Journal of Environmental Science and Technology

ISSN 1994-7887

science alert

ANSInet
an open access publisher
http://ansinet.com

Journal of Environmental Science and Technology 4 (5): 490-497, 2011
ISSN 1994-7887 / DOI: 10.3923/jest.2011.490.497

Protection of Nigeria's Environment: A Critical Policy Review

[1]Onyenekenwa C. Eneh and [2]V.C. Agbazue
[1]Institute for Development Studies, Enugu Campus, University of Nigeria, Nsukka, Nigeria
[2]Department of Pure and Industrial Chemistry, University of Nigeria, Nsukka, Nigeria

Corresponding Author: Onyenekenwa C. Eneh, Institute for Development Studies, Enugu Campus, University of Nigeria, Nsukka, Nigeria Tel: +234-803-338-7472

ABSTRACT

In the bid to manage and control widespread anthropogenic environmental degradation, Nigeria formulated environmental protection policies, spanning 1915 to 1992. This review study is a critique of these policies. Not only that many of the policies are dated, many are fragmented. Many of them were not formulated with contributions from informed masses, nor based on nationally generated baseline data. Rather, they are mostly guidelines and standards adapted from the adopted and approved materials of the appropriate system of the United Nations, thereby compromising socio-economic and climatic differences. Participation of the people in policy formulation and implementation is lacking in Nigeria. Implementation and monitoring are wishy-washy and din-don affairs crippled by widening and deepening corruption. It is recommended that anti-graft agencies be overhauled. Environmental sustainability education needs to be mainstreamed in the curricula of schools and universities while awareness creation on environmental pollution needs to be given the seriousness it deserves.

Key words: Environmental protection, environmental management and control, environmental policy

INTRODUCTION

The environment is the life support system given by the Creator to mankind. Sometimes in the past, the three components of the environment -air, soil and water - were pure, virgin, undisturbed, uncontaminated and basically most hospitable. But, the reverse is the case today because progress in science and technology is also leading to environmental degradation and serious ecological imbalance, which in the long run, may prove disastrous for mankind (Sharma, 2002).

In quest for economic development, which seeks to increase the quantum of economic output without caring about the short- and long-term short-changes of human and material resources arising from the process, the activities of people and nations conquer and wreck the world, rather than sustain it for the present and future generations. Progress in agriculture, industry, transportation and technology is usually the barometer of economic development of any nation. Such activities of man have created adverse effects on all living organisms in the biosphere. Rapid industrialization has left with us polluted rivers, contaminated soil, depleted wildlife and exhausted natural resources. As a result, the environment of today has become foul, contaminated and harmful for the health of living organisms, including man. The unlimited rapacious exploitation of the splendid plentifulness of nature by man has disturbed the heritage of ecological balance

existing between living and non-living components on the earth planet. This undesirable situation created by man has threatened the survival of man himself and other biota on the earth (Bhasin, 1991).

Most horrible ecological crises result from urban-industrial technological revolution and speedy exploitation of every bit of natural resources. Globally, man-made pollutants from combustion, construction, mining, agriculture and warfare are increasingly significant in the air pollution equation. Motor vehicle emissions are one of the leading causes of air pollution (Van Loon and Duffy, 2000). Principal stationary pollution sources include chemical plants, coal-fired power plants, oil refineries, petrochemical plants (Beychok, 1987), nuclear waste disposal activities, incinerators, large livestock farms (dairy cows, pigs, poultry, etc.), polyvinyl chloride (PVC) factories, metals production factories, plastics factories and other heavy industries. Agricultural air pollution comes from contemporary practices, which include clear felling and burning of natural vegetation, as well as spraying of pesticides and herbicides (Sharma, 2002; Eneh, 2011a).

Carbon dioxide, while vital for photosynthesis, is sometimes referred to as pollution, because raised levels of the gas in the atmosphere are affecting the Earth's climate. Long-term rising levels of atmospheric carbon dioxide has the potential to cause slight, but critical, increases in the acidity of ocean waters, with the possible adverse effects on marine ecosystems (Sharma, 2002).

Some of the more common soil contaminants are fertilizers, pesticides and chemical substances/elements, such as lead from paint dust contacting with the soil, chlorinated hydrocarbons, heavy metals (such as chromium, cadmium found in rechargeable batteries and lead found in lead paint, aviation fuel and still in some countries, gasoline), zinc, arsenic and benzene (Eneh, 2011a). A widespread practice of recycling industrial by-products into fertilizer result in the contamination of the soil with various metals. Ordinary municipal landfills are the source of many chemical substances in the soil environment (and often groundwater). There have also been some unusual releases of polychlorinated dibenzodioxins, commonly called dioxins (Nwafor, 2006).

Larger scale environmental damage is not uncommon when coastal oil rigs or refineries are involved. Some sources of pollution, such as nuclear power plants or oil tankers, can produce widespread and potentially hazardous releases when accidents occur. In the case of noise pollution, the dominant source class is the motor vehicle, producing about ninety percent of all unwanted noise worldwide (Sharma, 2002; Eneh, 2011b).

Some common types of pollution have main health effects on humans. Adverse air quality can kill many organisms, including humans. Ozone pollution can cause respiratory disease, cardiovascular disease, throat inflammation, chest pain and congestion. Water pollution causes approximately 14,000 deaths per day, mostly due to contamination of drinking water by untreated sewage in developing countries (Kallman, 2008; Lorenz, 2007; Eneh, 2011c).

Oil spills can cause skin irritations and rashes. Noise pollution induces hearing loss, high blood pressure, stress and sleep disturbance. Mercury has been linked to developmental deficits in children and neurologic symptoms. Older people are majorly exposed to diseases induced by air pollution. Those with heart or lung disorders are under additional risk. Children and infants are also at serious risk. Lead and other heavy metals have been shown to cause neurological problems. Chemical and radioactive substances can cause cancer and as well as birth defects (Sharma, 2002; Eneh, 2011c).

Pollution widely found in the environment is responsible for a number of effects (Van Loon and Duffy, 2000):

- Biomagnification - situation where toxins (such as heavy metals) may pass through trophic levels, becoming exponentially more concentrated in the process
- Carbon dioxide (CO_2) emissions cause ocean acidification and ongoing decrease in the pH of the Earth's oceans as CO_2 becomes dissolved
- The emission of greenhouse gases leads to global warming which affects ecosystems in many ways
- Invasive species can out-compete native species and reduce biodiversity. Invasive plants can contribute debris and biomolecules (allelopathy) that can alter soil and chemical compositions of an environment, often reducing native species competitiveness and adaptability
- Nitrogen oxides are removed from the air by rain and fertilize land which can change the species composition of ecosystems
- Smog and haze can reduce the amount of sunlight received by plants to carry out photosynthesis, leading to the production of tropospheric ozone which damages plants
- Soil can become infertile and unsuitable for plants, affecting other organisms in the food web
- Sulphur dioxide and nitrogen oxides can cause acid rain which lowers the pH value of soil (Van Loon and Duffy, 2000)

About 400 million metric tons of hazardous wastes are generated each year. The United States alone produces about 250 million metric tons. Americans constitute less than 5% of the world's population, but produce roughly 25% of the world's carbon dioxide (CO_2) and generate approximately 30% of world's waste. In 2007, China overtook the United States as the world's biggest producer of carbon dioxide (Nkamnebe, 2010; Eneh, 2011d).

Of the 20-50 million tonnes of e-wastes produced annually, a large amount goes to recycling plants while others are shipped to developing countries with little or no sufficient legal, human and technological capacity to handle them. Also moving from developed to developing countries are e-wastes in the form of second-hand and inferior ICTs products. The reasons for this development are two-fold. First, some developing countries, which belong to the league of the information-poor or the information-haves-not and therefore, marginalized in the global market system, are now in a hurry to bridge the information gap by adopting the ICTs. Second, deep poverty in these countries dictate demand for affordable inferior and second-hand ICTs products. Acquisition of ICTs components is still seen as a thing of pride and indication of modernization cum civilization in most parts of Africa which helps to aggravate consumption of even the most mundane ICTs. Again, even the rich may believe that second-hand ICTs facilities outlast the new ones. These inferior and second-hand ICTs products soon outlive their usefulness and are discarded as unserviceable and dumped or inadvertently disposed of in ways that are unhealthy and harmful to both humans and the environment. Again, this dumping is encouraged by the ICTs practices of planned obsolescence and replacement repair (Toby, 1998; Eneh, 2011b).

The matter is made worse by the fact that e-waste disposal methods currently practiced in developing countries create environmental problems. For instance, e-waste disposal in landfills has the potential to cause severe human and environmental health impacts. Plastics in electronics easily leach off in hot weather, especially when left outside. The record levels were 93 times higher than soil without contact with e-wastes (Toby, 1998; Anukam, 1997; Eneh, 2011b). In developing countries, e-wastes containing plastics are commonly littered in collection points for days before they are actually collected. The uncontrolled burning, disassembly and disposal of e-wastes can cause a variety of environmental problems, such as ground water contamination, atmospheric pollution

and water pollution either by immediate discharge or due to surface run-off (especially near coastal areas). Recycling of e-wastes is expensive and difficult to carry out, especially in countries like Nigeria that lack the technological wherewithal to handle the process of recycling these toxic substances emitted from e-wastes items (Toby, 1998; Eneh, 2011b).

To protect the environment from the adverse effects of pollution, many nations worldwide have enacted legislation to regulate various types of pollution as well as to mitigate the adverse effects of pollution. Pollution control is a term used in environmental management. It means the control of emissions and effluents into air, water or soil. Without pollution control, the waste products from consumption, heating, agriculture, mining, manufacturing, transportation and other human activities, whether they accumulate or disperse, will degrade the environment. The first major modern environmental legislation was The Clean Air Act of 1956 (Nwafor, 2006). The Electronic Waste Recycling Act or Senate Bill 50 was signed into law in 2004 by the government of the United States of America (USA). The bill provides for the establishment and funding of a programme for consumers to return, recycle and ensure safe and environmentally sound disposal of covered electronic devices (Toby, 1998).

About 3,880 metric tonnes of toxic and hazardous e-wastes of Italian origin were transported in five shiploads and dumped in 1987 in Koko, Delta State, Nigeria by foreign firm in collusion with Nigerian businessmen. Koko is a town and a port, lying along the Benin river in the western Niger River delta. This aroused Nigeria from slumber regarding environmental protection. In response, an environmental protection act was enacted in 1988 and the Federal Environmental Protection Agency (FEPA) was established. Sequel to this, the Ministry of Environment was established in 1999 to oversee Nigeria's environmental protection and FEPA became subsumed into it (Nwafor, 2006).

This review study is a critique of Nigeria's policy on environmental protection. After this brief introduction, the rest of the paper is structured as follows: a critical review of Nigeria's environmental protection policy, recommendations and conclusion.

LEGISLATIONS, STANDARDS, REGULATIONS AND ADMINISTRATIONS ON NIGERIA'S ENVIRONMENT

The Nigerian environmental policy covers the legislations, standards, regulations and administrations adopted to control activities with potential damaging effects on the country's environment. Environmental laws have been formulated to deal with a variety of environmental pollutants, such as toxic chemicals, noise, etc.; control particular activities, such as mining, power generation, etc.; and provide general guidelines for protecting basic natural resources, such as air, land and water (Eneh, 2010; Anukam, 1997).

Nigerian environmental laws consist of framework environmental legislation, sectoral legislation and incidental legislation. A framework environmental legislation is a single law which contains a comprehensive system of laws for environmental management. Such legislation includes the Harmful Wastes (Special Criminal Provisions) Act 1988 Cap 165 LFN 1990; Federal Environmental Protection Agency (FEPA) Act 1988 Cap 131 LFN 1990; Environmental Impact Assessment (EIA) Act 1992 and Nigerian Urban and Regional Planning Act. The Sectoral legislation addresses specific aspects of the environment and human activities and includes Mineral Act 1956, Oil Pipeline Act 1958, Oil in Navigable Waters Act 1968, Petroleum Act 1969 and Factories Act 1987. Incidental legislation are those laws that are not specifically intended to address environmental issues, but do contain some elements that have an impact on environmental issues.

It includes Water Works Act 1915, Criminal Code 1916 Cap 77 LFN 1990 and Public Health Act 1917 (Eneh, 2010; Anukam, 1997).

There are also Nigerian national laws derived from international laws. Between 1963 and 1990, Nigeria is signatory to a number of international laws, including Mineral Oil (Safety) Regulations Act 1963, Petroleum Regulations Act 1967, Oil in Navigable Waters Act 1968, Petroleum (Drilling and Production) Regulation Act 1969, Oil Terminal Dues Act 1968, Associate Gas Reinjection Act 1979, Petroleum Amendment Act 1973 and Harmful Wastes (Criminal Provisions) Act No. 42 of 1988 (Eneh, 2010; Anukam, 1997).

Some other diverse pieces of legislation, which fall within the armpit of environmental protection, include Civil Aviation Act 1964, Antiquities Act 1915 (1958), Live Fish (Control of Importation) Act 1965, Explosives Act 1964, Territorial Waters Act 1967, Exclusive Economic Zone Act 1958, Petroleum (Drilling and Production) Regulations Act 1969, Nigerian Atomic Energy Commission Act 1976, Natural Resources Conservation Act 1989, River Basin Development Authorities Act 1987, Sea Fisheries (Licensing) Regulations 1992, Quarries Act 1969, Land Use Act 1972 and National Parks Acts 1991 (Eneh, 2010; Anukam, 1997).

Nigeria's environmental policy is aimed at achieving sustainable development in the country and, in particular, at securing for all Nigerians a quality environment adequate for their health and well-being; conserve and use the natural environment and resources for the benefit of present and future generations; restore, maintain and enhance ecosystems and ecological processes essential for the functioning of the biosphere and for the preservation of biological diversity and to adopt the principle of optimum sustainable yield in the use of living natural resources and ecosystems; raise public awareness and promote understanding of essential linkages between environment and development and to encourage individual and community participation in environmental improvement efforts; and co-operate in good faith with other countries, international organizations and agencies to achieve optimal use of trans-boundary natural resources and effective prevention or abatement of trans-boundary environmental pollution (Eneh, 2010; Anukam, 1997).

Six guideline and standards were introduced as part of the implementation of Nigeria's environmental policy. They are (1) effluents limitations (2) water quality for industrial water uses at point of intake (3) industrial emission limitations (4) noise exposure limitations (5) management of solid and hazardous wastes and (6) pollution abatement in industries (Eneh, 2010; Anukam, 1997).

Nigeria's environmental protection policy notwithstanding, protection of Nigeria's environment leaves much to be desired. For instance, water pollution in Nigeria occurs in both rural and urban areas. In rural areas, drinking water from natural sources, such as rivers and streams, is usually polluted by organic substances from users upstream who apply the stream water to agricultural purposes. Forestry activities upstream increase concentrations of soil particles washed into the stream by land disturbance. The large particles sink to the bottom and increase the bed load, while, depending on the stream velocity, smaller particles remain in suspension. The suspended matter may obstruct the penetration of light and limit the photosynthetic zone to less than one metre depth. In water supply courses, they also increase water treatment costs. Many industries, such as petroleum, mining (gold, tin and coal), wood and pulp, pharmaceuticals, textiles, plastics, iron and steel, brewing, distillery fermentation, paint and food, located on river banks use the rivers as open sewers for their effluents. In addition, accidental oil spillages occur from the petroleum industry, which endanger local sources of water supply and fresh water living resources. Inadequacy of

resources occasioned risk for about 40 million urban poor and landless people. This level of environmental degradation would create water-borne diseases due to consumption of unsafe drinking water, as well as place fisheries and land resources at risk (Eneh, 2010; Anukam, 1997).

Many of the policies are dated, for example, the Water Works Act 1915 and Public Health Act 1917 (Eneh, 2010). This is unlike the National Environmental Policy Act (NEPA) enacted by the Senate and House of Representatives in Congress of the United States of America on 23 December 1969 and signed into law by President Nixon on 1 January 1970. Only five years later, this policy was amended twice within the same year on 3 July and 9 August 1975. Seven years following, it was amended on 13 September 1982. This updating shows the seriousness attached to environmental protection and enhances implementation.

Many of Nigeria's policies are also fragmented, for example, the diverse pieces of legislation, which fall within the armpit of environmental protection, including Civil Aviation Act 1964, Antiquities Act 1915 (1958), Live Fish (Control of Importation) Act 1965, Explosives Act 1964, Territorial Waters Act 1967, Exclusive Economic Zone Act 1958, Petroleum (Drilling and Production) Regulations Act 1969, Nigerian Atomic Energy Commission Act 1976, Natural Resources Conservation Act 1989, River Basin Development Authorities Act 1987, Sea Fisheries (Licensing) Regulations 1992, Quarries Act 1969, Land Use Act 1972 and National Parks Acts 1991 (Eneh, 2010). This approach negates the usually effective and time-saving one-stop table implementation strategy. Rather, it encourages fragmented implementation processes that waste time and promote corruption.

There was no understanding of the environment by the masses when the policies were being formulated, nor is there mass environmental education and awareness creation regarding sustainable environment. People participation in formulation and implementation of the policies is lacking (Nwafor, 2006).

Standards were set without nationally generated baseline data usually lacking in the country, but with adapted guidelines and standards of the World Health Organizations (WHO). In transposing these data between countries, socio-economic and climatic differences are compromised (World Bank, 1990).

In the era of globalization driven by information communications technologies (ICTs) and all the efforts by Nigerian government towards adoption of ICTs as a means of bridging information gaps and marginalization in the global market system, electronic wastes (e-wastes) are common in Nigeria and worse still, discarded and disposed of in manners that enhance their environmental pollution. Yet, Nigeria has no recycling or management policy on e-waste, some of which contain hazardous and toxic chemicals, unlike the United States of America (USA), where The Electronic Waste Recycling Act or Senate Bill 50 was signed into law in 2004 (Eneh, 2011d).

Little wonder, much of the 20-50 million tonnes of e-wastes produced annually is shipped to developing countries (including Nigeria) with little or no sufficient legal, human and technological capacity to handle them. Also, Nigeria imports e-wastes in the form of second-hand and inferior ICTs products, which soon outlive their usefulness and are discarded as unserviceable and dumped or inadvertently disposed of in ways that are unhealthy and harmful to both humans and the environment. E-waste disposal in landfills cause severe human and environmental health impacts because plastics in electronics (commonly littered in collection points for days before they are actually collected) easily leach off in hot weather, especially when left outside (Anukam, 1997). Again, the uncontrolled burning, disassembly and disposal of e-wastes in Nigeria cause a variety of environmental problems, such as ground water contamination, atmospheric pollution and water

pollution either by immediate discharge or due to surface run-off (especially near coastal areas) (Eneh, 2011d).

Similarly, the strategic environmental assessment (SEA)-the application of environmental impact assessment (EIA) principles to policies, plans and programmes-is yet to receive mandatory status in Nigeria (Nwafor, 2006). Nigeria is replete with policy, but lacks in their implementation. Corruption makes a mess of implementation of even faultless policies in Nigeria and puts to waste resources employed in producing them (Ebigbo, 2008; Eneh, 2011e).

RECOMMENDATIONS

It is recommended, therefore, that:

- Nigeria's environmental protection policies are revised for their obsolescence and lack of currency
- Implementation and monitoring agencies need to be re-organized and re-oriented for improved performance
- Law enforcement and anti-graft agencies need to be overhauled
- Environmental sustainability education needs to be mainstreamed in the curricula of schools and universities, while awareness creation on environmental pollution needs to be given the seriousness it deserves

CONCLUSION

Anthropogenic activities aimed at economic development, which seeks to increase the quantum of economic output without caring about the short- and long-term short-changes of human and material resources arising from the process, occasion environmental degradation that must be managed and controlled in order to sustain the environment for the present and future generations. To this end, Nigeria has formulated environmental protection policy.

Many of the policies are dated and many fragmented. Many of them were not formulated with contributions from informed masses nor based on nationally generated baseline data, but on adapted guidelines and standards approved by the appropriate system of the United Nations, thereby compromising socio-economic and climatic differences. Participation of the people in policy formulation and implementation is lacking.

REFERENCES

Anukam, L.C., 1997. Case Study IV-Nigeria. In: Water Pollution Control: A Guide to the Use of Water Quality Management Principles, Helmer, R. and I. Hespanhol, (Eds.). Taylor and Francis, Washington DC: WHO/UNEP, ISBN-13: 9780419229100.

Beychok, M.R., 1987. A data base for dioxin and furan emissions from refuse incinerators. Atmos. Environ., 21: 29-36.

Bhasin, K., 1991. Participatory development demands participatory training. Adult Educ. Dev., 36: 3-21.

Ebigbo, P.O., 2008. Appraising the impact of economic reform programme on micro, small and medium scale enterprises. A Paper Delivered at the 19th Enugu International Trade Fair Colloquium, April 15.

Eneh, O.C., 2010. Managing Nigeria's environment: The unresolved issues. J. Envir. Sci. Technol., 4: 250-263.

Eneh, O.C., 2011a. Enhancing Africa's environmental management: Integrated pest management for the minimization of agricultural pesticides pollution. J. Environ. Sci. Technol., 10.3923/rjes.2011

Eneh, O.C., 2011b. Crippling poverty amidst corporate social actions: A critique of peripheral corporate community involvement in the Niger Delta region of Nigeria. Asian J. Rural Devel., 1: 1-20.

Eneh, O.C., 2011c. Effects of water and sanitation crisis on infants and under-five children in Africa. J. Environ. Sci. Technol., 4: 103-111.

Eneh, O.C., 2011d. Recyclability potentials of beryllium oxide from E-waste items in Nigeria. J. Applied Sci., 11: 397-400.

Eneh, O.C., 2011e. Failed development vision, political leadership and Nigeria's underdevelopment: A critique. Asian J. Rural Dev., 1: 63-69.

Kallman, M., 2008. Air pollution's causes, consequences and solutions. World Resources Institute: August 2008 Monthly Update. http://earthtrends.wri.org/updates/node/325

Lorenz, E.S., 2007. Potential health effects of pesticides. Pennsylvania: Pennsylvania State University. http://pubs.cas.psu.edu/freepubs/pdfs/uo198.pdf.

Nkamnebe, A.D., 2010. ICT consumption and the challenges of environmental sustainability in sub-saharan Africa. Proceedings of the 11th International Conference on Beyond Global Markets Organized by the International Society of Markets and Development (ISMD) and Hosted, Jan. 5-8, National Economics University, Hanoi, Vietnam, pp: 1-17.

Nwafor, J.C., 2006. Environmental Impact Assessment for Sustainable Development: The Nigerian Perspective. Environment and Development Policy Centre for Africa, Enugu.

Sharma, B.K., 2002. Engineering Chemistry. Krishna Prakashan Media Pvt. Ltd., Meerut-India.

Toby, M., 1998. Technologies of Truth: Cultural Citizenship and the Popular Media. Espionage Inc., Delhi.

Van Loon, G.W. and S.J. Duffy, 2000. Environmental Chemistry: A Global Perspective. Oxford University Press, Oxford.

World Bank, 1990. Towards the Development of an Environmental Action Plan for Nigeria. World Bank, Washington DC.