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AN INVESTIGATION INTO THE ENVIRONMENTAL STANDARDS AND CONTROL FOR SUSTAINABLE MANAGEMENT OF REPUBLIC LAYOUT (SITE & SERVICES SCHEME), ENUGU URBAN AREA

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Abstract: *Urbanization trend in the past 50years is manifesting in continuous urban sprawl of cities especially in developing countries at an alarming rate, calling for appropriate integrated environmental control. This paper concern of a Federal Government of Nigeria sponsored site and services scheme at Enugu, Nigeria being an aspect of the housing sector, for the purpose of examining the adequacy of Development Standards and Regulations being used to manage the scheme. A survey research method was adopted. Both qualitative and quantitative data collection methods were used. Collection of quantitative data was through oral interview and non-participant observation while quantitative data was collected using unstructured questionnaire and secondary sources such as books and journal articles. Study revealed that the implementation of scheme tends to be slow having noted that only 55% of allotees have taken possession of their plots fully till date since the project commenced over 18years ago. The slow implementation pace was discovered to be due to delay of funding by the Federal Government for the opening of appropriate estate road. Also, the planning regulation and standards being applied for the scheme is devoid of environmental concepts, being restrictive to plot development only. Consequent to the findings, it is recommended that appropriate model of public-private –partnership (PPP) should be considered for accessing funds to open up functional estate road giving appropriate attention to landscaping of traffic corridors and public open spaces.*

Keywords: *Environmental integration, management, site and services, environmental standards, public – private-partnership (PPP) Enugu Urban.*

1.0 INTRODUCTION

Today's cities are part of global environment as their policies, people and productivity quest have impacts beyond city borders. For over 50years, cities have expanded into the land around at a rapid rate. Valuable farmlands have been eaten up and car dependency has increased. Most worryingly, as UN-HABITAT's state of world cities Report for 2006/7 points out, is the fact that in many cases urban growth and urban settlements must be prepared to meet the challenges. To avoid being victims of their own successes, cities must search for ways to develop sustainably. To meet the urban challenges of today and future, appropriate management framework must be available, through which city can apply innovative approaches suitable for local circumstances.

One very basic and fundamental necessity for people is Housing. Everywhere, the problem of providing Housing has long been a concern not only to individuals but to Government as well. Most nations in one form or another continue to place access to affordable housing at the top of their priority list. In Nigeria, initiation of a National Site and Services Scheme model in 1991 (Akinsola 2014) was an intervention attempt to facilitate access to Housing. This was intended to open up land by providing essential infrastructural facilities such as roads, drainage and sewage system, water supply and electricity for Housing development in well planned environment.

The National Site and Services intervention model aims at opening up land for parcellation into plots and allocation for building construction following specific guidelines. In implementing this Government policy, the Federal Ministry of Works and Housing directly initiated The Republic Layout, Enugu as a pilot scheme at Enugu along with other locations in different states of the Federation. Advertisement requesting for application for allocation of plots from members of the public was published in the National Dailies of 18th May 1999 after the state government released a 91 hectare land for the purpose in 1998.

This study, focuses on the Enugu scheme and the specific objective is to investigate the effectiveness of Environmental Standards and Regulations which guide the development of the scheme. Findings are expected to proffer reasons why the development of the site is

apparently atslow pace inspite of the dire need for Housing delivery in the town and suggest ways forwardto making the scheme a balanced and well integrated environment.

2.0 LITERATURE REVIEW

2.1 Urban Management

Successful urban management depends largely on the management of environmental resources as asset for municipality's goals and ecosystem health (cities Alliance 2007). In what ways therefore can the Environment be viewed as asset for cities. The Natural environment provides cities with countless ecosystem services some of which are much fundamental to urban liveability and are yet invisible to the managers. Air, water, open spaces for example are resources which could be taken for granted rather than being used, enhanced and invested in;

- Clean air is essential to a healthy environment
- River and water bodies provide drinking water and act as natural pollution filters.
- Biodiversity is essential for food, medicine and improved quality of life, not just locally but also globally.
- Forest serve as watersheds, habitat, carbon sinks, leisure amenities, source of energy if managed sustainably.
- Wetland filter and process waste, act as nursery for fisheries.
- Parks and greenbelts act as sinks for $C0_2$ and counteract the heat island effect of large built-up areas. They provide essential open space for urban residents. The flora and fauna, improve general liveability of city.

Most successful urban centres have a mutually rewarding relationship with the environment which builds on the city natural advantage and which in turn reduces the burden the city places on its surrounding (Rees, 2003).If the environment is such an asset to cities, question we would ask is why is it often last on the list of priorities for urban managers? A key reason is the use of accounting systems that externalise real costs and do not account for natural capital. While it is not difficult to place a capital value on an environmental asset, it can be difficult to calculate and quantify the exact financial value of the benefit derived from that asset. (cities Alliance 2007). Misuse of urban environment can have grave consequence for city. Poor urban planning management which permits construction on unsuitable land such as wetlands can result in damaging floods. Inadequate waste disposal leads to the spread of

disease. Urban sprawl will damage urban diversity and the cost of providing infrastructure will be specifically higher.While healthy ecosystems provide cities with wide range of services essential for their economic, social and environmental sustainability, damaged ecosystems have a very negative effect on urban residents.

The World Bank's urban strategy for obtaining positive effect emphasizes strong systems and urban governance to enable sustainable urban growth with opportunities for all. Thus, according to Iyi (2014) there are plans for:

(a) Green cities (low carbon, climate resilient growth, access necessary financing, improve solid waste management system and address pollution and liveability challenges).
(b) Inclusive cities (improve access to land, jobs, economic opportunities, housing, community participation).
(c) Resilient cities (ability to cope and better manage climate and disaster risks).
(d) Competitive cities (attract investors and jobs).
(e) Strong city systems and governance (strengthen land and Housing markets, enhance service delivery).

Site and services scheme involves the opening up of forest hand. Efficient management is required to ensure that disruption of such existing biodiversity is made ultimately beneficial to urban life.

2.2 Integrating Environment in Urban Planning Strategies

For integrating environment into urban planning process, a city can choose to target its environmental activities at different levels. It may choose to take action for the city as a whole using sectoral concepts and strategies stipulated in the UN Local Agenda 21, which provided many local authorities with innovative and effective approach to urban management. It may also choose to focus on integrated local environmental management utilizing information systems, environmental monitoring and eco-budgeting. Thus cities may choose integrated strategies for certain sectors and environmental commodities which include energy consumption, controlling traffic emissions, improving water quality, developing overall strategies for traffic transportation (Cities Alliance 2007).Whichever the city manager chooses, a multidisciplinary approach to integration require basic

understanding of how systems fit together on the part of all professions dealing with the environmental issues.

Ecological footprint, an accounting tool for ecological resources is a concept which a city may also consider in determining its Integrated Environmental Sustainability. This is expressed in 'global hectare'. Each unit corresponds to one acre of biologically productive space with 'world average productivity'. Ecological footprint can be summarized as a measure of sustainability of lifestyles. It provides a comprehensive comparison of natural resources demand and supply availability. The analysis compares the actual geographic area of footprint of a region (e.g city, country, e.t.c) with the virtual footprint that would be required for that region to be sustained. In summary, ecological footprint can be used as a measure, or indicator, of progress toward sustainability, rather than a tool to improve the environmental performance of an organization in many developed countries.

The ecological footprint being a tool for quantifying the sustainability of behaviour help Government understand the direct cause effect of human action on the environment. This enables an understanding of where we are now and how to measure improvement. The ecological footprint allows Government to target activities and sectors for legislation towards reducing their footprint (Wakernegel 1997).

2.3 Instrument for Environmental Integration

Instruments a city uses to integrate environment into urban planning and management falls into four categories which guide the urban manager. These include:

(i) Policy instruments
(ii) Process instruments
(iii) Planning instruments
(iv) Management instruments

Policy Instruments: provide guiding principles for urban decision makers.

Process Instruments: Provide ways of doing things, step that can be taken to reach desired goal.

Planning Instruments: offer variety of methods by which urban development plans can be developed and implemented.

Management Instruments: Provide tools to direct and administer urban planning decision.

Each of these instruments are supported by specialized tools or toolkits which are available to urban managers (cities Alliance 2007).

2.4 Site and Services Scheme

Importance of infrastructure and services in achieving efficient and effective functioning of cities and towns have been well emphasized by the political declaration issued at the 2002 world submit on sustainable development (WSSD) in Johannesburg South Africa. It has also been ascertained by empirical studies that the basis for sustainable urban development is the existence of fundamental and efficient sites with infrastructure and services.

The realization that providing a complete serviced house by Government agencies is not possible or simply cannot be afforded by most families prompted a shift in focus from supply of fully service houses to that of providing only serviced land otherwise called site and service. The 2002 world submit on sustainable development (WSSD) therefore recognizes the importance of sites and services schemes. The sites and services approach can be useful or be regarded as a viable alternative in solving housing related problems of the people. If it is effectively adopted, it can make Housing affordable.

Site and services schemes as a concept is a proggramme carried out either by the Government or private organization. It involves facilitating a particular area with the essential infrastructural amenities so that private individual or corporate bodies can carry out developments in such area at affordable cost. It is generally applauded that such scheme basically relates to the need of establishing the dwellers as an active participant on the total process of housing. But unfortunately, very little work has been done to assess the standards for site and services.

This study particularly is focused on the Federal Government and specifically Federal Ministry of Works and Housing sponsored sites and services scheme, case study of Republic layout, Enugu, in order to close wide gulf in research. The scheme is considered as an emerging neighbourhood in Enugu where the need and approach for integration of urban planning with environment would be explored.

3.0 RESEARCH METHOD

Survey research design was adopted. Both qualitative and quantitative data collection were used. Collection of qualitative data was through oral interviews and non-participant observation, while quantitative data were collected using structured questionnaire and

secondary sources such as books and journal articles. The oral interview targeted key senior member of the scheme management team. Interview was conducted based on questions drawn from prepared interview guide and recorded manually.

The non-participant observation data were derived using observation schedule and photographic material during several visits made to the site. Due to the constraints, study avoided inclusion of residents and visitors to the scheme in the interview schedules for probable need to ascertained and confirm the observed data and inferences.

4.0 RESEARCH FINDINGS

4.1 The Scheme

Enugu is the capital city of Enugu State, Nigeria. It is located within latitudes 6.24^0N and 6.30^0N and longitudes 7.27^0E and 7.32^0E. it shares boundary with Igbo Etiti and Isi-Uzo Local Government in the North, Udi Local Government in the South and part of Nkamu East Local Government in the East. There are 18 prominent residential areas in the city. These are Abakpa, Trans Ekulu, Ogbete, Iva Valley, Independence Layout, Achora, Ugwuaji, Marryland, Awkwaw, Uwani, Agbani, Coal Camp.

The study area, Republic Layout shares boundary with Independence Layout, Ugwuaji, residential district and Port-Harcourt – Enugu Expressway. It falls within the humid rain forest belt of South East Nigeria. It has two season, the rainy season and dry season. Rainy season characterized by heavy thunderstorm last from April to October. The mean temperature varies about 20.30^0C to about 32.16^0C in dry season and rainy season respectively (Akabuike, 1970).Hammattan which occurs between the months of November and February is always accompanied by poor visibility mostly at night and early in the morning. (Enete, Ifeanyil, and Alabi, 2012).

Physical planning was begun in Enugu during the colonial administration. The 1917 township ordinance grade Enugu then as a second class township. By 1959, the Eastern Region of Nigeria already had a Ministry of Town Planning and by 1961, the ministry had framed independence layout planning scheme, Enugu. By 1963, Planning Authorities were appointed for major Town in the Region including Enugu. The planning Authorities were concerned mainly with the frame of planning schemes for parts of their Towns found to have become ripe for planning,(Iyi 2014).

As part of the National Housing Programme, the Federal Ministry of works and Housing initiated the site and services scheme for Enugu along with many other towns spread across the country in 1998. A site (91 ha) was set aside for it along Port-Harcourt – Enugu Expressway sharing boundary with Federal Government College, Ugwnaji and independence layout. Spatial layout was conceived for it at the Federal Ministry of works & Housing Headquarters and in parcelation of the land was concluded without consideration of the biodiversity of existing terrain and provision of mechanical and electrical services at inception. Thus there is no particular consideration of environmental in layout design.

Schemes is administered based on general regulations handed over to the Ministry's field officers. This regulation mainly stipulates conditions relating to the procedure and submission process of Application for development approval as follows:

- Application form to be completed
- Submission of completed application form
- Requirements and standards for processing
- Site inspection, approval and grant of permit
- Application form fees specified
- Planning information fees specified
- Building Plan Assessment fees specified
- Minimum setback, height and plot coverage
- No of buildings per Ha.. (maximum specified)
- No of families per Ha. (maximum specified)
- No of floors per Ha. (maximum specified)

Apart from these building development approval process, the Field officers had no other guidelines relating to mobilization and motivation of support by allotees and other stakeholders for timely execution of scheme. There are no regulatory standards for roads and outdoor spaces, infrastructures and services installations which are critical for Environmental Component Integration in the scheme.

The layout of the scheme was undertaken in 1999. Advertisement for indication of interest in plot allocation was widely placed in the National Dailies. Consequently, a total of more than 450 low density plot and few communal plots allow as follows: petrol station (2plots), police station (1plot), Health centre (1plot), Church (15plots), Mosque (0.5 plots), school (7

plots), open space (1.6 plots) were obtained on the scheme. These have been fully allocated as at year 2000. Till date however, only 55% of the plots have been developed while only about 70% of the Estate roads opened up have been sparingly tared. Many of the roads are barely drained and motorable. This situation certainly negates the real objectives of the scheme which expects the services to be in place first before individual plot development commences. This initial concept had to be abandoned due to inavailability of funds expected from public cover. So far, about 55% plot development on the scheme was attracted after the intervention of the State Government that constructed dual carriageway passing through the scheme. In 2010, prior to this time and as at 2010 only 15% of the plots were developed. The construction of a dual carriageway through the scheme being link from Independence layout to the Port-Harcout – Enugu Expressway attracted many allottees to mobilize for development of their plots. It is obvious therefore that unless alternative source of fund can be attracted especially for the estate roads and communal spaces to be opened up appropriately, development of the scheme will continue on a slow pace.

5.0 RECOMMENDATION AND CONCLUSION

(a) In many developing countries, increasing need to reduce Government budgetary constraints and improve the performance of Public sector for in service delivery has highlightened the search for alternative to the traditional funding arrangement for urban projects. Consequently, emphasis is currently on fund mobilization through public private partnership (PPP) arrangement (Jamali 2004).This explains why there is increasing number of infrastructural projects using PPP finance option in developing countries. The model of PPP most often used in the Build, operate, transfer (BOT). this allows Government to transfer technical and financial risks to the project concessionaire (private organization), who would be responsible for the construction, financing, operation and maintenance of the roads. The PPP option is one which may be explored for the republic layout scheme.

(b) All built development, from the small to the large make an impact on their surrounding. The quality of these developments, and residential developments in particular have long term impacts, both on the community they house and on the surrounding neighbourhoods. Hence the need for statutory guidelines to assist urban

management/developer to imbibe, the objective of producing high quality and crucially sustainable developments in the Estate which guarantee:

- quality homes and neighbourhoods
- places where people actually want to live, work and raise families,
- places that work and will continue to work and not just for people, but for their children and grand children.

To what extent can the Republic layout fulfill these objectives? Much modification of the layout scheme is obviously required to fulfill these and in accordance with international practice.

(c) In terms of administration, sustainability and successful completion of this site and services scheme will depend largely on adequate empowerment of the Field officers to be sufficiently capable of utilizing available instruments for environmental integration which include policy, process, planning and management and their various tools.

This will enable the Field officers to participate in the mobilization of support from the allottees and other stakeholders.Regulatory standards relating to municipal infrastructural services installation which conform with Environmental (NESREA) and UN local Agenda 21 stipulations should be prepared and handed over to the Field officer as an additional working document.

(d) Further studies are required to (i) produce design manual which conforms with United Nation local Agenda 21 provision to guide Urban Managers/Developers in production of Town Planning Scheme layouts with appropriate hard and soft landscaping. (ii) Determine Ecological Footprint for specific local areas of Nigeria for purpose of determining target sustainable population for schemes.

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