Conflict, Effluent and the Environment: A Case study of Asejire Community and Coca-Cola Bottling Company, Ibadan, South/West, Nigeria

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Abstract

The 21st century has been characterised by a rapid increase in pollution of the environment due to industrialization, developmental processes and technological advancement. Environmental pollution from industrial effluents is a major problem in many developed and developing countries around the world today. The activities of the Coca-Cola plant in Asejire which discharges Effluents and other pollutants into its environment most especially the Asejire dam is of great concern. This is because human health, habitat and water bodies are affected by untreated Effluents discharged into the environment. This paper investigated the potential conflict and effect of Effluents waste from the Coca-Cola machining operation process on the environment. It employed the descriptive case study survey design, the population of the study is an estimated 12,573 residing in Asejire community Egbeda Local Government area of Oyo State (NPC, 2022). Using Stratified sample technique, a sample size of 120 respondents was purposively drawn to participate in the study. Quantitative and Qualitative data gathering methods were made used. The study showed that over the years there have been series of conflict between members of Asejire community and the Coca-Cola bottling company. One of the cause of the conflict is untreated Effluents discharged which contain hazardous substances that have adverse effect on aquatic life and man discharged into the environment. The study recommended that FEPA and NESREA, should penalise firms without the requisite waste treatment plant.

Key Words: Effluents, Pollution, Coca-Cola, Asejire, Conflict

Introduction

1.1 Background to the Study

The 21st century has witnessed a rapid increase in the pollution of the environment, due to increased industrialization, technological advancement and development (Gray, 2011; Kromm, 1973). Environmental pollution occurs when the environment cannot process and neutralize harmful by-products generated from human or industrial activities. Today, environmental pollution from industrial effluents which is the focus of this study is a major problem in many developed and developing countries around the world. Many pollutants such as: pesticides, oil, hydrocarbons, heavy metals as well as thermal and radioactive pollutants can get into the environment through direct or indirect release from industries, agriculture and households (Fathi *et al.,* 2008). The excessive release of pollutant in the environment cause damages to human and animal health, plants and trees including tropical rainforest (Tropical Rainforest Animals, 2008).

Nigeria has established industries like: oil companies, soaps and detergents, food and beverages, breweries, textiles and apparels, building materials, timber products, wood and leather works, metal works, chemicals and plastics, clay and other industries (Vagele and Odukoya, 1974). Unfortunately, most of the multinational Oil companies operating in the Niger-Delta region of Nigeria have failed to adopt best practices regarding strategies for risk mitigation and compliance with environmental regulations (Ite, Ibok, Ite, & Petters, 2013). All these industries produce various effluents that are discharged into the environment. Most large cities in Nigeria like: Lagos, Portharcourt, Ibadan and Kano are feeling the effect of pollution from industrial effluents. It is needless to talk of tonnes of effluents disposed indiscriminately into the lagoon, rivers and streams. It has been realized that discharges of untreated or incompletely treated wastes and other toxicants will hasten the deterioration of receiving water bodies. The situation is compounded by the fact that people in most of these countries do not have access to potable water and in many cases river water serves as the major source of drinking water (Umeham, 2014). These however, results in the uptake of these objectionable substances into the human body causing health problems.

The Coca-Cola plants in Asejire discharge its effluents into the surrounding environment including surrounding rivers and streams. This has caused

undesirable effects on the different components of the aquatic environment and on fisheries (Tolba, 1982). Studies have shown that water bodies are affected by the discharge of the effluents (Emiola and Olayemi, 1991). The disposal and management of wastes in Nigeria present serious environmental problems. The usual methods of waste disposal in the country are: land filling, dumpsites, land spreads, water disposal, and incineration. Each of these methods has serious environmental implications because of their potential to pollute and contaminate underground and surface water bodies in the country (Olanike, 2003).

The finding of Sangodoyin, (1999) also opines that effluents discharge alters the physical, chemical and biological nature of receiving water bodies. Microorganisms in streams or river bodies have the capacity to accumulate pollutants such as heavy metals, Polycyclic Aromatic Hydrocarbons (PAH) and Polychlorinated Biphenyl (PCB) in the environments which are persistent organic pollutants (POPs). When these contaminants are taken into the body they may not only cause procreative abilities of these microorganisms, but eventually cause impact on the health of human beings (Ademoroti, 1979).

Also, Sunkin et al., (2002), posited that polluters of the environment should be required to pay the full cost of the rectification of any environmental degradation that has occurred as a result of their activities. In a bid to control pollution among others functions the Federal Government on Nigeria established the Federal Environment Protection Agency (FEPA) in 1988 through Degree 42 of 1988. The agency is charge with the overall responsibility for environmental management and protection. The agency has however been unable to effectively prevent the discharge of industrial effluents into the environment in the country because of a number of factors. Many industries in Nigeria including the Coca-Cola plant in Asejire which provides lots of employments for teeming youths are also culpable in releasing industrial effluents into the environment which is harmful to human, animals and plant. It is against this background this paper seeks to assess the effect of industrial effluents from Coca-Cola plant in Asejire on the environment.

The Problem Statement

Generally, industrial waste in the form they exist are grouped into solid waste and liquid waste. While some these waste are grouped into two scheduled wastes and

are hazardous to nature. This industrial waste results from cutting oil, lubricants, solvents, and additives used in the metal working processes helps to improve machine life, increase productivity, and extend tool life but when they are discharged into the environment without treatment it becomes dangerous to the people, the flora and fauna, and the environment (NESREA, 2007). The Coca-Cola plant in Asejire over the years have been generating waste most especially Effluent and other solid waste which is disposed into the Asejire river on a daily basis. Lake Asejire is located in South-western Nigeria in Egbeda L.G.A. of Oyo State. It is a man-made lake constructed on River Osun in 1972. River Osun is one of the series of West African rivers which do not drain into Niger system but discharge into coastal lagoons and creeks bordering the Atlantic Ocean (Ayoade et al., 2006). Lake Asejire has elevated levels of contaminants due to effluents from various industries most especially the Nigerian Bottling Company, Plc (NBC) and breakdown of ecological balance caused by widespread destruction of flora and fauna diversities (Lameed and Obadara, 2006).

The Asejire river which is an importance source of economic live to the people of Asejire, for instance, it is a common thing for cassava tubers to be steeped in the flowing river for processing into other food products. This is a major source of cyanide pollution in this water. Despite this high level of pollution, the lake still supports aquatic lives and serves the populace. Cyanide, a rapidly acting poison is one of the likely chemical pollutants present in the water. The lake and its environs has over the years been negatively impacted by the activities of the Coca-Cola Bottling company. The people uses the water from the river to cook, wash their clothes, water their farmland, domestic and other purposes. However, the Effluents and other toxic chemicals discharged into the Asejire river have reduced the quality of the water and makes it unsuitable for a whole lots of activities.

Also, previous researchers have established the presence of pollutant in the water. In response to the aboved problem, the government set up some agencies such as the Federal Environmental Protection Agency in 1991, which is to monitor if the effluents and other chemicals discharged by manufacturing and other companies are treated before discharge into the environment. However, events unfolding itself shows that many industries don't treat industrial effluents before discharging it into the surrounding environment leading to increase in

environmental pollution over the years. In order to keep this environmental risk in check, some safety measure must be applied (Dunbabin, 1992). This paper investigates the potential impact of effluents waste from the Coca-Cola machining operation processes on the environment.

Research Aim and Objectives

The aim of the study is to assess the impacts or effects of industrial waste from Coca-Cola plant in Asejire on the environment.

The Objectives of the study are as follows:

i. To find out what is the major cause of conflict between Asejire community and Coca-Cola Bottling company.
ii. To evaluate the impact of industrial Effluents from Coca-Cola Bottling company on the quality of water, plant, health, flora and fauna in Asejire area and is environment.
iii. To find out the policy put in place and steps taken by Federal Environmental Protection Agency and Coca-Cola industry to manage the effluents from industrial waste on the environment.
iv. To find out the challenges faced by government agencies and other stakeholders in a bid to monitor the environmental activities of industries

Research Questions

i. What are the major the major cause of conflict between Asejire community and Coca-Cola bottling company?
ii. What are the effects of industrial Effluents from Coca-Cola bottling company on the quality of water, plant, health, flora and fauna in Asejire area and is environment?
iii. What are the kind of policies put in place and steps taken by FEPA, NASREA and Coca-Cola to manage the effluents from industrial waste on the environment?
iv. What are the challenges faced by government agencies and other stakeholders in a bid to monitor the environmental activities of industries?

Significance of the Study

The study assesses the effects of industrial effluents from Coca-cola plant in Asejire on the environment. This paper aims to proffer solutions to the problem of

industrial effluents as it has been discovered that in developing countries to which Nigeria belongs environmental abuse (pollution) is a major problem. The findings of this research will greatly contribute to the enacting of laws or policy that will check the activities of industries on the environment. The significance of the study is to serve as a guide to industrialists, Estate surveyors, lawyers, government, Town Planners and other stakeholders on the effective treatment of industrial waste (effluents) on the environment. It will also help in educating the public on various steps taken to use and maintain the zoning ordinances, for uniformity in the landscape development process of the capital city by the physical planners.

Scope of the Study

The study area is Asejire where Coca-Cola plant is situated, although there are other industries in Asejire area, the study will look only at the Coca-Cola plant although references would be drawn from other surrounding area. The impact of the pollutant from the activities of Coca-Cola plant in Asejire on Ogunpa river and the surrounding environment would be look at.

II. Literature Review

Water Pollution due to Industrial Activities and its Impact on Human Health

Pollution of the environment occurs when the environment becomes unable to process and neutralize harmful by-products of natural, human or industrial activities. It has become heightened majorly by the many industrial activities. Pollutants such as: pesticides, oil, etc are through industrial activities, agricultural farmlands and domestic wastes released into the environment directly or indirectly (Fathi *et al*., 2008). The discharge of untreated industrial effluents or waste water into surrounding terrestrial or aquatic habitat has been implicated as one of the major sources of environmental pollution (USEPA, 2006). These pollutants remain in the water which in freshwater areas is usually the same one that the members of the community drink, wash, and cook with, thereby endangering their livelihood generally. Beyond the contamination of rivers and streams, the destruction of undeveloped lands and forests is as much a source of concern to local communities as the destruction of cultivated land.

Industrial waste varies both in flow and in pollution strength and can therefore be categorized as extremely complex mixtures containing inorganic and organic

compounds (Nielsen and Rank, 1994). In Nigeria, over 80% of the industries release solid wastes, liquid effluents and gaseous emissions directly into the environment without any treatment (FEPA, 1991). Industrial effluents carry various types of contaminants such as; metals, organic and inorganic matter, Polycyclic Aromatic Hydrocarbons (PAHs), microorganisms into the environment especially the aquatic systems (Ho *et al*., 2012). The complexity of industrial effluents as a result of its various contaminants makes it quite impossible to carry out a hazard assessment based on chemical analysis (El-Shahaby *et al*., 2003).

Many studies have reviewed the possible effects of industrial effluents on the environment and have given positive confirmations (Fiskesjö, 1993, Babatunde and Bakare, 2006). A study was carried out by Lameed and Obadara (2006) to assess the activities of Nigerian Bottling Company, Plc (NBC), Coca Cola Industry (both positive and negative) on the biodiversity of the area of Asejire. Parameters analyzed were Dissolved Oxygen Concentration, pH, temperature, turbidity and some heavy metals. Results showed that family Palmae (flora) and Archachatinidae (fauna) have the largest population abundance with 24.32 and 18.64%, respectively. The water sample collected showed a pH of 5.7, 6.3 and 6.5 at different points of the Lake. This is an indication of acidic water and might be toxic for human consumption except treated to comply with the World Health Organization recommended pH 7, for safe and drinkable water (Lameed and Obadara, 2006).

A study carried out by the Management of Industrial and Municipal Effluents and Urban Run-off component of the Lake Victoria Environmental Management Project (LVEMP, 2002) indicated that most factories in developing countries to which Nigeria belongs do not have effluents treatment plants, even where they are existing, most industrial wastewater treatment plants are poorly designed and constructed. This is because the monitoring agencies are too weak to sanction many of these multi-national companies or local ones that belongs to politicians or their associate.

In addition, it was found that solid waste, which is indiscriminately, dumped in wetlands in the suburbs of Nigeria cities were one of the sources of chemicals that ends up in drinking water. These results indicated directly the high possibility of

pollution to waterways mainly from industrial establishments due to careless and improper disposal of wastes (Kayima and Kyakula, 2008). A study carried out by Muwanga and Barifaijo, (2006) established the main pollution sources of Kinawata stream and the Nakivubo channel were due to industrial effluents and domestic waste run off. The major causes of pollution in the Nakivubo channel have been subsequently identified as raw sewage from public sewage systems, particularly untreated sewage from sewage works, abattoir effluents and garbage collection (Kansiime *et al*., 1995).

Carmago et al., (1992) found that the rivers near industrial discharge point have adverse impact on the environment as well as on the macro-benthic communities. Toxic contaminants from surface runoff, sewage discharges and industrial discharge have caused negative impacts towards the freshwater macro-benthic communities. The presence of substance chemical such as ammonia, chlorine, cyanide, metals, PCBs, pesticides and phenols have caused a decline pattern on the number of species and changes in the species composition. Furthermore, during the industrial process, high amount of hydrofluoric acid (HF) are used to separate different sandy materials which are subsequently used for manufacturing glass at industrial plants.

Yadav et al. (2007) studies on fertilizer industrial discharge showed that some components in the discharge may interact with each other and produce toxicity to aquatic organisms. For instance, the interaction between dissolved oxygen and ammonia changed the respiratory physiology in fresh water fish. In addition, results showed that the toxicity of the effluents in fish depends on concentration and duration of exposure. Several study showed that the excess concentration of ammonia, whether it is ionized or unionized, is one of the major contaminants in fertilizer discharge and it is toxic to aquatic living organism. It could cause impairment to the cerebral energy in fish and a hybrid catfish (Yadav et al., 2007; Ekweozor et al., 2010).

Many serious human diseases such as cholera, typhoid, bacterial and amoebic dysentery, enteritis, polio and infectious hepatitis are caused by water-borne pathogens as a result of effluents released into water from industries. In addition, malaria, yellow fever and filariasis are transmitted by insects that have aquatic

larvae. Faecal pollution of water resources by untreated or improperly treated sewage is a major cause for the spread of water-borne diseases (Mott Mac Donald and M & E Associates, 2001). To a lesser extent, disease-causing organisms may also be derived from animal rearing operations and food processing factories with inadequate wastewater treatment facilities.

In most developed nations, the spread of water-borne infectious diseases has been largely arrested through the introduction of water and sewage treatment facilities and through improved hygiene. But in many developing countries, such diseases are still a major cause of death, especially among the young (Lamb, 1985). A strong correlation exists between the infant mortality rates of various countries and the percentage of the population with access to clean water and sewage disposal facilities. The impact to human health is the utmost important criteria to look into apart from the effect to surface water and groundwater on the living organism and sediments. Industrial effluents and Metals, as described in the above case study showed the potential for health risk.

Theoretical Framework

This paper though hinged primarily on the Conflict theory. Karl Marx and Max Weber as the intellectual fountain heads that gave prominence to it. It is centered on the tension or struggle that goes on in every life. Conflict occurs whenever disagreements exist in a social situation over issues or substance and/or emotional antagonism. It deals with the incompatible aspects of the society. According to Subedi, (2014) viewed from this perspective, change emerges from crisis between human beings and their society, and so human beings have capacity to think and act against situations that are not satisfactory to their existence. The major assumptions of the conflict theory are as follows:

First, society promotes general differences in wealth, power, and prestige, qualities which everyone desires; second, the different parts of the social system are intertwined especially because one group is inherently dominant over the other; third, society does not necessarily have needs, but individuals and groups do. The needs of the dominant group are however perceived as 'system needs'; fourth, there is a basic question of 'who benefits from the social arrangements of the day? The inherent conflict always gives the advantage to the stronger party;

fifth, the conflict itself which leads to tension, hostility, competition, disagreement over goals, as well as other violence may not always be negative. Indeed, in some instances, they can act as an adhesive to help join groups together in the pursuit of a positive goal; Sixth, to understand society, we have to realize who holds the power and also the ability to use it.

The conflict theorist will state that the main characters will cause some very defined conflicts. These conflicts are usually based on the organization of similar interests and concerns and this clearly depicts the situation in most of our communities. It must however be borne in mind that not all social systems in which individuals participate segmentally allow the free expression of antagonistic claims. Social systems tolerate or institutionalize conflict to different degrees. There is no society in which any and every antagonistic claim is allowed immediate expression. Societies dispose of mechanisms to channel discontent and hostility, while keeping intact the relationship within which the antagonism arises. Such mechanisms frequently operate through 'safety-valve' institutions such as the various commissions which provide substitute objects upon which to displace hostile sentiments and aggressive tendencies.

Unfortunately, although in Nigeria safety-valve institutions may serve to maintain both the social structure and the individual's security system; they are not completely functional for both of them. This is largely due to the fact that in reality, they prevent modification of relationships to meet changing conditions and hence, the satisfaction they afford the individuals or communities can only be partially or momentarily adjustive. In fact, they lead to a displacement of priorities on the part of companies such that they no longer aim at devising a final solution to the unsatisfactory situation, but focus mainly on merely releasing the tension which arose from it.

Materials and Methods

The research design adopted for this study was Ex-Post-Facto which involves testing or analyzing possible antecedents of events that had occurred before the researcher got to the field. In so doing, data was collected using a researcher developed instrument called Coca-Cola Industries and Asejire Community Relations Questionnaire (C.I.A.C.R.Q). The population of this study referred to an

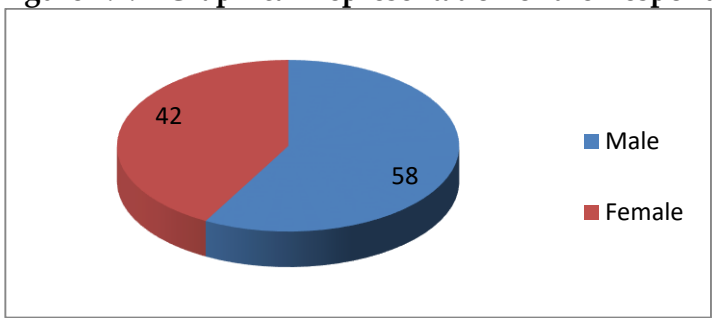
estimated at 4158 residing the five settlements (Olukeye, Erinmi, Aba-Alufa, Faleti and Alabuke) in Egbeda Local Government area of Oyo State (NPC, 2019) where Coca-Cola plant in Asejire is located. A sample size of 120 respondents was drawn using stratified sample technique to participate in the study. The two major methods of quantitative and qualitative data gathering were made used. The 120 questionnaires were administered, while the qualitative research built narrations about issues.

This research work used both primary and secondary sources of information. Primary sources of data were questionnaires administered on residents of Asejire area and interview that was conducted with some key stakeholders within the Coca-Cola and representatives of FEPA to corroborate the findings. In addition, secondary source of information was from existing books published by various scholars on Effluents pollutions with particular references to its effects on the environment. Also, journals published on Effluents pollution, articles and other online materials were also used. Others are: newspapers, magazines, articles and internet materials found useful were made use of in the research work. The primary source includes structured In-depth Interview (IDIs) and questionnaires that were formed base on the research questions and the research topic in question.

Data Analysis and Presentation of Findings

This chapter is concerned with the analysis of the data collected from the field, response rate, and discussion of findings. The data are firstly coded and converted to meaningful information presented in tabular form. In line with the structure of the questionnaire used to collect data, each table and diagram addressed specific statement in the instrument. The analysis is based on the 100 out of the 120 questionnaires administered. This is because only one hundred (100) questionnaires were returned from the one hundred and twenty (120) planned for.

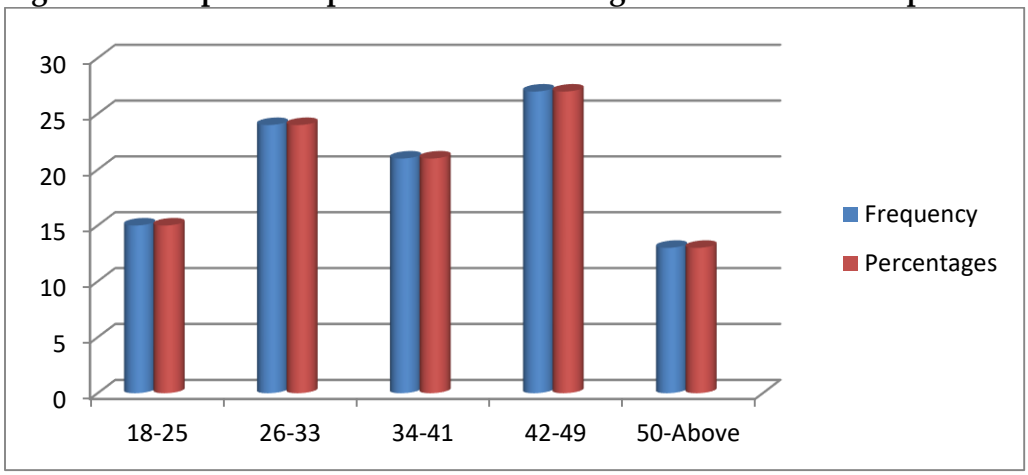
Figure 1.1: Graphical Representation of the Respondents Gender



Source: Researcher's Field Survey, 2023.

Figure 1.1 above revealed that on Gender 58% of the respondents are male while 42% of the respondents are female. This means that both gender was used for the study and were well represented.

Figure 1.2: Graphical Representation of the Age Distribution of Respondents

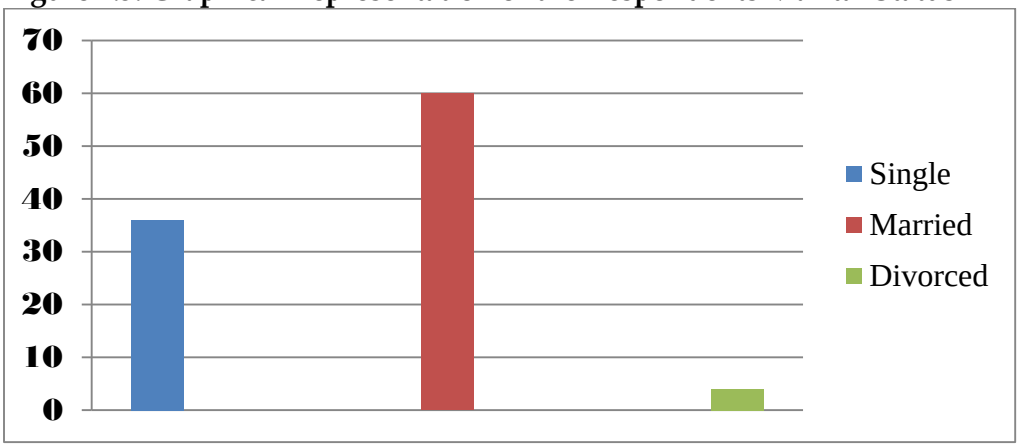


Source: Researcher's Field Survey, 2023

Figure 1.2 above show that on age of respondents between 18-25 years there were 15%, while 26-33 years are 24%. Between 34-41years of the respondents are 21%, while respondents whose age falls within 42-49 are 27% and finally respondents between the ages of 50 years and above are 13%. This means that the age of

respondents from the age of 18 and above is recognised by law as adult they therefore understand the effects of Effluents on the environment.

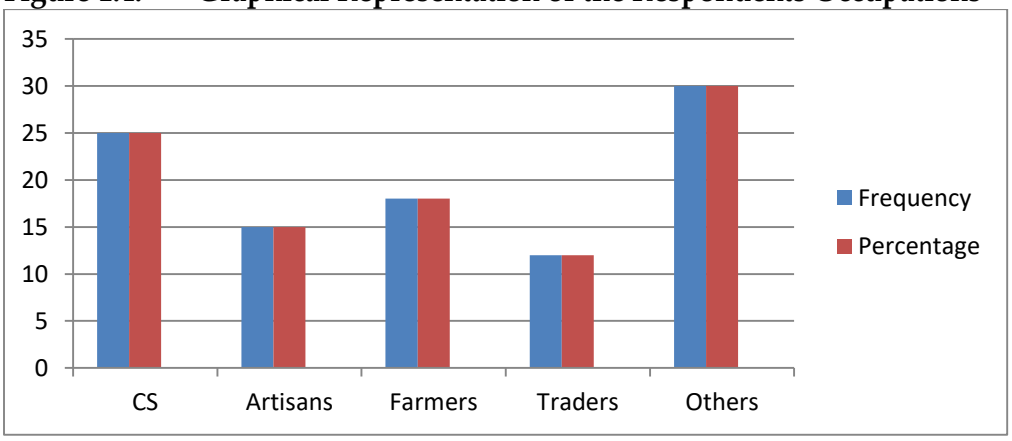
Figure 1.3: Graphical Representation of the Respondents Marital Status



Source: Researcher's Field Survey, 2023.

The Table 1.3 and Figure 1.3 above show that on marital status 32% of the respondents are single, while 60% of the respondents are married and 8% of the respondents are divorced. This means that on marital status the respondents were well represented and most of the respondents used for the study were married.

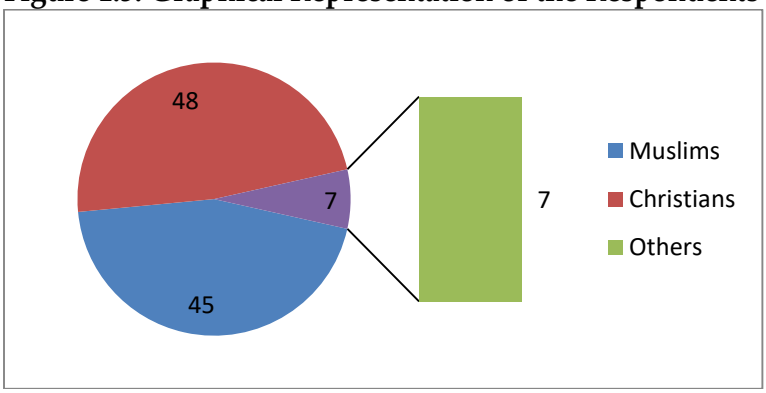
Figure 1.4: Graphical Representation of the Respondents Occupations



Source: Researcher's Field Survey, 2023.

Figure 1.4 above show that on Occupation 25% of the respondents are Civil Servants, while 15% of them are Artisans. They revealed that 18% of the respondents are Farmers, while 12% of them are Traders. They showed that 30% of the respondents are fall into others. The others include: clergy, self-employed persons, public servants among others. The findings revealed that on occupation the respondents in Asejire were well represented and workers in the industry Civil servants as seen from the findings above.

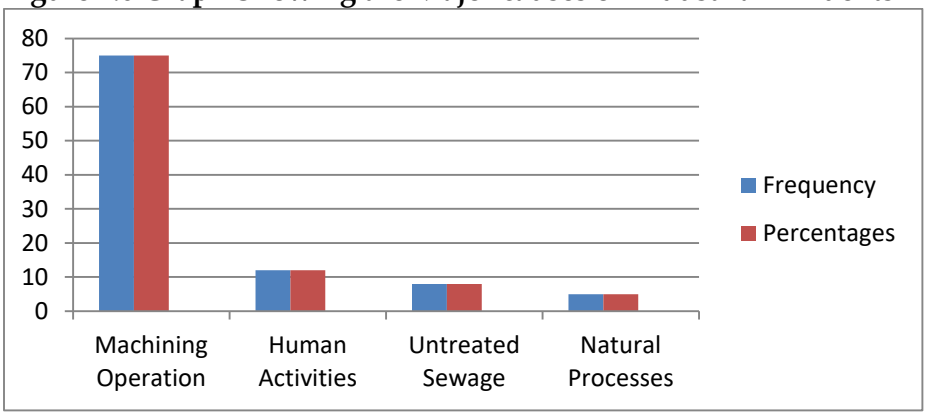
Figure 1.5: Graphical Representation of the Respondents Religion



Source: Researcher's Field Survey, 2023.

The Table 1.5 and Figure 1.5 above show the religious characteristics of the respondents, it revealed that 45% of the respondents are Muslims; 48% of the respondents are Christians and 7% of the respondents are practitioners of other religion. This confirms the popular notion of both Christianity and Islam being the most practiced religion in Nigeria.

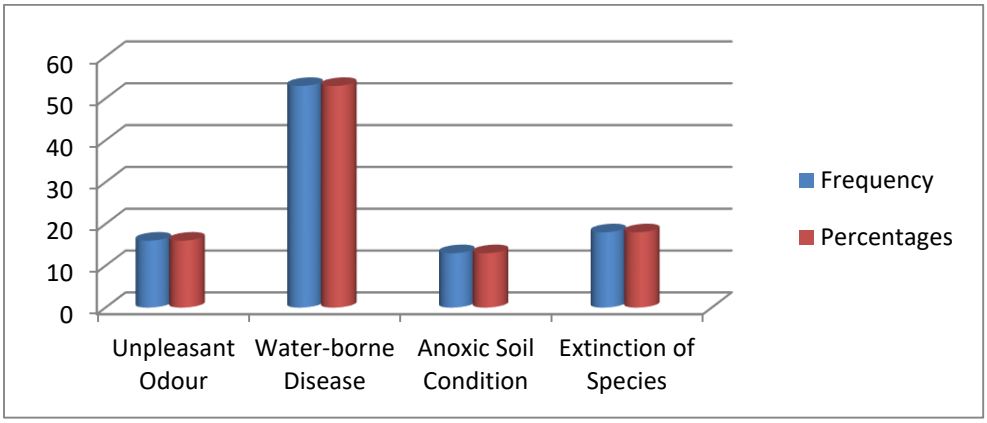
Figure 1.6 Graph Showing the Major causes of Industrial Effluents



Source: Researcher's Field Survey, 2023.

Figure 1.6 show the frequency and percentage of the respondents' responses on the causes of Industrial Effluents. It reveals that 75% of the respondents agreed that machining operation of industries were the major cause of Industrial Effluents. While 12% of the respondents agreed that it is human activities like fumigation and bush burning. They revealed that 8% agreed that disposal of untreated sewage is the cause while 5% agreed that natural process of lighting among others causes it.

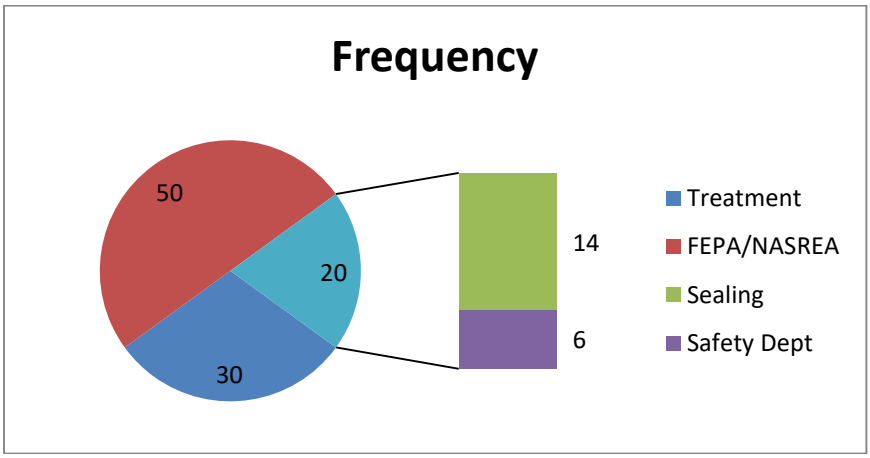
Figure 1.7: Graph showing the Effects of Industrial Effluents on the Environment



Source: Researcher's Field Survey, 2023.

Figure 1.7 show the percentage of the respondents' responses on the effects of Industrial Effluents on the environment. It revealed that 16% of the respondents agreed that it causes unpleasant odour in the environment; while 53% of the respondents agreed that industrial effluents cause water borne diseases. It also showed that 13% agreed that it causes anoxic soil conditions and 18% agreed that it causes death and extinction of exotic species of aquatic animals.

Figure 4.8: Graph showing the Effects of Industrial Effluents on the Environment



Source: Researcher's Field Survey, 2023

The above Table 1.8 and Figure 1.8 show the percentage of the respondents' responses on the management of Industrial Effluents. It reveals that 30% of the respondents agreed that the treatment of Industrial Effluents by industries before disposal is a way of managing it, while 50% agreed that the setting up of FEPA/NASREA was important. They revealed that 14% agreed that there should be sealing of industries or agencies accused of repeatedly disposing industrial Effluents into the environment. Also, 7% agreed that the setting up of safety department in industries is very significant.

Conclusion

The study showed that Effluent from industries contains some hazardous substances e.g. lead, cadmium and iron. Their concentrations exceed the permissible limit of national and international standards, hence, the effluent

should be treated and the concentration of some or all of the hazardous substance should be reduced before the effluent are discharged into the environment so as to circumvent their adverse effect on aquatic life and man. The state of health and healthy living of human populace depend largely on the health status of the environment. This therefore places the responsibility on man to continuously and consistently monitor the environment. Urbanization and industrialization have negatively impacted the environment through the destruction of the ecosystem and pollution of the soil with industrial waste discharges. As part of our mandate, it is our plan to continuously assess the impact of human activities and proffer necessary solutions to seemingly unhealthy situations. Our future research work as usual will focus on improving the environment for better habitation and development.

Recommendations

The study revealed that rivers are under pollution stress due to point and non-point sources discharged resulting from industrial and domestic sewage. The reports from WHO, (1984), WHO, (1996), FEPA (1991), on tolerant levels for domestic water use. The deterioration of the surface waters can be minimized if the responsible government agencies ensure regular monitoring and strict adherence to the standard guidelines of Federal Environmental Protection Agency. The discharge of effluents into body of water without treatment should be punishable by law of the Federal Republic of Nigeria. Industries without the requisite waste treatment plant should be made to shut down.

Regular monitoring of industries will be an added advantage, and awareness campaign needs to be carried out by government and non-governmental organizations. The researcher therefore recommends that effluents being discharged into the streams have considerable negative effects on the water quality in the receiving streams. With increased industrial pollution in rivers, the load of pollutants entering the receiving streams will continue to increase and further diminish the quality of water. Introduction of cost-effective cleaner production technologies must be enforced, such as on-site waste separation and reduction, and effluent recycling.

Introduction of cost-effective cleaner production technologies must be enforced, such as on-site waste separation and reduction, and effluent recycling. It is therefore recommended that careless disposal of the wastes should be discouraged and there is need for each industry to install a waste treatment plant with a view to treating wastes before being discharged into the streams. The continuous indiscriminate disposal of these effluents to terrestrial and aquatic ecosystems may directly or indirectly increase the level of exposure of human beings to the toxic substances present in these effluents thereby predisposing them to harmful or deleterious effects. Therefore, adequate measures such as treatment of waste waters or effluents released after industrial production should be taken by industries so as to reduce the adverse environmental impacts of these effluents.

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Questionnaire

Dear Respondent,

This is an academic research work being carried out by a student of National Open University, on the topic: The Effect of Industrial Effluents on the Environment (A Case study of Coca-Cola Plant in Asejire). Please note that any information provided by the respondents will be treated will utmost confidentiality and use for purely academic purpose. Thank You.

Section A: Bio-Data/Demographic Variables

Gender: Male ( ) Female ( ); **Marital Status:** Single ( ) Married ( ) Others ( ); **Religion**: Christian ( ) Muslim ( ) Others ( ); **Education:** Informal ( ), Pri/Secondary ( ) HND/BSC ( ); MA/MSc ( )

Section B: What are the major causes of Industrial Effluents?

Sn	Items	Agree	Undecided	Disagree
6	The machining operation of Industries is causes effluents			
7	Human activities like fumigation causes Industrial waste			
8.	The disposal of untreated sewage causes Effluents			
9	Is effluents caused more by natural process such as lighting			

Section C: What are the Impacts of Industrial Effluents on the Environment?

	Items	Agree	Undecided	Disagree
10	Industrial effluents causes unpleasant odours?			
11.	Industrial effluent causes water borne diseases?			
12.	Do you the think the waste is likely to cause anoxic soil condition?			
13.	Industrial Effluent waste is likely to kill aquatic animals?			

Section D: What are the measures put in place to manage the Industrial Effluents?

	Items	Agree	Undecided	Disagree
14.	Treating Industrial Effluent before disposal into the environment?			
15.	Frequent checks of industrial activities by FEPA and NASREA?			
16.	Sanctioning of industries accused of causing high level of pollution?			
17.	Setting up environmental safety department in industries?			

Section E: What are the Challenges to managing Industrial Effluents?

	Items	Agree	Undecided	Disagree
18	Poor funding is the major challenges of FEPA and NASREA?			
19	Weak legal frameworks is major challenge?			
20	Politics and ineptitude on the part of government?			
21	Do you think corruption and poor training of FEPA officials?			