2004; Visser *et al.* 2005; Chaudhury 2005; Leby and Hashim 2010; Asiyanbola *et al.* 2012; Namazi-Rad *et al.* 2012; Li *et al.* 2012; Yanmei 2012; Buys *et al.* 2013; Lawanson *et al.* 2013; Saitluanga 2014; Pandey *et al.* 2014; Iyanda and Mohit 2015; Mohit and Iyanda 2015; Raji *et al.* 2016 |
| Economic development-related. | Omuta, 1988; Vergunst 2003; Yanmei 2012; Saitluanga 2014; Iyanda and Mohit 2015; Mohit and Iyanda 2015; Raji *et al.* 2016 |
| Psychology impact-related. | Djebarni and Al-Abed 2000; Holt-Jensen 2001; Balsas 2004; Leby and Hashim 2010; Asiyanbola *et al.* 2012; Raji *et al.* 2016; Saitluanga 2014; Mohit and Iyanda 2015 |

semi-detached house; and (vii) others. It is important to state that four housing strata/types were taken as housing type typical of traditional urban setting (i.e. house on separate stand or yard, traditional/hut structure made of traditional material, rooms/let in houses and informal/improvised dwelling) while the remaining three housing strata/types were taken as housing units found in modern areas of the urban areas.

Out of 100 questionnaire administered in collecting data from 100 housing units randomly selected across the housing type strata, 93 were returned and devoid of missing and incoherent values which represents 93%. The respondents were asked to assess ninety two (92) constructs of the nine (9) livable housing-related attributes for sustainable livable housing assessment through 5-point Likert (of (1= not important; 2= less important; 3= neutral; 4= important; 5= very important).

In addition, data were analyzed with descriptive and inferential statistics specifically Relative Importance Index (RII) was used to determine most important livable housing-related attributes for sustainable livable housing assessment. In the literature, RII approach has been used on various types of studies (Gunduz et al. 2012; Adegoke 2016; Tanko et al. 2017). Respondents (residents) were investigated with Likert scale so as to determine the relative importance index (RII) of the ninety two (92) constructs of the nine

*Table 2: RII and ranking of sustainable livable attributes*

| Attributes | Code | NI (1) | LI (2) | N (3) | I (4) | MI (5) | Sum | RII | Rank within | Rank | Ranking |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Housing Unit** | | | | | | | | | | | |
| Living in Urban Area | HU1 | 11 | 34 | 132 | 32 | 65 | 274 | 0.589 | 20th | 82nd | N |
| Living in crowded Housing Units | HU2 | 4 | 36 | 63 | 180 | 25 | 308 | 0.662 | 14th | 66th | I |
| Housing unit too small in size | HU3 | 1 | 20 | 60 | 140 | 135 | 356 | 0.766 | 6th | 18th | MI |
| Housing Unit Accessible by Road | HU4 | 7 | 12 | 39 | 212 | 70 | 340 | 0.731 | 10th | 39th | I |
| Bathroom in your housing unit | HU5 | 1 | 8 | 54 | 136 | 180 | 379 | 0.815 | 1st | 3rd | MI |
| Toilet facility in your housing unit | HU6 | 2 | 18 | 84 | 96 | 150 | 350 | 0.753 | 7th | 25th | MI |
| Kitchen in your housing unit | HU7 | 1 | 14 | 39 | 180 | 135 | 369 | 0.794 | 3rd | 8th | MI |
| Housing unit connected to electricity main | HU8 | 3 | 24 | 153 | 64 | 55 | 299 | 0.643 | 16th | 75th | I |
| Independent water source to your housing unit | HU9 | 3 | 16 | 69 | 140 | 120 | 348 | 0.748 | 8th | 27th | MI |
| Living in a share housing unit | HU10 | 9 | 38 | 90 | 84 | 70 | 291 | 0.626 | 18th | 79th | N |
| Continuing living in the housing unit | HU11 | 4 | 24 | 42 | 172 | 100 | 342 | 0.735 | 9th | 36th | I |
| Quality of your housing unit acceptability | HU12 | 7 | 36 | 105 | 100 | 40 | 288 | 0.619 | 19th | 80th | N |
| Parking space | HU13 | 7 | 40 | 87 | 60 | 110 | 304 | 0.654 | 15th | 69th | I |
| Poor state of repair | HU14 | 5 | 18 | 21 | 188 | 125 | 357 | 0.768 | 5th | 17th | MI |
| Nearby clinic/health facilities | HU15 | 9 | 36 | 75 | 112 | 65 | 297 | 0.639 | 17th | 78th | I |
| Housing unit enough for no.of people who stay | HU16 | 4 | 20 | 48 | 196 | 70 | 338 | 0.727 | 11th | 42nd | I |
| Nearness to family or other supports | HU17 | 3 | 10 | 27 | 188 | 145 | 373 | 0.802 | 2nd | 4th | MI |
| Nearness to football field/playground | HU18 | 4 | 22 | 42 | 212 | 55 | 335 | 0.720 | 13th | 46th | I |
| Nearness to the shops, laundries, and food courts | HU19 | 6 | 8 | 75 | 172 | 75 | 336 | 0.723 | 12th | 45th | I |
| Housing unit suitability for the disable/old person | HU20 | 1 | 6 | 51 | 212 | 95 | 365 | 0.785 | 4th | 11th | MI |
| **Safety & Security** | | | | | | | | | | | |
| Guards at your place/area (day and night) | SS1 | 2 | 14 | 42 | 220 | 75 | 353 | 0.760 | 4th | 20th | MI |
| Safe walking at night in your area | SS2 | 4 | 10 | 30 | 200 | 120 | 364 | 0.783 | 2nd | 12th | MI |
| Living in noisy area | SS3 | 8 | 12 | 57 | 172 | 85 | 334 | 0.718 | 10th | 49th | I |
| Trust your neighbors | SS4 | 6 | 20 | 66 | 140 | 100 | 332 | 0.714 | 11th | 51st | I |
| People in your place involving in crime | SS5 | 5 | 14 | 57 | 152 | 120 | 348 | 0.748 | 6th | 28th | MI |
| Feeling safe where you are living | SS6 | 6 | 8 | 30 | 148 | 180 | 372 | 0.800 | 1st | 5th | MI |
| Guards keeping awake at night | SS7 | 3 | 20 | 54 | 136 | 140 | 353 | 0.759 | 4th | 21st | MI |
| Availability of fire hose | SS8 | 4 | 30 | 78 | 112 | 100 | 324 | 0.697 | 13th | 56th | I |
| Residents in your area involve in drugs | SS9 | 8 | 16 | 66 | 144 | 95 | 329 | 0.708 | 12th | 53rd | I |
| Residents in your area involve in petty crimes | SS10 | 4 | 24 | 45 | 180 | 85 | 338 | 0.727 | 9th | 43rd | I |
| Residents in your area involve in house robbing | SS11 | 1 | 16 | 33 | 224 | 85 | 359 | 0.772 | 3rd | 15th | MI |
| Residents in your area involve in bag snatching | SS12 | 5 | 30 | 69 | 132 | 85 | 321 | 0.690 | 14th | 59th | I |
| Kidnapping cases ever reported around your place | SS13 | 3 | 30 | 42 | 136 | 135 | 346 | 0.744 | 7th | 31st | MI |
| Police posts/patrol near/around your place | SS14 | 7 | 26 | 36 | 116 | 160 | 345 | 0.742 | 8th | 32nd | MI |
| **Healthy Environment** | | | | | | | | | | | |
| Waste/rubbish being taken care frequently | HE1 | 5 | 16 | 42 | 148 | 145 | 356 | 0.766 | 2nd | 19th | MI |
| Mosquitos or flies complaint/disturbance | HE2 | 11 | 44 | 93 | 84 | 40 | 272 | 0.585 | 6th | 83rd | N |
| Clean air quality | HE3 | 14 | 76 | 81 | 44 | 15 | 230 | 0.495 | 8th | 90th | LI |
| Living somewhere which is too dirty | HE4 | 4 | 24 | 36 | 160 | 125 | 349 | 0.751 | 3rd | 26th | MI |
| Living somewhere which costly to cool | HE5 | 12 | 66 | 105 | 36 | 20 | 239 | 0.514 | 7th | 88th | LI |
| Satisfied with electromagnetic (power lines, masts) | HE6 | 0 | 14 | 42 | 200 | 110 | 366 | 0.787 | 1st | 10th | MI |
| Satisfied with quality of drinking water supply | HE7 | 14 | 32 | 81 | 100 | 55 | 282 | 0.606 | 5th | 81st | N |
| Vehicle, industrial & other pollution/disturbance | HE8 | 5 | 48 | 72 | 104 | 70 | 299 | 0.643 | 4th | 76th | I |
| **Educational Choice** | | | | | | | | | | | |
| Childcare availability | EC1 | 11 | 30 | 63 | 96 | 110 | 310 | 0.667 | 3rd | 65th | I |
| Nearness to child's pre-/primary/secondary schools | EC2 | 2 | 22 | 87 | 124 | 100 | 335 | 0.720 | 1st | 47th | I |
| Child use school bus to go into the school | EC3 | 4 | 20 | 90 | 116 | 100 | 330 | 0.710 | 2nd | 52nd | I |
| **Transportation Choice** | | | | | | | | | | | |
| Children schools transportations problems | TC1 | 6 | 28 | 81 | 96 | 110 | 321 | 0.690 | 6th | 60th | I |
| Usage of private transportation | TC2 | 5 | 56 | 114 | 72 | 20 | 267 | 0.574 | 8th | 84th | N |
| Having A car in your housing unit | TC3 | 2 | 18 | 36 | 180 | 125 | 361 | 0.776 | 3rd | 13th | MI |
| Having more than one cars | TC4 | 45 | 84 | 9 | 12 | 0 | 150 | 0.323 | 9th | 92nd | NI |
| Public transportation usage | TC5 | 4 | 12 | 60 | 160 | 115 | 351 | 0.755 | 5th | 24th | MI |
| Housing unit nearness to motor parks/bus station | TC6 | 5 | 30 | 63 | 188 | 25 | 311 | 0.669 | 7th | 64th | I |
| Motorcycle easily comes to your housing unit | TC7 | 7 | 14 | 3 | 172 | 175 | 371 | 0.798 | 1st | 6th | MI |
| Spending more money on transportation | TC8 | 2 | 12 | 39 | 244 | 55 | 352 | 0.757 | 4th | 23rd | MI |
| Taxis easily comes to your housing unit | TC9 | 4 | 12 | 12 | 212 | 130 | 370 | 0.796 | 2nd | 7th | MI |

**Table 2:** *RII and ranking of sustainable livable attributes (continued)*

| Attributes | Code | NI (1) | LI (2) | N (3) | I (4) | MI (5) | Sum | RII | Rank within | Rank | Ranking |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Public Amenities** | | | | | | | | | | | |
| Nearness to markets | PA1 | 2 | 16 | 6 | 196 | 160 | 380 | 0.817 | 2nd | 2nd | MI |
| Nearness to groceries | PA2 | 6 | 14 | 57 | 148 | 120 | 345 | 0.742 | 3rd | 33rd | MI |
| Nearness to public library | PA3 | 5 | 32 | 93 | 124 | 50 | 304 | 0.654 | 9th | 70th | I |
| Nearness to playground | PA4 | 9 | 22 | 42 | 96 | 175 | 344 | 0.740 | 4th | 34th | MI |
| Nearness to shopping complex | PA5 | 4 | 10 | 24 | 112 | 240 | 390 | 0.839 | 1st | 1st | MI |
| Nearness to any sports facilities | PA6 | 1 | 18 | 99 | 116 | 105 | 339 | 0.729 | 6th | 41st | I |
| Access/coverage of internet/broadband | PA7 | 2 | 22 | 102 | 156 | 35 | 317 | 0.682 | 7th | 62nd | I |
| Nearness to place of worship places | PA8 | 6 | 38 | 57 | 152 | 55 | 308 | 0.662 | 8th | 67th | I |
| Availability of drainage system | PA9 | 1 | 32 | 51 | 156 | 100 | 340 | 0.731 | 5th | 40th | I |
| **Community/Neighborhood** | | | | | | | | | | | |
| Neighbors friendliness | CN1 | 1 | 12 | 66 | 204 | 65 | 348 | 0.748 | 4th | 29th | MI |
| Neighbors helpful | CN2 | 0 | 6 | 69 | 208 | 75 | 358 | 0.770 | 2nd | 16th | MI |
| Like your neighbours | CN3 | 5 | 10 | 30 | 164 | 160 | 369 | 0.794 | 1st | 9th | MI |
| Trust your neighbours | CN4 | 3 | 20 | 54 | 136 | 140 | 353 | 0.759 | 3rd | 22nd | MI |
| Staying in a close community | CN5 | 8 | 30 | 69 | 168 | 25 | 300 | 0.645 | 8th | 74th | I |
| Facing problems with neighbours | CN6 | 7 | 28 | 57 | 200 | 15 | 307 | 0.660 | 6th | 68th | I |
| Community club/association | CN7 | 8 | 14 | 36 | 216 | 60 | 334 | 0.718 | 5th | 50th | I |
| Being member of any of the association | CN8 | 5 | 36 | 75 | 152 | 35 | 303 | 0.652 | 7th | 71st | I |
| **Economic Development** | | | | | | | | | | | |
| Place of work near to your housing unit | ED1 | 3 | 26 | 144 | 80 | 45 | 298 | 0.641 | 6th | 77th | I |
| Affording living near to work | ED2 | 1 | 24 | 105 | 80 | 125 | 335 | 0.720 | 2nd | 48th | I |
| Moving nearer to place of work | ED3 | 5 | 28 | 99 | 84 | 100 | 316 | 0.680 | 5th | 63rd | I |
| Housing unit price/rent suite your incomes | ED4 | 2 | 22 | 63 | 160 | 95 | 342 | 0.735 | 1st | 37th | I |
| Work in the same urban where you live | ED5 | 3 | 34 | 63 | 128 | 100 | 328 | 0.705 | 3rd | 54th | I |
| Home nearness to commercial/industrial zone | ED6 | 5 | 32 | 48 | 172 | 65 | 322 | 0.692 | 4th | 57th | I |
| **Psychological Impact** | | | | | | | | | | | |
| Happiness with where you are living | PI1 | 4 | 18 | 81 | 100 | 140 | 343 | 0.738 | 3rd | 35th | MI |
| Stressed with where you are living | PI2 | 6 | 42 | 96 | 44 | 115 | 303 | 0.652 | 9th | 72nd | I |
| Place is affecting your child's behavior | PI3 | 3 | 48 | 90 | 76 | 85 | 302 | 0.649 | 10th | 73rd | I |
| Ashamed of inviting friends | PI4 | 4 | 38 | 54 | 124 | 105 | 325 | 0.670 | 6th | 55th | I |
| Tensed thinking of your house condition | PI5 | 0 | 24 | 69 | 140 | 115 | 348 | 0.748 | 2nd | 30th | MI |
| Child(s) spend most time outside the house | PI6 | 3 | 44 | 39 | 172 | 60 | 318 | 0.684 | 8th | 61st | I |
| House size affecting child's growth & well-being | PI7 | 17 | 50 | 99 | 60 | 15 | 241 | 0.518 | 13th | 87th | LI |
| Feeling tense & cannot breath because of house size | PI8 | 4 | 36 | 45 | 172 | 65 | 322 | 0.692 | 7th | 58th | I |
| Worried over possibility of house robbery | PI9 | 4 | 10 | 48 | 168 | 130 | 360 | 0.774 | 1st | 14th | MI |
| Feeling jittery because of noises and pollutions | PI10 | 15 | 62 | 114 | 28 | 10 | 229 | 0.492 | 15th | 91st | LI |
| Any changes on your child's attitude as an outcome of the place you are staying | PI11 | 6 | 14 | 63 | 144 | 115 | 342 | 0.735 | 4th | 38th | I |
| Feeling depressed when you heard about the cases of crimes at your place | PI12 | 7 | 18 | 45 | 168 | 100 | 338 | 0.727 | 5th | 44th | I |
| Finding it difficult to live in that kind of house but you have no other choice | PI13 | 9 | 46 | 120 | 60 | 30 | 265 | 0.570 | 11th | 85th | N |
| Worry about your family because of the unsafe house environment | PI14 | 6 | 54 | 120 | 64 | 20 | 264 | 0.568 | 12th | 86th | N |
| Feeling indecisive & think whether to go back home or stay outside all the time | PI15 | 19 | 54 | 99 | 44 | 15 | 231 | 0.497 | 14th | 89th | LI |
| **Overall satisfaction** | | | | | | | | | | | |

| Attributes Overall satisfaction | Code | VD (1) | D (2) | N (3) | S (4) | VS (5) | Sum | RII | | | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Overall satisfaction of current housing unit | OSHU | 30 | 64 | 84 | 12 | 0 | 190 | 0.409 | | | D |

Where:  NI is not important; LI is less important; N is neutral; I is important; and MI is most important.
  VD is very dissatisfied; D is dissatisfied, N is neutral, S is satisfied; and VS is very satisfied.

(9) livable housing-related attributes for sustainable livable housing assessment. The RII was investigated using:

$$RII = \frac{\sum W}{A \times N}$$

Whereas:
W represents weight given to each factor by the residents (i.e. 1=not important to 5=most important).
A represents highest weight
N represents total number of residents responded.

And a decision rule was adopted in determining the ranges for most important (MI) to not important (NI) using:

$$RII\ Decision\ Rule = \frac{(Max\ RII - Min\ RII)}{A}$$

Please refer to Table 2.

## 4.    Research Findings, Results and Discussion

Tables 2 depicts residents' ranking of the sustainable livable housing attributes within and among the grouping. The 1st and 2nd most important attributes are nearness to shopping complex (RII=0.838) and nearness to markets nearness to markets (RII=0.817) under public amenities-related attributes. Bathroom within housing unit (RII=0.815) and nearness to family or other supports (RII=0.802)

under housing unit-related attributes ranked 3rd and 4th. Feeling safe where you are living under safety & security-related attributes was ranked 5th. Figure 2 showcases pictorial clustered view of the important, neutral, less important and not important attributed .

As evidenced from Table 3, this study revealed six (6) most important SLH attributes groups which include: public amenities-related; housing unit-related; safety and security-related; transportation choice-related; community/neighbourhood -related and healthy environment- related groups. Out of nine (9) SLH attributes groups, educational choice-related attributes, economic development-related attributes and psychology impact-related attributes groups did not fall under the ten (10) most important sustainable livable housing attributes to traditional urban residents.

## 5.    Conclusions

The study has identified ninety two (92) attributes for sustainable livable housing assessment from the literature. It further classified the sustainable livable housing attributes into nine (9) sustainable livable housing-related attributes groups. Out of these nine (9) livable housing -related attributes groups, one is housing unit-related, one is economic development-related, four groups are facilities and services-related (healthy environment, educational choice, transportation choice and public amenities) and three are socio-psychological-related (safety and security, Community/neighborhood, and psychology impact). Of these ninety two (92) attributes from nine (9) livable housing-related attributes groups, the study has also identified seventy eight (78) attributes, from the same nine (9) sustainable livable housing-related attributes groups, that traditional urban areas residents find important
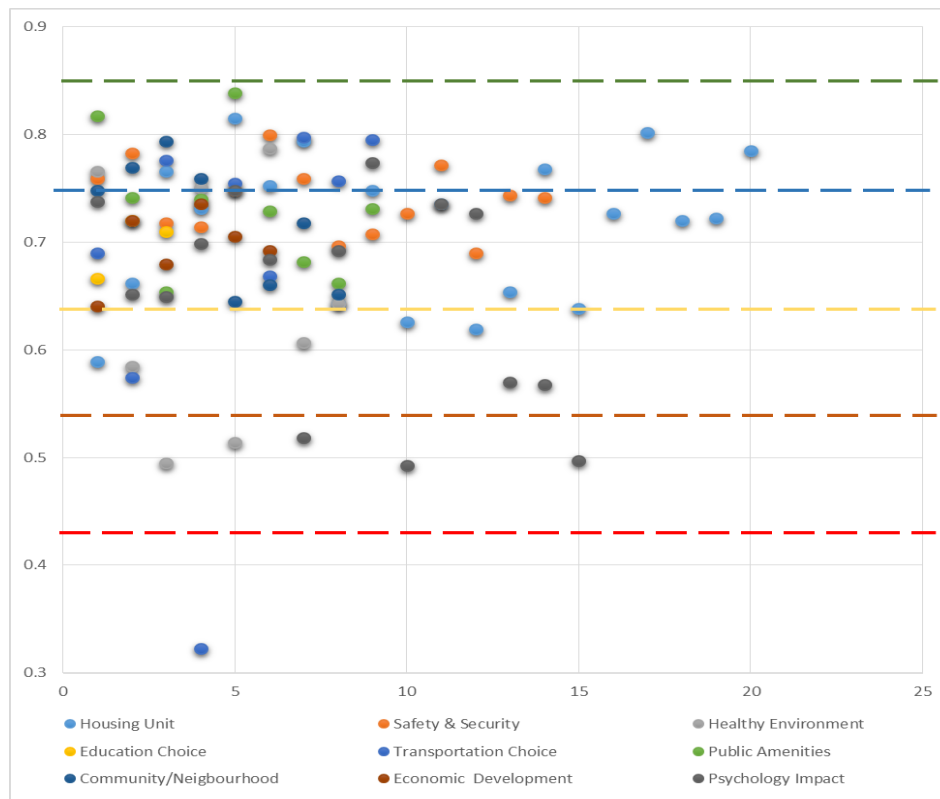


*Figure 2*: RII and ranking sustainable livable housing attributes

**Table 3:** *Top ten (10) most important sustainable livable housing attributes to traditional urban areas residents.*

| Attributes | Code | Attributes | RII | Rank |
|---|---|---|---|---|
| Nearness to shopping complex | PA5 | Public amenities-related | 0.839 | 1st |
| Nearness to markets | PA1 | Public amenities-related | 0.817 | 2nd |
| Bathroom in your housing unit | HU5 | Housing unit-related | 0.815 | 3rd |
| Nearness to family or other supports | HU17 | Housing unit-related | 0.802 | 4th |
| Feeling safe where you are living | SS6 | Safety and security-related | 0.800 | 5th |
| Motorcycle easily comes to your housing unit | TC7 | Transportation choice-related | 0.798 | 6th |
| Taxis easily comes to your housing unit | TC9 | Transportation choice-related | 0.796 | 7th |
| Kitchen in your housing unit | HU7 | Housing unit-related | 0.794 | 8th |
| Like your neighbors | CN3 | Community/ neighborhood - related | 0.794 | 9th |
| Satisfied with electromagnetic (power lines, masts) | HE6 | Healthy environment-related | 0.787 | 10th |

(35 most important and 43 important) for sustainable livable assessment of their housing.

In TUAs context, nearness to shopping complex and nearness to markets (public amenities-related group), bathroom within housing unit, kitchen within housing unit and nearness to football field/playground (housing unit- related group), motorcycle easily comes to your housing unit and taxis easily comes to your housing unit from transportation choice-related group; like your neighbors (community/neighborhood-related group), satisfied with electromagnetic like power lines, masts, etc. (healthy environment-related group), feeling safe where you are living (safety and security-related attributes) are ten (10) most important sustainable livable housing attributes.

While public amenities-related; housing unit-related; safety and security-related; transportation choice-related; community/neighborhood-related and healthy environment- related groups are the six (6) important sustainable livable housing-related attributes groups. These are seen as major attributes in providing the basic and ambience sustainable livable housing conditions in the traditional urban areas.

Moreover, TUA residents felt that inbuilt housing facilities and public amenities and socio-psychological needs have serious impact on them and need to be planned in an integrated manner for desired sustainable livable housing. They envisioned their housing units with all inbuilt housing facilities and public amenities so as to ameliorate existing housing living condition in the TUA. Also, sense of safety and security as well as community/neighborhood are very sacrosanct to TUA residents' desire for sustainable livable housing. This is perceived in term of: feeling safe and safe walking; availability of guards day and night; TUA residents' involvement in drugs, petty crime, house robbing, bag snatching, kidnapping; neighbor friendliness, helpful, trust and being member of community association. They also desire ease of mobility that would enable them catering for daily needs within shortest possible distance with emphasis on availability of services and amenities in quantitative and qualitative forms. For instance, quantitative and

qualitative availability of water supply, sewerage, storm drainage etc. Hence sustainable livable housing in TUA context refers to both good quantity and quality in-built housing facilities and public amenities, a clean and pollution free environment which would also instill a sense of identity, safety and community living amongst residents.

**References**

Adegoke, O. J. (2016). Effects of valuation variance and inaccuracy on Nigerian commercial property market: An empirical study. *Journal of Property Investment & Finance*, 34(3), 276-292.

Ademiluyi, A. and Raji, B.A. (2008). Public and private developers as agents in urban housing delivery in sub-Saharan Africa: The situation in Lagos state. *Humanity & Social Sciences Journal.* 3(2), 143-150.

Akinmoladun, O.I. and Oluwoye, J. (2007). An assessment of why the problems of housing shortages persist in developing countries: A case of study of Lagos Metropolis, Nigeria. *Pakistan Journal of Social Science.* 4(4), 589-598.

Asiyanbola, R., Raji, B. and Shaibu, G. (2012). Urban Liveability in Nigeria—A Pilot Study of Ago-Iwoye and Ijebu-Igbo in Ogun State. *Journal of Environmental Science and Engineering. B.* 1(10B), 1203.

Australia, L.H. (2012). Livable housing design guidelines. Sydney: Livable Housing Australia.

Azahan, A., Jamaluddin, M., Lukman, Z., Kadaruddin, A. and Kadir, A. (2009). The Quality of Life in Malaysia's Intermediate City: Urban Dwellers Perspective. *European Journal of Social Sciences.* 9(1), 161-167.

Balsas, C.J. (2004). Measuring the livability of an urban centre: an exploratory study of key performance indicators. *Planning, Practice & Research.* 19(1), 101-110.

Betanzo, D. (2011). Exploring Density Liveability Relationships. The Built & Human Environment Review. 2(1).

Bishop, B.J. and Syme, G.J. (1995). The social costs and benefits of urban consolidation: A time budget/contingent valuation approach. *Journal of economic psychology.* 16(2), 223-245.

Buys, L., Vine, D. and Miller, E. (2013). What Makes Inner City High Density Liveable? Insight from Residents in Brisbane, Australia. *Environmental Management and Sustainable Development.* 2(1), p14-33.

Chaudhury, A.H. (2005). Urban liveability, decentralisation and development: A comparative study on Dhaka and Khulna cities. In: University, K. (ed.) URP Discipline.

Chazal, J. D. (2010). A systems approach to livability and sustainability: Defining terms and mapping relationships to link desires with ecological opportunities and constraints. *Systems Research and Behavioral Science,* 27(5), 585-597.

Competition, V. and Commission, E. (2008). A State of Liveability: An Inquiry Into Enhancing Victoria's Liveability: a Draft Report for Further Consultation and Input. VCEC.

Djebarni, R. and Al-Abed, A. (2000). Satisfaction level with neighbourhoods in low-income public housing in Yemen. *Property management.* 18(4), 230-242.

Ekop, G. (2012). An assessment of the interrelationships among housing quality variable sets in Calabar metropolis. *Journal of Geography and Reginal Planning*. 5 (14), 375-380.

Ghioca, S.G. (2011). Exploring the objective and subjective dimensions of urban life quality on Regie Boulevard and surrounding streets. Cinq Continents 1(3), 266-287 science. 1(9), 121-127.

Golubchikov, O. and Badyina, A. (2012). Sustainable housing for sustainable cities: a policy framework for developing countries. Nairobi, Kenya: UN-HABITAT.

Gündüz, M., Nielsen, Y., & Özdemir, M. (2012). Quantification of delay factors using the relative importance index method for construction projects in Turkey. *Journal of Management in Engineering,* 29(2), 133-139.

Habitat, U. N. (2015). Habitat III Issue Papers 20—Housing. Issue paper completed May, 31.

Heylen, K. (2006). Liveability in social housing: three case studies in Flanders. status: published.

Holt-Jensen, A. (2001, June). Individual relational space in deprived urban neighbourhoods. In ENHR conference (Vol. 25, p. 29).

Howley, P., Scott, M. and Redmond, D. (2009). Sustainability versus liveability: an investigation of neighbourhood satisfaction. *Journal of environmental planning and management.* 52(6), 847-864.

Ibem, E.O. and Aduwo, E.B. (2013). Assessment of residential satisfaction in public housing in Ogun State, Nigeria. *Habitat International*. 40, 163-175.

Ibem, E.O. and Amole, O. (2010). Evaluation of public housing programmes in Nigeria: A theoretical and conceptual approach. *The Built & Human Environment Review. 3, 8*8-117.

Ibem, E.O. and Azuh, D.E. (2011). Framework for evaluating the sustainability of public housing programmes in developing countries. *Journal of Sustainable Development and Environmental Protection (JSDEP).* 1(3), 24-39.

Ibem, E.O., Aduwo, E.B. and Ayo-Vaughan, E.K. (2015). Assessment of the Sustainability of Public Housing Projects in Ogun State, Nigeria: A Post Occupancy Evaluation Approach. *Mediterranean Journal of Social Sciences.* 6(4 S2), 523.

Iyanda, S.A. and Mohit, M.A. (2015). Investigating the Application of CFA in the Liveability Assessment of Public Low-income Housing in Nigeria. *Journal of Architecture, Planning and Construction Management.* 5(1).

Jiboye, A.D. (2011a). Achieving sustainable housing development in Nigeria: A critical challenge to governance. *International journal of humanities and social*  1(9), 121-127.

Jiboye, A.D. (2011b). Ensuring Sustainable Development through Effective Housing Delivery Process in Nigeria. *African Journal of Social Sciences.* 1(2), 36-45.

Jimoh, R., Odeniy, V. and Jibrin, I. (2014). Housing Sustainability in Nigeria: A Mirage or Reality.

Lawanson, T., Salau, T., & Yadua, O. (2013). Conceptualizing the liveable African city. *Journal of Construction Project Management and Innovation,* 3(1), 573-588.

Leby, J.L. and Hashim, A.H. (2010). Liveability dimensions and attributes: Their relative importance in the eyes of neighbourhood residents. *Journal of construction in developing countries.* 15(1), 67-91.

Li, C., Sun, L. and Jones, P. J. (2012). Liveability of high-rise housing estates: a resident-centered high-rise residential environment evaluation in Tianjin, China. 48th ISOCARP Congress 2012

Litman, T. (2011). Sustainability and livability: Summary of definitions, goals, objectives and performance indicators.

Lowe, M., Whitzman, C., Badland, H.M., Davern, M., Hes, D., Aye, L., Butterworth, I. and Giles-Corti, B. (2013). Liveable, Healthy, Sustainable: What are the Key Indicators for Melbourne Neighbourhoods? University of Melbourne McCaughey VicHealth Centre for Community Wellbeing.

Marans, R.W. and Stimson, R. (2011). An overview of quality of urban life. Springer.

Mohit, M.A. (2013). Quality of Life in Natural and Built Environment—An Introductory Analysis. *Procedia-Social and Behavioral Sciences.* 101, 33-43.

Mohit, M. A., & Iyanda, S. A. (2016). Liveability and Low-income housing in Nigeria. *Procedia-Social and Behavioral Sciences,* 222, 863-871.

Mohit, Mohammad Abdul and Sule, , Abass Iyanda (2015) City liveability and housing in Nigeria: a case study of low-income housing in Niger State. In: AicQoL2015Jakarta, 25-27 April 2015, AMER International Conference on Quality of Life The Akmani Hotel, Jakarta, Indonesia http://www.amerabra.org/

Mohit, M.A., Ibrahim, M. and Rashid, Y.R. (2010). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat International.* 34(1), 18-27.

Musibau, L., Sipan I., Raji F. and Olofa S. A. (2016). Conceptual Framework for Sustainable Livable Housing Assessment for Traditional Urban Area. Proceedings of the 2nd International Conference on Science, Technology and Social Sciences 2016 (ICSESS2016)

Namazi-Rad, M. R., Perez, P., Berryman, M., and Lamy, F. (2012). An experimental determination of perceived liveability in Sydney. ACSPRI Conferences, RC33 Eighth International Conference on Social Science Methodology (pp. 1-13).

Nicholas, E.O. and Patrick, D.D. (2015). A Review of Governmental Intervention on Sustainable Housing Provision for Urban Poor in Nigeria. International *Journal of Social Science Studies.* 3(6), 40-48.

Obeng-Odoom, F. (2009). Has the Habitat for Humanity Housing Scheme achieved its goals? A Ghanaian case study. *Journal of Housing and the Built Environment.* 24(1), 67-84.

Olotuah, A. and Bobadoye, S. (2011). Sustainable housing provision for the urban poor: a review of public sector intervention in Nigeria. *The Built & Human Environment Review.* 2.

Omuta, G.E. (1988). The quality of urban life and the perception of livability: A case study of neighbourhoods in Benin City, Nigeria. Social Indicators Research. 20(4), 417-440.

Pacione, M. (2003). Urban environmental quality and human wellbeing- a social geographical perspective. *Landscape and Urban Planning.* 65(1), 19-30.

Pandey, R.U., Garg, Y.G. and Bharat, A. (2014). Quantitative approach for understanding perspectives on liveability in India context. International J*ournal on Emerging Technologies* 5(1).

Raji, F., Baqutayan, S.M.S., Ariffin, A.S. and Kamarudin, N. (2012). Residents' Perception on Livability in Affordable Housing in Malaysia. *Jurnal Teknologi (Sciences & Engineering)* 58, 85-88.

Raji, F., Qutayan, S. M. S. B., Ariffin, A. S., Razali, M. N., & Kamarudin, N. (2016). Resident's Perception on Livability in Affordable Housing In Malaysia. *Journal of Technology Management and Business,* 3(1).

Ruth, M. and Franklin, R.S. (2014). Livability for all? Conceptual limits and practical implications. Applied Geography. 49, 18-23.

Sachs, J.D. (2015). The age of sustainable development. Columbia University Press.

Saitluanga, B.L. (2014). Spatial pattern of urban livability in Himalayan Region: A case of Aizawl City, India. *Social indicators research.* 117(2), 541-559.

Salleh, A.G. (2008). Neighbourhood factors in private low-cost housing in Malaysia. *Habitat International.* 32(4), 485-493.

Sam, N., Bayram, N. and Bilgel, N. (2012). The perception of residential environment quality and neighbourhood attachment in a metropolitan city: A study on Bursa, Turkey. eCanadian Journal of Humanities and Social Sciences 1 (1), 22-39.

Samaratunga, T. (2013). High-density high-rise low-income housing: an appropriate city planning solution for Colombo, Sri Lanka?

Sengupta, U. and Sharma, S. (2009). No longer Sukumbasis: challenges in grassroots-led squatter resettlement program in Kathmandu with special reference to Kirtipur Housing Project. *Habitat International.* 33(1), 34-44.

Sengupta, U. and Tipple, A.G. (2007). The performance of public-sector housing in Kolkata, India, in the post-reform milieu. *Urban Studies.* 44(10), 2009 -2027.

Setijanti, P., Defiana, I., Setyawan, W., Silas, J., Firmaningtyas, S. and Ernawati, R. (2015). Traditional Settlement Livability in Creating Sustainable Living. *Procedia-Social and Behavioral Sciences.* 179, 204-211.

Tan, T.-H. (2011). Sustainability and housing provision in Malaysia. *Journal of Strategic Innovation and Sustainability.* 7(1), 62-71.

Tanko, B. L., Abdullah, F., & Ramly, Z. M. (2017). Stakeholders Assessment of Constraints to Project Delivery in the Nigerian Construction Industry. *International Journal of Built Environment and Sustainability, 4(1).*

Throsby, D. (2005). Cultural heritage as financial asset in strategies for urban development and poverty alleviation.

Ubale, M.Y., Martin, D. and Wee, S.T. (2013). Comparative study between Malaysia and Nigeria formal low cost housing policy issues. *Asian Economic and Financial Review.* 3(7), 923.

Ukoha, O.M. and Beamish, J.O. (1997). Assessment of residents' satisfaction with public housing in Abuja, Nigeria. *Habitat international*. 21(4), 445-460.

Van Wyk, K. and Jimoh, R. (2015). Framework for the sustainability of housing co-operatives in South Africa. *Journal of Construction Project Management and Innovation.* 5(1), 1100-1114.

Veenhoven, R. (2004). World database of happiness. Challenges for Quality of Life in the Contemporary World. (pp. 75-89). Springer.

Vergunst, P. (2003). Liveability and ecological land use (Vol. 373).

Wheeler, S. (2001). Livable Communities: Creating Safe and Livable Neighborhoods, Towns, and Regions in California.

Yanmei, L. (2012). Neighborhood amenities, satisfaction, and perceived livability of foreign-born and native-born US residents. *Journal of Identity and Migration Studies.* 6(1), 115.