

SOME REGULATORY FRAMEWORK ON ENVIRONMENTAL POLLUTION IN NIGERIA

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Received: Feb 23, 2024; Accepted: March 30, 2024; Published: Apr 24, 2024;

Abstract: Some regulations made under the powers of the National Environmental Standards and Regulations Enforcement Agency pursuant to its Act provides for Cleaner Production Technologies in most industries which have impact on air, water and plant existence within Nigeria. The Regulations have identified polluter pays principles and effective investment in up to date technologies as strategies to getting pollution free environment mould into environmental plans of new licensees in Pharmaceutical, soap, detergent and chemical related industries. Every person or body must ensure it does not contribute to the pollution of the environment beyond what the ecosystem can absorb. Pollution is the alteration of the natural use of environmental resources as to make it lose or change its natural, biological, chemical and physical essence beyond the capacity of the environment to absorb. There are activities which are contrary to natural existence of the environment but which does not distort the composition or nature of environmental resources. This article adopted doctrinal methodology and data sourced from regulations. It was found that environmental pollution may not be overcome by mere subsidiary legislation. It was recommended that enforcement of the Regulations plus synergy in areas of technical assistance and pollution remediation equipment acquisition and utilization among related agencies will go along-way at solving pollution issues around production facilities industries in Nigeria.

Keywords: NESREA, Regulations, Food, Chemicals, Environment, Pollution.



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INTRODUCION

It is on the background of pollution and deleterious activities against the environment that environmental protection conversations are held. Environmental protection refers to those activities geared at maintaining or sustaining or restoring the quality of the environment through preventing the emission of pollutants or reducing the presence of polluting substances in an environment (Kjellstrom, et al.). Marine pollution is the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects such as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities (Odeku and Paulos, 2017). The International Law Association conference in 1924 defined pollution at the sea to mean “an act whereby the inoffensive use of the water becomes impossible either for animal life or human use, or create a danger to such life or such use” (Heijnsbergen, 1979:11). Pollution is a man made or man aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment beyond acceptable limits (section 34, NESREA Act 2007). This article will define pollution in relation to land, air, water and noise with particular attention on regulations which addresses these categories of pollution.

LITERATURE REVIEW

The Concept of Environment

The environment is “the system of abiotic, biotic and socio-economic components with which man interacts and simultaneous to which he adapts and transforms and uses in order to satisfy his needs” (Atsegbua and Akpotaire and Dimowo, 2010:4) The environment under section 37 of the NESREA 2007 as amended, to include; “water, air, land and all plants and human beings or animals living therein and the inter-relationships, which exist among these or any of them.” Environment is the natural state of existence where human, animals and plant take their habitation from and the relationships between them. Section 61 of the Environmental Impact Assessment Act 2010, defines ‘Environment’ to mean the components of the earth and includes- (a) land, water and air, including all layers of the atmosphere; (b) all organic and inorganic matters and living organisms; and (c) the interacting natural systems that include components referred to in paragraphs (a) and (b). The environment is the whole atmosphere and their inhabitants both biotic and non-biotic; and inter/intra relationships that exist between and or among them.

The Concept of Pollution

Pollution is a man made or “man aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment beyond acceptable limits” (section 34, NESREA Act 2007). In the Stockholm Conference of 1972, pollution was defined as “The discharge of toxic substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless”. Air pollution is the upsetting of the natural arrangement of different gases in air. It includes the accumulating of substances in the air, in sufficient concentrations to produce measureable effects on man, plants and animals. It involves the emission of harmful substances or chemicals into the atmosphere which will cause danger to any living thing. The effects of air pollution are likely to be exacerbated by changing meteorological conditions of temperature humidity, wind and precipitation, among others, particularly in this era of increasing variability in climate. The country needs not only to commence on serious research work in estimating the effects of air pollution and contamination on agriculture, forestry, ornamental horticulture, health, but must also put in place means for standardization, effective monitoring and enforcement of standards against atmospheric pollution.

The International Law Association conference in 1924 defined pollution at the sea to mean “an act whereby the inoffensive use of the water becomes impossible either for animal life or human use, or create a danger to such life or such use” (Heijnsbergen, 1979:11). At the Stockholm Conference of 1972, pollution was defined as “The discharge of toxic substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless”. Similarly, for the WHO, marine pollution is

the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects such as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities (Odeku and Paulos, 2017:127).

Water pollution occur in oceans, lakes, rivers and streams and affects life directly through toxicity, killing of most water plants and animals, and causing reproductive failure in others. It is now known that technological advancement and urbanization are twin challenges to environmental pollution around the world; the crucial issue is not whether we should halt all commercial and industrial activities in order to sustain the quality of the environment. The real issue at stake is the role which law must play in striking equilibrium between the forces of degradation and the environmental protectionists (OECD, 2004). Toxic materials and solid and liquid waste causes water pollution; fertilizers and de-oxygenating materials can also cause pollution of water. A scholar like Olufunke (2022) had been quoted to have said:

As a result of oil loses, vast tracks of agricultural land have been laid waste, thus becoming unproductive, surface water and river courses are invariably contaminated and polluted, rendering the water undrinkable, and the aquatic life is destroyed. The result is great hardship for the inhabitants who become impoverished and deprived. These unfortunate citizens are therefore compelled to migrate to other towns and villages in search of decent life (Olufunke, 2022:21).

ANTHROPOCENTRIC THEORY

The Anthropocentric theory is based on the assertion that man is the alter ego of everything. In the hierarchy of nature and ontologically, man is placed at the hem of affairs; therefore, the satisfaction of man is deemed the fulfillment of the essence of natural environmental resources. Keller, (2010) in the work “Environmental Ethics: The Big Questions” opined that everything was made for the enjoyment of man; so, once man is satisfied, it does not matter what happened to the environment. Kortetmaki, (2013) explained that nature exist for the benefit

of mankind. Mankind should have priority in every environmental regime. Passmore, in the work “Man’s Responsibility for Nature: Ecological Problems and Western Traditions” opined what was later surmised as ‘an ethic dealing with man’s relations to land and to the plants and animals growing on it ... would have to be justified by reference to human interest’ (Passmore, 1980:187). For Passmore, adjudging ecological activities has to be in relation to satisfaction of man’s interest irrespective of whether it affects animals, plants and other facets of the environment negatively. Anthropocentrism prioritized humans over and above other existences in the environment to the extent of not recognizing any benefit the other existence in environment should have if man has not been satisfied. Norton, (2003) is of the view that “environmental ethics cannot be derived from the interest of nonhumans or the interests of future human generations.” The author furthered that nonhumans and future generations of humans should be part of considerations in utilization of environmental resources. For that author, what mattered was the immediate satisfaction of those human who currently exist, fulfilling their needs and development and nothing more. After all, the author argued, whatever satisfied humans would eventually be for the good of the environment.

Stewardship Theory

The theory posits that mankind is stewards of the environment for the benefit of future generations. It contends that mankind should be responsible for the environment they share with plants, animals and other creatures as individuals, communities, company or government. If any of the persons or body aforementioned does anything that is deemed deleterious to the environment, such a person or body should pay for the remediation without having need for compulsive reminder to do so. In stewardship for the environment, it is contemplated that the wellbeing of the ecosystems would influence choices of materials used for development, the how and to what quantity environmental resources are utilized and compliance with environmental regulations. Here, it is believed that polluter should pay and that environmental pollution should be discouraged by legislations – national, regional and international. In the case of Cambridge Water Co v Eastern Countries Leather Plc, (1994) it was held that “The protection and preservation of the environment is now perceived as being of crucial importance to the future of mankind; and public bodies, both national and international are taking significant steps towards the establishment of legislation which will promote the protection of the environment, and make the polluter pay for damage to the environment for which he is responsible...”

Environmental stewardship theory advocates sustainable utilization of resources, protection and sustainable exploration/ exploitation of environmental resources, sustainable land, air, water and plant and animal lives. It covers consumption of goods produced from environmentally less-dangerous materials, educating persons on need to maintain the environment, restore and rehabilitate natural resources to their natural status whenever mankind has the opportunity to do so (James Madison University, 2022). Environmental stewardship according to Worrell, et al. (2000) is “the responsible use (including conservation) of natural resources in a way that takes full and balanced account of the interests of society, future generations, and other species, as well as of private needs, and accepts significant answerability to society”. Environmental stewardship is conversation oriented, environmental management and policy direction intended, and holistic in conceptualizing animal and human importance in the utilization of environmental resources (Bennett, et al 2018). According to Bennett et al, local environmental stewardship is “the actions taken by individuals, groups or networks of actors, with various motivations and levels of capacity, to protect, care for or responsibly use the environment in pursuit of environmental and/or social outcomes in diverse social–ecological contexts.” Some of the activities which indicates environmental stewardship includes creating protected areas, replanting trees, limiting harvests, reducing harmful activities or pollution, creating community gardens, restoring degraded areas, or purchasing more sustainable products (Bennett, et al 2018:597). Stewardship of the environment implied that remediation of polluted areas of an environment will be actively done; conservation of plants and animal species will be a deliberate act of individuals and groups in a given society, and to encourage the use of materials and equipment made from environmentally friendly resources (Davy, et al. 2017).

METHODOLOGY

The data used for the analysis in this research was sourced mainly from national legislation on environment and Regulations made from the legislation. Methodologically, this paper adopted the doctrinal methodology because all relevant and related information was sourced from primary documents like Regulations and books article/journals.

RESEARCH ANALYSIS/RESULT

National Environmental (Food, Beverages & Tobacco Sector) Regulations 2009

The National Environmental (Food, Beverages & Tobacco Sector) Regulations 2009 seems to have covered the field for National Environmental Protection (Effluent Limitation) Regulations, 1991; National Environmental

Protection (Pollution Abatement in Industries and Facilities Generating Waste) Regulations 1991; and, The National Guidelines And Standards For Industrial Effluents, Gaseous Emissions And Hazardous Wastes Management In Nigeria, 1991. It will be more appropriate to examine the current regulation by the NESREA and associate same with other provisions, if any, of the former regulations for environmental protection and pollution control.

The purpose of the Regulations on food beverages and tobacco companies is to prevent and minimize pollution from all operations and ancillary activities of Food, Beverages and Tobacco Companies to the Nigerian environment (Reg.1, National Environmental (Food, Beverages and Tobacco Sector) Regulations 2009). The Regulations provides the need for environmental impact statement from every new companies in the sector and environmental audit report every three years for companies already in operation in the sector at the time the Regulations came into force as well as environmental management plans for both new and old companies in the sector (Reg.2(a,b&c) Food, Beverages and Tobacco Sector, Regulations). For a new company, it must submit to the NESREA an environmental impact statement containing the possible environmental impact of its activities, the resultant pollutions and ways or processes it intend to deploy in remediation. It is required also to submit an environmental management plans as to how it intend to eliminate pollution and environmental degradation occasioned by it activities. The regulations places premium on source elimination of pollution than tending to remediation after the pollution had gone into the environment ((Reg.2(4) Food, Beverages and Tobacco Sector, Regulations)). It further encourages reuse, recover and recycle of packaging materials to reduce environmental pollution resulting from littering of packaging wastes(Reg.2(5) Food, Beverages and Tobacco Sector, Regulations).

Companies in the sector are required to set up and maintain machinery combating pollution hazards and maintain equipment in event of emergency. This is to make ready safety equip to reduce impact in situations of accident or emergency. It is required that companies or anyone operating a facility covered by the Regulations, maintain emergency response plan including measures to be taken in such emergencies or accident(Reg.3 Food, Beverages and Tobacco Sector, Regulations). The regulations also prescribe a Best Available Technology or Best Practicable approaches to anti-pollution equipment installation by companies for detoxification of effluent and emission originated from their facilities. The idea for anti-pollution equipment installation is to gather momentum against the limit of effluent or emission which should be released into the environment. Choosing which model of anti-pollution should be part of the pollution management plans indicating how and when the company intends to move from Best Practicable to Best Available Technology. This is because what is practicable for the company at the time may not be the best available technology in detoxifying such pollutant(Reg.4 Food, Beverages and Tobacco Sector, Regulations).

The principles of 'Polluter Pays' has been formally enacted vide the regulations as it relates to companies on food, beverages and tobacco to pay for every pollution caused by them on the environment(Reg.5(1) Food, Beverages and Tobacco Sector, Regulations). To place the responsibilities on the companies, it was further provided that the collection, treatment, transportation and final disposal of wastes shall be the responsibility of the company generating the wastes within the specified standards and guidelines(Reg.5(2) Food, Beverages and Tobacco Sector, Regulations). The regulations shed further light to wit: in the event of an incident resulting in an adverse impact on the environment whether socioeconomically or health wise, the company shall be responsible for: the cost of damage, assessment, control and clean-up; remediation; reclamation or restoration; compensation to affected parties; and cost of damage assessment and control(Reg.5(3) Food, Beverages and Tobacco Sector, Regulations).

Regulation 6, for example, enacts that the essence of implementing cleaner production processes and pollution prevention measures is to achieve economic social and environmental benefits(Reg.6(1) Food, Beverages and Tobacco Sector, Regulations). The focus of pollution prevention programmes should be of process chemicals rather than water; this is to reduce effluents from factory or production sites. It is deemed that process chemicals are better management in pollution prevention measures than water(Reg.6(2) Food, Beverages and Tobacco Sector, Regulations). The regulation further commends companies in the sector to recycle all recyclable, damaged and disused packaging materials like glass, plastics, metals, paper, wood, nylon, etcetera(Reg.6(3) Food, Beverages and Tobacco Sector, Regulations). The regulations provides it shall conduct training, lectures, courses and assessments environmental pollution control managers and operators so as to endow them with requisite qualifications and certifications suitable for the proper execution of pollution control in their companies(Reg.7(2) Food, Beverages and Tobacco Sector, Regulations). It appears that the company may have to finance such training or course.

The companies in the food beverages and tobacco sector are mandated to create within their structure systems for pollution control and to assign environmental pollution control management to oversee pollution control within their place of operation or production(Reg.7(1) Food, Beverages and Tobacco Sector, Regulations). To ensure that manufacturers and importers of food, beverages and tobacco do not endanger the environment from their activities, the regulations provide that manufacturers and importer of food beverages and tobacco establish a Buy Back Programme(Reg.8(1) Food, Beverages and Tobacco Sector, Regulations). To ensure the workability

of the buyback programme, the Agency is to work with such manufacturers and importer within three years to activate the buyback programme (Reg.8(2) Food, Beverages and Tobacco Sector, Regulations). It appears that the buyback programme is mandatory under the regulations with the use of the active word 'shall'. It is a long established principle of interpretation of statute that the word 'shall' imposes a mandatory duty or responsibility on the person or body it so describes or the duty or responsibility is so assigns.

Chemicals used or to be used, abandoned or stored are to be brought to the notice of the Agency vide its closest office to the manufacturer or importer. This is to ensure that used or unused or store chemicals do not pollute the environment or deplete the ozone within the sphere of operation (Reg.9, Food, Beverages and Tobacco Sector, Regulations). Consequently, Use of restricted chemicals must be with a permit from the Agency as clearly stated in the National Environmental (Chemicals, Pharmaceuticals, Soap and Detergent Manufacturing Industries) Regulations, made pursuant to the NESREA Act (Reg.10, Food, Beverages and Tobacco Sector, Regulations). Following the nature of hazardous, toxic or deleterious substances/waste dumping or disposal, all permits, notices, demand by the Agency are in writing (Reg.11, Food, Beverages and Tobacco Sector, Regulations) and, no company shall discharge or cause to be discharged any effluent, or oil in any form into water system, public drains, or underground injection or land without a permit from the Agency; or, release hazardous or toxic substances into the water or land or air of Nigeria's ecosystem beyond the permissible limits as set out in Schedule I to these Regulations (Reg.11(2)(a&b) Food, Beverages and Tobacco Sector, Regulations).

Effluent limits are set in the schedule 1 to the regulation on food beverages and tobacco sector regulations so that any effluent discharges into water bodies or water causes should comply and conform with the limits set in the said schedule 1 of the regulations. Therefore, any effluent shall be deemed to be non-compliant and polluted if - the concentration of any of its parameters exceeds the permissible limits as specified in the first column of Schedule I to the aforementioned Regulations; or, it does not comply with the corresponding limit specified in the second or third column of Schedule I to the regulations, as the case may be; and, it is discharged from a facility without pre-treatment (Reg.15, Food, Beverages and Tobacco Sector, Regulations). No company is allowed to discharge effluent which does not comply with the schedule 1 of the regulations (Reg.15(b) Food, Beverages and Tobacco Sector, Regulations). Furthermore, no Company shall discharge effluent onto land, into a watercourse or into water body unless the company ensures that the parameters of the effluent do not exceed the permissible limits set out under Schedule I and IV to the Regulations. No company shall discharge or cause to be discharged any effluent into a water system used or earmarked as source of portable water supply. Again, any company using an influent, the limits of concentration or value of any of the parameters of which exceeds the permissible limit for that parameter set out in Schedule I to the Regulations shall ensure that the concentration or value of the parameters of the effluent conforms to the prescribed standard.

The discharge of effluent into the environment should not be done until it is treated to the permissible level. Permissible level of treatment should not be by dilution. It should be such as the environment can assimilate. Effective treatment at all the time a plant or unit is in use is recommended by the regulations. Operators in the food beverage and tobacco sector should ensure environmentally sound management of sludge containing heavy metals or other toxics and dispose same in a landfill or designated disposal site as approved by the Agency; and, similarly ensure the treatment and disposal of toxic organics contained in both effluent and sludge in a manner approved by the Agency. Every of such treatment should be trihalomethanes-free. Again, Granular Activated Carbon (GAC) or any approved material shall be used to eliminate chlorine and trihalomethanes in water processing; while wastes that contain toxic organics shall be subjected to thermal treatment to effectively destroy or remove over 99.99% of toxic organic and the resulting residue shall be disposed of in an environmentally sound manner as prescribed by the Agency (Reg.17(1-5) Food, Beverages and Tobacco Sector, Regulations).

The food beverages and tobacco sector regulations proscribes emissions which are deleterious to the environment (Reg.19(1) Food, Beverages and Tobacco Sector, Regulations). Companies in the sector are required to have quantity; report sources and emission data. They are to undertake emission reduction and implementation plan which the NESREA can review every three years (Reg.19(2) Food, Beverages and Tobacco Sector, Regulations). Companies are required to measure air pollutant emissions as not interfere with other persons' enjoyment of their private properties around and ensure recognized best practices and procedure to reduce such odour. They are not burn sulphur contents where it is having above 0.5% sulphur (Reg.20(1-4) Food, Beverages and Tobacco Sector, Regulations). Gaseous emissions are to be treated with appropriate treatment technologies to minimize the release of significant pollutants into the air (Reg.21(1) Food, Beverages and Tobacco Sector, Regulations).

National Environmental (Chemical, Pharmaceutical, Soap and Detergent Manufacturing Industries) Regulations 2009

The National Environmental (Chemical, Pharmaceutical, Soap and Detergent Manufacturing Industries) Regulations [NECPSDMIR] 2009 is intended to regulate pollution in the chemical, pharmaceutical, soap and detergent manufacturing industries in Nigeria for their sources point not be overbearing on the environment

which they operate from (Reg.1, NECPSDMIR, 2009). It was promulgated pursuant to section 34 of the NESREA Act as amended. The NECPSDMIR begins with the requirement for environmental impact assessment on each project in the chemical, pharmaceutical, soap and detergent industries. The impact on the environment and the solution available for such impact will determine whether approval would be given to begin such project (Reg.2(1)(a), NECPSDMIR, 2009). There is also the requirement for audit reports on impact from activities of chemical and pharmaceutical companies and others covered by the regulations after three years (Reg.2(1)(b), NECPSDMIR, 2009). This is to ensure compliance with submitted environmental impact assessment report submitted initially. Before major alterations in ownership of facilities, audit report has to be submitted particularly for matters of decommissioning or transfer or alienation of interest in any such industry. The report has to be submitted to the agency before decommissioning or change of ownership can be effected (Reg.2(1)(c), NECPSDMIR, 2009). These regulations specifies that chemical, pharmaceutical, soap and detergent companies must development what is termed environmental management plan and comply with same as they submit a copy to the agency (Reg.2(1)(d), NECPSDMIR, 2009). It is a ground for refusal of license or permit where the industry concerned refused or neglected or failed to submit environmental impact assessment report at the beginning, environmental management plan three years after they began operations, and environmental management plan as required by law and these regulations.

For every acquisition of new license in the pharmaceutical, soap, detergent and chemical industry, such applicant must invest effectively in up to date Cleaner Production Technologies to minimize pollution as far as technologies can do (Reg.2(2), NECPSDMIR, 2009). Again, the national standard for effluent or emission limitation is the minimum standard of such effluent or emission that can be permissible differing from industry to another considering whether it be new or industries which been in production for over three years (Reg.2(3), NECPSDMIR, 2009). In the chemical, pharmaceutical, soap and detergent industries; what is required in the environmental plan are actions for reducing, eliminating and preventing pollutants at source (even if it require acquisition of new cleaner production technologies); and, less emphasis on external hardware or end of pipe mechanisms (Reg.2(4), NECPSDMIR, 2009). Reuse, Recover and Recycle is encouraged for every industry in the sector of pharmaceutical, soap, detergent and chemical to reduce packaging materials (Reg.2(5), NECPSDMIR, 2009).

Machinery for combating pollution hazards and maintaining equipment are essential for industries in chemical, soap, detergent and related productions in the event that source point discharges effluences or emissions contrary to its normal natural usages (Reg.3(1), NECPSDMIR, 2009). It follows that facility should have emergency plans against any incident of accident; its equipment for responding to emergency should be readily available and accessible to combat pollution hazards when it occurs (Reg.3(2), NECPSDMIR, 2009). There should emergency response plan; facility should have or install anti-pollution equipment or detoxifier or treatment of effluent, emission and chemical discharge (Reg.4(1), NECPSDMIR, 2009). In making plans for emergencies, facility is to consider Best Available Technology and Nest Practicable Technology (Reg.4(2), NECPSDMIR, 2009).

For the chemical, soap, detergent and pharmaceutical industries, the polluter pays principles applies and polluter is responsible in cost of damage assessment, control and clean-up; remediation; reclamation or restoration; compensation to affected parties; and cost of damage assessment and control (Reg.5(1&2), NECPSDMIR, 2009). Polluter-pays principle as it is applied for sustainable environment and as a tool for pollution reduction and elimination entails that a resultant damage from negligence (whether contributory or not) which the entity caused, it will be held finance with it will take to assess and ascertain the degree of damage done. Where it is a continuing damage, the mechanism for control and clean-up shall be the responsibility of the polluter. The polluter is made to provide the cost expended for control of the pollution as well as machinery or equipment required as at when required for the clean-up of such particular environment affected by the pollution in question. A polluter is liable to remediation and restoration of polluted environment. The environment may require remediation or restoration. It may be that the land, for example, require organic acquisitions which are necessary for remediation of the land; such organic acquisition shall be laid on the polluter. If the land is so damaged that living will be possible in such place, reclamation might be made or compensation or such damage as the Court may determine shall be paid by the polluter.

Ideologically, pollution prevention measures involve cleaner production processes; pollution prevention programs like the use of chemicals for processing than the use of water which causes pollution effluent (Reg.6(1&2), NECPSDMIR, 2009); and, recycling the recyclables including damaged and disused packaging materials in the likes of glass, plastics, metal, paper, wood, nylon and its types (Reg.6(3), NECPSDMIR, 2009). The other part of pollution prevention measures leans on implementation of best practices (Reg.6(4), NECPSDMIR, 2009). The last but not the least is the safety of staff of the industry. Safety for employee gives proper perspective to pollution prevention (Reg.6(5), NECPSDMIR, 2009).

Regulations for pharmaceutical industry and their likes are to conform to minimum waste generation guideline, establish the office of a pollution control manager, train and retrain officers charged with pollution control management (Reg.8(1&2), NECPSDMIR, 2009). Manufacturers and importers are to maintain a Buy-Back program (Reg.9(1&2), NECPSDMIR, 2009). Manufacturers are to submit Material Safety Data Sheet explaining

each chemical used in all its production (Reg.10(1)(a), NECPSDMIR, 2009). In the arrangements for prevention of pollution, entities are to submit to the regulator details of how chemicals are stored and on what conditions they are kept, industries are to list where they bought the chemical or sold them and the name of the secondary buyer, chemicals that are no longer in use or abandoned (Reg.10(1)(b-d), NECPSDMIR, 2009); they are to comply with ozone-depletion substances regulations pursuant to Montreal Protocol (Reg.10(2), NECPSDMIR, 2009). Where an industry needs to use a banned chemical, the consent of the regulator has to be first sought and obtained in line with national and international laws including Rotterdam, Vienna, Stockholm Conventions (Reg.11, NECPSDMIR, 2009).

Where the law requires that notice be given by an entity or the Agency, such notice shall be made in writing. Order, consent and demand follow same pattern as Notice (Reg.12(1), NECPSDMIR, 2009). Entities are not to discharge or cause to be discharge any effluent, no use of chlorine, no use of Alkyl nor release of hazardous or toxic substances; release of Persistent Organic Pollution without permit from the agency first sought and obtained (Reg.12(2), NECPSDMIR, 2009). Effluents are to undergo treatment before they are released from facilities (Reg.16(2)(c), NECPSDMIR, 2009). Parameter of effluent must not exceed limits set in national standards, no discharge or release of effluent onto land or into water system earmarked as source of potable water, disposal of waste into water bodies is prohibited if they are not treated, land filling is by notice to the agency (Reg.17, NECPSDMIR, 2009). Discharge of sludge into water body is completely prohibited (Reg.19(1), NECPSDMIR, 2009). The only place for disposal of sludge is in the sludge disposal site designated as such. Facilities are to guide against emissions which are beyond permissible national standards (Reg.20(1), NECPSDMIR, 2009). Facilities are required to quantify and report sources and emissions data and also undertake emission reduction and implementation plan which are reviewable every three years by the Agency (Reg.20(2), NECPSDMIR, 2009). Development and implementation of emission control plans is required of any facility which operations there is likelihood air pollutant. Facilities with possibilities of odour generation should take measures to reduce same to reasonable minimum level as specified by the agency (Reg.21(2), NECPSDMIR, 2009). Burning of substances or light fuel oil which contain over 0.5 sulphur is prohibited, such burnt light fuel oil or substance should not have more than 0.5 sulphur content (Reg.21(3), NECPSDMIR, 2009); while for medium fuel oil, it should not contain more than 1.1 percent Sulphur (Reg.21(4), NECPSDMIR, 2009). Gaseous emission are to be treated to the permissible level with treatment technologies like stack gas scrubbing, carbon absorption or combustion; bag houses; biological filters; cyclone or any other appropriate technology as well as electrostatic precipitator (Reg.22(1)(2a-e), NECPSDMIR, 2009). Noise abatement programs are encouraged under regulations 25&26.

Permits are given or revoked in line with the National Environmental (Permitting and Licensing System) Regulations 2009 (Reg.36, NECPSDMIR, 2009). Permit holder is mandated to furnish the Agency's Field Officer with Incidence Report and Monthly Effluent or Emission Data Sheet. The report should be at least quarterly, describing the nature, concentration and flow of the pollutants in the Monthly Effluent Data Sheet; based on sampling analysis performed in the period covered; shall install at its own cost monitoring equipment approved by the Agency (Reg.37, NECPSDMIR, 2009). Permit holder is to sign the report and attach a copy of the Certificate of analysis from the Agency's accredited laboratory (Reg.38, NECPSDMIR, 2009).

Enforcement powers of the agency to enforce its regulations are covered under Regulations 42 to 45. For offences, it is an offence to fail to comply with or contravene a condition of a permit (Reg.46(a), NECPSDMIR, 2009), failure to comply with enforcement notice or closure notice, failure without reasonable cause to comply with requirements imposed by notice (Reg.46(b&c), NECPSDMIR, 2009). Offences under the regulations include making statement which are false or misleading (Reg.47(1), NECPSDMIR, 2009); failure to comply with its responsibilities under the regulations (Reg.48(1), NECPSDMIR, 2009); failure to file and maintain records (Reg.49, NECPSDMIR, 2009); and, release of sludge or effluent or emission in excess of limit permissible (Reg.50, NECPSDMIR, 2009). Penalties for violation of any regulation under regulations 46-50 is #200,000 and #5,000 for individuals as fine for the act and per day which the act continued respectively (Reg.51(1), NECPSDMIR, 2009). If a corporate body or facility violate the regulations, it is fined #1,000,000 and #50,000 for every day the violation subsist (Reg.51(2), NECPSDMIR, 2009). Incentives are given to the facilities or entities in the pharmaceutical, soap, detergent and chemical sector by the agency under regulations 53; such as recognition and encouragement, certify green facility, NESREA logo marked green will be used to honour such facility (Reg.53, NECPSDMIR, 2009).

CONCLUSION

Regulations are promulgated pursuant to extant laws or following an enabling statute. It is long settled law that regulations are as potent as the law from which they derive their existence. Disobedience to regulation or violation of any of its provisions has same or heavier consequence as the law because Regulations are detailed for the understanding of operators in the particular industry or entities addressed. Regulations are executive

made law; it flows from experiences of those who are in the field who understands the workings of what is sought to be prevented or mitigated or remediated. This article discussed regulations bordering on environmental pollution prevention and remediation in pharmaceutical, detergent, soap and chemical industries in Nigeria. It highlighted some principles like polluter-pays and its ingredients, best technologies rules which, in effect means that an entity should procure the best available technologies in production and operation activities in order to prevent pollution of the environment.

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