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Urban development and the environment in Port Harcourt

by C V Izeogu

Dr. Chukudi Vine Izeogu is a senior lecturer in the Department of Geography, University of Port Harcourt, Nigeria and was the Acting Head of the Department from 1985/86 to 1986/87. He obtained his PhD (Urban and Regional Planning) from the Graduate Programme of Architecture and Urban Planning, University of California, Los Angeles, USA in 1981. Prior to this, he worked as a town planning officer in Port Harcourt from 1974-1977 and part of 1982. He also served as Executive Secretary of the Port Harcourt Metropolitan Planning Authority 1976-1977.

Dr. Izeogu has published several articles in journals and books in Nigeria and abroad on housing and urban development planning in Nigeria in general and Port Harcourt in particular. His current research interests are in planning and development of Port Harcourt and environmental management and planning in Nigeria. His most recent works are 'Land Pollution in South Eastern States of Nigeria', 'Ecological Effects of Oil Exploration Activities on Urban Centres of Rivers State, Nigeria'. His address is Department of Geography, Faculty of Social Sciences, PMB 5323, Port Harcourt, Nigeria.

I. INTRODUCTION

IN RECENT DECADES, urban development has increased in Nigeria. The country has been experiencing relatively high rates of growth both in terms of the increase in the proportion of total population living in urban areas and the areal expansion of the major cities; much of this urban growth is due to increased rural-urban migration.

The rapid physical development of urban areas in Nigeria is also associated with increased industrial and commercial development of the national economy. These developments have been accompanied by many environmental problems which lower the quality of the urban environment and, in turn, the well-being of urban residents.

Several studies have sought to define the environmental problems of cities in Nigeria, and their solutions. These studies have focused primarily on a general analysis of contemporary urban environmental problems in the country, the specific problem of waste generation and disposal and the policy measures for dealing with them.⁽¹⁾ Little attention has been paid to the relationship between urban development processes and the environment in a particular city. Yet, urban development processes and policies, as well as the specific functions a city performs, are intimately related to its environmental problems.

This paper seeks to analyze the relationship between the urban development process of Port Harcourt and its environmental problems. An understanding of this relationship is important in the formulation of effective policies for a healthy urban environment.

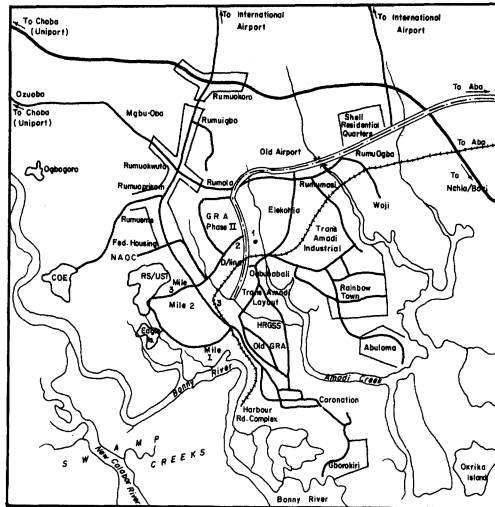
II. THE NATURE OF THE GROWTH OF PORT HARCOURT

PORT HARCOURT, THE capital of Rivers State of Nigeria (Figure 1), illustrates very clearly the process of urban development in Nigeria in the past two or three decades. Like many cities in the country, the growth of Port Harcourt both in population and areal extent has been very fast. Founded in 1914 as a rail and port terminal in the delta region, its population of 500 in 1915 grew to 30,200 in 1944. By 1963, its population was 180,000, an increase of 360 percent between 1944 and 1963. The population further increased to 231,000 in 1973 and then very rapidly to a 1982 estimated figure of 911,731.⁽²⁾ This represents a growth rate of 8.45 percent per annum between 1963 and 1982.

1. Onokerhorage, A.G. (1976), 'Environmental Problems and Planning Strategies in Tropical Africa: The Example of Nigeria', *Annals of Regional Science*, Vol.10, no.2, pp. 24-35; Onibokun, A.G. (1972), 'Nigeria: Strategies for Urban Redevelopment', *Journal of Royal Town Planning Institute*, Vol.58, no.2; Onibokun, A.G. (1975), *Environmental Sanitation in Nigeria*, Sixth Annual Conference of the Nigerian Institute of Town Planners; Sule, R.A.O. (1981), 'Environmental Pollution in an Urban Centre: Waste Disposal in Calabar', *Third World Planning Review*, 3: pp. 419-431; and Salau, A.T. (1985), 'Institutional and Socio-cultural Bases of the Degradation of the Nigerian Urban Environment', *Journal of Environmental Management*, 20, pp. 31-41.

2. Izeogu, C.V. & Salau A.T. (1985), 'Port Harcourt City Profile', *Cities: International Quarterly on Urban Policy*, Vol.2, no.1.

3. Makinwa, P.K. (1981), *Internal Migration and Rural Development in Nigeria*, Heinemann Educational Books (Nigeria) Ltd.



A social survey of Port Harcourt in 1973 showed that migrants accounted for 72 percent of the city's population. Out of the total population of migrants, 66 percent came from the rural parts of the state. Makinwa has also observed that Nigerian towns with populations of 20,000 or more were growing annually at six percent and migrants accounted for about 65 percent of the urban population.⁽³⁾ These figures lend credence to the observation that rural-urban migration contributes substantially to the rapid rate of urbanization in Nigeria, as in Africa in general.

Apart from rapid population growth, Port Harcourt has also been expanding physically at a fast rate. It has grown from 15.54 square kilometres in 1914 to a metropolis covering an area of 360 square kilometres in the 1980s. This physical expansion is associated with the process of uncontrolled urban development in the rural-urban fringe to the north and the waterfronts to the south. According to Rivers State Government sources, there are not less than 14 distinct and well-known waterside squatter settlements in Port Harcourt with an estimated population of 30,000, about three percent of the city's estimated 1982 population. Port Harcourt has developed and incorporated enclaves of rural settlements and indigenous semi-rural communities within its built-up area. It encompasses rural and semi-rural communities such as Elekohia, Rumuomasi, Rumuokoroshe, Rumueme, Rumuola, Oroworukwo, Oromerizimbu and Orogbum. Its fringes have extended to Iriebe, Rumuolumeni, Choba and Rumuokoro which account for well over 25 percent of its population.

The rapid growth and development of Port Harcourt owes much to its position in the former Eastern Region of Nigeria, as the nation's second port and the region's foremost industrial and commercial city, its location in the oil-rich Niger Delta and its function as a state capital. As a centre of social and economic life in Rivers State, government urban development programmes have been biased in its favour.

For example, the Rivers State programme for urban and regional development and social services for the 1975-80 plan period emphasized the development and provision of essential urban infrastructure and other social amenities in line with population growth. Out of the 241 million naira (N) expenditure for various urban services, 34.5 percent was for sewerage, refuse disposal and drainage, while 30.8 percent was for education. Of the N32 million earmarked for urban roads, 45.6 percent was for road improvements in Port Harcourt city. In the 1981-85 plan period, Rivers State budget allocation for sewerage and drainage in the city of Port Harcourt amounted to 69 percent of the entire allocation for sewerage, drainage and refuse disposal in the state,

even though the city's population in 1982 stood at 18.5 percent of the state's population, and 50 percent of its urban population.

The role of public policy in the urban development process in Port Harcourt, particularly in the areas of provision of basic urban infrastructure and services, location of economic activities, housing development, and urban planning has been at the expense of the rural areas as well as the medium and small urban centres. More than 80 percent of the manufacturing industries in the state are located in Port Harcourt. It is the seat of the three tertiary institutions in the state. It is also the operational headquarters of the oil (petroleum) industry and the eastern district headquarters of many private and public businesses. Moreover, nearly 50 percent of all government housing is located in Port Harcourt, which also benefits from the level of urban planning services provided by the state.⁽⁴⁾

Because public policies have been biased in favour of Port Harcourt over the years, it is not surprising that it has continued to attract migrants of various socio-economic classes, especially unskilled rural migrants. The increasing rate of growth of the population coupled with its areal expansion into unplanned rural enclaves and fringes puts great pressure on the urban environment to the point where both state and local governments now find it difficult to cope.

III. URBAN DEVELOPMENT PROCESSES AND ENVIRONMENTAL DETERIORATION

THE DEVELOPMENT PROCESSES of Port Harcourt have imposed on the urban environment many varied problems. These include a poor quality housing and residential environment, as well as problems of waste disposal and air, land, noise and water pollution.

a. Poor Housing and Residential Quality

Although the development of Port Harcourt to date has been planned, not all parts of the metropolis are affected by planning regulations. As a result, the environmental conditions of the city, particularly its housing quality, have varied with the socio-economic status of residents in the various neighbourhoods. There are well-planned low and medium density residential neighbourhoods and estates on government land as well as private housing estates. Most of these estates and layouts have one or two storey houses providing a high quality residential environment for about 15 percent of the city's residents, mostly high-ranking civil-servants and business executives.

But there are large concentrations of temporary and permanent structures which provide shelter and homes to low and moderate income people in the city. These structures are built with corrugated iron sheets, plywood and, in some cases, cement and sand blocks. They are found mostly in spontaneous settlements in the waterfront area, on reclaimed land providing affordable accommodation for rural migrants. There is a total lack of public services and infrastructure such as piped water and residential access roads. There is no provision for sanitation and drainage facilities, separate kitchens or children's play areas. The population density is also very high, as a result of the high occupancy rate in the make-shift structures.

The village communities engulfed in the process of city development, such as Diobu, Oroworukwo, Mkpogu and Rumuomasi, are also characterized by poor housing and environmental quality. There is overcrowding due primarily to the inadequate provision of kitchen and

4. George, O.B. (1978), 'Integrating Spatial and Economic Planning in Rivers State', unpublished MPhil Thesis, University of London Bartlett School of Architecture and Planning, University of London.

other functional spaces. Many of the houses have bucket latrines and there is considerable defaecation by children around the houses and, at times, in the corridors of the housing units.

In general, empirical studies of housing quality in Port Harcourt metropolis show that about 52 percent of households live in one-room accommodation, each room averaging about 2.4 persons. As Table 1 below indicates, only Government Residential Areas (GRA), Amadi Layout and D/Line have standards better than the acceptable standard of three per acre. Table 2 shows that the level of necessary household facilities such as kitchen, flush toilets, and piped water to the house is very low. Most city residents depend on a bucket latrine system and share kitchen space. Table 3 shows that only the GRAs, Amadi Layout, D/Line and Trans-Amadi have 50 percent or more of their houses in standard condition. The rest of the neighbourhoods are characterized by deficient or deteriorating houses, if judged on World Health Organization standards of residential environment.

The poor condition of most low and moderate income housing and the residential environment in parts of Port Harcourt can be explained by many social, economic and physical factors. But the persistence of the poor quality housing environment in the neighbourhoods is largely due to the poverty of their owners and the low socio-economic and occupational status of the occupants who cannot afford the high rents associated with decent housing.

Table 1: Port Harcourt: Excessive Dwelling Units (DU) Density by Neighbourhoods, 1973.

Neighbourhood	Housing Units Surveyed	Net Residential Acreage	Dwelling Units/Acre	Number of DU Above/Below Standards (1)(2)
Borokiri	334	75	4.5	+1.5
Maintown/Coronation	1,008	346	4.6	+1.6
Harbour Rd.	210	34	6.2	+3.2
GRA I	422	346	1.2	-1.8
Diobu 1,2,3	478	809	5.5	+1.1
Polyclinic Complex	201	49	4.1	+0.6
Amadi Layout	297	124	2.4	-0.6
D/Line Complex	368	155	2.4	-0.6
Ogbunabali	249	43	5.8	+2.8
Trans-Amadi	378	124	3.0	0.0
Rainbow Town	898	133	3.0	0.0
St. John's Complex	827	239	3.5	+0.5
GRA II	289	198	1.5	-1.5

Source: Specialist Konsult, Final Report to the Port Harcourt Master Plan, Appendix pp.1 and 62.

(1) Based on acceptable standard of 3 per acre (equivalent to 7.5 per hectare)

(2) Computed by author

Table 2: Housing Conditions in Diobu and Maintown Districts of Port Harcourt.

Residential District	% of households occupying one room	% of housing with bucket latrines	% of housing served by public tap	% of housing without kitchen	% of housing sharing kitchen
Diobu	51.0	85.4	38.0	49.8	90.0
Maintown	26.3	82.0	53.0	34.0	84.0

Source: Izeogu, C.V. (1981), 'Efficiency and Distributional Effects of Government and Land Servicing Programmes in Port Harcourt', unpublished Ph.D dissertation, Graduate Programme of Architecture and Urban Planning, University of California, Los Angeles, pp.246-251

Table 3: Housing Conditions by Neighbourhoods in Port Harcourt, 1973

Neighbourhood	Percent of Housing		
	Standard	Deteriorating	Deficient
Borokiri	34.4	43.6	22.0
Maintown	28.0	45.3	26.7
Harbour Rd.	35.3	44.4	20.3
GRA I	78.2	18.4	3.4
Diobu	24.3	41.6	34.1
Polyclinic Complex	22.9	42.7	34.4
Amadi Layout	92.2	5.4	2.4
D/Line	54.8	33.4	11.8
Ogbuna ball	7.3	59.4	33.3
Trans-Amadi	80.1	15.6	4.3
Rainbow Town	23.1	55.5	21.4
Silver Valley	24.5	34.2	41.3
GRA II	48.8	31.3	19.9
Rumuomasi	42.6	27.6	29.8

Source: Specialist Konsult, Port Harcourt Master Plan.

As indicated earlier, many of the city's migrants come from the rural areas with no skills for gainful employment in the formal sector. On arrival, they squat with their relatives in Diobu, Rumuomasi and the main township. The increased population in these central city neighbourhoods puts pressure on the few facilities available. While residing in these units, migrants may find jobs in the informal sector, but still cannot afford to maintain a healthy environment in their houses because their low incomes makes it impossible to break out of their rural life-styles. Thus, the influx of poor rural migrants into the city, to a large degree, is responsible for the deterioration and substandard conditions of parts of the residential environment in Port Harcourt.

b. The Problem of Waste Disposal and Sanitation

Port Harcourt, as stated earlier, is a major industrial city in Nigeria. Since the mid-Sixties, it has attracted a high proportion of manufacturing industries most of which are located in the Trans-Amadi area. These include industries manufacturing chemicals, plastic goods, tyres, beer and soft drinks.

The accelerated industrial and commercial activities have been associated with the growth of the city as a cosmopolitan centre and increased land development activities. The activities of industries and the population have raised many ecological, environmental management and land use problems. Of these, the management (collection and efficient disposal) of both solid and liquid wastes has received a lot of attention because of the visible effects upon the urban environment.

The amount of waste generated in the city, and its growth over the years, has been estimated by some authors. According to a 1979 study,⁽⁵⁾ per capita refuse generation in the city was put at 0.68 kilogrammes per day. With a population of about 231,631 in 1973, the total refuse generated per day in the city was estimated at about 158 tons. More recent studies have estimated that a total of 256,230 tons of solid waste was generated in 1982, based on a population estimate of 1,300,000.⁽⁶⁾ This is equivalent to 197 kilogrammes of refuse per head per year, or just under 0.6 kg per head per day. Of this amount of waste, the highest percentage (60.4 percent) was generated by the residential sector.

Based on information supplied by the Environmental Sanitation Authority in Port Harcourt, Ejiogu has estimated the daily volume of

5. Eke, F.A. (1979), 'Environmental Pollution in Port Harcourt' in Ogiowo, W. (ed.) *The City of Port Harcourt: A Symposium on its Growth and Development*, Heinemann Educational Books (Nigeria) Ltd., pp. 55-66.

6. Federal Ministry of Housing and Environment, 'The State of the Environment in Nigeria', Monograph Series no.2: *Solid Waste Management in 15 Cities and Urban Areas in Nigeria*, pp. 1-124.

7. See reference 6.

refuse generated in Port Harcourt (see Table 4). Diobu generates the greatest total volume but Rumueme accounts for the highest volume per capita. In general, the analysis shows that localities in the suburbs generate higher per capita volume of refuse than central city neighbourhoods and districts such as Diobu and the maintown.

It has been suggested that six main factors determine solid waste generation in Nigerian cities in the Eighties. These include population growth, urbanization and social development, income class composition, diffusion of technical competence, commercial growth and industrial development.⁽⁷⁾ These factors can be used to explain the growth of wastes in Port Harcourt in recent years. The figures show no appreciable difference in the daily per capita waste generation, but they do show an overall increase in the volume of solid waste generated in the city due to population growth.

Table 4: Port Harcourt: Volume of Refuse generated per Day by Residential District

Locality	Population (1)	Volume (kg)	%	Volume per Capita (kg)
Diobu	385,044	258,930	48.0	0.67
Maintown/Borokiri	221,028	122,443	22.7	0.55
Rumueme/Rumuokoro	16,090	49,227	9.1	3.05
Elekahia/Woji	36,498	109,055	20.2	2.98
Total	658,660	539,655	100.0	0.81

(1) Projected 1988 population

Source: Ejlogu, C.A. (1988), 'Solid Waste Generation and Disposal in Central Port Harcourt: a Spatial Analysis', unpublished B.Sc. research project, Department of Geography, University of Port Harcourt, p.40.

Apart from the increase in the city's population, the ease with which funds became available to government and individuals from the mid-Seventies up to the early Eighties, because of the 'oil boom' and the resultant expansion of industrial and commercial activities, changed people's consumption pattern. A more sophisticated consumption style among the lowest and highest paid workers meant an emphasis on consumer durables and hardwares, on the products of petrochemical industries such as plastics, packaged manufactured products, bottled or tinned products and a wide variety of other commodities which produce large amounts of disposable waste materials.

By 1983 the large volumes of solid waste generated in Port Harcourt had changed the aesthetics of the urban environment. Garbage completely blocked some streets in Diobu and various parts of the city were dirty, unhealthy and visually unpleasant. The problem was so acute that in the 1982/83 fiscal year alone, about N9 million was spent on waste collection and disposal but without success. When the military took over from the civilian government, garbage in the streets was one of the Government's priorities.

With the establishment of the Environmental Sanitation Authority (ESA) by the State Government, there have been some improvements. However, the authorities still find it difficult to completely rid the streets of garbage because of operational difficulties such as inadequate personnel, financing, equipment and even the poor location of refuse bins in relation to the sources of wastes.

Three sizes of bin for dumping waste are provided along the neighbourhood streets depending on the population and expected volume of waste generation in the area - 11 cubic metres, 20 cubic metres and 27 cubic metres. Generally, it takes about a day to fill these bins in most of the high density neighbourhoods such as Diobu, Maintown, Rumuomasi and suburban communities. But the waste is not collected regularly

from the bins. The frequency of collection, which ranges from once a day (at best) in high income neighbourhoods such as Amadi Flats and the Government Residential Areas (GRAs) to twice a week in the suburbs and high density central neighbourhoods, results in about half the waste remaining uncleared at the site of some bins. A backlog of uncleared waste exists every day in some areas and more so after the general monthly 'clean up' exercise. The worst areas, from casual observation, are Diobu and Creek Road in the maintown, and Rumueme and Choba on the fringes of Port Harcourt.

c. The Problem of Drainage and Flooding

Port Harcourt has no integrated drainage system. The existing network consists mainly of open earth or concrete trenches which are generally narrow and too shallow to drain water efficiently during and after rainfall. Even where deep trenches have been dug as in parts of the maintown, or where covered gutters have been constructed along the major streets, as in Diobu, drainage is still impeded by refuse and other wastes dumped into the drains. Consequently, many parts of the city, and the streets in particular, become flooded and unmotorable.

In April 1987, extensive flooding occurred after heavy and prolonged rainfall. The worst affected areas were Okija Street in Mile I Diobu, Afam Street, Aba Road near St. Johns and Oroworukwo and Rumuomasi. Several buildings were submerged and there was extensive loss of property.

There are various factors causing urban flooding. In Port Harcourt, the most common are the inadequacy of the drainage system, human factors in blocking both natural and artificial drainage systems, and the filling in and occupation of flood plains in the process of city development.

As stated earlier, the rapid increase in the population of Port Harcourt brought about an increased demand for accommodation. In the process of building without development controls or any adherence to city building codes, access roads are built without drains. At times, they obstruct, divert the direction of, or increase the force of water flow. In some cases, particularly in the crowded suburban settlements, buildings are sited across natural drainage ways. The buildings and roads increase the built-up area and hence the percentage of impervious surface, thereby impeding water infiltration. Consequently, run-off is increased and without good drainage flooding ensues. These factors coupled with the low topography of the Port Harcourt area account for the frequent flooding of parts of Aba road, the area of Ranami Abbah estate along Olusegun Obasanjo Road, Ohija Street and Chief Nduka Lane in D/Line.

d. Problems of Air, Land and Water Pollution in the Urban Environment

In recent decades, the urban environment of Port Harcourt has been subjected to increasing air, land and water pollution as a result of increased population and expanding industrial development. Many migrants moving into the city from their rural environments have had to settle on previously uninhabited marshy land at the fringes of the city. Here, they have contributed to serious pollution levels in the creeks, as residents choose to dispose of their excreta in streams, creeks and on land, reflecting the traditions and culture of the rural areas from where they have migrated. This method of human waste disposal gives rise to surface soil, surface-water and ground-water contamination. This

8. See reference 5.

9. Izeogu, C.V. (1983), 'The Ecological Effects of the Oil Industry on Urban Centres in Rivers State, Nigeria', *African Urban Studies*, Vol. 17, Fall 1983/ Winter 1984, East Lansing Michigan State University, pp. 43-52.

contamination, in some cases, has affected the piped water supply in some parts of the city, where the drinking water has been found to contain coliform levels above those normally acceptable.⁽⁸⁾

Although most areas of the Port Harcourt are well-served by piped water, some communities at the city fringes depend on the nearby creeks and rivers for water for some domestic uses such as washing, bathing and cooking. These communities include Elekohia, Oginigba, Woji, Rumukwurushi, Ugbuesilaru and Ogbogoro. Also, fish from the creeks and rivers form an important part of their diet.

But in Trans-Amadi, the open drainage system for disposing of industrial waste water is polluting the environment around Woji creek, a source of domestic water for the Woji community. Furthermore, industrial fumes discharged into the atmosphere and debris dumped into streams from petroleum products, plastics, chemicals and tyre factories, to mention a few, make the water unfit for domestic use by such rural communities as Oginigba and Elekohia, which are situated near the creeks.

The extent to which Port Harcourt's expanding and complex industrial concerns contributes towards polluting the land, water and air, and therefore towards lowering the quality of the urban environment is illustrated by the petroleum industry. Oil exploration, drilling and production destroy the urban landscape, whilst the transportation and distribution systems involving pipelines' rights-of-way affect urban land-use. In Port Harcourt, a ribbon type development has been forced on the Rumuola, Rumuokwuta, and Ugbuoba communities as a result of pipelines and oil wells around Ebony clinic and the Government Girls Secondary School in Rumuokwuta. Six gas flares around Port Harcourt have increased air and soil temperatures, as well decreasing the relative air humidity. The micro-climate effects of these industrial concerns affect the quality of the urban environment of Port Harcourt.⁽⁹⁾

e. The Problem of Noise

As an urban area, Port Harcourt offers economic opportunities to its residents. As a result, everybody exploits this in an effort to make a living. The roadsides are not only used as workshops for vulcanizers but also as 'kitchens' and 'canteens' by women who sell various sorts of foods to the jobless, those in the informal sector and others wishing to 'dine-out'. Smoke from the 'kitchens' pollutes the air and garbage pollutes the land. Urination, by those using the 'canteens', also pollutes the land. Even builders pollute the environment as they dump soil, sand and gravel indiscriminately on roadsides.

As a result of increased commercial and industrial activities, population growth, the expansion of highways and the increased number of automobiles noise pollution has increased in the city. The noise from these sources is generally higher than 80 decibels. Since a noise level above this figure is injurious to human hearing, such noisy zones as Diobu, Creek Road and other high density activity areas offer an unhealthy environment for the city's residents.

IV. MEASURES FOR AN IMPROVED URBAN ENVIRONMENT IN PORT HARCOURT

THE PRECEDING DISCUSSION of urban development processes and environmental problems in Port Harcourt suggests that both state and local authorities should devise effective policies for controlling urban growth and development. The problems of poor quality residential

Waste management in the metropolis can be improved in many ways. Rather than let householders walk long distances to dispose of their wastes, each housing unit should have a waste bin at the house.

environment, especially poor housing units, congestion, a lack of or inadequate infrastructure and functional spaces can be remedied by upgrading the affected areas. At present, the state government is already doing this in Ndoki waterside - one of the waterfront spontaneous settlements. Improving these slums may result in the relocation of people, therefore selective upgrading of the areas over a period of time is suggested, to reduce the number of people displaced at one time.

Many of the environmental problems observed in the city are related to poverty and the social attitudes towards urban life held by the rural migrants who form the bulk of the population. Strategies for improving the quality of the urban environment must therefore focus on improving employment opportunities in the city as well as in the rural areas, on education, public enlightenment and helping migrants adapt to an urban life-style. The productive systems and conditions of the rural areas, and small and intermediate urban centres in the state must also be improved. Improving conditions in other settlements will hopefully reduce the rate of migration to the Port Harcourt metropolis, which will enable the city administrators to cope with the demands of its already large population, given limited resources and technology and the low level of economic development.

Waste management in the metropolis can be improved in many ways. Rather than let householders walk long distances to dispose of their wastes, each housing unit should have a waste bin at the house. Waste collectors should collect the waste every day and take it to the large bins located on the streets. Moreover, the frequency of waste collection should be increased relative to the length of time it takes the bins to be filled in each neighbourhood.

Attempts should be made to institute an environmental impact assessment of proposed developments to prevent abuse of the urban environment in the development process. This can be implemented within the framework of the recently promulgated National Environmental Protection Law.

One of the major factors associated with the poor environment of Port Harcourt is ineffective urban development planning and management. The city has been expanding without any effective planning system and as a result, many parts are unplanned and do not come under effective development control. Even in those areas covered by a planned layout, the enforcement of planning and development standards is ineffective and consequently, there is a juxtaposition of incompatible land uses.

To derive the greatest benefit from the urban environment, land uses must be arranged in a compatible manner. This calls for effective zoning, land use and building regulations to enhance the functioning, beauty and health of the urban environment. With an increasing population, the expansion of urban areas and the resultant scarcity of land in the city, vigorous and effective planning of the entire metropolis is imperative.

The implication of the preceding observation is that Port Harcourt city management must work closely with the city planners to formulate realistic policies and pursue comprehensive programmes aimed at improving the total urban environment. Specifically, it is suggested that a well-organized urban development or metropolitan planning authority be constituted for Port Harcourt. Such a body should work closely with the city administration and should formulate policies on drainage improvement, business locations - especially manufacturing enterprises, waste disposal points, refuse bins, open spaces, parks and gardens, as well as the formulation of realistic urban development standards for the city. Port Harcourt can offer a good quality urban environment as its boundaries expand and as its population grows. But

this can only be achieved through careful and effective planning and the implementation of comprehensive environmental improvement programmes.

V. CONCLUSIONS

THIS PAPER HAS sought to draw attention to environmental problems resulting from the development process and pattern of Port Harcourt. It stresses that environmental problems are complex and multidimensional because of rapid population growth, increasing industrial and commercial activities and ineffective urban planning. The problems are likely to worsen given the under-developed nature of the nation's economy, the absence of other urban centres and the lack of any metropolitan-wide development control.

To halt further deterioration in Port Harcourt's urban environment, it will be necessary to develop other rural and urban settlements and to establish a good metropolitan planning authority. Far greater improvements can be made to the present urban environment if the growth of the city is guided by a comprehensive and realistic urban development plan.

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