

An Open Access Journal available online

Effect of Industrial Pollution on Residential Neighbourhood: Amuwo Odofin Industrial Layout Lagos as Case Study

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Abstract: Industrial activities are responses to the need to better the lots of man but these are not without attendant consequences on the environment. This paper examined the effect of industrial pollution on residential neighbourhood using Amuwo Odofin industrial layout as case study. A total number of 350 questionnaires were administered on the residents who were selected using stratified random sampling technique on one hand and 100 questionnaires on the industrial workers on the other hand to elicit information on the impact the industrial activities have on the neighbourhood. The workers were selected using systematic random sampling technique where the 1st and every 10th item were selected. Descriptive statistical techniques were used in analysing the data collected. The result showed that various forms of environmental pollution emanating from industrial activities are prevalent in Amuwo Odofin. The paper concluded that the industrial activities have negative effects on the neighbourhood and recommended amongst others that, there is the need for organizing seminars on environmental protection awareness for both entrepreneurs and individuals to create an awareness of the effect of the activities on the environment.

Key Words: industrialization, Environmental pollution, and Neighbourhood.

Introduction and Problem

The environment is the complex of physical, chemical, and biological factors or processes which sustained life. Man is part of these components, which make up the planetary ecosystem.

Science and history both agreed that environment existed before the advent of man. Thus, the environment proceeded man and by deduction it preceded human, technological and scientific development activities. It may

be rightly said that this environment before the advent of man was "unspoiled", the earth's natural resources were not therefore given to man to "destroy", "pollute" or degrade " (fubara, 1999).

Human activities however have contravened this natural and divine plan for the environment. The major alarming activity is production, which encompasses diverse industrial activities from petroleum refining to chemical processing, textile, food, biosynthetic production of these activities are useful to man; they however emit by-products that constitute major pollution to the environment.

Industrial activities release major pollutants into the environment thereby causing air, water and land pollution, as well as noise. Industrial pollution is thus a threat to both human, animal and plant life and it affects the aesthetic quality of the environment. Noise, which could stress, related illness and diseases such as cancer, kidney failure nervous disorders, leukemia, mental retardation, hearing failure or total deafness is a fallout of industrial pollution.

The idea of development was considered by the government with the aim of putting a rise in the standard of living of every Nigerian by a growing output of goods and services. There was also a quest for civilization and modern life style without having a regard on the impact of these activities on the environment. Industrialization came into play and was seen initially as a sign of development but bore with it more complicated problems. Major activities during production process involve the use of chemical whose by-products constitute industrial waste that are sometimes discharged carelessly into the environment through pipes, drains,

air and land and find their way into water used for drinking, fishing and other purposes.

Literature suggests that industrial pollution in Amuwo Odofin has not been empirically linked with the neighbourhood.

This paper tries to examine the effect of industrial waste on residential neighbourhoods with particular reference to Amuwo Odofin industrial layout and it covers major aspects of human activity (Industrialization in particular) that can constitute pollution and environmental degradation and the effect of these on neighbourhoods around those activities.

Study Area

The paper focuses on the Amuwo Odofin industrial layout which situates in the western part of Lagos metropolis. It is about 40km from the capital of the state (ikeja) and the area is presently under the jurisdiction of Amuwo Odofin local Government. This area was initially manage by the old Badagry local Government before being divested into Amuwo Odofin local Government. Amuwo Odofin is bounded on the north by the major ojo town, on the south by Orile iganmi\coker, on the east by Oshodi/ llasamaja /mushin and on the west by Apapa seaport / kirikiri. It is one major town that has good accessible roads with a federal government road named Ojo/Badagry express way that is plied by more than 50,000 automobiles per day (sofoluwe, 1997). Three major residential layouts are embedded in this local government (mile 2 low –cost housing estate, Amuwo Odofin GRA and festac town).

Relevant Literature

Ewekoro Cement Factory was used as a case study by Soleye (1963) documenting the effect of cement

production, which builds dust on the immediate neighbourhood. The current study expanded on the scope of this study by going beyond cement industrial activities to cover other industrial processes. The study of Hutohpull (1996) focused on pollution in the oil, gas and energy industries and pollution abatement technologies and its defects, but this paper covers a broader spectrum of industrial production processes and its side effect on the environment

Gross smoke pollution resulting into gross massacre of wildlife and the widespread development of deprived savannas resulting in the severe drought which occurred in many states in Nigeria was projected in the research work of Sofoluwe (1997) in other words, the study focused mainly on the effect of gross smoke pollution on the natural ecosystem. The author focused on pollution arising from locomotive workshops and yards (for example in Ebute metta in Lagos), electrification of railway locomotive engine and smoke from industrial machines and consideration was not given to other forms of pollution for example, from industrial activities.

Uduehi (1999) had a focus on oil sector pollution with its resultant effect on the degradation of natural resources, this current paper covers other industrial production processes because that was not extensively discussed. Fubra (1999) researched on industrial activities and the efficiency of environmental protection laws and statutes, suggesting recommendations for better implementation and enforcement of the laws to curb future industrial waste discharge on the environment. However the study did not consider the effect of these industrial activities on

neighbourhood residents, which is the focus of this paper.

In the works of Henderson (2002) focus was put on the analysis of environmental pollution resulting from

domestic activities such as household pollution, discharge of sewage into water courses, and open disposal of municipal waste from households. However the author did not delve into industrial activities that can bring pollution, which this paper focused on. John (2002) focused on industrial pollution and its negative effect on property value without considering industrial pollution vis a vis its effects on residential neighbourhood.

Methodology

The research is centered on the effect of industrial waste on neighbouring residents. A sample of two different groups were selected using both stratified random sampling technique systematic random sampling technique, the groups are the industrial workers and the residents in the neighbourhood (mile 2 low cost housing Estate, Amuwo Odofin GRA and festac town).

A sample of 100 workers were selected using systematic random sampling where the first and every 10th worker were chosen, with at least 5 workers selected from each of the 20 industries based on the records of the Amuwo Odofin local Government council.

The selection of residents from mile 2 Jakande Estate was subjected to the systematic random selection procedure where the first and the tenth residents were selected, where 200 family heads were chosen; from Amuwo Odofin GRA, 100 family heads were chosen and 50 family heads were selected from households in festac town making a total of 350 family heads..

The selection of residents in festac town was restricted to ‘‘1st – 3rd Avenue ‘‘ since these occupiers are the ones likely to be affected by industrial activities because of their proximity. Descriptive statistical techniques were used for analysis and presentation of data.

Data Analysis and Discussion

Three hundred and fifty questionnaires were distributed to the occupants in the neighbourhood to measure the effect the activities of the industrial layout on

them. One hundred questionnaires were administered on the workers in the industry to identify the ways by which production by-products are disposed. The statistical table below shows the response of the respondents.

Level of Environmental Pollution in the area

The views of the residents were sought on the prevalence of the various forms of the pollution in the area and their responses are shown in table 1 below.

Table 1: Response of residents on the prevalence of land, water and air pollution in the area.

Response	Frequency	Percent
Very prevalent	152	43.4
Not prevalent	128	36.6
Indifferent	70	20
Total	350	100

Source: Author’s Field survey

Out of the total respondents, 43.4 percent were of the view that pollution ranging from land, water and air are very prevalent in Amuwo Odofin while 36.6 percent of them feel otherwise and 20 percent of the respondents were indifferent. It can be seen that the various forms of pollution are common in the area as shown in table 1 above.

Sources of Pollution in the area

The residents were asked to comment on the various sources of pollution in the area with a view to determining the level of pollution that can be attributed to industrial processes and their responses are shown in table 2 below:

Table 2: Causal factors of pollution in Amuwo Odofin

Activities	Frequency	Percent
Household /domestic waste	78	22
Industrial process	109	31.1
Windstorm/ traffic congestion	65	18.6
Chemicas/ Drug	53	15.1
Open dumps	45	13
Total	350	100

Source: Author’s field survey

Out of the various sources of pollution in the area as identified by the respondents 31.1 percent of these sources were attributed to industrial activities while domestic waste and traffic congestion take 22 percent and 18.6 percent respectively. Other source of pollution in the area such as open dumps takes 13 percent. From this, it can be inferred that there are various

sources of pollution in the area with industrial having the largest percentage rating.

Effects of pollution on the residents' health

The opinions of the residents were sought on the effect of pollution on their health and they identified the following diseases shown in table 3 as fallout of the pollution in the area.

Table 3: Effect of industrial activities on the health of residents

Health Defect	Frequency	Percent
Deafness/Ear defects	90	25.7
Cardiovascular diseases	131	37.4
High Blood Pressure	66	18.9
Cancerous diseases	63	18.1
Total	350	100

Source: Author's field survey.

The respondents were of the opinion that only 25.7 percent of ear defect in the area can be attributed to industrial activities, 37.4 percent of cardiovascular diseases in the area is caused by the industries, high blood pressure carries 18.9 percent and cancerous disease with 18.1 percent.

Effects of industrial activities on the environment

The residents' views were sought on the effect industrial activities have on their environment and table 4 shows their responses.

Table 4: The effect of Industrial activities on the Neighbouring Building/Environment

Effects on Buildings/Environment	Frequency	Percent
Eroding of buildings	70	20
Fading of house paint	106	30.3
Corroding roofs	49	14
Falls in property values	56	16
Poor land productivity	69	19.7
Total	350	100

Source: Author's field survey.

The respondents' answers to the questions below show that the activities of the industry have negative effect on the neighbouring environment. The parts of the environment affected negatively by these industrial activities include the various components of their

buildings and land. Fading of paints of buildings takes 30.3 percent of the total effect while reduction in the productivity of land takes 19.7 percent. Others such as fall in the property values and corroding of roofs take 16 percent and 14 percent respectively. It is

obvious from table 4 that the various aspects of their environment are negatively being affected by industrial activities in Amuwo Odofin.

Effects of pollution on property values

The residents were asked to comment on their level of agreement with the

view that industrial pollution has negative effects on the values of properties in the area and table 5 shows their responses:

Table 5: There is a negative effect of industrial pollution on property values.

	Frequency	Percent
Strongly Agree	166	47
Agree	56	16
Disagree	65	18.6
Strongly Disagree	63	18
Total	350	100

Source: Author’s field survey.

The survey pointed out that 47 percent of the respondents strongly agreed that industrial pollution has negative effect on property values, while 18 percent strongly disagree. Those that agree take 16 percent while 18.6 disagree. The proportion that strongly agrees however supersedes other levels of agreement hence it can be inferred that industrial

activities have negative effect on property values in Amuwo Odofin.

Effects of industrial waste on the neighbourhood

The industrial workers were asked their industrial waste has negative effect on the neighbourhood or not and their responses are shown in table 6 below:

Table 6: Whether the Waste Generated by the Industry has Impact on the Neighbourhood

Response	Frequency	Percent
It has negative impact	21	21
Does not have negative impact	66	66
Indifferent	13	13
Total	100	100

Source: Author’s field survey

From table 6 above, 66 percent of the industrial workers believe that the waste generated by their industries does not have negative effect on the environment while 21 percent believe it has negative effect. Others are indifferent. This shows that the industrial workers are not conscious of the environment on which they operate.

Rating of the methods of waste discharge by the industries

The industrial workers were asked to rate the adequacy of the waste discharge methods currently being adopted by their industries and their responses are shown below:

Table 7: Adequacy of the pattern of waste discharge adopted by the industry

Response	Frequency	Percent
Adequate	38	38
Inadequate	26	26
Indifferent	36	36
Total	100	100

Source: Author's field survey

Table 7 shows the adequacy of the pattern of discharge adopted by these industries, 38 percent of the workers feel its adequate while 26 percent feel otherwise, others are indifferent. This goes a long way to show the level of environmental awareness of the workers.

Findings and Discussion

1. It was discovered that all forms of pollution such as air, water, land, and noise pollution such as air, water, land and noise pollution exist in the area with 41 percent of this pollution being attributed to the industrial activities.
2. Industrial activities in the layout affect the health of resident causing the deafness, ear defect, cardiovascular disease, high blood pressure, cancer and skin problems.
3. Industrial activities cause the residence to erode, fade house paints, and corrode roofs.
4. Industrial pollution cause a fall in property value.
5. The industrial workers are not really aware of the consequences of their industrial activities on the environment.

Conclusion and Recommendation

Government should ensure strict enforcement of zoning policies. The concept of zoning is aimed at separating nonconforming uses spatially from other

land uses. Industrial layout should be sited far away from city centres to minimize their effect on the citizens and the environment.

There is need for organizing seminars on environmental protection awareness for both entrepreneurs and individuals; this will create an awareness of the effects of their activities on the environment.

In the formulation of environmental policies, our cultural background and level of technology should be considered so as to make environmental policies implementable, there is problem in the effective implementation of imported policies.

Enforcement of penalty, fines, and restriction on individuals or firms who contravene environmental policies. Other technologies of waste disposal such as recycling and composting of waste could be adopted when necessary. Ensuring the creation of corporative association and fellowships for a purpose of enforcing environmental standard on erring bodies. This helps the interest of all interest of all residents in the community to be adequately represented at the highest level.

Conclusively, environmental pollution emanating from industrial activities in Amuwo Odofin has negative consequences on the environment. There is need therefore to balance industrial development with

environmental protection. Conservation policies to ensure continual renewability

of the natural endowments such as Air, Land, Water, and other natural resources should be encouraged.

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