

POVERTY AND ENVIRONMENTAL POLLUTION IN WATERFRONT COMMUNITIES IN LAGOS AND PORT HARCOURT CITIES: INTERROGATING THE ROLE OF GOVERNMENT IN ENVIRONMENTAL PROTECTION, 1958 -2015

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Abstract

This study argues that several waterfront communities in Lagos and Port Harcourt cities are polluted. It shows that poverty is one of the causes of pollution of waterfront settlements, most of which are slums. The inhabitants of most of the waterfront communities are low-income earners, who are artisanal fishermen, farmers, and artisans. Due to ignorance, the urban-poor inhabitants degrade the waterways in their daily toil for food and resources. The paper shows that industrial waste discharge in the waterways along the fringes of the coast pollutes the waterfront areas and explains that lack of support from the government to abate pollution in the areas increases the incidence of pollution. The absence of toilet and sewage facilities around the waterfront communities increases the rate of open defecation and waste dumping. This in turn affects the users of the waterways and the people living in the highbrow waterfront communities. The study uses Lagos and Port Harcourt to demonstrate how poverty and ineffective waste management can increase the rate of pollution in the waterfront areas and how their inhabitants are affected by pollution. The study is significant in view of the importance of the waterfront communities as potential areas for tourism, living space, and natural resources. Functionalist and Marxist theories will be employed in the study to show the relationship between poverty and environmental degradation in the context of the study areas. The study recommends several ways the government and inhabitants can reduce the menace. This study adopts source criticism as a historical method, to evaluate information sources. This method is based on the historian's belief that since every source has a part of its own, historians must first examine the history of their sources, a process known as source criticism, before turning to source interpretation.

Keywords: Environment, Government, Pollution, Poverty, Waterfront

Introduction

The environment provides the natural resources we need for livelihood. Caring for the environment creates more jobs and strengthens our food security, health and nutritional need and shelter. On the other hand, environmental degradation can negatively affect our lives through the many problems it presents such as spread of diseases, food shortage, and destruction of natural resources. The waterfront environment is found in coastal cities. They are very crucial to the beauty and development of cities through social interactions and economic benefits the waterfront provides. Most waterfront communities in Lagos and Port Harcourt serve as a corridor to the international waterways.

The importance of waterfront cannot be undermined due to the benefits it can give to humans such as living space, tourism, provision of fishery resources, development of wharves and jetties for shipping and cabotage. The existence of waterfront communities is not new in Lagos and Port Harcourt. The two states have big cities and many waterfront communities are quite old in existence with wide range of coastal environmental settings that differs strikingly from the other cities in Nigeria. The greater proportion of the environments of the two cities are made up of lagoons, creeks, rivers and coastal estuaries.¹From time immemorial, Lagos and

Rivers States are organized into villages and kingdoms. The promising geographical weather of the states provided security due to the creeks, swamps, lagoons, and islands. These features make Lagos and Port Harcourt cities outstanding in comparison to other cities in Nigeria.

The attraction for the comparison of the two cities is based on their rapid increase regarding urbanization, Industrialisation, and the exponential population increase. In recent times, changes in the environment have induced pollution and modified the coastal environments. This study explains the distinctiveness of the cities from other coastal cities in Nigeria. The paper deliberately focuses on the two cities to show the characteristics and environmental issues which real physical constraints on the productivity of the coastal environments, from which the people derive their living. The study focuses on the waterfront communities, some of which become slums, and how they are polluted. It also explains how government intervention in pollution abatement in the coastal areas of the two cities especially in the waterfront areas can reduce the menace. Lagos and Rivers States are predominantly low-lying pluvial States in southern Nigeria. Rivers State is located in the eastern part of the Niger Delta States on the Atlantic, through the system of island and sand bar. The two states have dense network of rivers and tributaries in the inland part of the two states that consist of tropical rainforest, swamp, and wetland.

Lagos and Rivers States are the only states with long shorelines and lagoons and are dominated by islands.² The coastal areas of Lagos and Rivers States played significant roles in the pre-colonial period. From the earliest time, the local coastal inhabitants who were farmers, fishermen and makers of salt used their canoes to explore waterways.³ The slave trade also made the coast of Lagos and Rivers States more attractive and busy when the Portuguese built ports in Badagry, Bonny and other places. In the pre-colonial period, coastal inhabitants of the states lived in harmony with their environments, as pollution was less. As urbanization and Industrialisation pushed many of the riverine communities deeper into the water domain, many communities flourished along the fringes of the shore and became heavily populated with time. During the colonial period, urbanization increased, and the rate of pollution, especially in the waterfront communities such as Makoko, Iddo Oworonshoki, etc in Lagos.⁴ In Rivers State, waterfront settlements such as Nembe, Gborokiri, Njemanze, etc. increased in the rate at which pollution impinges on the livelihood of the inhabitants of the waterfront communities.⁵

The Nature of Environmental Problems in the Waterfront Communities

Some environmental crises are more or less confined to one location.⁶ Sometimes this is due to the geography, topography, and natural resources in that environment. For instance, a community that is located near an industrial estate is likely to be polluted by soot and other industrial emission or effluent that pollutes its rivers and creeks. The same is true of a community as commercial development gradually eliminates unique habitats; restless logging of forests and widespread deforestation.⁷ Lagos and Port Harcourt waterfront communities are good examples of settlements that are degraded by industrial activities due to their terrain. This is due to the discharge of untreated industrial waste into the water domain, which finds its way around the waterfront communities. Other anthropogenic and municipal wastes contribute to the pollution of the area as materials that are more of plastic are washed through the canals into the waterways and settle at waterfront areas.

The socio-economic activities of the inhabitants of waterfront communities put pressure on their environments and cause environmental degradation in the waterfront areas. More importantly, the inhabitants of the waterfront areas do not take necessary actions to protect their environments. Some of such duties are not taken seriously as regular environmental clean-up exercises, and the absence of pollution abatement culture, mismanagement of natural

resources, uncoordinated waste dumping, etc. characterizes the waterfront areas and are major causes of degradation in the waterfront settlements. Although it has been argued that poverty is one of the major causes of not taking action against pollution. This is because of the perception of poor people about the environment and how they exploit the natural resources around them. Poverty is one of the major causes of pollution in the rural and semi-urban communities that border the cities. This is because pollution-generating activities, dumping, and trans boundary waste are finally deposited around the waterfront areas and affect the inhabitants directly or through the boomerang effect.⁸ Most of the pollution affecting the waterfront communities is caused by the boomerang effect because most of them use the water bodies as a conduit to dislodge human and degradable waste. The waste comes back to pollute the area when there is backwash due to tidal waves. However, the topography of the study areas and the nature of the waterfront communities, such as heavy population, the ecosystem, and the poor hygiene culture of the residents increase the degradation of the environment.

Geography and nature of waterfront settlements in Lagos and Port Harcourt

Lagos State is located at the western tip of the coastline of Nigeria and has the longest stretch of coastline in Nigeria. The State lies in South-western Nigeria, on the Atlantic coast in the Gulf of Guinea, west of the Niger Delta, located on longitude $3^{\circ} 24' E$ and Latitude $6^{\circ} 27' N$.⁹ According to Abegunde, Amosu, and Babalola, creeks, lagoons, rivers, and estuaries constitute nearly 22 percent of the total land area of $3,514.16 \text{ km}^2$ in the state.¹⁰ It has also been argued that sixty percent of these waterways cut across the four cardinal points of the state and remain the largest water resources in Nigeria. The state has high mean annual rainfall and abundant water resources in the form of surface water (rivers, lagoons, and creeks) and groundwater. The major surface water bodies are the Lagos, Ologe, and Lekki-lagoons. Others are Kuramo and Badagry Waters, Five Cowries-and Omu -Creeks. The major rivers are Ogun, Yewa, Aye, Owo, Oworu and Ogun.¹¹

Port Harcourt is located in the south-south zone of Nigeria. It is the capital city of Rivers State. It is surrounded by many rivers, hence the derivation of the name of the state. Due to the abundance of water resources, the ecosystem, and the aquatic environment, the state is also known and called the "Venice of Nigeria."¹² Port Harcourt due to the same geographical features and the coastal environment is referred to as the "Garden City." It lies 40km up the north of Bonny River in the Niger Delta.¹³

The nature of waterfront settlements in Port Harcourt and Lagos cities is that most of the waterfront communities are reclaimed land. Mostly the poor who cannot afford urban land due to its high cost inhabit waterfront terrain. Hygiene is low in waterfront communities as highlighted earlier due to the absence of sewage facilities, potable water, and electricity. Heavy population characterizes the areas and the inhabitants of the waterfront areas always face perennial floods due to the blockage of drainage systems resulting in the spread of diseases.

Another challenge facing the waterfront settlement is that the governments and the inhabitants of waterfront communities in the study areas are in constant clash with one another over their eviction from the areas. For instance, in 1991, Maroko Community in Lagos was evicted with such military force, despite a court injunction filed by the residents.¹⁴ Similarly, Otondo Gambe in Ibeju Lekki area of Lagos was equally evicted in that manner in 2015, while some part of Makoko and Badia, a swampland settlement on the edge of Apapa Port, was one of the worst-hit targets when more than 15,000 people lost their homes following the 15 October 2015, when a 72-hour quit notice was issued to residents by the State Ministry of Waterfront Infrastructure

Development and was equally carried out.¹⁵ In Rivers State, the government took similar action against Ogbulabali waterfront and other waterfront settlements without prior notice, in 2012.¹⁶ In some cases the government defied court orders, and evicted the inhabitants by forcefully demolishing their makeshift shelters, and a few block structures, where they exist in the upland area. All these actions the governments took without corresponding efforts to reduce pollution and provide necessary waste disposal facilities as it appears in advanced economies. Although government action is targeted at the informal waterfront areas, the government has declared the communities as disaster and emergency areas.

Formal and Informal Waterfront Settlements in Lagos and Rivers Port Harcourt
Waterfront communities in Lagos and Port Harcourt existed before the Europeans had contact with local people in the 17th and 18th centuries.¹⁷ The contact with the local people led to lucrative trade, especially with the riverine inhabitants due to the availability of water bodies. The availability and significance of the waterways informed the colonial government of the choice in establishing their trading forts along the coasts of Lagos and the Niger Delta. Most of the waterfront communities started as fishing ports and developed into large communities. Some of the waterfront communities such as Nembe in Port Harcourt and Makoko started as fishing ports and have existed for more than 200 years.¹⁸ Some of the earlier established waterfront communities are informal settlements. As time progressed, many informal waterfront settlements came into existence due to urbanization and the migration of low-income earners who could not cope with high-cost housing in the urban areas. The low-income earners built makeshift houses around the shoreline and settled temporarily for fishing and farming activities. These groups of people are mostly affected by pollution due to ignorance and poverty.¹⁹

Millions of people live in the informal waterfront communities. Most of the waterfronts have turned to slums with no access to decent toilet facilities and clean water. Formal or approved waterfront communities are government-approved residential areas. There are various reasons why people make the choice of living in waterfront areas. The approved waterfront communities are highbrow areas; the beauty and serenity of the water as well as the availability of water attract people as easy means of transportation.²⁰ However, other local waterfront areas are slums, highly populated, and inhabited by poor people, who contribute to the degradation of the approved waterfront settlements.

Both the formal waterfront communities, which are the highbrow waterfront settlements, and the informal waterfront communities are affected by pollution in Lagos and Port Harcourt. This is due to massive discharges of human and industrial wastes into the water domain. Lagos and Port Harcourt are the main industrial hubs of the western Nigeria southern respectively. Therefore industrial effluent accounts for heavy pollution of waterfront communities in the two states because of unhealthy hygiene culture and chronic poverty, which account for the major cause of waterfront degradation. On the other hand, ignorance is one of the major causes of pollution in the waterfront areas, as highbrow waterfront areas are equally polluted due to the channeling of waste pipes from the building into the water body.

Urban Poor and Environmental Degradation in Waterfront Communities in Lagos and Port Harcourt Cities

Urban centers such as Lagos and Port Harcourt witnessed a tremendous increase in urbanisation since the twentieth century.²¹ People migrated from rural areas and settled in urban centers in order to get employment in the newly established industries. The migrants undoubtedly increased the population. As many of the migrants could not afford housing, due

to their meager income, they settled in waterfront areas as earlier explained. One of the features of the waterfront areas is that they are overpopulated and lack waste disposal facilities and social infrastructure disposal such as pipe-borne water, sewage equipment, and electricity. In Lagos State for instance, waterfront areas such as Iddo, Makoko, and Iwaya are populated to the rate of hundreds of thousands of inhabitants. In Borokiri and Nembe, Port Harcourt, the waterfront communities accommodate thousands of people who live in make-shift houses, without proper waste disposal facilities. They use the water body as a conduit for the disposal of different forms of waste.

It is this growth of waterfront areas and the corresponding effort to manage the biodegradable and solid waste they generate that increases the pollution of the cities. Pollution of the waterfront areas around the cities by the urban poor includes the indiscriminate erection of shanties in different areas of the shoreline and riverbanks around the cities. For instance, in coastal cities such as Lagos and Port Harcourt, the waterfront settlements have become primarily living spaces and attract greater urban poor populations, who seek to maximize the socio-economic benefits the littoral cities provide. On the contrary, the activities of the poor waterfront inhabitants encourage pollution of the cities and cause problems to the city dwellers. Although in most cases, some of the urban poor are always on the move to change their environment, due to government policy on eviction of slum communities along the shoreline. For instance, in 1990, the military government under General Babangida evicted the Maroko community. The community developed another waterfront community by building makeshift structures at Itedo, Lekki, and Ibeju axis. Therefore, the eviction of poor waterfront communities due to urbanisation and development gives rise to the development of more slums as waterfront communities in Lagos and Port Harcourt.

The nature of the population in the waterfront communities and the types of industries that exist in and around the communities determine the form and levels of pollution that is prevalent in the area. For instance, a critical observation of Okobaba, a wood market situated at Ebutta Metta, which can be viewed very well from the Third Mainland Bridge and inward Herbert Macaulay Way in Lagos reveals the magnitude of the pollution of a typical waterfront community. The community extends from the foot of the bridge down to Adeniji Adele's end of the bridge. A critical observation shows a pattern of pollution in the area. The pollution in that area occurs because of urban slums and tidal waves that carry wastes from different communities and deposit them in other coastal communities. Secondly, Okobaba produces enough waste from different wood mills in the community that is dumped directly into the water body. Always a wash back brings the waste back to the living areas on the waterfront.

Functionalism and Marxism in the Interpretation of Environmental Pollution

Emile Durkheim propounded functionalism as a theory in the 19th century, while Karl Marx propounded Marxism.²²Functionalism and Marxism are organic theories used in the interpretation of social phenomena. It is against this background that it is used in this research. Functionalism means interdependence, while Marxism in the concept of environmental pollution implies that inequality in social class and how each class contributes to the pollution of the environment, as well as how it affects different classes in society is how Marxism is used in this paper. The two theories are similar in the sense that they explain how society is protected or degraded through the actions of humans in the environment. The link between the two theories is the interpretations they offer in the explanation of environmental degradation and the explanations they provide in the relationship between the environment, man, and the impact of humans on the environment and vice versa. More importantly, the two theories explain how society is interconnected and how dysfunctionality

in the society regarding environmental degradation and lack of environmental governance affect humans. The theories are also related because they show that there are procedures that man must adhere to in order to maximize the benefits of the environment.

Functionalism Theory and the Environment

The functionalism theory implies that the impact of man in the environment affects the natural state of the environment, through contamination of the environment by man's infusion of toxic substances into the environment.²³ On the contrary, the environment affects man due to the load of pollution injected on it. Pollution affects man by exposing the population to the polluted environment and various dangers, which manifest in diseases and epidemics.

Functionalists see the environment as part and parcel of men's existence, as each complements the other. Therefore, direct and indirect injection of noxious substances in the environment will certainly affect man in the long or short-term period. For instance, the use of chemicals in fishing will increase fish harvest, but on the short run kill, the young fry (fingerlings) and reduce the population of fish stock and breeding of various fish species. Severely, in the long run, chemicals used in fishing affect the human population that consumes fish harvested through the use of chemicals because of the pathogens it contains.

Functionalism as a theory maintains that there is order and social structure in society. From environmental perspective, it means that latent and manifest actions of humans on the environment cause degradation and impinges on people who live in the environment.²⁴ For instance, contaminating headwater by dumping toxic waste will in the short run cause diarrheal diseases, cholera, or any other waterborne diseases to the end users who will get the water from their source of water hence the water bodies are connected in the same locality.

Marxism and the Environment

From the early Marxist ideology, Karl Marx did not put environmental issues as an appendage because he looked at the world and its history in its totality. Marx's view of environmental pollution hinges on the disruptive effect of capitalist Industrialisation on nature as well as on society. According to Marxism, the working class is at the forefront of the impact of capitalism on the environment.²⁵ For instance, energy companies, oil, and nuclear power have a direct threat to workers in those industries, as well as to people and the natural environment. The theory is based on the premise that all aspects of a society serve a purpose and that all are indispensable for the long-term survival of society. In the context of the environment, it means that society and the environment are interdependent. For instance, the population as an aspect of society causes pollution. The wastes generated by the same population cause pollution that affects the environment and the population in the long run.²⁶ The view of Marxism on environmental pollution and governance is that Transnational National Corporations are responsible for environmental degradation in the cities and the victims of the impact of the pollution are the working class and poor in the slums and informal settlements in the cities.

According to Marxists, population growth and other variables are essential for any society but the rate at which they increase exponentially without a corresponding increase in the environmental management of that society causes environmental challenges. The implication is that environmental problems are to be expected in emerging industrial and urbanising society such as Lagos and Port Harcourt. The usefulness and support of Marxism in this study is that it shows how the environment and the structure of society affect and support each other. It is equally important to the study of the environment because it shows how man's action on the environment contributes to its pollution and how pollution affects the well-being of man. For instance, Marxism explains how Industrialisation, and urbanisation, which happen because of

human actions and the role of multinational corporations increase pollution in the cities, as explained above. It also explains how pollution created by the upper class and industrialist affect the low-income class, who live in the waterfront areas and slums.

The theory is relevant to the study because it shows that there should be equilibrium between waste generation by the public and the need to manage it in order to reduce pollution. It is equally relevant because it shows that human actions on the environment increase the chances of environmental degradation but man's reduction in waste generation encourages environmental sustainability.

Research Methodology, Data Gathering and Analysis

Due to the nature of the topic, interpretive method has been adopted to give the researcher ample chance to discuss findings after data gathering and interpretation. Interpretivism allows the researcher to feel the way the study population feels, by putting the researcher's position in the sample size shoes. By so doing, the researcher was able to interpret the data collected during research through narration, and description.

Interpretivism is a sociological philosophy developed by early sociologist. Max Weber, was well known as an interpretivist, and as such is said to be the pioneer user of the approach. He developed the philosophy of *vehesten*, meaning empathy to see the situation from the eyes of the group the researcher is studying. By so doing, it implies that the researcher takes time to collect large data from numerous sources and use qualitative approach to analyse the data in order to avoid bias. Qualitative method, unlike the quantitative approach that aims to count things in order to explain what is observed, the qualitative research method is geared toward creating a complete and detailed description of the observation as a researcher. Rather than providing predictions or causal explanations, the qualitative method offers contextualization and interpretation of the data gathered. This research method is subjective and requires a smaller number of carefully chosen respondents.

The researcher went to the waterfront and coastal communities and riverine areas in Lagos and Rivers States. It was found during interviews with the local people that pollution of local waterfront communities was primarily the responsibility of the manufacturing and oil companies. The inhabitants' waterfront communities claimed and believed that the major cause of pollution of their environment was due to the industrial sewage dumping by these companies. During interactions with the locals in the study areas, it was equally discovered that local people living along the coastline and riverine areas contribute significantly to the pollution of waterfront communities. For instance, it was found that in Lagos, local people living around Ibeshe, Ojo, Ijegun, Agbara, etc. pollute the local waterways and rivers which eventually pollute waterfront communities along the coastline. This is done through the production of local textile, *adire* which involves the use of heavy toxic chemicals that are dumped into the waterways during production increases pollution. Although, industrial sewage dumping from Agbara industrial estate in Agbara River is heavy, many residents dump their refuse into the river at different locations. It was equally found that cattle herders water their flocks at different locations, which increases the rate of pollution of the waterfront communities in Lagos and Port Harcourt metropolis. The same is the case with Tolu River in Awodiora Apapa Local Government Area. In Woji River, in Port Harcourt Rivers State, degradable and non- degradable wastes, as well as abattoir water also degrade the waterfront communities. This is different from industrial waste that flows through canal from Trans Amadi Industrial Estate into the waterfront environment.

The Role of Government in Environmental Protection

Government at various levels should display positive changes that would help the environment. It is true that international bodies and environmental agencies have displayed commendable steps toward the protection of the environment globally. For instance, the International Summit that took place in Japan in 1977, where nations haggled and disputed over terms of the treaty to reduce emissions that are said to cause global warming, from the Kyoto Protocol. After the ratification of the agreement, developed regions such as European Union, Japan, and the United States are required to cut emissions by an average of 5.2 percent by 2012.²⁷ However, the U.S. government indicated that it was abandoning the Kyoto Protocol, because the United States, with less than 5 percent of world population, produces about one-fourth of the emissions. The example of the U.S. shows how difficult it is for governments to comply with meaningful solutions.

At the local level, it is difficult for the various levels of government to come together to tackle environmental issues. For instance, Nigeria's environmental laws came to reality due to the challenge and response situation caused by the Koko incident in 1989. It is the duty of the government to provide effective environmental governance. Environmental governance is effective in advanced countries. Laws are made to protect Marine and coastal areas and resources. In the case of Nigeria, environmental laws only came to being in 1988, after the Koko toxic incident. After that, no laws were made for the protection of coastal areas, despite the creation of Nigeria Water Inland Water Ways Authority as the government agency. In Italy, Singapore, and Hong Kong, waterfront communities are protected from pollution, through laws made by the governments to guard coastal areas. In the USA, the government made laws to safeguard local waterfront communities and coastal resources. These laws help in environmental governance in developed economies; such should be replicated in less developed countries such as Nigeria in order to develop the waterfront areas in Nigeria.

As several new coastal communities began to spring up in Lagos and Port Harcourt in the past twenty years most of the communities are residential, commercial, and leisure communities. Most of them were reclaimed lands. The process of reclaiming the lands destroyed and degraded the coastal waters. Government should make policies to control land reclamation around the waterfront communities and coastal regions in order to reduce erosion, and pollution in the waterfront areas. In some communities such as Ilubirin, Lekki, and Omo town in Lagos, and Omoku town in Rivers State, several creeks were degraded due to land reclamation. Apart from big towns, other smaller towns were also developed along the shorelines, and wastes generated by the residents were dumped into the water bodies which negatively affected the coastal waters.

More importantly, the coastal communities also generate land-based wastes. The wastes come in different forms and some of them are poisonous because of their origin and the substance they contain. For instance, obsolete electronic wastes often contain mercury and other toxic substances. The poisonous substances contaminated waterways, degraded the ecosystems and affected the flora and fauna.

In Rivers State, waterfront communities such as Andoni, Borokiri, Nembe, Abonnema, and Bonny are heavily degraded. This is due to the reason that the inhabitants of these waterfronts use the water body as a conduit for the disposal of human waste. The same is equally true of Lagos State, where various sanitation companies dump untreated human waste into the water bodies used as toilet facilities and for the disposal of human waste in the water bodies.

For instance, human waste dumping in Iddo, and Lekki lagoon, Elegbata Channel, Ebute Ero waterfront, etc. contribute to the pollution of local waterways rather than the claim by locals that oil and industrial effluent pollutes the waterways. However, in both states, oil pollution contributes significantly to the pollution of local waters such as the Orashi and Bodo creeks in Rivers State and Badagry Creek and Ogun River in Lagos.

During the rainy season, in Rivers State, waterfront areas such as Nembe, Njemanze, and Ogbulabali waterfronts are heavily polluted due to the overflow of the water body that deposits large human waste into the inhabited areas. Such menace occurs regularly during the wet season in Lagos waterfront communities such as Makoko, Iwaya, Oworonshoki, IlajeIddo, etc. In the two states, slum communities are inhabited by poor people who are either fishermen or farmers, who lack access to fresh water and toilet facilities. In some places, regular dumping of domestic wastes into the local rivers has heavily polluted local rivers and rendered some of the rivers dead. For instance, in the Eliozi community in Rivers State, the Ngulo River is dead because of the dumping of waste by local inhabitants. In Lagos State, the Ibeshe River is no longer a flowing and lively river but dark and dormant due to heavy pollutants discharged by local people into the river. In the two states, the discharge of hydrocarbons and more toxic pollutants that degrade local rivers and lagoons also come from land-based pollutants and landfills that erode into the waterways. Sand dredging also contributes to erosion that causes heavy pollution in the riverine areas, thereby impinging on fishery, resources, and waterway transportation, causing difficulty in water transportation and coastal tourism as well as the scarcity of fish and fresh water, thereby by affecting livelihood in the states. The poor depend on the resources that are impacted by the degradation of water resources.

Waste disposal is one of the major causes of coastal pollution in Lagos and Port Harcourt. This is because the lack of adequate waste disposal facilities makes many localities, potential health hazard areas for their inhabitants, especially slum communities. In the waterfront communities, sanitary and sewage systems are poor, and where they exist, they are skeletal and poorly managed. Several inhabitants of such environments- slum and water front communities do not care how they dispose of their trash, and it is not surprising that there are serious pollution problems in the communities because all waste is dumped into the surrounding rivers where they fish. Government intervention and provision of facilities and environmental education will improve the orientation of the inhabitants of the waterfront communities in order to abate pollution in the coastal environment.

In Lagos State, slum communities in Tolu community in Ajegunle, and in the Amukoko area, are used to discharging their human and domestic wastes into the open sewage as they erode into the local waterways. In Ijora and Iddo waterfront communities, similar waste disposal method prevails. In the riverine communities and water districts in Rivers State, a similar method of waste disposal into the watercourses is common. For instance, in Okirika, Degema, Abonnema, and Buguma areas, smaller riverine villages make use of the waterways as toilet facilities and for waste dumping. In addition, in slum communities, residents discharge their wastes in the same manner through sewages and canals. Effective environmental policies, monitoring, and compliance can reduce the pollution that affects slum communities and riverine communities in Lagos and Port Harcourt cities.

High Population and Lack of Environmental Governance as Causes of Pollution in Water District Areas of Lagos and Port Harcourt

Waterfront communities all over the world have the feature of being densely populated. This is due to the huge activities that take place in the area, which include cabotage, waterway

transportation, fishing, and sometimes market that exist around the community. For instance, waterfront areas such as Venice in Italy, and several other waterfront districts in Singapore and Hong Kong, as mentioned earlier are heavily populated and not hugely degraded due to human activities.²⁸ As years passed by, the governments of these cities transformed them into tourist and business districts by reducing pollution and improving security. This is the contrary in Nigeria, where most waterfront districts are quite polluted.

In the past, waterfront settlements in Nigeria were not as populated and polluted as they appear presently. Fishermen founded most of the settlements as a temporary resting place after a long day of fishing activities. However, such areas turned to fish markets, where they sell their catch to local people. With the passage of time, they began to build makeshift houses as they settled in the waterfront areas. Indeed, many migrants from different places began to live side by side with the fishermen, who made the fish market their permanent place of abode. Some of the migrants were canoe makers, fishermen, and those who were engaged in sand dredging and waterway transportation. As the need for housing increased, low-income earners of various occupations began to move into the waterfront areas and built makeshift houses around the upland area, where they sand filled, while some of them erected makeshift structures on top of the water. For instance, it was some of the inhabitants of Makoko water front who were not fishermen founded Okobaba as a timber market within the same territory in Yaba LCDA, in Lagos.²⁹ Similarly, the Ijaws around the Nembe and Borokiri waterfronts, the Ndoki also in Borokiri settled firstly as fishermen, before other people such as boat makers and traders, mostly fish traders began to settle around the areas. Therefore, the movement of people into the waterfront areas was the major reason for the large population of the areas and their degradation.

Even though most waterfront areas lack modern social infrastructure such as electricity, waste disposal facilities, and potable water, the area had continued to grow in population and size. This has increased the challenge of the degradation of coastal waters. Although other industrial wastes from numerous industries around the coastal areas contributed to the pollution of the surrounding waters in some of the settlements, especially the lower Watermark area, the population is high and the waters around the lower marks serve as toilet facilities and waste dumping, as well as for the preservation of timber, which heavily degraded the waters.

In reality, waterfront communities exist in all coastal states and regions all over the world. However, a big contrast exists between the waterfront districts in the coastal cities of advanced economies when compared with that of Nigeria. For instance, in Asia and Europe, coastal cities protect their waterfront communities from degradation and make them tourist centers as stated above. Therefore, waterfront districts have become foreign exchange earners due to the tourists that go on vacation in such places. Therefore, Lagos and Port Harcourt City Governments need to improve the water district areas in order to improve livelihoods in the areas.

Recommendations

The following are some of the recommendations on how to improve sanitation around the waterfront settlements.

- i. All segments of society, especially, the waterfront dwellers must be sensitized and properly educated by the states and local governments to understand and appreciate the importance of waterfront areas since the coastal areas contribute to the quality of natural water sources.
- ii Legislation governing waterfront environments, together with enforcement, monitoring, and compliance should be reviewed from time to time to promote effective coastal area

management systems. Support should be provided by different levels of government, public and private sectors for the development of coastal areas.

iii. Waste reduction mechanisms should be implemented. Recycling should become effective in cities and waterfront communities. This can help to reduce solid and biodegradable wastes and other land-based wastes through effective and controllable dumpsite management.

iv. Governments of Lagos and Rivers States should review existing environmental laws and policies guarding the waterfront communities

This is achievable through enforcing the polluter pay concept in order to reduce the dumping of industrial waste.

Conclusion

This paper has shown that cities such as Lagos and Port Harcourt are very important as their waterfront communities and shorelines served as means of transportation, fishing ports, and markets. The waterfront communities provided shelter for millions of people. The paper has also demonstrated that over-exploitation of resources and pollution from various sources increased the degradation of the waterfront communities in the study areas. The paper has highlighted that poverty and ignorance caused environmental degradation, which has undergone changing patterns due to Industrialisation and urbanization. It argued that since the rich biodiversity of water resources, forest, and mineral resources around the waterfront communities play important roles in the socio-economic development of the states, pollution hinders the development of waterfront environments and resources. The fact that water resources are quite abundant in the states but only a little percent of the total population has access to drinking water shows that pollution of the waterfront communities is a menace. The cause of degradation in the waterfront communities includes land-based pollution and other anthropogenic activities. This occurred over a long period due to the disposal of garbage, human excreta, agricultural, industrial, and municipal waste on land or wastes dumped into the water bodies. Pollution possesses a serious threat to the waterfront settlers and constituted a danger to aquatic lives because a polluted environment is dangerous to humans and other life forms. The paper has used functionalism and Marxism to demonstrate how human actions affect the environment and vice versa.

The research has shown that there are two forms of waterfront communities and how pollution affects them. The paper makes a claim that inhabitants of the informal waterfront communities lack hygiene culture, but government effort in environmental governance is poor in the waterfront communities. Therefore, the paper presents some ways and approaches government can intervene in pollution abatement in waterfront communities. This is because waterfront areas are very crucial to the economic development of any modern state. For instance, in Singapore, Vienna, and Hong Kong, waterfront areas are veritable means of economic development because there is a conscious effort by the government and waterfront inhabitants to promote pollution abatement and this can be replicated in Nigeria.

Endnotes

1. M. Abegunde “*Aspect of Physical Environment of Lagos*” *Coastal Environment Management and Aquatic Resources* in Amosu A. and O. Babalola, *The Evolution And Development of Lagos State* (ed.) A- Triad Associates (Lagos: Oto Awori, 2003), 138. *See also:* Lagos Monograph, A.U.Oteri and R.A. Ayeri *Megacities and Global Change: The Lagos Megacity* 1- 36.

2. West African Coastal Areas Management Program. www.Wacaprogram.org, Accessed 1 July 2022.
3. Interview with Professor D.I. Nwankwo. Department of Marine Sciences University of Lagos. 9 February, 2017.
4. J. O. Akintola Arikawe, The Rise of Industrialism in the Lagos Area. In *History of the Peoples of Lagos State*. (eds.) Ade Adefuye, Babatunde Agiri and Jide Osuntokun (Lagos: Lantern Books Literamed Limited), 1987, 109.
5. Ibid.
6. [http:// invwstopeadia.com/ terms/ tragedy- of -the -commons](http://invwstopeadia.com/terms/tragedy-of-the-commons). See also: [https:// blogs.scientific American.com/voices/ tragedy – of- the- commons](https://blogs.scientific American.com/voices/tragedy-of-the-commons). Accessed 20 June, 2023. The tragedy of the commons is a concept that describes how **individuals overuse and deplete shared resources** to their own benefit but to the **detriment of society**. It can apply to resources such as water, land, fish, forests, etc. The term was popularized by ecologist Garrett Hardin in 1968. See Also: Hardin, G. The Tragedy of the Commons', Science, 162.
7. [http:// invwstopeadia.com/ terms/ tragedy- of -the -commons](http://invwstopeadia.com/terms/tragedy-of-the-commons). See also: [https:// blogs.scientific American.com/voices/ tragedy – of- the- commons](https://blogs.scientific American.com/voices/tragedy-of-the-commons). Accessed 20 June, 2023.
8. [http:// invwstopeadia.com/ terms/ tragedy- of -the -commons](http://invwstopeadia.com/terms/tragedy-of-the-commons). See also: [https:// blogs.scientific American.com/voices/ tragedy – of- the- commons](https://blogs.scientific American.com/voices/tragedy-of-the-commons). Accessed 20 June, 2023.
9. M. Abegunde “Aspect of Physical Environment of Lagos” *Coastal Environment Management and Aquatic Resources* in Amosu A. and O. Babalola, The Evolution And Development of Lagos State (ed.) A- Triad Associates (Lagos: Oto Awori, 2003), 138. See also: Lagos Monograph, A.U. Oteri and R.A. Ayeri Megacities and Global Change: The Lagos Megacity 1- 36.
11. M. Abegunde “Aspect of Physical Environment of Lagos”..36
12. E. Prest, This Day News Paper, “Nigeria: Struggle for the Creation of Rivers State.” 9 May 2017.
13. E. Prest, *This Day News Paper*,
14. Paola Totaro, Matthew Pons ford, “Demolitions of Lagos waterfront communities could leave 300,000 homeless—campaigners” Thomson Reuters Foundation: <https://www.reuters.com/article/uk-nigeria-slum-demolition-idAFKBN1361RY>. Accessed 10 December, 2020.
15. Paola Totaro, Matthew Pons ford, “Demolitions of Lagos waterfront communities could leave 300,000 homeless—campaigners”
16. Interview with Mrs. A. Alfred, Secretary, Department of Pollution Control, Rivers State Ministry of Environment. 19th August 2018. Port Harcourt, Rivers State. See Also: Jens Patke, Enzyklopadie der Staatliche Wappen und Flaggen (Encyclopedia of State Coat of Arm and the state Flag) in <https://www.crwflags.com/fotw/flags/ng-river.html>. Accessed October 1, 2018.
17. Interview with Dr. Emmanuel Nkworji, Department of Marine Sciences, University of Lagos. July 10th 2019.
18. Interview with Dr. Emmanuel Nkworji cited.
19. Interview with Professor D. I. Nwankwo, Department of Marine Sciences. University of Lagos, 15th March, 2017.
20. Interview with Professor D. I. Nwankwo cited.
21. R. K. Lawal “Background to Urbanisation in Lagos Society before 1900” *Urban Transition in Africa: Aspects of Urbanisation and Change in Lagos*, (Pumark Nigeria Limited), 2003 1- 24.
22. Alexander, Jeffrey. Ed. *Durkheimian Sociology: Cultural Studies*. (Cambridge UK: Cambridge University Press 198) 234.

23. Alexander, J. *Theoretical Logic in Sociology Vol. 2. The Antinomies of Classical Thought: Marx and Durkheim*. (Berkeley: University of California Press, 1982)78.
24. Alexander, Jeffrey. Ed. *Durkheimian Sociology*
25. Carver , T. *The Post-Modern Marx* (Manchester 1998) 120.
26. Hempel, L. *Environmental Governance: The Global Challenge* (Washington 1996) 76.
27. A. Olukoju, “Nigeria Coastal Zone: Environment Problems, Responses and Suggested Remedies” in *Dimensions of Environmental Problems in Nigeria*, ed. Osuntokun (Ibadan: Davidson Press 1997), 70.
28. D.I. Nwankwo Interview cited.
29. **See Also:** <https://www.ukessays.com/essays/environmental-sciences/application-of-integrated-coastal-zone-management-principles-environmental-sciences-essay.php>. Accessed 10 November 2021.