

INDUSTRIALIZATION, POLLUTION AND ENVIRONMENTAL HEALTH IN APAPA-IJORA COASTAL COMMUNITIES OF LAGOS, 1970-2018

By

UGO EKEMEZIE,* OGECHI CECILIA UKAOGO & VICTOR O. UKAOGO♦**

Abstract

This study examines the multiple layers of environmental degradation and associated challenges in Lagos coastal communities between 1970 and 2018 especially within the context of sanitation in Nigeria's commercial capital. It historicizes sanitation in Lagos amidst unhealthy practices that threaten the livelihood of residents. Largely man-made, the study zeroes in on Apapa-Ijora communities by interrogating waste management systems, squatter settlements and flooding. Above all, the study affirms that poor health and dwindling life expectancy in these coastal communities owe their conditions to unplanned industrialization and unchecked/inappropriate land reclamation initiatives. The study, contributing to the debate on urban environmental despoliation adopts a qualitative approach in methodology and applies a historical narrative model for its analysis; utilizing both primary and secondary sources of data.

Keywords: Pollution, industrialization, Slum, Settlement, Sanitation, environmental degradation

Introduction

This chapter examines the nature of ecological deficit and devastation in Apapa-Ijora communities in Lagos state, Nigeria. It highlights even briefly the history of sanitation in Lagos state and the prevailing conditions in Apapa-Ijora that are hazardous to the health of the people. The chapter further identifies the unhealthy activities of truck drivers and operators, the inefficient waste

*Department of History, University of Windsor, Ontario, Canada.
Email: ugoekemezie1@gmail.com

**Institute of African Studies, University of Nigeria, Nsukka. Email: ogechi.ukaogo@unn.edu.ng

♦Department of History & Int'l Studies, University of Nigeria, Nsukka. Email: victor.ukaogo@unn.edu.ng

management system and the blockage of limited drainage system as a threat to the livelihood of residents. These man-made conditions including land reclamation from swamps where the people call home has oriented and aided the perennial challenge of flooding. It interrogates the ravaging consequences of recurrent flooding in these coastal communities even as many of them live in squatter settlements. In addition, it affirms that the environmental damage caused by the unchecked activities of waste disposal by industries clustered in the industrial area constitutes great scare to the environment in the area. It sums that the continual degrading environment condition of the area is a major factor in the poor state of the health of the community.

Environment, Sanitation and Health

The environmental degradation of Apapa-Ijora area is a development of considerable concern. It poses serious threat to coastal communities in the area that, like other communities, promotes adverse climate narrative for the area.¹ Yet, this is home to millions of residents, even to an increasing population scattered across a number of slums located in these coastal communities of Apapa-Ijora. Apapa Local Government constitutes six communities namely Iddo/Ijora Olopa, Ijora-Badia, Ijora Oloye, Sari-Iganmu, Panti village and Apapa. The land area of Badia is 114 hectares and synonymous with poverty and ecological decay.² With a population of over 600,000 inhabitants and sitting on a landmass of 1.6km², Ijora-Badia is a confirmed slum evidenced in poor housing, ravaging poverty, avoidable congestion, poor drainage without proper waste disposal arrangement.³

Studies have shown that individuals evicted from Oluwole village resettled in Badia but on account of the swampy nature of the area, there is an imposed of land reclamation as a necessary action for the use of land and its development. The people have since then continued to make attempts to improve the land which was mostly waterlogged and flooded without government support. Using filths and other solid waste materials including sand, they have attempted without remarkable success to reclaim the land. Clearly, the community visibly sits on swamp; in Oke Ilu-eri, for example, the roads are impassable except through the swampy water which is high up the knees of men and women that are found traversing it. The overgrown bushes with grasses growing in the water, and filth scattered around are a common sight in the area. The health implication of this is that people eat, interact, engage in economic activities, and make their homes next to these wastes which unfortunately compete with residents for space in these areas. The

physical landscape of the environment is littered with solid wastes without check and majority of the inhabitants do not observe or manifest attitudes of hygiene.⁴ These solid wastes and filths are man-made. They include refuse dumps by the roadsides, plastics, polythene bags, food and other wastes which are indiscriminately littered all around the places and unofficial garbage dump sites can also be found in the neighborhood. Though dirt is widespread in Lagos, but a large concentration of dirt is visibly found littering around every corner without proper waste disposal mechanism. It is worse in the coastal slum communities like Badia where domestic⁵ solid wastes consisting of household garbage and rubbish or refuse

This stark reality of the absence of proper waste disposal system is also clear with the blockages of drainage systems where it exists. Refuse are also dumped in the drainage system causing environmental nuisance and degradation. Gutters are filled and blocked with solid wastes and engine oil can be sighted circulating on top of the dirt and dirty water. In places where gutters are constructed, these blockages prevent even the free flow of rainwater during the rainy season, therefore enabling massive flooding in the area. In addition to this, the quality of air in Apapa-Ijora area is disturbing. With the alarming incidence of open defecation, a visitor is forced to hold one's nostrils and as a reflex action continually spit because of the stench from these areas. Many residents of the coastal communities are not conscious of the environmental hazard of the improper disposal of their refuse properly to their health and some who do continue to perpetrate these inhuman conditions. They are not accustomed to making owning and making use of waste bins at homes, instead dirt is thrown away indiscriminately and anywhere and this puts them at the risk of an epidemic outbreak. The lack of effective sewage system to cater for the exploding population has encouraged the menace of open defecation. In these coastal communities, residents can be found defecating near the water body, especially in the early hours of the morning and at odd hours of the day.

Lagos, during the colonial period was faced with the challenge of managing the nuisance of the unsanitary conditions of congestion, poor sewage and inadequate drainage. In 1910, the colonial government put together a sewerage scheme estimated to cost 200,000pds but actual work was deferred. However, the desirability and urgent need for such scheme or actions to improve the sanitary condition of the area, whose existing infrastructure could not sustain, were not waved away. The colonial government invested in and implemented different phases of her policy of re-planning through reclamation, slum clearance, demolition of houses and re-housing though in favour of an up-to-

date scheme of drainage and sewage disposal with that hope that it would have gone a long way in abating the nuisance of insanitary conditions in Lagos. With no avail. In addition, the colonial government introduced the idea of sanitary inspectors into Lagos and the idea continued in Lagos as an official policy in the 1960s and 1970s. They were authorised to go to individual homes for the purpose of abating the nuisance and to ensure that households conform to the basic sanitary standard. Otherwise, they were fined or charged to court as the case may be. They were licensed to enter the inner parts of any building to check whether the latrine buckets were disinfected or drinking water pot or bucket were tightly closed to render it insect or fly proof. At times too, an entire house or neighbourhood were fumigated to maintain good hygiene. The sanitary officers did all this with a focus on the prevention of malaria, regarded as one of the deadliest diseases at that time.⁶

According to Davis, the Sanitary Inspectors who went all out to destroy the breeding of mosquitoes in whatever form and meted out severe punishment to defaulters, were held in awe by Lagosians such that "Lagosians fear of them was the beginning of wisdom." They were so popular in Lagos that their activities were recorded in oral tradition. The most common one however, is recorded in the following song:

Wole wole ki lori
Tanwiji yanmuyanmu
(Sanitary Inspector what did you see?
I saw mosquitoes and their larvae)⁷

However, the sewage scheme remained unimplemented by 1990. It took the postcolonial administration of Lateef Jakande to change the bucket latrine system of Lagos Island to water system. Despite this effort, the sewerage scheme which eluded Lagos during the colonial era remains non-existent even in the twenty-first century. Lagos is today left in a state of not being able to treat its sewage with the attendant effect on the environment. Sewage is still disposed directly into the Lagos lagoon without proper treatment. The danger is that an improperly treated sewage uses up much of the oxygen in the lagoon with little or nothing left for aquaculture and if this is left unchecked, then aquatic culture will be completely destroyed.⁸

In coastal slums like Ijora-Badia, where no public toilets exist and no proper concrete but makeshift shanty houses exist built with plank wood, tarpaulin and corrugated sheets, raised with wood above the swamp, the only resort for the is open defecation. Apapa-Ijora is a teeming industrial and economically booming

area, hence it attracts all categories of people and residents, from skilled to unskilled labour. This huge population makes up a considerable percentage of the urban slum. They include factory workers, port workers and loaders, okada riders, a significant congregation that resembles a small community of Hausa migrants can be found close to the Iganmu bridge just adjacent to the HOMS estate in Oke-Ilu-Eri, Badia, and a variant of the urban poor from different parts and ethnicity of Nigeria and West Africa. Yet among them are a large number who have no accommodation, who sleep in the open, even under the Bridge. These categories have access to public toilets and like others who dwell in shanty home, open defecation is the answer. Another category of people who "patronize" this act are the tanker drivers. The Apapa Wharf is the busiest in Nigeria, popular for causing gridlock on all roads leading in and out of Apapa because of the number of trailer trucks transporting goods from the Apapa wharf. The drivers of these vehicles have been identified to have resorted to defecating in the open. The Guardian Newspaper reports that truck drivers at the port complex in Lagos are also living in squalor as they are toiling daily to survive. The environment is terribly bad and poor without even conveniences. Societal miscreants dominate the area and the stench of drugs such as human waste and Indian hemp remain worrisome and unbearable. A truck driver Benson Ogbonna confirmed this stark reality. In his words:

since the federal government does not have time for us, we have to continue living life as it presents itself. Life here is like suffering and smiling, we find it difficult to bath, brush our teeth and get tidy because we sleep in your truck. "Sometimes, I buy pure water to brush my teeth, but I will need to go to the sea under the bridge to get some water to bathe. It is bad; it is unfortunate."⁹

The condition in the area has deteriorated with hazards to health of inhabitants including the avoidable open defecation by the truck drivers. The neatest they have done in terms of defecation is to 'do it in nylon bags and throw it into any nearby bush, gutter or in any heap of dustbin.'¹⁰ As a result, the streets, bridges and canals have become public toilets for the homeless. The absence of functional toilets explains why 'we use nylons or go to nearby dumpsites'.¹¹

Sanitation and Health

There is a connection between the environment and health. Poor drinking water, in poor homes with poor sanitation are often burdened by polluted air that impact negatively on inhabitants. This affects the health and health status of the people made more manifest by the worrisome level of communicable

diseases.¹² The unsanitary condition of living is profound among residents in the coastal areas of Apapa-Ijora communities. Coupled with worrying environmental degradation, very limited access to potable water through public pipe-borne water sources, increasing incidence of flooding, among many environmental dangers that impact negatively on the health and sanitary conditions of residents, the outbreak of epidemic is a huge concern even for the residents. "See how we live," Mr. Sunday Adams, a resident of Oke-Ilu-Eri, Badia lamented, "are we not exposed to epidemic?" Because the area is swampy with dirty water and covered with bushes, it is a safe breeding ground for mosquitoes and sand-flies which poses a serious health crisis for the areas, including malaria. There is also the incidence of the outbreak of cholera, though at a contained level. Findings from a research conducted in 2014 in Ijora-Badia community, showed that mosquitoes, a dangerous vector was responsible for 77.8% of the transmission leading to diseases in many various homes. Malaria is thus the most reported health and environmental challenge in the neighborhood for several years running.¹³ From the study, it was deduced that all the respondents had suffered from the malaise of malaria at one time or the other.¹⁴ It is however not argument that several of the diseases were attributable to poor state of the slum conditions of dirt and decay. Some of the respondents totaling about 12.2% believes that poor sanitation was central to reported malaria outbreak even as 2.1% respondents added diarrhea to the mix and 70.9% respondents firm that slum conditions led to malaria disease. This makes malaria the most prevalent in the area.¹⁵

However, in these coastal communities where to navigate the community, wooden bridges that are sometimes overtaken by weeds and reptiles like crocodiles are the only resort, life is not safe. The little ones carry on playing unmindful of the danger they are either born into or bred in. These slum communities parade young people and children who have become comfortable with living on life's edge owing to a very filthy environment without health facilities. They carry out all sorts of domestic activities such as cooking, washing, trading on the pile of dirt. In Ijora-Badia community, for example, there is no public healthcare centre in the area or hospital. In the case of emergencies or childbirth, residents of Abete community, for example go almost 3kilometres to Ijora Oloye. In Ilu-Eri, Mr Tedunjaye, the Badia East CDA Chairman explains that they depend on herbs or private hospitals and if one must visit the public healthcare centre, the closest in Apapa, Randle in Surulere or Lagos Island. For childbirth, the people patronize local birth attendants, who deliver children in these unsanitary slum environments or private hospitals. Therefore, some of the

coastal communities of Apapa-Ijora area have limited access to healthcare facilities.

In addition, potable water is a luxury in some slums like Ilu-Eri and Abete communities for instance. Ijora-Badia which “prides” itself in just Ajeromi Nursery and Primary School established in 1985 as the only public infrastructure in the area, have no pipe-borne water in the community. In Ilu-Eri, when the government began the construction of the HOMS estate, the community was cut off from the pipe borne water tap which passed into their community by the structure. It should be noted that by the water scheme put in place by the colonial government in 1928 served such communities such as Ikoyi, Apapa, Ijora, Iddo, Ebute Metta.¹⁶ However, alongside sachet “pure” water (which contributes to the piling of filth in the area), they seek alternative means of sourcing water into their houses, some of which are not totally secured. In Abete, since there is water, some individual water vendors supply water. They make use of long pipe which they run through the dirty Apapa canal known as System 5, another health concern. Any slight breakage or leakage in the pipe puts the whole community in grave danger. Notwithstanding, they are left with no other option since there is no public pipe borne water. Some of the water tanks are also located close to the canal.

The Apapa canal or System 5 is a major canal that cuts across several localities [including Surulere, Ifelodun, Ajegunle, Coker, Aguda] in Lagos constructed to control flooding by channeling water down to the Lagoon. The state of the canal at the Apapa-Iganmu axis is very disturbing, overgrown weeds, garbage, reptiles have taken over posing a serious danger to those whose houses border it. Abete is one of the communities in Ijora-Badia and coastal slum communities in Apapa-Ijora that could be described as an area where environmental siege lies before them. The System 5 has been abandoned by various governments and was almost filled again and this affected the flow of water. However, in 1996, the canal overflowed into the community forcing people to abandon their homes and businesses. They are in dire need of government intervention. In Ilu-Eri, Badia East, since 2006, the World Bank LMDGP executed slum upgrading projects included a drainage canal in the area as a project slum regeneration/renewal. Problems arose when on 6 March 2012, an agency of government – Kick Against Indiscipline (KAI), without notice destroyed over 300 houses to facilitate the construction of a canal in Badia East within the initiative of LMDGP.¹⁷ While the drainage was built, the execution stopped a few meters to what was formerly a stream¹⁸ linking the canal to it. As a result, the onetime stream which also serves as a footpath is impassable

during rainy seasons. The project, which has severe health impact on the residents who walk through the dirty canal water to navigate their community, is an example of littered abandoned project by the government.

Flooding

Scholars are united in agreement that the environment is key to the developments and healthy survival in the coastal communities of Lagos. Therefore leadership and modalities are uppermost in considering and designing environmental response to environmental management in communities located along the coast. Accordingly, attention must be given and geared towards improving coastal communities.¹⁹ Manifest environmental challenges have led to the loss of aquatic biodiversity.²⁰ A 2021 study have shown that flooding has been a major challenge in the last decade; a vulnerability that is not solely caused by the changing patterns of rainfall. It is possible therefore to locate other causes in the activities of man notably poor management of land and its resources as well as noticeable alterations in the lagoon environment.²¹ This problem is not only applicable or evident in Apapa-Ijora but in most parts of Lagos. A typical resident of a story building in the area laments that houses are always submerged under water during the rainy season especially occupants of ground floors. The uncontrolled parking habit of drivers frustrates sanitation workers and hinders them from doing their chores. It is a annual suffering ritual for them.²² It is well known and thus acknowledged by The Intergovernmental Panel on Climate Change (IPCC) recognizes the low lying status of Nigerian coastal communities and are expected to experience flooding. The topography of these communities affirm this understanding given also the rising sea levels and variations in climate change.²³ The geographic location of Lagos given the proximity to the equator and characterized by two dissimilar seasons of dry and wet seasons spreading between April and October for the wet season and the remaining months of the year for the dry season.²⁴

Industrial Degradation

Some factors examined to contribute to poor air quality in Apapa-Ijora area including poor waste disposal and management, open defecation, unregulated emissions from biomass burning, vehicles, diesel generators, the uncontrolled activities of factories in this industrial area as in many parts of Lagos poses a more serious environmental hazard. Oke explains that:

Over the years, however, water, especially in the form of rivers, streams and ocean has traditionally served as a means of waste disposal of materials such as

faeces and other domestic waste products all over the world. As human population increases with a parallel expansion in industrial and agricultural activities, water sources became receiver of wastewater along with contaminants both from home and industries. They renewed or purify themselves by dilution and through a cycle known as hydraulic cycle. The water quality of Nigeria surface water bodies is believed to be deteriorating gradually, particularly in the industrialized and densely populated area of Lagos state. The amount of treated and untreated wastes discharged into water through our daily and industrial activities has deteriorated the water bodies and make them unfit for many of their purposes.²⁵

Thus, aside the impact of residential and commercial waste, the activities of the cluster of industries in Apapa-Ijora is a significant contributor to environmental degradation in the area. During the Colonial administration of Lagos, Apapa was chosen as the base of long term port expansion, thus leading to the construction of Apapa wharf. However, the Apapa Industrial Estate was developed in response to the Apapa Port and situated near the port area. Alongside this was the Apapa Housing scheme and industrial layouts of Iganmu and Ijora which were marked for reclamation with Apapa by the Lagos Executive Development Board (L.E.D.B) established in 1929 by the colonial government.³⁴ While the absence of long term planning in the case of the Apapa wharf and land use by industries, some of which did not require water frontage as port facilities, caused overcrowding in both colonial and postcolonial Lagos, the environmental degradation caused by industries in the Apapa-Ijora area is enormous. Lagos is Nigeria's commercial capital and houses over 7,000 medium and large-scale industries in major industrial estates such as those located in Ikeja, Ogba, Ilupeju, and many others. Of this lot, the Apapa-Iganmu-Ijora axis harbors the largest concentration of these companies.²⁶ The commercial activities in the Apapa wharf axis as well as the access to the lagoon properly explains this but the industrial zone is surrounded by poor neighborhoods burdened by high population density with attendant attitude of pollution of the environment.²⁷ Thus, despite the high concentration of industries in the areas because of the limited space, the management of industrial waste remains unchecked; and this constitutes a grave danger to the residents of Apapa-Ijora area. Some of the prominent industries in the Iganmu Industrial estate and Iddo terminal and Apapa-Ijora Industrial estates include the Nigerian Breweries Plc and Afprint Nigeria Ltd (Textile) in Iganmu, Seven Up Bottling Company and Cummins West Africa/Cummins Nigeria in Ijora, Ulysses Nigeria Ltd, Lambert

International, Costain (West) Africa among others. Alongside the indiscriminate disposal of solid waste, open defecation, industrial liquid waste is a major contributor to pollution and as a matter of fact the by-product of the activities of some of these industries. The improper and uncontrolled manner of the disposal of domestic waste is recognizable with industrial liquid in Apapa-Ijora. The observed reality is that these industries discharge their wastes into the lagoons and other water bodies like streams, rivers and estuaries. Sadly, efforts at remediation are inadequate.²⁸

Obviously, regulatory controls put in place in developed economies are absent in Nigeria and this negatively counts against environmental sanity in the country. Whereas in such climates, effluents are discharged in lawfully designated places and in Nigeria, where regulations exist, they are observed in breach. Dearth of functional sewage systems remain a critical deficit and thus discharges are freely done into surface and groundwater sources or destinations.²⁹ For example, residents of Abete Community in Ijora-Badia lament that septic tanks and gas companies pump contaminated water into the canal and children take from this water for bathing because there is no water in the community. These companies wash their tanks and pump their waste into the Apapa canal otherwise known as the System 5 unmindful that it is stagnant and the health impact on residents. These wastes decay and submerge into the land which becomes muddy and unfortunately finds its way back into the houses in the area.

Conclusion

From the foregoing, the study has established the connection between poor environmental presentations of some Lagos coastal communities to the hazardous living in those communities. The lack of political will by various governments at various levels to do the needful in addressing the adverse sanitation conditions of the slums and urban centres remained very challenging. What is noteworthy is that authorities at all levels are now in synergy in affirming that further development and growth of Lagos is dependent on the environmental conditions of the sprawling urban setup. They also agree that addressing several MDG and SDG in Lagos communities would advance the prospects of good living, increased life expectancy, and reduced criminality and above all engender a more harmonious living in constituting communities.

Endnotes

- ¹ Ibidun O. Adelekan, "Vulnerability of Poor Urban Coastal Communities to Climate Change in Lagos, Nigeria," Fifth Urban Research Symposium 2009, 1.
- ² H.O. Jimoh, F.K. Omole, and S.B. Omosulu, "An examination of urban renewal exercise of Badia East of Lagos State, Nigeria," *International Journal of Education and Research* 1, no. 5 (May 2013), 3.
- ³ Idowu Ajibade, Frederick Ato Armah, Vincent Kuuire, Isaac Luginaah and Gordon McBean, "Self-Reported Experiences of Climate Change in Nigeria: The Role of Personal and Socio-Environmental Factors," *Climate* 2015, 3, (December 2014), 21.
- ⁴ Jimoh and others, "An examination," 8.
- ⁵ A. Taiwo Adwole, "Waste management towards sustainable development in Nigeria: A case study of Lagos state," *International NGO Journal* 4 no. 4, (April 2009), 174-175.
- ⁶ Lanre Davis, "Urban Renewal and Associated Problems in Lagos" *Lagos Historical Review* 14, (2014), 88-89.
- ⁷ Ibid
- ⁸ Ibid
- ⁹ Sulaimon Salau, Tobi Awodipe and Henry Ekemezie, "Apapa road: Sex trade, open defecation rife in truck drivers' filthy den," Published on 3 November, 2018, <https://guardian.ng/saturday-magazine/apapa-road-sex-trade-open-defecation-rife-in-truck-drivers-filthy-den/>
- ¹⁰ Ibid
- ¹¹ Salau and et al, "Apapa road"
- ¹² Yussuf Lukeman, A.I. Bako, F.K. Omole, and I.I.C. Nwokoro, "Survival in the Midst of Challenges: Tale from Ijora-Badia Slum Dwellers of Lagos State, Nigeria," *Journal of Educational and Social Research* 4, no.3 (May 2014), 131.
- ¹³ Ibid
- ¹⁴ Ibid, 135-136.
- ¹⁵ Ibid, 136.
- ¹⁶ Adedeji Olukoju, *Infrastructural Development and Urban Facilities in Lagos, 1861-2000* (Ibadan: IFRA, 2003), 51.
- ¹⁷ Amnesty International, "At the Mercy of the Government Violation of the Right to an Effective Remedy in Badia East," (2014), 8.
- ¹⁸ Tedunjaye, interview

- ¹⁹ Joy Oluwatomi Jiboye, Christopher Ogolo Ikporukpo and Charles Olufisayo Olatubara, "Causes of Environmental Degradation in the Coastal Areas of South West, Nigeria" *European Journal of Sustainable Development Research* 2019, 3(2), (March 3, 2019), 1.
- ²⁰ <https://www.ncfnigeria.org/about-ncf/item/81-lagos-ncf-call-for-actions-to-save-coastal-areas>
- ²¹ Idowu Ajibade, Frederick Ato Armah, Vincent Kuuire, Isaac Luginaah and Gordon McBean, "Self-Reported Experiences of Climate Change in Nigeria: The Role of Personal and Socio-Environmental Factors," *Climate* 2015, 3, (December 2014), 21.
- ²² Opeyemi Adelani, "Life in Apapa hellhole," *Sun News Nigeria*, published on April 14, 2018, <https://www.sunnewsonline.com/life-in-apapa-hellhole/>
- ²³ Adelekan, "Vulnerability" 6.
- ²⁴ Ibid, 9.
- ²⁵ R. A. Olowu, O.O. Ayejuyo, G.O. Adewuyi, I. A. Adejoro, T.A. Akinbola, M. O. Osundiya and C.T. Onwordi, "Assessment of Pollution Trend of Oke Afa Canal Lagos, Nigeria," *E-Journal of Chemistry* 7, 2, (2010), 605-606.
- ²⁶ Davis, *Urban Renewal*, 81, 91.
- ²⁷ Adebola Oketola and Oladele Osibanjo, "Assessment of Industrial Pollution Load in Lagos, Nigeria by Industrial Pollution Projection System (IPPS) versus Effluent Analysis," *Environmental Management in Practice*, 209.
- ²⁸ "Environmental Assessment of Industrial Water Pollution," accessed on November 4, 2019, <https://www.iproject.com.ng/index.php/environmental-science/environmental-assessment-of-industrial-water-pollution/index.html>
- ²⁹ O.T. Adebayo, A.M. Balogun and O.A. Olubiyi, "Chemical Analysis of Some Industrial Effluents That Discharge into Lagos Lagoon, Nigeria," *Research Journal of Environmental Sciences* 1 (2007), 197.