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Enhancing the Liveability of Peri-Urban Settlements in Port Harcourt through Sustainable Land Management: A Case Study of Rumuekini and Ozuoba

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Abstract This study appraised the liveability of two peri-urban settlements in the Port Harcourt Metropolitan area. It was aimed at understanding the nature of these peri-urban settlements with a view to developing strategies to improve the living conditions around the city's periphery. To these ends, the study sets out to explore the factors responsible for rapid change in these settlements and the challenges that accompany them. Likewise, it also highlights the sustainable land management practices that can be employed to improve living conditions for residents in these peri-urban settlements. A systematic random sampling method was adopted in the selection of respondents from both settlements for the study and a total of 183 questionnaires were sent out to residents but only 172 questionnaires were returned. Primary data was collected using questionnaires, direct observation and key informant interviews. Data analysis was based on responses from 172 questionnaires retrieved and the data was analysed using SPSS 21 (Statistical Package for Social Sciences). The results showed that liveability in the peri-urban settlement of the Port Harcourt Metropolitan region was poor because most of the residents had a low rating for their settlements because of the lack of basic infrastructure and services, the absence of neighbourhood plans and land use policy to guide development in the state. The recommendations made include; the use of an integrated approach to land-use management based on sound land information systems and neighbourhood upgrading through the provision of basic infrastructure and services.

Keywords city periphery, metropolitan region, quality of life, sustainability, indigenous communities

1. Introduction

Rapid urbanization in Port Harcourt has impacted greatly on Rumuekini and Ozuoba settlements because of their proximity to the main city and this is motivated mainly by the mere fact that there is an abundance of land resources to accommodate spill over population. Accordingly, the influx of people into these settlements is influenced strongly by the fact that formal housing remains inaccessible to most urban residents in the main city vis-a-vis cheap accommodation in these adjoining settlements [11]. Consequently, the spread of population into these peri-urban settlements of recent has been accompanied by a lot of negative externalities. Since a significant number of urban residents relocate to peri-urban areas, it places pressure on available land resources and community facilities/infrastructure which are not upgraded or improved upon to cope with the rapid population change.

According to [10], the process of urbanization has a tremendous impact on small towns, villages or settlement located in the urban fringes as they serve as receptors for the immediate spill over from the main city. They also posited that these peri-urban regions face problems of liveability because they are transitional zones characterized by neglect from municipal authorities and a lack of basic infrastructure or services. Moreover, most of the peri-urban settlements are neglected because informality which is their major characteristics has led to ineffective government responses [12].

1.1. Statement of the Problem

As a result of neglect and the failures of past government policies to improve upon the liveability and livelihood of peri-urban settlements within the Port Harcourt Metropolitan region through the provision of basic infrastructure and services, as well as the rapid growth of Port Harcourt city itself which has brought about the spill-over of population into these indigenous communities, the quality of the environment in the periphery of the city has been deteriorating. This is exacerbated by a lack of development plans and land management infrastructure/personnel to guide development in these areas. For this reason, there is a need for serious considerations on how to evolve strategies that will effectively manage urban growth and address liveability issues so that quality of life around the city can be enhanced.

1.2. Aim and Objectives of the Study

- To assess peri urban settlements with a view to identify the major challenges of peri-urban settlements in the Port Harcourt Metropolitan region.
- To identify reasons for the low liveability rating ascribed to Port Harcourt in most international liveability assessment documents?
- To propose alternative responses/strategies that will solve the liveability problem in peri-urban settlements.

2. Materials and Methods

2.1. Literature Review

Due to the complex nature of the problems associated with urban growth, pre-emptive planning has been viewed to be the only real remedy. This means that municipal authorities and planning practitioners need to develop approaches that will place the enhancement of liveability of cities within Nigeria at the core of planning efforts. In addition, the approaches need to be inclusive and pro-poor. Urban planning according to the Global report on Human Settlements is an important tool for managing unprecedented challenges facing cities in the 21st century. Left to market forcers alone, urban change which is rapid in the developing world will be problematic. Therefore, Nigerian cities need strategies that are workable and able to promote sustainable land use [13]. Since new urban clusters are developing around the Port Harcourt city, new spatial patterns which create land management challenges are also emerging. This, therefore, justifies the need for sustainable land use management to minimize urban sprawl, improve waste management, create dependable infrastructure and services, improve local economy, as well as developing proper regulatory frameworks for managing urban growth.

2.1.1. The concept of liveability

Several scholars have come up with varying definitions of the term liveability. This is because the term means different things to different professional since different sets of criteria are used internationally to assess the liveability of places. The following are some of the notable definitions that have been given to the term. Liveability is defined as 'quality of being pleasant, safe, affordable and supportive of the human community' [17]. It is usually measured by factors such as safely, health, comfort, community facilities and freedom. Others defined a liveable community as: "One that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and the engagement of residents in civic and social life" [2].

"Liveable communities are places where transportation, housing, and commercial development investments have been coordinated so that people have access to adequate, affordable, and environmentally sustainable travel options" [14]. These different definitions highlight the fact that liveability is not just inherent in environmental characteristics. Rather, it is a function of the relationship that exists between the environment and the social life it sustains. In their study found a strong overlap between the concepts of liveability and social determinants of health, with environmental sustainability being an underlying determinant of both health and liveability [10]. This suggests that there is a social dimension to liveability, pertaining to how people relate with their immediate environment. These literatures also draw attention to the subjective and relative nature of the

concept, with suggestions of what makes a settlement liveable and this varies between groups and individuals according to different and shifting perceptions, values and desires [13]. This subjective element of liveability goes further to support the earlier proposition which states that liveability means different things to different people and somewhat explains why there is a lack of an agreed definition of what liveability is. Conversely, there is some consensus about the key determinants of a liveable community. According to [16], most definitions on liveability focus on "a healthy environment, decent housing, safe public places, uncongested roads, parks and recreational opportunities, vibrant social interaction, and so on". For this study, the definition put forward by [5], will be endorsed which more specifically conceives a liveable place to be one that is "safe, attractive, socially cohesive and inclusive, and environmentally sustainable; with affordable and diverse housing linked to employment, education, public open space, local shops, health and community services, and leisure and cultural opportunities; via convenient public transport, walking and cycling infrastructure".

2.1.2. Perceptions of liveability

A variety of factors will influence our perceptions of the liveability of places, such as: age, income, wealth, employment, aspirations, interests, location.

2.1.3. Characteristics of less liveable cities

According to the Economist Intelligence Unit, civil unrest, acts of terror and violence have brought about a decline in liveability in some cities around the world, especially in the countries of the global south. Conflict of any kind is damaging to a city's ranking. It decreases the quality of infrastructure, burdens hospitals and reduces the availability of goods, services and activities available to the community.

2.1.4. Liveability of Port Harcourt and its environs

Most liveability studies involving Port Harcourt have not given it a favourable rating in terms of liveability ranking. A study carried out by [3] on the assessment of the relationships between infrastructural development and residents' level of satisfaction in six states capitals in the South-South of Nigeria found that residents' satisfaction with the liveability of Port Harcourt was very low. It ranked sixth amongst the other cities that were studied in the region; Benin City, Yenagoa, Asaba, Uyo and Calabar. In terms of liveability status, it ranked 5th, only better than Asaba.

2.1.5. Assessment of liveability in Port Harcourt

According to [1], the following are key criteria, that should be given due consideration in drawing up indicators for the assessment of the city of Port Harcourt.

- **Environment –** How clean is the city, how green? What are key concerns and how are they being addressed?
- **Socioeconomic** – How equitable is the city? How do measures like the Gini coefficient (or similar measure) demonstrate the city's economic (in) equalities?
- **Security** – What is the level of crime, and how are things trending?
- **Inclusiveness** – How are marginalized populations included and responded to in their needs? From ensuring the elderly, the disabled, the poor, even the undocumented are assisted in becoming full members of society? Are there areas in the city that do a good job of bringing people together (e.g., public spaces)?
- **Accessibility** – how easy is it for the average person reliant on public transport to get around the city? How affordable is it? Is the city infrastructure conducive to non-motorized transit (walking, bicycling)?

2.1.6. Toward Liveable Cities

ADB's Strategy 2020 states that "liveable cities" will be fostered through support for (i) infrastructure, with programs that focus on water supply, sanitation, waste management, and urban transport; and (ii) urban shelter programs of slum upgrading, land development, housing, and housing finance. This implies that the liveable cities agenda must address the entire range of problems resulting from rapid urbanization, as well as the limited

capacity of existing basic service delivery systems. To fulfil the vision of liveable cities, community-based poverty reduction activities, slum upgrading, and new, low-income shelter options such as incremental housing and land development must be given priority [4]. It also postulated that the major cause for low liveability in most parts of the developing world is poverty. As a result, many countries cannot afford to provide infrastructure for their growing population. In other words, to improve liveability, these countries will need to address the issue of poverty. This is because reducing poverty is fundamental to improving the living conditions in most cities, especially the peri-urban settlement that suffers a lot from governance neglect. Improving the liveability of Nigeria cities will open them up to the world and bring about rapid development. This is because the attractiveness of a city's liveability plays a huge role in pulling tourism, new business, and investments [1].

2.1.7. The relationship between liveability and sustainability

Liveability is not always the same as sustainability. Sustainability considers how well a community is currently meeting the needs and expectations of its population and how well it will be able to continue providing for its population.

2.2. Sustainable Land Management

Sustainable Land Management is a knowledge-based procedure that aims at integrating the management of land, water, biodiversity, and other environmental resources to meet human needs while sustaining ecosystem services and livelihoods [11]. The term sustainable land management is used, for instance, in regional planning and soil or environmental protection but also in property and estate management. The World Bank defines Sustainable Land Management as a process in a charged environment between environmental protection and the guarantee claim of ecosystem services on the one hand [11].

2.2.1. Improving land use Management in the peri-urban areas of Port Harcourt

In 2003, the Rivers State government instituted the state's version of the 1992 National Urban and Regional Planning Law; the Rivers State Physical Planning Development Law No 6. of 2003. The law ought to set up the state Planning Board at state level and Planning Authorities at the local government level. Shockingly, fourteen years after its enactment, the essential requirements of the law are yet to be executed. At present, the encompassing peri-urban settlements in the Port Harcourt metropolitan region resemble beggars lacking legitimate care as far as the management of upcoming developments are concerned. Finally, it is important to ensure that attention is given to the translation of policies into action since policies are meant to deal with issues of critical importance or that have serious consequences on the society. Keeping in mind the end goal which is to enhance the living conditions of residents in the peri-urban settlements or other areas of the city, planning agencies should be well-financed and they likewise should be proactive in managing issues that affect the wellbeing-prosperity of inhabitants of an area or settlement.

2.3. Methodology

2.3.1. Mixed Methods Approach

The study utilized a concurrent triangulation mixed methods case study design. In this, the study sites were selected purposively based on the following criteria: one is that they have high experience levels of the phenomenon under study, they also exhibited variety on primary variables of interest [9]. The mixed methods sampling strategy used in the study shows a mixing of quantitative and qualitative methods at the sampling stage and in the discussion of findings. This strategy also allows the researcher to make comparisons and contrasts across both settlements in dealing with the research questions, and in addressing the variables of interest. Furthermore, the mixing of sampling procedures also helped in increasing the internal validity of the survey instruments [9].

2.3.2. Limitation of the study

This research is limited to Rumuekini and Ozuoba settlements as a case study because these communities have been identified as areas that are suitable to examine the objectives of the paper. Another reason for selection of

the areas is that they are part of the most rapidly growing peri-urban settlements in the Port Harcourt Metropolitan region as evidenced in the analysis of the change detection of the areas on Google Imagery. This study is also limited by the Lack of base maps for the mapping of the peri-urban settlements and the perception by respondents that the study is related to government measures to demolish their sub-standard structures.

2.3.3. The Study Area

Rumuekini and Ozuoba are indigenous settlements located at the periphery of the Port Harcourt city. The settlements are located on the North-western part of city and they lie approximately within latitude $N4^{0}54'50.4"$ and $N4^{0}51'23.04"$ and longitude $E6^{0}54'30.24"$ and $E6^{0}57'5.76"$. These settlements are rapidly growing due to the abundant land resources available for housing development. They are also part of what is now Obio-Akpor Local Government area. The landscape of these peri-urban communities has changed considerably because of rapid migration into them and this is accompanied by numerous negative externalities, as is the case in other peri-urban settlements within the Port Harcourt metropolitan region. The two settlements are located approximately within 16-kilometre distance from the city centre and within the tropical rain forest region of Nigeria where rainfall is high throughout the year. The population of the settlements according to the 2002 census data of Rivers State were; Rumuekini 6, 943 and Ozuoba 10, 134. However, they were projected to be around 10, 502 for Rumuekini and 15, 329 for Ozuoba, with a combined population of about 25,831 residents.

Table 1: Summary of samples per settlement

S/N	Settlement	Population in 2002	Projected population 2016	No. of households	Sample size
1.	Rumuekini	6943	10502	1750	91
2.	Ozuoba	10134	15329	2,190	92
	Total	**16128**	**25831**	**3940**	**183**

Source: Field Survey, September 2016

2.3.4. Sampling Procedure

A systematic random sampling method was adopted in the selection of respondents from both settlements for the study. The population for the study was made up of all residents of the study area. Using Cochran sample size determination equations, a sample size of 183 was determined. In collecting the data on neighbourhood liveability, questionnaires were administered to selected households. Initially, the streets in each of the settlements under study were listed and selected using random sampling. After the streets to be surveyed were selected, the buildings on each street were listed. The process involved;

I. Numbering the buildings
II. Using a small sample of the buildings, the average number of households per building was determined.
III. Using a small sample of dwelling units, determine the number of persons per household
IV. Selection of buildings to be studied, using the Systematic random sampling technique.

Key informants from the various planning agencies in the state and community land agents were also interviewed. Below is a schedule of those that were interviewed.

Table 2: Key Informants interview list for the study

S/N	Key Informant Type	Organization represent	Total number
1	Directors in the Development Control Unit	(i) Ministry of Urban Development and Physical Planning	1
		(ii) Greater Port Harcourt City Development Authority	1
2	Registered Town Planners in the Plan Approval unit	(i) Ministry of Urban Development and Physical Planning	1
		(ii) Greater Port Harcourt City Development Authority	1
3	Local land agents	(i) Rumuekini	3
		(ii) Ozuoba	3
		Total	**10**

Source: Field Survey, September 2016

2.3.5. Response Rate

Non-response occurred in data collection during the administration of questionnaires for households because of the total of one hundred and eighty-three (183) questionnaires distributed to the study communities, only one hundred and seventy-two questionnaires (172) were considered usable for the study. Eleven (11) questionnaires were considered non-response because they were either partially completed, with major sections blank or not returned at all. Therefore, one hundred and seventy-two (172) questionnaires were considered valid for this study. Hence, the response rate for returned questionnaires was approximately 94%. (Rumuekini – 83 and Ozuoba 89).

2.3.6 Survey Instrument

The questions in the questionnaires were formulated using an ordinal scale with which respondents were asked to express their rating of liveability indicators on a four-point response scale (1 for "Very Low" and 4 for "Very High"). There were also provisions made for open ended questions for more elaborate answers. The liveability index used for this study was adapted from the AARP Public Policy Institute Liveability Index (2015). In addition, the questionnaire contained demographic questions that included the respondent's age, ethnicity, gender, income, household income, education level, employment status, tenure status and length of stay in the neighbourhood. Among them, open-ended questions were also used to obtain more detailed information on respondents' perception of different aspects of settlement liveability. The results obtained were coded to facilitate statistical analysis.

3.1. Results and Discussions

3.1.1 Respondents' Personal Characteristics

A total of 172 questionnaires were completed and returned, yielding a 94% response rate. The sample was composed of 61% male and 39% female respondents. Their age varied between 18 to 65 years old. The respondents were predominantly Indigenes of Rivers State (41.9%), followed by Non-indigenes (36%), and the remaining 22.1% were indigenes of the settlements. Majority of the respondents had employments that were outside the settlements (69.8%) while the remaining 30.2% had jobs that were home based. Most of those sampled (44.8%) had a tertiary qualification (Bachelor's Degree). More than 60% of the respondents had a monthly income between ₦80, 000 to ₦140, 000 +, and more than half of the households sampled had a household size of four and above. As it relates to the **nature of occupancy**, it was observed that 43.6% were owner-occupiers. On average, 65.1% of the respondents had resided in the settlements for less than 7 years.

3.2. Settlement Characteristics

3.2.1 Drainage

Based on the survey results, only 38% of the streets sampled had drainages, 62% do not. This has serious implication especially as it relates to flooding (Figure 1). It will also have a negative impact on the durability of any road being constructed in these areas, since this factor will reduce the life span of the roads because they will be prone to erosion. While Figure 2 shows that amongst the streets that have drainages, 15.4% were in very good state while 29.2% were in good state. Of the remaining 55.4%, those that were bad make up 30.8% and those in very bad state, 24.6%. Results from interviews also provided more insight into this as some of those interviewed reported slight flooding (flood risk) due to poorly maintained roads with no drainages or lack of proper drainage systems to deal with excess run off when it rains. Also, in some of these neighbourhoods, respondents reported that it was difficult to access their homes or the main road when it rains heavily.

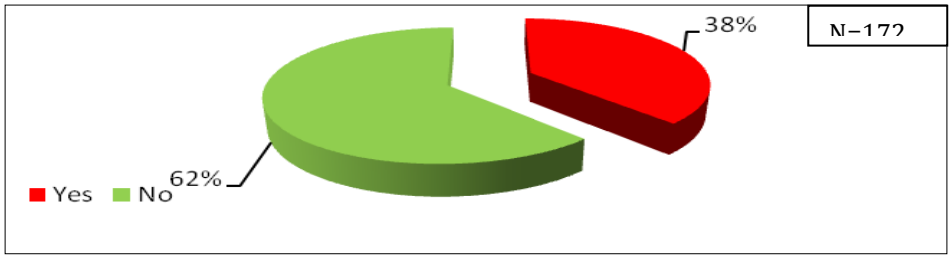

Figure 1: Presence of drainage (Source: Researcher field survey, September 2016)

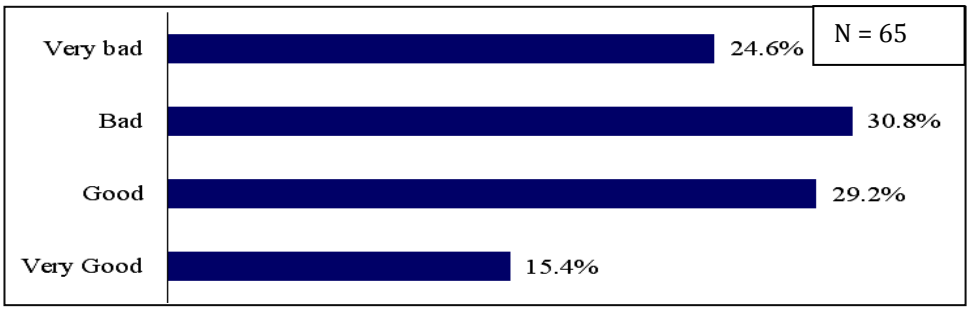

Figure 2: Drainage quality (Source: Researcher field survey, September 2016)

3.2.2 Accessibility

Referring to Table 4.3, we can see that most of the streets had access roads (98.8%). However, the challenge was that a greater portion of these roads were not in proper working condition as revealed in Figure 4.27; this is because less than 30% were in good working condition (good-17.4% and very good-9.3%) while those that were below average constitute approximately 73.2%.

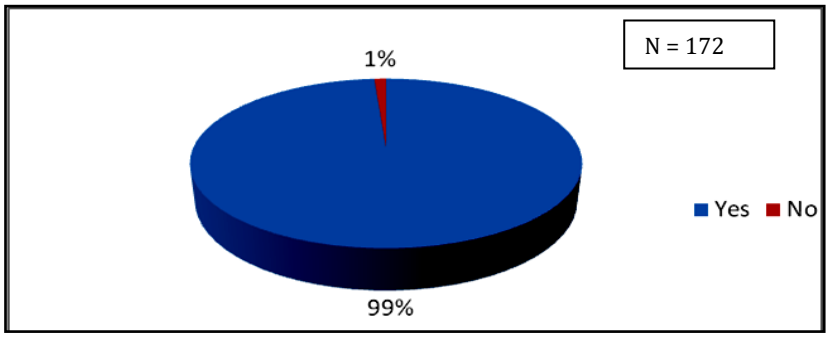

Figure 3: Accessibility (Roads) (Source: Researcher field survey, September 2016)

Table 3: Road Condition

	Responses	Frequency	Percent	Valid Percent
	Very Good	16	9.3	9.3
	Good	30	17.4	17.4
Valid	Bad	58	33.7	33.7
	Very bad	68	39.5	39.5
	Total	**172**	**100.0**	**100.0**

Source: Researcher field survey, September 2016

The results from photographs and interviews also provided more insight into the challenges facing peri-urban dwellers as it relates to nature of accessibility (see plate 1).

Plate 1: Road conditions in Rumuekini and Ozuoba (Source: Field Survey, September 2016)

Also, on the basis on the survey, it was discovered that a majority of the roads (34.3%) had a width that was between 5-7m, those more than 7m in width comprise 33.1% while 27.3% had widths that were between 2-5m. The remaining 5.3% were either less than 2m or without roads. From observation, Rumuekini had wider access roads than Ozuoba, especially in the newly developed neighbourhoods. However, there are more tarred roads at Ozuoba.

Table 4: Width of Road or Access

	Measurement	Frequency	Percent	Valid Percent
Valid	Less than 2m	7	4.1	4.1
	2 - 5m	47	27.3	27.3
	5 - 7m	59	34.3	34.3
	Greater than 7m	57	33.1	33.1
	Not Applicable	2	1.2	1.2
	Total	172	100.0	100.0

Source: Researcher field survey, September 2016

3.2.3. Nuisance created by human activities

Respondents when asked if there were activities or land uses constituting nuisance in their neighbourhood gave the following responses. A higher proportion 61% reported (No) while the remaining 39% reported (Yes) – Figure 4 illustrates this.

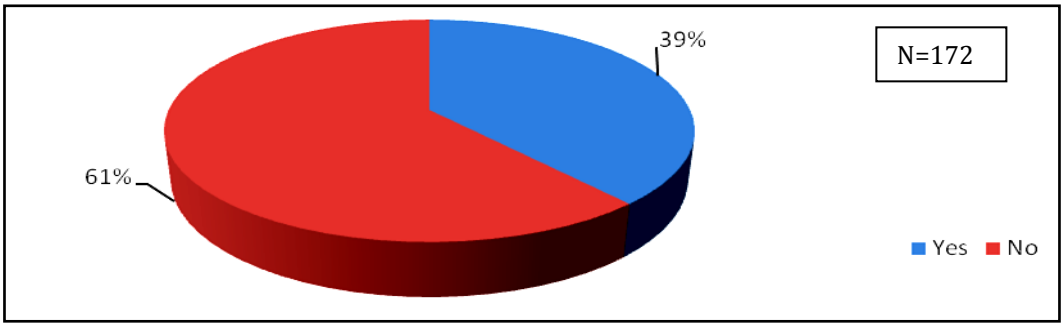

Figure 4: Nuisance in Neighbourhood (Source: Researcher field survey, September 2016)

Furthermore, those that reported 'yes' when asked what the major issues were, made the following comments: stench from waste dumpsite located close to their homes when wastes is burnt; Noise pollution – the reason being that most of the residents in their neighbourhood use generators to power their buildings and this creates a lot of noise. The generators also created air pollution because of the thick fumes they release. Another source of noise identified were the numerous churches using high sounding loud speakers outside their buildings. Others identified slight flooding (flood risk) due to the lack of proper drainage systems.

3.2.4. Waste Management

Responses to the question about how respondents rated waste management in their settlement reveal that most rated waste management low. A majority (64%) rated waste management below average (Bad – 26.2% and Very bad- 37.8%). One major reason for this is because these settlements did not really benefit from waste collection services provided by government contractors working with the Rivers State Waste Management Agency (RIWAMA) and even in areas were these services are provided, they were not regular. Table 5 further illustrates these findings.

Table 5: Neighbourhood Waste Management

	Responses	Frequency	Percent
	Very bad	65	37.8
	Bad	45	26.2
Valid	Good	46	26.7
	Very Good	16	9.3
	Total	**172**	**100.0**

Source: Researcher field survey, September 2016

From the survey, you can see that most of the respondents depend on private waste collections for their waste management. The services provided by government contractions serve mainly as a substitute. The results from photographs and interviews also provided some insight into the challenges facing waste management at these settlements. Respondents when asked to state other comments they have on waste management, identified a lack of structured collection as a problem in areas that were serviced by government contractors. This was because the wastes were not cleared or collected regularly at the open dump sites leading to land and air pollution.

Most were also of the view that the Rivers State Waste Management Agency (RIWAMA) needs to increase its area of coverage, as well as its manpower so that the challenge of collecting waste once a month will be greatly reduced. Some also expressed fears that the open dumpsites if not cleared regularly could pose challenge to health and environmental safety, therefore a receptacle should be provided at different places within neighbourhoods to reduce waste mountains. This report is supported by the photograph on Plate 2.

Plate 2: Waste Dump along Rumuekini – Aluu Road (Source: Field Survey, September 2016)

3.2.5. Crime

Responses to question about crime in the peri-urban settlements revealed that not all areas experience crime which is also as a result of security arrangements in some neighbourhood as was indicated by some respondents during interview. Results show that 46.5% of the respondents have experienced crime in their neighbourhoods while 53.5% have. Those that did not experience crime gave reasons for their neighbourhood been crime free was the existence of a neighbourhood watch system, while those that have experienced crime, advocated for constant security patrols and raiding of criminal hideouts and community policing as a means of curbing crime.

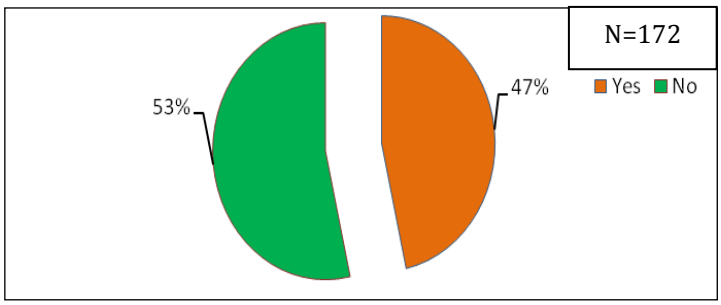

Figure 5: Crime in Neighbourhood (Source: Researcher field survey, September 2016)

3.2.6 Spatial distribution of settlements

The survey reveals that most parts of the settlements studied were developed in a clustered manner (48.3%), 31.4% linear while the remaining 20.3% dispersed (Table 6). This is an indication of unplanned and unregulated housing developments and most of these settlements based on interview with land agents also lacked layout plans which should have directed the pattern of spread (growth). This result can also be observed using Google imagery of these settlements in 2016.

Table 6: Spatial Distribution of Street

		Frequency	Percent
Valid	Dispersed	35	20.3
	Clustered	83	48.3
	Linear	54	31.4
	Total	172	100.0

Source: Researcher field survey, September 2016

3.3. Perception of settlement quality

There are a wide range of factors that enhance a settlement, and make it a desirable place to live. The findings of this study provided an understanding of residents' perceptions of the liveability status of two peri-urban settlements in the Port Harcourt Metropolitan region, Rumuekini and Ozuoba. By studying a sample of 172 per-urban residents, the study examined the views of the respondents about important aspects of their neighbourhood's liveability. In general, the results of a four-point ordinal scale measurement show that most of the peri-urban residents perceived of their settlements to be below average in the various aspects of liveability measured. This was because 59.4% of the respondents were of the view that liveability was low (Table 7).

3.3.1. Housing

Housing is a key feature or central component in the Liveability Index. This is because housing is one of the basic needs of humans. In fact, the choice of where to live has a sturdy influence on other aspects of liveability. Housing affordability, choices (options), quality and accessibility are all significant. Liveable settlements make available numerous housing opportunities for people of all incomes groups, creating the room for all residents to live in a quality neighbourhood irrespective of their economic status. In the aspect of housing, Rumuekini and Ozuoba had good ratings; 34.8% of the respondents rated housing high while 35.2% rated it very high. Put together, 73.6% rated housing in their settlements good in terms of liveability.

3.3.2. Transportation

The ease with which people move from one part of a settlement to another and from one settlement to another is what this aspect of the liveability index measures. In fact, transportation has a major impact on a settlement's quality of life. Liveable settlements however, should make available their residents transport facilities and alternatives that connect people to economic opportunities, health care facilities, and other important urban activities effortlessly. In regard to transportation; that is availability of access, quality of access and drainage, 56.8% rated it poor while in Ozuoba 58% rated it poor. Collectively, majority of those sampled (57.4%) had a poor liveability rating for transportation.

3.3.3. Environment

The quality of the natural environment is an important aspect of liveability. However, in most settlements, one is likely to come across a blend of good quality and poor quality buildings and environment which could be because of a mix of different land uses (for example residential, commercial and industrial purposes). Liveable settlements try to sustain a hygienically safe environment for their residents and this is done by upholding community standards that aim at enhancing and protecting the environment from deterioration. The Liveability Index pays attention to settlement environmental quality. It assesses neighbourhood undertakings that are geared towards making the environment safe and free from degradation. Factor considered here include; quality of urban design, availability of park and open space, water quality and noise and air pollution from generators and waste dumps.

A majority of those sampled (29.7%) gave a low liveability rating for environmental factors. This was followed by those who rated the environment high (29.1%), very low 25% and Very high 16.2%. In all, 54.1% had a poor liveability rating for environmental factors.

3.3.4. Neighbourhood

Two of most important characteristics that make a settlement liveable are access and convenience. When settlements are closely knit, it is easier for residents to connect with what they need most, such as shops, market and areas of employment within the settlement. In fact, settlements should be arranged in such a way that neighbourhood shops, areas of recreation, primary schools, and worship centres are within walkable distance for maximum efficiency. Furthermore, if neighbourhoods are serviced by well planned and good quality access to other parts of the city, residents will easily connect to the CBD and areas of employment, commercial activities, health care facilities, and other important services because of good connectivity. The liveability ranking score for the neighbourhoods in both peri-urban settlements was low. Most of the respondents from both settlements (40.5%) rank neighbourhood liveability very low while 27.9% ranked their neighbourhood liveability low, making a total of 68.4%. The aspects of the neighbourhoods assessed include; waste management, drainage quality, street layout and extent of development control. Solid waste management was identified as one of the major environmental challenges faced by both settlements as indicated in plate 1.

3.3.5. Social factors: Safety and Security (Crime Indicators)

Safety and security are two important basic needs, which are revealed in the fact that all and sundry aspire to reside in a place that is safe and free from crimes. A neighbourhood with a high crime rate will result in an unsafe environment that imparts fear and worry among its residents. It is impossible to bring about a good quality of life in an area with a high crime rate, even if other living conditions are satisfactory. In Savasdisara's (1998) study, safety and security are found to be the dominant predictors in explaining satisfaction with the general living conditions in urban communities. Safety dimension indicators are used to measure a neighbourhood's safety level. They can be grouped into three types: the frequency of different types of crime, incidents of injuries or accidents and feelings of security.

The survey results show that most of the resident (29.2%) suggested a very low liveability rating for their settlement in terms security and safety and access to public health. Those who rated liveability in this aspect low constituted 26% of those sampled while 21.6% rated liveability high in their own neighbourhoods.

3.3.6. Opportunity

The extent to which settlements embrace diversity and present opportunities to their residents to better their wellbeing is of immense importance to liveability. Liveable settlements provide their residents with an equal opportunity to make a living and enhance their welfare, from job opportunities to the opportunity to advance in education irrespective of how economically endowed they are. Most of the respondents (36%) reported a low liveability rating in terms of opportunities while 30.5% reported that it was very low. Put together, 66.5% had a poor rating in terms of opportunity to better their wellbeing.

3.3.7. Economic factors

Economic viability is fundamental to the sustenance of any society and how liveable a settlement is in this respect goes a long way to affect people's willingness to continue to settle in it. Economic factors assessed in this aspect of liveability include; access to shops and departmental stores, service stations and mechanics and property ownership. Many of the respondents rated economic liveability poor (57.6%).

3.3.8. Infrastructure

Adequacy of infrastructure is a very important aspect of liveability because infrastructure decay aggravates health and safety issues [5]. Aspects of infrastructure considered in this study include reliability of utilities such as electricity and public water supply. In all, 85.3% rated infrastructure and service provision poor (61.5% very low and 23.8% low). Only 14.7% rated infrastructure and service provision high.

Finally, as we can see from Table 4.33, respondents when asked what their general perceptions were on the liveability of the settlements in which they resided gave the following responses. Most reported that they were very low (31.7%) while those who reported that they were low constituted 27.7% of those sampled. A smaller percentage of the respondents were of the impression that the settlements were very good (16.9%) while the remaining 23.7% reported that the settlements were good in terms of neighbourhood liveability. Based on these

results, it is clear that most of the respondents perceive of their surrounding as being below average, in term of liveability which supports the idea put forward by [12] which states that:

"developers (house owners) in peri-urban settlements ignore the probable harmful socio-environmental consequences such as flooding, spread of water related diseases and extinction of the natural habitats provided houses are fairly durable and have reasonable infrastructure and services; and if rents are relatively cheap and flexible".

Table 7: Summary of results on liveability

Liveability Index	Peri-urban Settlement	Liveability Rating				
		Very low	low	High	Very High	Total Percentage
1. Housing	Rumuekini	9.0%	17.4%	33.5%	40.1%	100%
	Ozuoba	15.4%	18.2%	36.2%	30.2%	100%
	Combined	**12.2%**	**17.8%**	**34.8%**	**35.2%**	**100%**
2. Transportation	Rumuekini	31.3%	25.5%	22.7%	20.5%	100%
	Ozuoba	21.4%	36.6%	23.3%	18.7%	100%
	Combined	**26.4%**	**31%**	**23%**	**19.6%**	**100%**
3. Neighbourhood	Rumuekini	43.8%	24.3%	20.7%	11.2%	100%
	Ozuoba	37.1%	31.5%	18.3%	13.1%	100%
	Combined	**40.5%**	**27.9%**	**19.5**	**12.1**	**100%**
4. Environmental Factors	Rumuekini	28.9%	28%	21.7	21.4	100%
	Ozuoba	21%	31.5%	36.5%	11%	100%
	Combined	**25%**	**29.7%**	**29.1%**	**16.2**	**100%**
5. Opportunities	Rumuekini	37.4%	34.9%	19.3%	8.4%	100%
	Ozuoba	23.6%	37%	22.5%	16.9%	100%
	Combined	**30.5**	**36%**	**20.9%**	**12.6**	**100%**
6. Economic factors	Rumuekini	34.1%	28.9%	18.9%	18.1%	100%
	Ozuoba	22.1%	30.0%	30.7%	17.2%	100%
	Combined	**28.1%**	**29.5%**	**24.8%**	**17.6%**	**100%**
7. Social factors (e.g. Crime, Security & Safety)	Rumuekini	31.3%	27.3%	22.1%	19.3%	100%
	Ozuoba	27%	24.7%	24.3%	24%	100%
	Combined	**29.2%**	**26%**	**23.2%**	**21.6%**	**100%**
8. Infrastructure	Rumuekini	57.8%	24.1%	18.1%	0%	100%
	Ozuoba	65.2%	23.6%	11.2%	0%	100%
	Combined	**61.5%**	**23.8%**	**14.7%**	**0%**	**100%**
Total Percentage		**31.7%**	**27.7%**	**23.7%**	**16.9%**	**100%**

Source: Researchers field survey September, 2016

4.1. Conclusion

The paper concludes by stating that land use management control practices are either not existing or that they are feebly actualized within the Port Harcourt metropolitan region. Other than that, the paper found that land development particularly around the peri-urban zones of the city are indiscriminate and unregulated since development control is weak and various agencies are involved without an integrated approach being adopted. Development management without a central coordinating office or a coordinated framework with appropriate neighbourhood development plans to guide spatial growth will lead to chaos when the later would have engendered successful land use controls and henceforth planned development. The paper infers that for development management to be viable, there is a need for an integrated land use management approach. Findings reveal that the various agencies responsible for development management (The Ministry of Urban development and Physical planning (MUDPP) and The Greater Port Harcourt City Development Authority (GPHCDA) carryout their responsibilities independently without due consideration to what the other agency is doing. In fact there is a lack of coordination amongst the planning agencies and this creates a lot of inefficiency in the system. The present approach of disconnected and uncoordinated land use management practices cannot be relied upon to give the coveted result of liveable communities. In the same manner, for proper land use management to thrive and more importantly, to create a conducive living environment for present and future generations, there is the need for a more organised land use control structure, approach and process. In addition,

having in place proper neighbourhood plans will also impact on the liveability of the settlements because it will help to create order in land use. Land use management in Rivers State should also be decentralized and a land use policy enacted such that the system would reflect current inclusive ideologies or approaches in land management and a more contemporary and environmentally friendly push towards sustainable city development will ensue.

4.2. Recommendations

In most peri-urban settlements in the Port Harcourt metropolitan region, the most common issues impacting quality of life include poor-quality street layout, basic urban services, lack of access to portable water, sanitation, drainage, and flood-control facilities, as well as limited electric power supply and waste collection services. The liveability and quality of life in the peri-urban settlements can be improved through adequate strategies of inclusive and sustainable environmental improvement.

This paper concludes with the proposal of integrated responses to solving the problem of liveability in our peri-urban settlements and this includes approaches such as;

i. Regularization and Upgrading of peri-urban settlements: participatory neighbourhood upgrading of the settlements infrastructure
ii. Promoting corporate urban responsibility: this has to do with involving companies doing business in the city and the community stakeholders in planning related issues within the metropolitan region. It also means giving the citizens the responsibility for urban sustainability
iii. Development and strengthening of partnerships between the communities, corporate partners, the Local planning authorities and all who have a stake in the built environment
iv. Develop a framework for land management that focuses on the concept of community assistance and community participation in identifying and implementing projects.
v. Institutionalize good practices: This includes policies, regulations, and systems institutionalized by laws.
vi. Decentralization: This can change the focus of decision making from the state to the local level of governance. This will give local governments the opportunity to create the enabling environment to build partnerships for building and maintaining sustainable urban settlements, which will at the long run, create a resilient city.

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