The Environmental Studies

Evaluation of Plan Implementation: Peri-Urban Development and Diobu Layout plan, 1975-2018

Weje, Ikezam Innocent and Ameme, Bright Godfrey
Department of Urban and Regional Planning,
Rivers State University, Nkpolu-Oroworokwo, Port Harcourt
innoweje@gmail.com;ikezam.weje@ust.edu.ng; Tel: 07038853071
brightomemam@gmail.com; Tel: 08060049150
Received March, 2018, Accepted and Published March, 2018

Abstract

This work is on the implementation of Diobu Layout plan of 1975 to 2018 with a view to examine if the actual spatial development in the area conforms to the prepared plan from the plan implementation perspective. Both primary and secondary sources of data were employed. The primary data were gotten via the use of direct observation; interview granted to selected key informants and ground trotting of existing development status of the area. The secondary date used included satellite imageries from both Landsat and Google. The result of the analysis revealed sharp deviation in development among the different land uses leading to amorphous and uncoordinated growth contrary to the Master plan prepared for it. These deviations can be understood in the context of rapid population, economic growth and response to market forces. Spatial expansion of Diobu settlement greatly precipitates the formation of new districts, changing the morphology of the area, thus posing serious concerns of urban threshold, but not without some consequences. The study advocates for stricter enforcement measures in line with existing development control legislations and regulations. Ensuring that development complies with land use regulations therefore requires periodic and regular field visits and/or site inspections. This is the only practical way to ensure that proposed development in Diobu conforms to stipulated guidelines for urban development planning of the area.
Keywords: *Urban development; Urban expansion; Development control; Balanced development.*

Introduction

Cities are the driving force for economic development. It is for this reason that economic growths are often linked to urbanisation. Urban spaces are 'hubs for ideas, commerce, culture, science, productivity, social development and much more'. (Integrated Urban Development Framework, (IUDF), (n.d). As places of concentrated economic activity, cultural diversity, learning, innovation and creativity, cities can enable a country to build a dynamic competitive advantage and allow its people to advance socially and economically. There are also critical for achieving national environmental objectives. Urban areas are inherently productive heart of the economy and serves as engines of growth and opportunity. It is this inherent attribute of urban areas that generates economic growth, create employment and increase access to urban amenities.

The 21st century has been described as the urban century. More than half of the world's population lives in cities, and it is projected that 70% will be living in urban areas by 2050 (IUDF n.d). It is, therefore, important that we put in place mechanisms to respond to this urbanisation trend in a way that helps us to reap the benefits while minimizing the impacts of badly managed urbanisation.

Like most of Africa and other developing countries, Nigeria is experiencing continuing urbanisation. Development and improvement of Nigerian urban areas have been for the most part spontaneous and random. The disappointment of government to give the essential foundation, to anticipate unavoidable development and extension has prompted to the genuine scourge of our quick condition. The absence of usage of advanced arrangements and inability to implement development control has brought about the gross degradation of the environment.

Fox (2012) opines that Nigeria's population boom is driven urban growth and expansion directly through (a) natural population increase in existing urban centres, and (b) densification in rural areas resulting in the reclassification of settlements from rural to urban. Indirectly, rapid population growth in rural areas expands the pool of potential urban migrants and may, through demographic pressure on natural resources, contribute to the 'push' factors that can

stimulate rural out-migration. This assertion mimics the case in the study area given the rapid rural-urban migration that characterized the area.

The Inability to execute plans has for some time been viewed as critical hindrance to viable planning (Berke et al., 2006). Calkins (1979) names the absence of plan usage as "new plan syndrome": Plans are constantly revamped or revived without regard to the execution status of the initially planned arrangement. Due to the absorption of new population, the expansion of land cover and the appearance of new districts, the morphology of Diobu has changed thus posing serious concerns of urban threshold. Diobu (comprising of Mile 1,2,3) is a major commercial precinct in Port Harcourt whose growth pattern was captured in the 1975 Master plan of Port Harcourt. The areas have since witnessed rapid growth leading to its expansion as a result of rapid urban population growth in but not without some consequences.

A review of the area shows that Diobu the growth of the area rather amorphous and uncoordinated contrary to the Master plan prepared for it. The detailed characteristics of contemporary urban expansion therefore require investigation, not least to inform urban policy, strategic spatial planning and the programming required to design and resource the provision of infrastructure and services for a burgeoning urban population. This work is an attempt at examining the land use dynamics in Diobu, a highly commercial area of Port Harcourt vis-a-vis the implementation of the development plan of the area.The 21st century has variously be described as the urban age due mainly to the increase in the number of urban center. According to the UN, Nigeria's urban population reached 69 million by 2010 while the Africapolis estimate is 50 million and by 2020, Nigeria's urban population is estimated at 108.7 million (UNR, 2018)

The growth of Nigeria's urban population in both absolute and relative terms is attributed to population growth leading to the expansion of existing built-up area. Angel (2012) argues that though, It is impossible to predict how population densities will change, generally, the rates of urban expansion have exceeded the rates of urban population growth in West Africa and that if this precedent holds, it is likely that population densities will decline somewhat resulting in greater physical expansion

Writing on urban expansion and plan implementation in Nigeria, Owei et al., (2008) noted that land for urban development has frequently been supplied outside formal state regulatory framework. This is even more worrisome where such development takes place in the absence of physical planning instruments – such as master plans, and even when they were present, local planning authorities often lacked the technical and financial capabilities to properly implement them. The presence of unregulated land market and strong population growth, led to the appearance of unplanned and scattered urban development. In a study of urban expansion, Ikeijofor (2009) examined the case of urban expansion in Enugu and concluded that urban development in the city were carried out outside the state regulatory frameworks, resulting in spontaneous physical spatial expansion on the periphery, both of which are formal and informal in nature.

Urban expansion in the study area is historically characterised by two major types of growth: growth by densification and growth by expansion. Atu et al., (2012).opines that growth by expansion often occurs at the edges of existing urban areas leading to the formation or appearance of 'new' city. It emerges when disconnected developments and residential settlements that do not form part of urban areas start to be incorporated into city limits due to physical expansion pressures. This process is supported by diminishing commuting distances to the urban core, which allow the ever-expanding absorption of discontinuous settlement on the periphery into an existing urban fabric. This process of growth also integrates a diversity of settlements, ranging from housing estates, educational facilities and industrial

sites to unplanned residential developments on urban fringes progressively incorporating peripheral peri-urban (rural) settlements (Ogu, 2005.).

Growth by densification, in contrast, connotes the emergence of various numerous independent houses in areas previously occupied by single large housing structures. This pattern of growth is frequently found in urban cores or already existing urban neighbourhoods, and results from land scarcity. Urban development and extension fundamentally get from vast scale improvement of settlements that happen outside the formal procedures of open land controls. Obinna, et al, (2010) opines that since attaining autonomy Port Harcourt has turned into an inexorably urbanized and urban-situated society. With development the area experiences fast improvement of new local locations particularly inside and around indigenous town settlements.

According to Jinghuan (2005) evaluation of plan implementation can be divided into performance-based and Conformance approaches. While, Performance-based approaches tries to highlight the outcomes and the role of the plan in the urban development process, Conformance approach focuses on the direct linkage (i.e. level of conformity) between the plans and spatial outputs (Barrett & Fudge, 1981; Faludi, 2000). Diobu, has the worst areas of the city in terms of housing condition and quality of the residential environment. Whilst this area of Port Harcourt has acquired a bad reputation both planning wise and socially due to the terrible overcrowding and lack of proper facilities, the majority of the development has been organized in a permanent fashion and to some semblance of a planned road layout. Diobu mile1, 2 & 3 had a large number of cramped residential plots, with insufficient setbacks and narrow streets.

Fox (2012) opines that Nigeria's population boom is driven by urban growth and expansion directly through (a) natural population increase in existing urban centres, and (b) densification in rural areas resulting in the reclassification of settlements from rural to urban. Indirectly, rapid population growth in rural areas expands the pool of potential urban migrants and may, through demographic pressure on natural resources, contribute to the 'push' factors that can stimulate rural out-migration. Urban expansion also poses some challenges. For example, in Ibadan, spatial expansion is associated by a lack of public service provision and the rise of irregular settlements has resulted in the emergence of urban risk (Adeniji and Ogundiji, 2009). An important component of urban expansion is that the process changes the conceptualisation and nature of urban-rural linkages: on the urban edge, where spatial extension occurs, land uses are transformed and agricultural land is frequently absorbed to accommodate urban uses. (Aguda and Adegboyega, 2013).These assertion mimics the case in the study area given the rapid rural-urban migration that characterized the area.

An area with the highest population density, Diobu mile 1, 2 & 3 popularly known and called 'Rumuwoji community' has an excessively high street activity. A scheme was developed called 'Diobu New Town' prepared for wholesale redevelopment of Diobu over a 20 year period, the extension of the area by reclamation of the adjoining creek areas, construction of a peripheral distributor road, development of a number of new peripheral neighbourhoods, and the provision of new industry along the southern boundary. (Port Harcourt Master Plan 1975).

Instead of the wholesale redevelopment which was frequently advocated, the Master Plan proposed that joint public/private action through a comprehensive redevelopment program should be promoted, with the municipal authority leading the way in the provision of limited finance and proper infrastructure, that small scale rehabilitation, improvements, and redevelopment can then take place continually over a number of years. The Master Plan also proposed the creation of a district and local centers within Diobu, and a major new commercial center to the north-

east of Diobu, and the provision of primary school sites and a series of local open spaces. It was also proposed to establish a new open space between the western boundary of Diobu and Elechi Creek when drained and reclamation is achieved

Materials and methods

Study Location.

Port Harcourt the capital city of Rivers State, also called Nigerian Garden City, lies along the Bonny River and is situated in the Niger Delta Region. Port Harcourt was established on the very edge of the West African swamp in 1912 by the British Colonial organization of Nigeria next to the farmlands called Obomotu, close to the bluffs of Igwuocha of the Diobu Ikwerre town. (see figure 1) The Port Harcourt city covers a territory of 180,000 hectares. Physically the spread has happened in both a south – easterly course and a northern heading. Toward the south, development was through marshland colonization in squatter settlements privately called "waterfronts".

Development has likewise happened in a north – westerly and northern – easterly bearing through the ensnarement of indigenous enclaves of semi – rustic and provincial group inside the developed range of the city. The southern segment is obliged by the waterway. The Port Harcourt urban periphery today extends to Choba, Rumuokoro, Elelewon Rukpoku and Woji. A lot of this development is impromptu and unregulated (Owei and Ikpoki, 2006).

Rivers State is one of the 36 States of Nigeria. Its capital, Port Harcourt is one of the biggest cities and is financially viable as the focal point of Nigeria's oil industry. The study area, Diobu is one of the busiest commercial precincts in Port Harcourt City Local Government Area (PHALGA). It has a moderately level geography of around 3.3m above sea level. It is blessed with oil and gas resources, the presence of these resources are all contributory to the rapid growth of the area but not without some consequences one of which is uncoordinated growth. The growth of Diobu urban in both absolute and relative terms has been accompanied by the expansion of existing built-up areas and the emergence of new and identifiably 'urban' settlements.The choice of Diobu was due to the fact that the area is one of the 19 neighbourhoods whose development was captured in the Master Plan prepared in 1975, by Specialists Konsult, a Swedish planning firm.

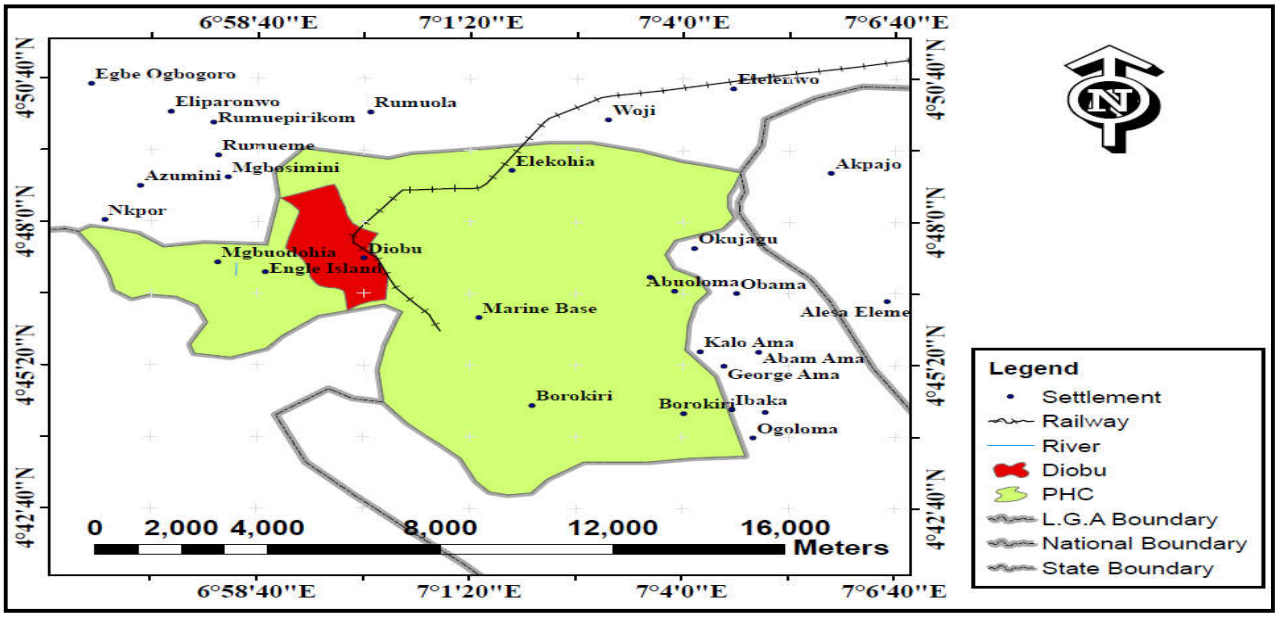

Figure 1: Map of Study Area

The study adopted the longitudinal research design. This research design was preferred since the study's intent was to x-ray the pattern of land use changes (1975-2018) in the study area over time. The study was carried out in-situ at one point in time. Both primary and secondary sources of data were used. The primary data was through direct observation and updating of existing land uses in the study area. In addition, building enumeration and assessment were carried out within the study areas, and the information was used to develop the present land use pattern of the study area.

The secondary source of data relied on the use of landSat and Google Earth imageries. The 1975 satellite Imagery of the study area at 30m spatial resolution was used and supplemented with the Google Earth imagery of the study area. This was in a bid to gain better spatial resolution which helps to identify buildings and other urban features. Data from the satellite imageries were analyzed using ArcGIS 10.2. To enhance understanding and appreciation of the results of this work, maps were used to show the different landuse changes at the different time period.

Results and Discussions

Table 1 below shows, the land budget of Diobu neighbourhood according to the Port Harcourt Master plan, 1975. The figure indicates that the total land devoted for residential use was 300 hactares (47.1%), institutional/government use was 265.14 hactares (41.6%), open space/green belt reservation 20.5(3.2%) and while Shopping and business had 51.89 (8.1%) respectively. The total plan area of Diobu in 1975 covered an area of 637.53 hectares, and accommodates over half of the city's population; the dwelling is mainly traditional houses of low technical standard. Figure 2 is a schema showing the land use budget of Diobu according to the 1975 Master.

Table 1: Land Use Budget for Diobu in Port Harcourt, Rivers State

Attributes	Area (Hectare)	%
Residential	300	47.1
Industrial	-	-
Open Space & Green Belt Reservation	20.5	3.2
Institutional & Government Uses	265.14	41.6
Shopping and Business Uses	51.89	8.1
Total	637.53	100

Source: Port Harcourt Master Plan of, (1975)

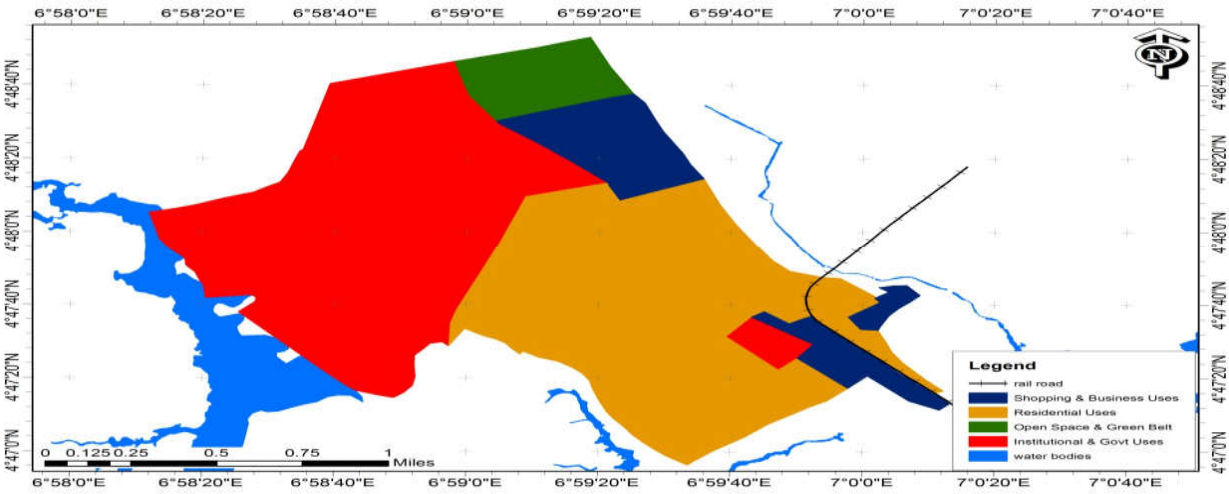

Fig 2: land Use Budget of Diobu, Port Harcourt (Source: Adapted from the Port Harcourt Master Plan, 1975)

A comparative analysis of land use change in the area between 1975 and 2005 using Google earth image on 30 meter resolution, which was verified through physical identification of identified structures with Global Positioning System (GPS), reviews diverse variations in landuse characterisation in the area (table 2). The 2005 land use budget of Diobu (Mile 1, 2 & 3) was 364.29 hectares as against 300 hectares in 1975. Open Space & green belt reservation was about 9.61 hectares in 2005, as against 20.5 hectares in 1975, Institutional and Government land uses was 252.18 hectares in 2005 as against 265.14 hectares in 1975, while Shopping and business gulfed 42.06 hectares in 2005 as against 51.89 hectares in 1975 respectively. Consequently, the total land area of Diobu (Mile 1, 2 & 3) in 2005 was 778.63 hectares, as against 637.53 hectares in 1975. This implies that an extra 141.1 hectares of land have been added to the area called Diobu through constant reclamation of water fronts (areas which hitherto was reserved as green belt).This is the space that currently houses the squatter settlement in Diobu region, (see Fig 3).

Table 2: Condition of Land Use for Diobu Mile 1, 2 & 3 in 2005

Attributes	Area(Hectare) 2005	Area (Hectare) 1975	% 2005	% 1975
Residential	364.29	300	46.79	47.1
Industrial	46.65	-	5.99	-
Open Space & Green Belt Reservation	9.61	20.5	1.23	3.2
Institutional & Government Uses	252.18	265.14	32.39	41.6
Shopping and Business Uses	42.06	51.89	5.40	8.1
Squatter Settlement	63.84		8.19	
Total	778.63	637.53	100	100

Source: Adapted from the Port Harcourt Master Plan,)

Further analysis indicates that in 2018 the study area has witnessed rapid expansion which also reflects in the land use characterization of the area as shown in table 3. In 2018, the land area of Diobu was observed to have increased to 707.84 from as against 637.53 hectares in 1975. The break down reveals that about 289.87hectares of land is devoted to residential land use , open space & green belt reservation is 1.09 hectares, Institutional and Government uses , 227.47 hectares; shopping and business use,

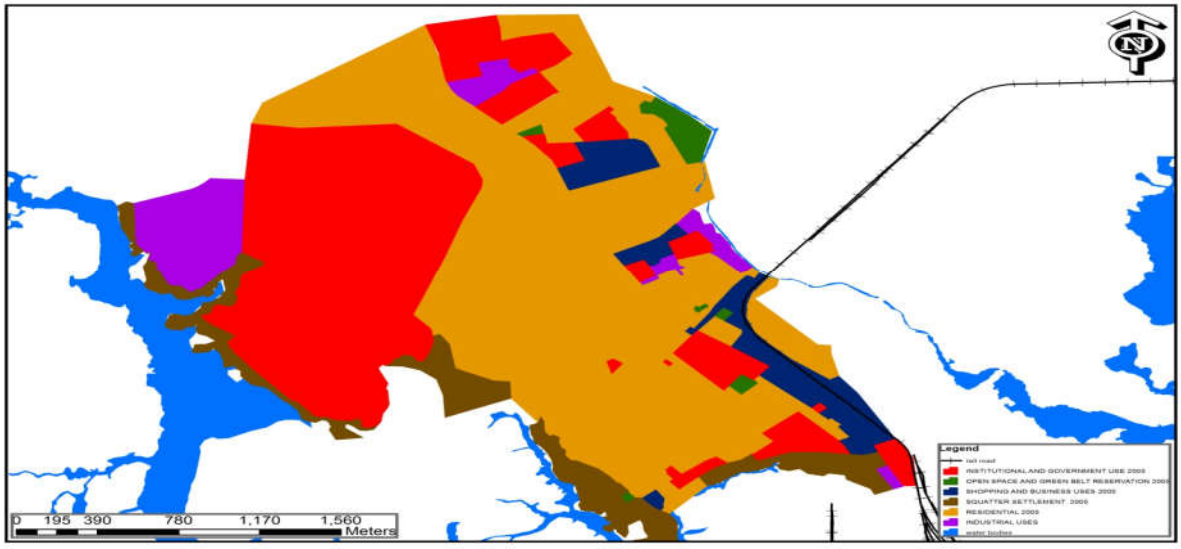

Fig. 3:Land Use Situation of Diobu Mile 1, 2 & 3 Port Harcourt, 2005 (Source: Adapted from the Google earth image)

104.28; Industrial use, 55.47 hectares; while about 29.66 hectares of land is devoted to squatter settlements within the waterfront areas of Diobu . The additional land was gotten through illegal local reclamations of land with the use of 'Chikoko Mud' material and mostly within the waterfront part of the neighbourhood

Table 3: Present Land Use Budget for Diobu Mile 1, 2 & 3 Port Harcourt, 2018

Attributes	Area (Hectare)	%
Residential	8.06	1.14
Residential Mix	281.81	39.81
Industrial	55.47	7.84
Open Space & Green Belt Reservation	1.09	0.15
Institutional & Government Uses	227.47	32.14
Shopping and Business Uses	104.28	14.73
Squatter Settlement	29.66	4.19
Total	707.84	100

Source: Adapted from Google earth ; authors field work (2018)

Much as it has be observed that Diobu has witnessed rapid urban expansion in its growth history, also important is the fact that this growth also precipitates changes in the landuse pattern of the area. Most of these changes are witnessed in the conversion of open space/areas of green reservations into residential use. For example, areas designated as green reservation in 2018 is 1.09 hectares as against 20.5 hectares proposed in the Port Harcourt Master Plan 1975. For Institutional and Government uses, it is 227.47 hectares in 2018 as against 252.1, in 2005; and 265.14 hectare in 1975 respectively. For Shopping and Business uses, it is 104.28 hectares in 2018, 42.06 hactares in 2005 as against 51.89 hectares 1975 Port Harcourt Master Plan (Fig.4).

The analyses made in the preceding sections of this work indicate that there is sharp deviation for all the land uses within the period under review. These changes that are attributed to rapid urban growth also presents serious modifications to the development plan of the study area with attendant negative consequences. For example, the unplanned waterfront areas of Diobu has degenerated into squatter settlements, which as at 2005 occupied 63.84 hectares and later reduced to 29.66 hectares within the study period as a result of the waterfront demolition carried out by the Rivers State Government in 2009.(Mmom, & Fred-Nwagwu, 2013). More so, the reclamation of land in the area to accommodate squatters is a factor in the observed increase in various types of crime in the area since these areas (water front) constitutes breeding points for all sorts of criminality.

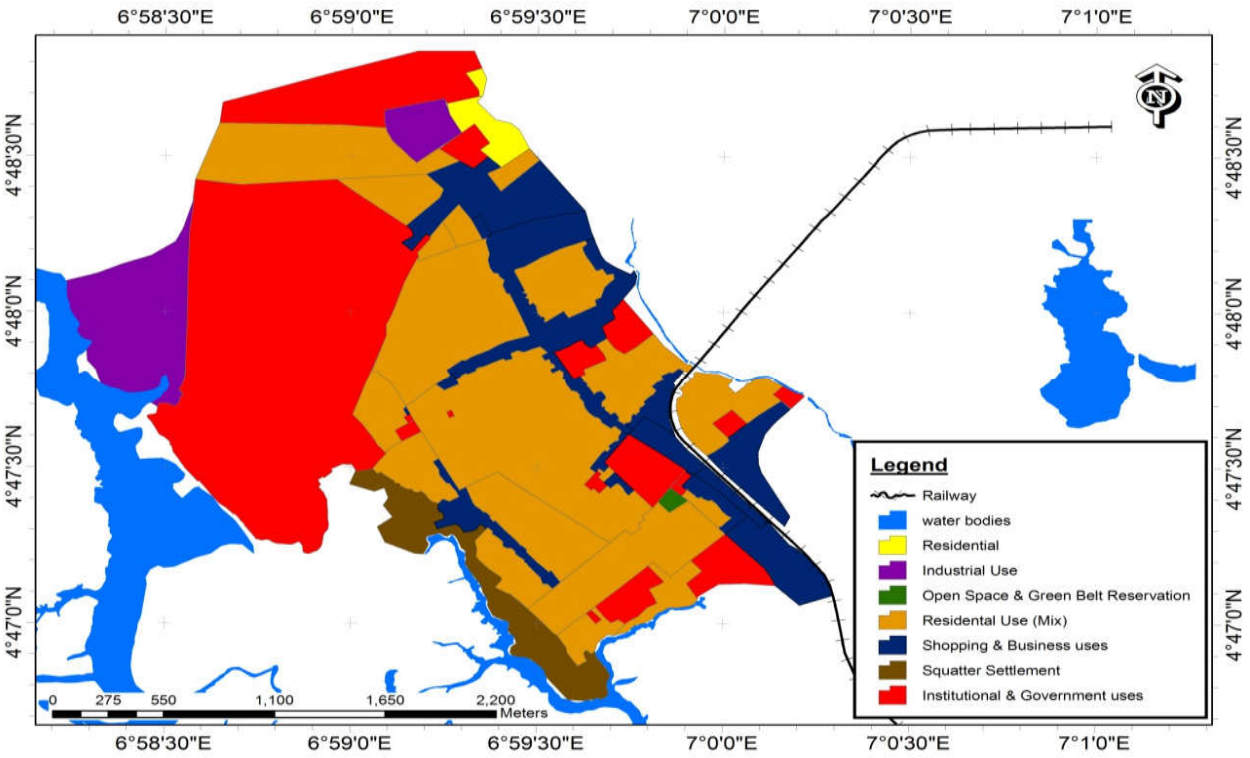

Fig. 4 : Land Use of Diobu Mile 1, 2 & 3 Port Harcourt, 2018

Source: Adapted from Google earth image and Ground truthing of the study neighbourhood.

Conclusion and recommendation

This study chronicled the changing pattern of land use in Diobu area of Port Harcourt with a view to examining the level of compliance with the laid down development plan prepared for it. Available evidence from the results of this study indicates that there has been substantial deviation in present land use characterization of Diobu vis-a vis the provisions of the 1975 development plan. The result of this work however revealed that there is sharp deviations in the land use budget of Diobu . These deviations can be understood in the context of rapid population, economic growth and market forces. In the mists of the above, Diobu area has and is still witnessing illegal conversion of land from one use to the other with attendant negative consequences.

In view of the above the study advocates stricter enforcement in line with existing development control legislation and regulations. To ensure that development comply with land use regulations, periodic or regular field works or site inspections are necessary and practicable to ensure that development complies with stipulated guidelines for urban development planning.

References

Angel, S. (2012). *Planet of Cities.* Cambridge, Massachusetts: Lincoln Institute of Land Policy.

Atu, J.E Offiong, R. A ; Eni, D.I; Eja, E.I, and Esien, O.E. (2012). *The Effects of Urban Sprawl on Peripheral Agricultural Lands in Calabar, Nigeria*. International Review of Social Sciences and Humanities; Vol. 2, No. 2

Aguda, A. S. and Adegboyega, S.A. (2013). *Evaluation of Spatio-Temporal Dynamics of Urban Sprawl in Osogbo, Nigeria using Satellite Imagery and GIS Techniques*. International Journal of Multidisciplinary and Current Research; Sept/Oct 2013 issue

Adenjini, G. and Ogundiji, B (2009). Climate Adaptation in Nigerian Cities: Regularising Informal and Illegal Settlements in Ibadan. Fifth Urban Research Symposium 2009

Fox, S. (2012) Urbanization as a Global Historical Process: Theory and Evidence from sub-Saharan Africa. *Population and Development Review*, Vol. 38 (2), pp. 285-310.

Mmom, P. C., & Fred-Nwagwu, F. W. (2013). Analysis of Landuse and Landcover Change around the City of Port Harcourt, Nigeria. *Global Advanced Research Journal of Geography and Regional Planning*, *2*(5), 76-86.

Integrated Urban Development Framework (IUDF) (n.d) a new deal for south African towns and cities. Available on line: http://www.un.org/sustainabledevelopment/cities/ Retrieved 12/4/2018

Ikejiofor, U.C. (2009). *Planning within a Context of Informality: Issues and Trends in Land Delivery in Enugu, Nigeria.* Case study prepared for Revisiting Urban Planning: Global Report on Human Settlements 2009

Urbanization research in Nigeria (2015) URBANISATION AND URBAN EXPANSION IN Nigeria. Available online: http://urn.icfwebservices.com/Media/Default/Publications/URN%20Theme%20A%20Urbanisation%20Report%20FINAL.pdf. Retrieved 12/4/2017

Jinghuan He (2005) Evaluation of Plan Implementation: Peri-urban Development and the Shanghai Master Plan 1999-2020

Ogu, V.I. (2005). *Urban Infrastructure Development and Sustainability in Nigeria*. Human Settlement Development, Volume III. UNESCO-EOLSS

Owei, O.B., Ede, P.N., Obinna, V.C. & Akarolo, C. (2008) Land Market Distortions in Nigerian Cities and Urban Sprawl: The Case of Abuja and Port Harcourt. *Paper Presented at the 44th Congress of the International Society of City and Regional Planners,* Dalian**.** September 18th– 23rd 2008. Retrievable from http://www.isocarp.net/Data/case_studies/1288.pdf

Faludi, A. (2000) lanning theory. Pergamon Pres,s Oxford, London