

Industrial Waste Management Practices in Lagos, Nigeria

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Abstract: *Industrialization is a key to national development while the negative externalities associated with industrial location are many ranging from traffic, pollution of all type in which waste management is fundamental. The major objectives were to assess the current state of industrial waste and socio-economic profile of commercial operators around industrial estate, examine the challenges involved in the treatment of the industrial waste, categorises the industry in the study area by types, scale of production and waste generated. Concept of waste management provided the conceptual basis for this study. The survey research design was adopted for the study. Data were collected from both primary and secondary sources. Simple systematic random sampling was employed in administering 50 copies of questionnaire to commercial operators around the industrial estate and 90 copies of questionnaire were administered unto the workers and management of the industries. Secondary source of information includes maps from federal ministry of information Abuja, waste management strategy adopted by each industries was collected from Lagos State Waste Management Authority (LAWMA) Chi-square test was used in testing the stated hypothesis. The result of the Chi-square test indicated that there was a significant effect of improper management of industrial waste on the health of commercial operation around the Ogba-Ikeja industrial estate. The study found out that the production process of all the industries involved waste generation as testified by (96.6%) respondents. Regarding waste management style adopted, many of the industries made use of PSP for their waste management, some use LAWMA, whereas some industries made use of waste burning. The waste inform of pollution generated by these industries had harmful effect on the commercial operators, workers of the industries among others. The study concludes that polluters of the environment through industrial discharge should pay compensation for the environment being damaged, it is also recommended that waste water should be treated before discharging it into the public drainages commercials and residential development along industrial zone should maintain a reasonable distance to the industries.*

Keywords: *Industrial, Waste, Management, Pollution, Environment, Treatment Operators*

I. Introduction

Cities have evolved and will continue to do so as the factors that affect their size and form change (World Bank 1997). Urbanization is specifically connected to economic development and the technological developments that flow from it. In much of Europe, industrialization and the capitalist economy have been the motor for rapid change over the past two centuries by triggering massive migration from rural to urban areas (Magambo 2004).

Adewumi (2001) also affirmed the pressure and stains put on the environment through physical development often caused by diversified environmental problems of varying magnitude which require attention and therefore make guide a necessity, since large part of the environment constitute a "public good". The increasing awareness of the value of the environment as a resource has brought into sharper focus the negative consequence of mismanagement of the environment assets through their exploitation and misuse thus constituting threats to nature. The disposal of industrial waste to the environment has poor monitoring, supervision as well as mismanagement and indiscriminate disposal of pollutants by industries to the environment thus creating environmental pollution.

Onibokun, et al (1998) stated that for we have no other planet to live than this global village called earth, it is therefore, warning to note that environmental protection and conservation have increasingly become subject of global concern. It is obvious that delay in taking appropriate measures to correct the damage already done and being done, and to prevent further damage to the quality of our environment will have no doubt serious repercussions for the future health and economic well being of the people of the nation.

However, this paper focus on industrial waste management by various industries in Ogba Industrial Estate in Ikeja Local Government Lagos State. The discharge of industrial waste into the environment result in aesthetic insult and releasing of bad odour to the environment, as well as making the environment unfit for human habitation. Hence, the waste hierarchy which refers to the '3Rs' reduce, recycling and re-use, and classifies waste management strategies according to their desirability in terms of waste minimization. This problem of waste management is evident in certain parts of the study area.

Industrial pollution arising from improper disposal of industrial wastes odour, air and noise pollution are few environmental problems within the metropolis. Very small scale service industries, such as garages, mechanic workshops are known for oil and grease discharge and other small and very small industries which produce significant amount of hazardous wastes in Ogba metropolis include the woodwork, textile plants, metal working, vehicle repair, petrol stations and so on.

On the other hand, some heavy industries especially around the suburbs of the city produce wastes which discharge their effluent into environment and some solid wastes together with air emissions of significant components. Along the corridor of Ogba industrial estate there are pockets of commercial operators like mechanic workshops, vulcanizer, iron-bender, banks, ware house, retail shops among others which serve as ancillaries to the industries.

Before state and federal regulation of waste began in the late 1970, most industrial waste was disposed of in land fill stored in surface impoundments such as lagoons or pits, discharged into surface waters with little or no treatment, or burned. Management of these wastes has resulted in polluted ground water, streams, lakes and rivers as well as damage to wild life and vegetation.

Another form of problem facing the study area is noise pollution. This is as a result of the heavy plants being used by the industries in the area and noise has been referred to as undesirable sound which affects the eardrums of people residing in the area.

Although there were many studies in the past that focused on the impact of industries on the environment, many of them looked at it from the resident's safety and health perspective (Olatunbosun 2009, Okoanegbete 2009 and Iriyuga 2012). Whereas the health of commercial operators working around industrial environment remains under investigated. This current study would take a step further by examining the impact of industries on the state of environment using the commercial operators as an anchor.

II. Method

The types of data used in this study include both the primary data and secondary data. Data were collected on type of waste generated by the selected industries, its disposal and management techniques which include: types of waste generated, disposal methods, environmental impact of the waste, waste management technique that is being practiced by various industries in the study area and its environmental implication.

These data were collected through investigation, reconnaissance survey, questionnaire administration, personal interviews as well as direct observation. The primary data provided the main information needed for empirical analysis of the study which includes; the socio-economic characteristics, spatial distribution of the industries, types of waste generated from the industries, its disposal method and management techniques employed by selected industries in the study area.

Data were obtained from published work such as text books, journals papers, articles and newspapers as well as unpublished work with the facts relating to waste disposal and management techniques and specifically those employed by industries. Also, information such as population figure of the study area was obtained from the office of the Lagos State Ministry of Commerce And Industries. In addition, data and materials related to waste management were as well gathered online with the use of internet facilities.

During the reconnaissance survey, the total number of industries in Ogba Industrial Estate summed up to Ninety-five (95) and there were Fifty (50) commercial Operators. The industries were thereby characterized by their scale of operation, what they produce, type and volume of waste generated.

Concept of Environmental Management

Environmental management is managing the productive use of natural resources without reducing their productivity and quality. Environment is no longer just the air we breathe, or the world we live in, it has become a requirement for businesses to address the environment in order to maintain customers, and exist (thrive) in an ever more critical global economy. There is an ever-upward spiral of new environmentally related legislation, all of which aids global environment for our fellow citizens.

Environmental management systems can assist an organization to meet its increasingly heavy burden of responsibility for the future condition of our world environment. Environmental management is the process of putting together those items of environmental nature where man exists so that man's penetration and exploitation do not have adverse effect on the environment (Uchegbu, 1998). Environmental management is thus not to be seen only as a negative measure of preventing nuisance but, more importantly as a positive measure for promoting the beauty of the total environment. (Sada and Odemerho 1988). Owolabi (2000), believe that the United Nations through its environmental programme called Global Environmental damage as a result of irreversible harms to ecosystem.

Industries use large amount of water, energy, chemicals and disposable items. They also generate lots of waste such as wastewater and solid waste. Because of this, small efficiency gains can lead to large cost savings and environmental performance improvement. Environmental management is a systematic approach to

finding practical ways of saving water, energy and materials and reducing negative environmental impacts. In many cases, the introduction of an environmental management system can also aid cost savings and reduction of environmental liability.

According to (Adibe and Yassi et al, 2001) the challenge of sustainable environmental management in the developing world is enormous. The reason behind this is because the social, economic and cultural problems which translate into environmental problems are too many, diverse and multifarious as they are multifaceted. Environment could be referred to as the sum total of all the elements that influence man or are influenced by man on a regular basis. It offers opportunity as well as limitations to human existence and survival. The management of the environment, therefore has always presented man with many problems and challenges largely because of the complex nature of the environment and of the complex interaction and relationship within it.

Environmental planning and Management (EPM) is a bottom up participatory, interactive and collaboration approach to urban planning and management in which public technocrats work in concert with the organized private and voluntary sectors and civil society organizations to jointly address environmental and socio economic issues affecting people and their environment. The process is designed to alleviate environmental problems confronting an urban area while strengthening the local capacity for better planning and management (Wahab, 1998).

Literature

Adekoya (2011) in his study of impact of sawmill industry on the rental value of the adjoining residential property in Ikire. Where he examined the effect of the sawmill in six different locations of the town such as Naira and kobo, Summoye, Moro, Sango, New express way and Fatima area. He found out that the sawmill industry inflict a lot of nuisance to most of the house at 500m radius to the selected sawmill, some of the nuisance identified by his study are: sawmill industry generates a lot of vibration and loud noise to the extent that it causes inconveniences, partial deafness, through noise meter readings, he established that the intensity of the noise pollution by the sawmill machines outweigh the U.N. standard of 50 decibel other effect of sawmill as rated by Adekoya (2011) work is that sawmill generate dust particles, waste, smoke when burning of sawdust which causes irritation and other health problem to the residents. Other effects of sawmill location is that it devalues the residential property value of an adjoining property. He informed residential that the value of houses at a close range to sawmill diminishes in value compared to the same property that are far off from the sawmill location is low. He recommends that industrial location zone should be placed outside the residential zone for avoiding incompatible land uses.

Olatunbosun (2009) was another study conducted in Ogun state on the impact of West African Portland Cement (WAPCO) on the Housing environment in Ewekoro. He informed that the effect of WAPCO on housing rent is severe as rated by (52.4%). It also had effect on the housing demand by increasing the housing demanded by people due to population explosion in the area. He equally informed that of the crime level, about (54.8%) respondents rated that due to WAPCO location in Ewekoro crime level had been on an increase. He recommended that for any heavy industry located in an area, there must be residential estate (workers estate) that would be catering for larger percentage of industrial labour force. He also recommends that government and its agency should intensify their support for housing sectors as being done in other sectors (works, health, defence). Although, Olatunbosun (2009) laid more emphasis on rental value of housing effect due to WAPCO location i.e. WAPCO increases the rental cost of housing in Ewekoro. However, he was unable to show the magnitude and severity of effect of WAPCO to the health of the people of Adjoining neighbourhood and the commercial operators in the area as will be done by this study.

In another study conducted in Ibadan by Awjogbo (2012) on the effect of industrial location in metropolitan Ibadan, where he identified that in Ibadan metropolitan area that comprises of II local Government Area L.G.A it is only Ibadan South West and Oluyole L.G.A that had the highest number of industries in Ibadan metropolitan area. Her study confirmed that the presence of different industries (medium and heavy) generates health problems like the waste water arising from industrial waste pollute well, the nearby water and deep well around 400metre radius to the industry. Not only that her study also confirmed that the noise and other vibration arising from industrial location causes physiological imbalance to the health and safety of the people of the adjoining neighbourhood. She also informed that there were clouds of smoke (Sulphur IV oxide, SO₂, Carbon monoxide Co) and other poisonous gas emitted on daily basis from these industries which kill the neighbour gradually. Other impact of industrial waste reported by Awjogbo (2012) is that industrial location generate, a lot of traffic obstruction due to the fact that trailers, heavy trucks and different vehicles usually packed along major roads, avenue and major paths in the metropolis. She recommends that there must be effective development control mechanism put in place to guide against indiscriminate rising of residential development along the industrial zone. Also she equally recommended that hours of industrial operation should be done during the days so that it would not disturb the residents in the night/Impact of Cassava processing industries within residential environment was the study conducted by Adegunloye (2011) in Owo where he found out that cassava water,

residues and drains from fermented cassava produced hydrocyanide acid which is very poisonous and affects the water bodies by killing fishes, crabs and other aquatic lives. Through chemical test she also found out that the resins and residue from cassava peels formed colloids (whitish residues at the edge of foundation or wall of housing which in most cases affects the structural stability of the house in the long run. She also found out that there are lot of foul odour that usually emanated from cassava processing industry which equally affects the health of residents around the industrial area. Her study further showed that there were dirt's, peels of cassava, leaves, Limon, sacks, and other wastes being noticed in the cassava processing environment which threaten the health and safety of the people, the study recommended, that cassava processing industry should be located in a far distance location away from residential environ so as at avoid the contact with the hydroxide acid. Not only that she equally recommended that cassava processing industries should be planned in such a way that water bodies are not close to it because of pollution. Although her study really showed the impact of cassava on the health of the adjoining neighbourhoods he did not show convincing parameters to analyze such as will be done by this study.

Okoanegbete (2009) wrote on land acquisition, oil exploration and housing development in escavours region of delta state where he found out that the frequent oil spillage arising from oil exploration affects the whole water bodies kills fish, render crop useless and constitutes problem for drinking. Also his study further revealed that the government and the expatriate have acquired about 80% of buildable land in the city leaving the remaining few land and marshy/water logged area for the indigene to build their own houses. Other environmental effect of petrochemical industries on the livelihood pattern of escavours region is pollutions of different intensities, vibration, sound, gas flaring, explosion, and other hazardous emissions, of poisonous gases which affect the health of the residents of escorvours region. He recommended that there should be environmental sustainability, provision of conducive environmental facilities and services for the people of the area to replace the problem of inconveniencies caused by the exploration. More importantly he recommended that mining, exploration and drilling of oil should be done in such a way not to harm the community residents. The work of Okoanegbete (2009) was a very good work but was unable to show how the various effects affects the people as would be done by this study.

III. Discussion

Involvement of waste during the process of production

A cursory look at Table 4.1 clearly shows that virtually all the selected companies (96.6%) do generate waste during the process of production whereas 2.3% of them claimed that their industries do not generate waste and 1.1% of them choose indifferent. This confirmed that waste generation is part of industrial production process.

Table 4.1: Presence of Wastes during the Process of Production

Presence of Wastes during the Process of Production	No of Respondents	Percent
Involvement waste	84	96.6
Not involve	2	2.3
Indifferent	1	1.1
Total	87	100.0

Source: Field Survey; 2014

Degree of Noise pollution generated by the industry

The severity of noise pollution generated by the industries as rated by them are 36.8% , 25.3% rated it as much, 20.7% of them rated it as average whereas 16.1% of them rated it as very much. An indication that the degree of noise pollution is relatively high which has effect on the surrounding.

Table 4.2: Degree Of Noise Pollution generated By the Industry

Degree Of Noise Pollution generated By the Industry	No of Respondents	Percent
Very Much	14	16.1
Much	22	25.3
Average	18	20.7
Few	32	36.8
None	1	1.1
Total	87	100.0

Source: Field Survey; 2014

Mode of waste disposal adopted by the industry

Different mode of waste disposal adopted by the various industries are pictured in Table 4.3 about 40.2% of the industries claimed to have made use of Bin/storage by licensed PSP for their waste collection, whereas 34.5% of them claimed to have made use of Government Agencies to collect their waste. Moreover

14.9% of the industrialists use of incinerator whereas 5.7% and 4.6% of them claim to have made use of Gutter and open space dump respectively. This suggests that the different companies make use of different modes to dispose of their waste as best known to them but the efficiencies of these modes of waste disposals is far below expectation.

Table 4.3: Mode of waste disposal adopted by the Industry

Mode of waste disposal adopted by the Industry	No of Respondents	Percent
Open Space	4	4.6
Gutter	5	5.7
Bin/Storage By Psp	35	40.2
Incinerator	13	14.9
Collected By Government Agencies	30	34.5
Total	87	100.0

Source: Field Survey; 2014

Frequencies of waste disposal by the industries

The frequencies of waste disposal by the industries as revealed in Table 4.4 suggested that most industries generate waste on daily basis, (85.1), 12.6% of the industries generate waste on weekly basis whereas 2.3% of them generate waste on hourly basis. This is an indication that shows that waste generation by industries is a function of materials produced and scale of production and bye product/waste involved at the different stages of production.

Table 4.4: Frequencies of waste disposal by the Industries

Frequencies of waste disposal by the Industries	No of Respondents	Percent
Hourly	2	2.3
Daily	74	85.1
Weekly	11	12.6
Total	87	100.0

Source: Field Survey; 2014

The generated waste injurious to workers in the industry

Table 4.5 revealed that 79.3% of the industrial officers claimed that the generated waste is injurious to workers in the industry whereas 18.4% of them claimed that it is not injurious to health. The remaining 2.3% were indifferent. An indication that shows that waste generated by different industries is injurious to health.

Table 4.5 The generated wastes injurious to workers in the industry

The generated wastes injurious to workers in the industry	No of Respondents	Percent
Is injurious		79.3
Not Injurious	16	18.4
Indifferent	2	2.3
Total	87	100.0

Source: Field Survey; 2014

Distance of office/shop to industrial site

Table 4.6 shows the distance of various offices/shops to industrial site in which majority of the offices/shops are within 41-50 meters (40%), those respondents who claimed theirs are within 31-40 meters and 21-30 meters accounted for 28.3% and 18% respectively. Those respondents that claimed their office/shops are within 11 – 20 metres and less than 10 meters accounted for 10% and 4% respectively. An indication that shows that many of the offices/shops surveyed are very close to the industrial sites. Hence, many of the respondents in these study areas felt the effect of these environmental pollution.

Table 4.6 Distance of office/shops to industrial site

Distance of office/shops to industrial site (in meters)	No of Respondents	Percentage
Less than 10	2	4
11 – 20	5	10
21 – 30	9	18
31- 40	14	28.3
41 – 50	20	40
Above 50	-	-
Total	50	100

Source : Field survey, 2014

Demerit of Operating near industrial waste site

A cursory look at Table 4.7, shows that traders/workers working close to industrial waste site complained of chemical waste pollution (46%) discharging into their open drainage, some of them complained of offensive/bad odour (28.7%), bad road accounted for (12.7%), whereas those that attributed it to safety and security problem constituted (7.2%) other demerits of living near industrial waste site as gathered from the study are flood and erosion which constituted (5.5%) among others. An indication that shows that siting/location of business activities within Ogba/Ikeja Industrial Estate had generated a lot of inconveniencies which hampered the health of the Commercial operators

Table 4.7 Demerit of Operating near industrial waste site

Demerit	No of Respondents	Percentage
Offensive/Bad odour	14	28.7
Chemical waste/Pollution	23	46
Flood and Erosion	3	5.5
Safety and security problem	04	7.2
Bad road	6	12.7
Total	50	100

Source: Field survey, 2014

Health Impacts of Trading/working Near Industrial Waste Sites

A cursory look at Table 4.8 indicated that (30%) of respondents claimed that trading/working near industrial/ waste sites inflict on water and sanitation related diseases, (27%) of respondents claimed it causes psychological trauma, (8%) of them claimed others and (6.4%) respondents observed that it caused high blood pressure. This is a pointer to the fact that there were various health related problems associated with trading/working near industrial waste site.

Table 4.8 Health impacts of trading/working near industrial waste site

Health impacts of trading/working near industrial waste site	No of Respondents	Percentage
Inflicting water and sanitation related diseases	15	30
Causes high blood pressure	3	6.4
Psychological trauma	14	27
Others	4	8.0
Indifferent	14	28.7
Total	50	100

Source: Field survey, 2014

Frequencies of falling sick in the past 6 month

Table 4.9 indicated that (24.9%) of respondents claimed that they fall sick, three times in the past 6 month, (20.7%) of them observed that they fall sick twice in the last six months. Furthermore (13%) of the respondents claimed to have fallen sick once in the last six months and 12.7% of respondents observed that they have fallen sick more than three times in the past 6 month,. The remaining 28.7% respondents were indifferent that is they had not fallen sick in the last six months. An indication that shows that proximity to industrial waste site had implication on the number of respondents of occurrence of different ailment to the respondents.

Table 4.9Frequencies of falling sick in the past 6 month

Frequencies of falling sick in the past 6 month	No of Respondents	Percentage
Once	6	13
Twice	10	20.7
Thrice	14	24.9
More than three time	06	12
Indifferent	14	28.7
Total	50	100

Source: Field survey, 2014

Nature of the ailment /illness/sickness

The nature of the ailment as observed from Table 4.10 indicated that cholera accounted for 8.0% of the ailment , dysentery 14% malaria 12%, diarrhoea 12.0% whereas other forms of sickness like high blood pressure, shock etc. constituted 26.7%, and 28.7% of respondents were indifferent . This further shows that there are different forms /nature of sickness in the study area which may not be unconnected with the location of business in an industrial area.

Table 4.10: Nature of the ailment illness/sickness

Nature of the ailment illness/sickness	No of Respondents	Percentage
Malaria	6	12
Dysentery	7	14
Cholera	4	8
Diarhaorh	6	12
Indifferent	14	28
Total	50	100

Source: Field survey, 2014

Testing of Hypothesis

Ho: There is no significance relationship between the health of traders/workers operating around industrial estate and industrial waste.

Chi-Square Test Result

Table 4.11 shows that 4.6% of the respondents have their office/shop within 10m, 9.3% of the respondents whose distance of office/shop to industrial waste is 11-20m, 16% of the respondents whose distance of office/shop to industrial waste is 21-30m, none of the respondents whose distance of office/shop to industrial waste is 31-40m and none of the respondents whose distance of office/shop to industrial waste is 41-50m indicated that the health impact was inflicting water and sanitation related diseases.

Also, none of the respondents whose distance of office/shop to industrial waste is less than 10m, none of the respondents whose distance of office/shop to industrial waste is 11-20m, 2.5% of the respondents whose distance of office/shop to industrial waste is 21-30m, 3.8% of the respondents whose distance of office/shop to industrial waste is 31-40m and none of the respondents whose distance of office/shop to industrial waste is 41-50m indicated that the health impact was causing high blood pressure. Additionally, none of the respondents whose distance of office/shop to industrial waste is less than 10m, none of the respondents whose distance of office/shop to industrial waste is 11-20m, none of the respondents whose distance of office/shop to industrial waste is 21-30m, 24.5% of the respondents whose distance of office/shop to industrial waste is 31-40m and 2.5% of the respondents whose distance of office/shop to industrial waste is 41-50m indicated that the health impact was psychological trauma. Further, only 8% of the respondents whose distance of office/shop to industrial waste is 41-50m indicated that the health impact was other diseases. Finally, the table indicated that 28.7% of the respondents whose distance of office/shop to industrial waste is 41-50m were indifferent. The chi-square indicated a significant relationship between distance to industrial site and health implication (chi-square = 268.86, p<.001).

Table 4.11 Health impacts of trading near industrial waste site * Distance of shop/office to industrial site

Health impacts of Trading near industrial waste site	Distance of office/shops to industrial site					Total	CHISQ
	Less than 10 m	11 - 20 m	21 - 30 m	31 - 40 m	41 - 50 m		
Inflicting water and sanitation related diseases	2 (4.6%)	5 (9.3%)	8 (16.0%)	0 (0.0%)	0 (0.0%)	15 (30.0%)	
Causes high blood pressure	0 (0.0%)	0 (0.0%)	1 (2.5%)	2 (3.8%)	0 (0.0%)	3 (6.3%)	
Psychological trauma	0 (0.0%)	0 (0.0%)	0 (0.0%)	12 (24.5%)	1 (2.5%)	13 (27.0%)	268.864
Others	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (8.0%)	4 (8.0%)	
Indifferent	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (28.7%)	14 (28.7%)	
Total	2 (4.6%)	5 (9.3%)	9 (18.6%)	14 (28.3%)	19 (39.2%)	50 (100.0%)	

Table 4.12 Negative externalities associated with industrial waste * Distance of office/shops to industrial site

Negative externalities associated with industrial waste	Distance of office/shops to industrial site					Total	CHISQ
	Less than 10 m	11 – 20 m	21 – 30 m	31 – 40 m	41 – 50 m		
Pollution	2 (4.6%)	5 (9.3%)	9 (18.6%)	8 (17.7%)	0 (0.0%)	25 (50.2%)	
Infliction of health problem to the respondents	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (10.5%)	1 (2.1%)	6 (12.7%)	
Traffic congestion and bad road	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	12 (24.1%)	12 (24.1%)	268.864
Overstretching on the limited infrastructural facilities	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (8.9%)	4 (8.9%)	
Others	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (4.2%)	2 (4.2%)	
Total	2 (4.6%)	5 (9.3%)	9 (18.6%)	14 (28.3%)	19 (39.2%)	50 (100.0%)	

IV. Recommendations and Conclusion

Based on the findings above, the following recommendation are made

- The Lagos state Government should enforce the issue of polluters pays fee into major industries that operates at highest scale of production with pollution very close to residential environment so that their menace to the environment may be reduced
- The Lagos State Government through the ministry of environment in collaboration with National environmental Standard Regulation and enforcement Agencies should embark on the issue of environmental impact auditing so to determine the progress impact on the environment of the activities of the various industries so as to safeguard the environment.
- The Lagos State Government and other actors in the industrial location should commence a proper environmental impact Assessment (EIA) before an industry would be located in such an industrial area so as to see to desirability using environmental effects as parameters
- The Lagos State Physical planning and development Authority (LASPPDA), Lagos State ministry of physical planning and Lagos State urban and Regional planning Board (LASURB), should enforce development control measure to guide against proximity of commercial/residential to industrial location through introduction of building line, setback
- Approving residential development project within in industrial location by town planning agencies should be discontinued so as to reduce he intensity of industrial location effect to the people of various commercial center.
- The Lagos State Government should provide the different industries and over industry with active chemical neutralizer that would neutralize drainage, canals and other public places
- The industrial waste treatment centre should be constructed and located in each of the local government area and industrial estate that have industry for the sustainability of the community.

It is the opinion of this study, therefore, that if all recommendations above are effectively implemented, the problem of inadequate industrial waste management in the study area would be drastically reduced.

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