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## CONSTRAINTS TO ACHIEVING EFFECTIVE ENVIRONMENTAL SUSTAINABILITY IN NIGERIA

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### Abstract

The efforts of the federal, state and local governments in Nigeria at ensuring sustainable development through numerous environmental legislation, fiscal incentives and grants to environmental ministries and agencies remain elusive as Nigeria continues to experience complex environmental problems. The paper looks at the overview progress made to address the core of Nigeria environment and sustainable development issues. It identified various environmental challenges confronting Nigeria such as desertification and drought, land degradation, erosion, flooding, deforestation, pollution, global warming, ozone layer depletion, hazardous wastes and toxic Chemical and represents the underlying causes which culminated in the clamour for environmental governance that will achieve desired results. The paper concluded by proffering practical regulatory techniques that can challenge policymaker to improve environment governance in Nigeria. These include Integrating environment into development planning and decision-making, Strengthening the legal basis for sustainable development, Creating and improving capacity for Sustainable Development, Harmonizing Federal, States and Local Governments responsibilities for environmental management, Adopting and promoting the use of existing environmentally friendly technologies, Promoting Research and Development of environmentally Sound Technologies, Forging viable Partnerships among various Stakeholders and Interest Groups both at National and International levels, Managing Environmental Information and education to generate adequate public awareness for Decision Making, Internalizing Environmental Costs through the use of Economic Instruments in the management of Natural Resources, Alleviating Poverty, Improving the funding for Sustainable Development.

**Keywords:** *Pollution, Regulation, Environmental governance and Sustainability*

### Background to the Study

The environment provides all life support systems with air, water and land as well as the materials for fulfilling all developmental aspirations of man (HunterSalzman andZaelke,

2007). As in most other countries of the world, the Nigerian environment today presents a grim litany of woes. Every State of the Federation suffers from one form of environmental problem or the other in varying degrees. The northern part of the country is being literally "blown away" by wind erosion while the southern part is being washed away into the ocean using the description of Mr. McNamara 2002, former president of the World Bank. Wind erosion could be quite severe in States such as Sokoto, Zamfara, Kebbi, Katsina, Kano, Jigawa, Borno and Yobe. Farmlands become inundated by drifting sands which bury young crops. Roads and sometimes huts and public buildings may be completely buried by active sand dunes rising sometimes up to 12 metres high (Ajani, 2012). The efforts of the federal, state and local governments in Nigeria at ensuring sustainable development through numerous environmental legislation, fiscal incentives and grants to environmental ministries and agencies remain elusive as Nigeria continues to experience complex environmental problems of atmospheric, noise and water pollution, oil pollution, climatic change including flooding, coastal erosion (Ajani, 2012) and perennial oceanic surge and municipal solid waste management. The reasons for such regulatory failure are many. Foremost among these reasons is the problem of designing best practices to secure effective and efficient enforcement and compliance with international and municipal environmental laws. A necessary conclusion that could be drawn from this analysis is that environmental benefits arising from existing legal and institutional frameworks are minimal and sub-optimal resulting in social and environmental welfare losses ((Ajani, 2012)). The question that should puzzle the mind of policymakers is why this sub-optimal results? What can we do to maximize our environmental gains? What changes in policy formulation and enforcement strategies are necessary to produce optimal environmental results? The answers to these questions are the focus of this paper: environmental policy using the best international practices to assess and improve on the national environmental policy strategies. This paper seeks to nudge forward debate on how best to protect Nigerian environment to a condition approximating sustainability and real implementation of environmental programmes, and therefore looked at the environmental challenges that confront Nigeria, highlight many regulatory imperfections which produce the sub-optimal environmental and social outcomes, and represent the underlying causes which culminated in the clamour for environmental governance that will achieve desired results.

#### Objective of the Study

The paper looks at the overview progress made to address the core of Nigeria environment and sustainable development issues. It identified various environmental challenges confronting Nigeria such as desertification and drought, land degradation, erosion, flooding, deforestation, pollution, global warming, ozone layer depletion, hazardous wastes and toxic Chemical and represents the underlying causes which culminated in the clamour for environmental governance that will achieve desired results.

#### Literature Review

Nigeria has made significant effort since the Rio Conference to address the core environmental and sustainable development issues which were identified and agreed upon at the United Nations Conference on Environment and Development (UNCED). However, environmental problems are still visible five years after UNCED.

Land degradation remains the greatest problems in Nigeria. In addition, we still witness high levels of water and air pollution while efforts to reduce the rate of natural resources depletion and desertification are yet to yield significant results (Enahoro & Ehi-Ebewele, 2007). Moreover the debt situation in Nigeria is still a major hindrance to sustainable development and poverty alleviation.

Apart from the national environmental problems, Nigeria has to contend with global environmental problems such as ozone layer depletion, global warming and the consequent climate change. The toxic wastes dump problem is still prevalent in spite of the relevant provision of the Basel Convention. Despite these problems, Nigeria made

progress in setting up the necessary institutional framework geared towards sustainable development. For instance in 1992, the Federal Environmental Protection Agency (FEPA) was given a broader mandate over natural resources conservation and its functions were enhanced by according it supra-ministerial status within the presidency.

The enhanced mandate of FEPA as well as the establishment of the National Planning Commission along with the existing ministries provided the framework for the integration of environmental concerns into physical and socio-economic development policies of the nation. The institutional framework has fostered international cooperation on environmental matters between Nigeria and several overseas countries and international organizations. The unprecedented increase in population and rapid rate of urbanization have brought about significant settlement problems of housing, overcrowding, traffic congestion, environmental degradation, inadequate infrastructure and services (Enahoro&Ehi-Ebewele, 2007). Recognizing these problems, the Government has not only featured in its National Rolling Plan the National Housing Policy but also the strategies for implementing a number of programmes aimed at promoting sustainable human settlement development.

Some major landmarks which were already made in Nigeria in the field of environment formed the basis of the new agenda for environmental protection and natural resource conservation in the country. The National Policy on the Environment and appropriate legislation, guidelines and standards for environmental impact assessment are being progressively reviewed and strengthened taking into consideration the challenges of the environment.

Realizing that climate is slowly and steadily varying due to human activities, systematic monitoring has since been ensured by Government through relevant agencies and departments in order to determine, in quantitative terms, the rate of variation. Such information becomes important for early warnings against natural disasters of flooding, erosion and drought among others.

The Government has also evolved through relevant agencies sound planning and management of land resources in the country. Various programmes including soil survey, land evaluation, fertilizer testing, fertility management and soil conservation are being pursued with adequate consideration to their environmental implications.

One major source of concern to the Federal Government of Nigeria is the persistent decline of national forest at an alarming rate of about 3.5 per cent per annum. Efforts towards sustainable forest management are made through the development of appropriate strategies and an action plan, afforestation programmes, a forest inventory as well as extension and advisory services.

The serious ecological and socio-economic implications of desertification and drought in Nigeria have informed the government to take certain steps in mitigating the problems associated with desertification and drought. The hectares of shelterbelts and woodlot are being increased in the marginal semi-arid lands of the country while emergency relief assistance are also provided to ameliorate the effects of ecological problems arising from drought and other natural disasters.

The establishment of nationwide drainage basin irrigation projects extensively demonstrates the Government's commitments to promoting sustainable agriculture and rural development. The programme among several others is under the purview of the Ministry of Agriculture and Natural Resource as well as that of Water Resources and Rural Development.

The Federal Government policy goal on biological diversity, taking into consideration the relevant provision of the Convention on Biological Diversity, is geared towards conservation of this vital resources, the sustainable utilisation of its components and the equitable sharing of benefits derived therein. Towards achieving this goal, priority programmes of expansion of the network of National Parks and Reserves as well as the compilation of flora and fauna of Nigeria are being pursued in addition to the development of a National Strategy and Action Plan for Biological Diversity.

In an attempt to pursue sustainable use of our coastal water and the adjacent land, the Government put in place an Action Plan on water pollution control and biological diversity conservation in the Niger Delta area of the country. Internationally, collaborative efforts are made with the West African sub-region under the Gulf of Guinea Large Marine Ecosystem (GOGLME) Project aimed at monitoring coastal water in terms of pollution and biological diversity conservation. Apart from this project, measurements of some meteorological parameters over the Atlantic Ocean bordering the country are being taken by relevant agencies.

Nigeria has given high priority to its freshwater resources due to the growing concern at the increasing stress on water supplies caused by poor use patterns, affecting both water quality and quantity. Consequently, the Government through the Ministry of Water Resources and Rural Development is undertaking a number of programmes designed to protect the quality and supply of freshwater resources in the country. Some of these include the preparation of a National Water Resources Master Plan (1995-2020), water resources assessment, and promulgation of enabling decree, rehabilitation of dams and soil erosion sites, and establishment of water quality laboratories. Others include development of a national water supply policy, production of the national rural water supply, Sanitation Sector Strategy and Action Plan, and strengthening of national water quality monitoring networks.

Since Rio, Nigeria has also put in place a hazardous chemicals and toxic wastes dump programme and established a FEPA/University of Ibadan Linkage Centre to carry out research and training in the area of industrial, domestic and hazardous waste management.

In recognition of the fact that broad public participation in decision making is a fundamental prerequisite for achieving sustainable development, Nigeria has made concerned efforts to involve the relevant groups in all its major activities geared towards achieving environmental sustainability. A Ministry of Women Affairs has been established. The activities and number of NGOs have been increased, local environmental action plans are under preparation, environment units are being established by most manufacturing companies, and the scientific and technological communities are getting increasingly active in environmental matters.

In spite of the remarkable progress made, there are still substantial constraints to the effective achievement of environmental sustainability in Nigeria.

## The Nigeria Environmental Problems

### Desertification and Drought

Population pressure, over grazing and the continuous exploitation of marginal lands have aggravated drought and desertification. Nigeria is presently losing about 351,000 square kilometres of its land mass to the desert which is advancing southward at the rate of 0.6 kilometres per year (Enahoro & Ehi-Ebewele, 2007). According to a recent survey by the Centre for Arid Zones Studies in Nigeria, desertification is by far the most pressing environmental problem in the northern states along the Niger Republic border. The outward and visible sign of the desertification process is the gradual shift in vegetation from grasses, bushes and occasional trees, to grass and bush and in the final stages, extensive areas of desert-like sand. Entire villages and major access roads have been buried under sand dunes in the northern portions of Katsina, Sokoto, Jigawa and Borno States (Enahoro & Ehi-Ebewele, 2007). With about 55 percent of its land under siege from desert encroachment, Borno State which suffered from a protracted fifteen-year drought in 1972-1978, is one of the most threatened land areas of Nigeria. Perhaps more spectacular, and of grave consequence are the persistent droughts which, a number of times, have resulted in famine in the northern part of the country. During the drought of 1972-1973 for instance, about 300,000 animals died and farm yields dropped by up to 60%.

### Land Degradation

The intensification of the use of fragile and marginal ecosystems has led to progressive degradation and continued desertification of marginal agricultural lands even in years of normal rainfall. It is feared that the damage by drought and population pressure may have resulted in the genetic loss of a vast array of valuable plant species (Odogbor 2005). Pressure on the dwindling resources in the arid prone areas has caused in a number of devastating socio-political and sectarian conflicts in the country with concomitant death, injury and heavy economic losses.

Inappropriate agricultural practices, the destruction of watersheds, and the opening up of river banks and other critical areas have led to silting of river beds and loss of water courses. Uncontrolled use of agro-chemicals and the concomitant problems of chemical persistence in the soil in humid areas and soil-crust formation in arid climates have contributed to salinisation and destruction of vast agricultural lands (Robert Dibie 2000).

According to Robert Dibie, (2000), Petroleum prospecting with its attendant oil pollution problems (including spills, oil well blow-out, oil blast discharges, improper disposal of drilling mud) has created problems such as: the loss of the aesthetic values of natural beaches due to unsightly oil slicks; damage to marine wildlife, modification of the ecosystem through species elimination and the delay in biota (faunal and floral) succession; and decrease in fishery resources;

Gas flaring and the resultant problems of ecosystem heat stress, acid rain and acid precipitation have prompted destruction of freshwater and forests resources in the coastal areas of the country. Robert Dibie, (2000) estimated that the heat and energy emanating from gas flaring in 1986 was equivalent to all the electrical power generated by the Nigerian Electricity Power Authority (NEPA) that year. Global estimates indicate that the flaring of petroleum associated gas in Nigeria alone accounts for 28% of the total gas flares in the world.

The problems of exposure to radiation, creation of artificial ponds associated with bad mining practices and non-reclamation of mining waste lands as provided for in the Minerals Acts are common in the mine fields of Jos Plateau, Enugu and other locations.

Excessive pressures on available urban resources, infrastructure and space, due to rural urban migration and the resultant problems of urban decay and squatter settlements are evident in Lagos, Port-Harcourt, Ibadan, Umuahia, Kano, Kaduna, Maiduguri and of recent Abuja and its satellite towns.

### Erosion

Gully erosion is particularly severe in Abia, Imo, Anambra, Enugu, Ondo, Edo, Ebonyi, Kogi, Adamawa, Delta, Jigawa and Gombe States. Anambra and Enugu States alone have over 50 active gully complexes, with some extending over 100 metres long, 20 meters wide and 15 meters deep.

Coastal and marine erosion and subsidence occur particularly in the coastal areas of Ogun, Ondo, Delta, Rivers, Bayelsa, Akwalbom and Cross River States. The most significant case of coastal erosion and flooding is the overflow of the Bar Beach of the Atlantic Ocean now a regular feature since 1990, threatening the prime property areas of the Ahmadu Bello Way, Victoria Island, Lagos (Odogbor 2005).

### Flooding

Flooding occurs throughout Nigeria in three main forms: coastal flooding, river flooding, and urban flooding, Coastal flooding occurs in the low-lying belt of mangrove and fresh

water swamps along the coast (Maduka, 2008). River flooding occurs in the flood plains of the larger rivers, while sudden, short-lived flash floods are associated with rivers in the inland areas where sudden heavy rains can change them into destructive torrents within a short period.

Urban flooding occur in towns located on flat or low lying terrain especially where little or no provision has been made for surface drainage, or where existing drainage has been blocked with municipal waste, refuse and eroded soil sediments. Extensive urban flooding is a phenomenon of every rainy session in Lagos, Maiduguri, Aba, Warri, Benin and Ibadan.

Virtually every Nigerian is vulnerable to disasters, natural or man-made. Every rainy season, wind gusts arising from tropical storms claim lives and property worth million of Naira across the country. Flash floods from torrential rains wash away thousands of hectares of farmland. Dam bursts are common following such flood. In August 1988 for instance, 142 people died, 18,000 houses were destroyed and 14,000 farms were swept away when the Bagauda Dam collapsed following a flash flood. Urban flooding such as the Ogunpa disaster which claimed over 200 lives and damaged property worth millions of Naira in Ibadan, are common occurrence (Maduka, 2008).

#### Deforestation

Uncontrolled logging and tree felling from which government generate paltry taxes accentuated by lack of re-stocking are the order of the day in many parts of the southern states of Nigeria. This carries with it loss of precious biological diversity.

Nigeria's wildlife is rapidly declining due to habitat loss and increased pressure from hunters, poachers and bush burning. Animals that have disappeared from Nigeria in recent times include the cheetah, the pygmy hippopotamus, the giraffe, the black rhinoceros and the giant eland (Abui, Makarau and Banta, 2014). About 10-12 number of species of primates including the white throated guenon species of primates and sclater's guenous are under threat. Also an estimated 484 plant species in 112 families are threatened with extinction because of habitat destruction and deforestation (Abui et al, 2014).

According to Abui et al, (2014), many of our cities are turning into concrete jungle where plants are no longer used for home landscaping. High rise buildings and other commercial centres have displaced areas earlier earmarked as low density residential areas in Ikoyi and Victoria-Island. The new Federal Capital Territory at Abuja is a pathetic example of this development where the rich and natural vegetation is being systematically depleted as a result of increasing human pressure. The rampant bush burning is threatening the growth of trees and wildlife species and reducing the ecological diversity of the area; gravel mining for construction is aggravating the problem of erosion and surface run-off; while indiscriminate discharge of particulates from construction sites is already leading to pollution and siltation. More recently, areas earmarked as green belts and recreational areas are being systematically converted into building sites (Abui et al, 2014).

#### Pollution

The problems of industrial pollution are enormous. Nigeria has about 5,000 registered industrial facilities and some 10,000 small scale industries operating illegally within residential premises (Gaiya, 2008). In places like Kano, Kaduna and Lagos, coloured, hot and heavy metal-laden effluents especially from the textile, tannery and paints industries

are discharged directly into open drains and water channels, constituting direct dangers to water users and biota downstream. Also disturbing is the practice whereby some industrial facilities bury their expired chemicals and hazardous chemical wastes in their backyard threatening the ground water quality.

Stack fumes from industries emit nauseating gases and particulates with grave respiratory and cardiac ailment consequences. Their physical spread often occludes sunlight for hours in several parts of Lagos, Kano, Enugu and Port-Harcourt. Air inversion with its accompanying foggy dispersion and visibility reduction to less than 20 meters has almost become a permanent feature of the Oko Baba mid-section part of the Third Mainland Bridge in Lagos where saw millers burn away sawdust and other wood shavings. A similar phenomenon is experienced at the toll gate end of the Lagos-Ibadan Expressway at Oregun, where smoke from a nearby dump site pollutes the air and emits nauseating odour (Gaiya, 2008).

Municipal solid waste heaps dot several parts of our major cities blocking motor roads, alleys and pavements. According to Gaiya, (2008), Municipal wastes and sewage disposal problem are particularly serious in Lagos, Ibadan, Enugu, Kaduna, Aba, Port Harcourt and Owerri and Warri. These unsightly dump sites are characterized by:

- (i) Various non-biodegradable household petrochemical products such as polythene bags, plastic containers, Styrofoam packages and tyres;
- (ii) Crankcase oils discharged by mechanical workshops, industries, power stations and commercial houses estimated at about 20 million gallons per year are discharged carelessly into drains and surface waters, thereby contaminating surface and underground waters. They are also aesthetically unpleasant;
- (iii) The sitting of public buildings and residential quarters on flood-prone areas as well as unsettled and improperly reclaimed dump sites. Such ecologically sensitive areas are often converted into plots for the erection of residential quarters and public buildings such as market stall.

#### Global Environmental Issues

Apart from the major national problems catalogued above, Nigeria also has to contend with such global environmental problems as climate change, ozone layer depletion, drought and desertification.

#### Global Warming

Climate Change or Global Warming is caused by increasing concentrations of atmospheric warming gases or Green House Gases (GHG) especially carbon dioxide whose concentrations have increased from 280 ppm in 1800s to about 370 ppm now. These gases warm the atmosphere by their capacity to trap heat and cause changes in the weather pattern of the earth. The increase in temperature causes the polar ice caps to melt and ocean waters to expand (Osho, 2008). These in turn result in sea level rise leading to submergence of many low-lying areas of the world. An area that is highly prone to this sea level rise is the 29,000 sq km of Nigerian coastline, which houses prime real estate and one of the largest mangrove forests in the world. The area is also very rich in biodiversity.

#### Ozone Layer Depletion

Ozone Layer Depletion is linked with certain "miracle" chemicals of yesteryears, namely Chlorofluorocarbons (CFCs), Halons and Carbon Tetrachloride which destroy the ozone layer. This is nature's shield which filters off ultraviolet B radiation in the stratosphere, protects human beings, animals and plants from the harmful effects of these ultraviolet (UV) rays which could cause skin cancer, eye cataracts, loss of body immune systems etc. Chlorofluorocarbons, Halons and Carbon Tetrachloride are used as freezants, sterilants, solvents, propellants and active ingredients in the pharmaceutical industries, hospitals, electronic, refrigeration, air conditioning, foam and aerosol industries (Gaiya, 2008).

### Transboundary Movement of Hazardous Wastes and Toxic Chemicals

Another important environmental problem is the non-natural but trade-related environmental problem of Transboundary movement of toxic chemical wastes, expired and contraband chemicals and pesticides. According to Osho, (2008), over 11 million chemical substances are known of which about 60,000 to 70,000 are in regular use. Only 3,000 chemicals account for 90% by mass of the world's total chemical usage. Adequate toxicological data have been produced for only a small fraction of these chemicals, and data on their environmental and ecotoxicological effects are sparse. Every year, with increasing knowledge, chemicals with grave ecotoxicological and environmental effects are withdrawn and banned from international trade. In addition to this, - obsolete chemicals and other radio-active wastes are expected to be disposed of carefully in an environmentally-sound manner.

Over the past decade, unscrupulous foreign businessmen acting in collaboration with local links have found a new way of making money through illegal trade thriving on these cargoes of death from the developed countries to the poor, helpless and largely illiterate developing countries. 94% of all hazardous waste trade originates from the OECD countries(Osho, 2008). The sole aim is to avoid the strict environment and health safety regulatory requirements and public opposition of the host developed countries which are deeply rooted in economic calculations. For example, the treatment and disposal of Polychlorinated biphenyl (PCB, a highly toxic chemical), costs 3000 US Dollars per tone in the U.S. compared to a mere 2 Dollars 50 cents including shipment cost and disposal in a developing country, where it is simply buried in dug out pits in the backyard or farms of the\* helpless citizens.

### Discussions & Empirical Issues

The existence of a large number of disparate legislation and policy documents directed at individual environmental or resources issues or problems is a major constraint to policy implementation. Despite the elaborate and comprehensive laws and regulations passed by the government over the years, it is uncertain whether much has been done in terms of implementation and enforcements of these laws by the appropriate agencies. This observation should not be surprising as the Nigerian government is usually good at formulating public policies but grossly fall short when it comes to implementation of such policies. First and foremost, we consider that it is irrelevant to examine the goals and principles on which EIA anchors its assessment. In addition, there are procedural framework which has been provided for EIA as follows:

The EIA processes start from the proposal to approval for implementation, resulting in the issuing of an Environmental Impact Statement (EIS) and then the certificate. It is pertinent to add here that, apart from the aforementioned provisions meant to guard against the pollution and degradation of the Nigerian environment, the Federal Republic of Nigeria's 1999 Constitution - Section 20 clearly states that, "the state shall protect and improve the environment and safeguard the water, air and land forest and wild life of Nigeria" (Federal Republic of Nigeria Constitution 1999). It is unfortunate to state that the paternalistic attitude of some of the Nigerian Judges towards matters relating to environmental hazards created by the companies have rendered the enforcement of environmental laws ineffective. Some members of the judiciary as noted by Ebeku (2003) have been reluctant to give orders compelling companies whose operations are damaging to the environment to ease the action complained of. Perhaps, these judges consider the potential loss of income and their investments at the expense of the environmental protection. In addition to this could be the fact that Nigerian economy depends largely on the sales of crude oil. Whichever is the case, such actions retard the implementation of environmental laws and thereby encouraging relegating these laws to mere "paper tigers".

In most of these cases and similar ones, the courts are said to have refrained from making on how to remedy the situation of the oil spillage claims, loss of income from fishing and farming, pollution of drinking water and crops, damage to health as a result of



waterborne diseases (Ibid). Instead of making orders to address the complaints in terms of damages due to the physical environment of these communities, they settled for compensation of the affected complainants. In this wise, the environmental laws that were meant to protect human beings and other living things are thrown to the dogs.

Given the attitude of the judiciary as discussed above, FEPA (now called Federal Ministry of Environment) has a challenge of translating the laudable provisions of the various environmental acts into effective management of the environment. Experience has shown so far that, infrastructural projects suffers from environmental impact assessment because, approval for such projects are often given before the Environmental Impact Assessment take place (if at all) it takes place (Anago, 2001).

The key defaulters in this exercise are the various levels of government: Federal, State and Local. These levels of government are said to be involved in routinely approving of projects within the mandatory study list before any kind of Impact Assessment is made. The Niger Delta Development Commission (NDDC) decided to dredge Ayetoro Canal prior to any EIA as required by law. In fact, according to our source, it is stated that any EIA reports are actually post mortem just to fulfill all righteousness” and fence off resistance and complaints from Nongovernmental Organizations (NGOs), and the affected communities (Anago, 2001).

#### Weak Database

Inadequate/inaccurate data remain a major constraint to policy formulation, project planning and implementation in environment and natural resources conservation in Nigeria. The inadequate and unsystematic inventory of Nigeria's natural resources is responsible for the dearth of detailed technical data that could be used to plan the management and national utilization of the resources.

One of the banes of policy formulation and implementation in Nigeria, is the absence of reliable data and information to guide policymaker at decision-making.<sup>31</sup> Some degree of uncertainty plagues many areas of government activity, but few face the pervasive information inadequacies that are found in the environmental realm (Alyson, 2003). Environmental regulation cannot be effective in an atmosphere of inadequate, unreliable and inconsistent data. How do regulatory authorities measure injuries to the victims of air, noise and water pollution? How do they know when a polluter has exceeded its permit when we do not have appropriate technologies to measure the level of his emission? How do we disentangle the combination of harms from multiple sources? Undoubtedly, information and reliable data are key factors in formulating and implementing sustainable development. Determining what is going wrong when environmental problems arise is not easy. Pollution is often hard to perceive but the effect is easy to determine. Who can see the ozone layer thinning or recognise the brain damage caused by exposure to lead? Even if a source of harm is identified, specific harm causers are difficult to track down. For example, the discovery of mesothelioma (cancer of the lung) which the plaintiff in *Margereson & Ors v. J. W. Roberts Ltd*,<sup>33</sup> alleged arose from the exposure to asbestos dust<sup>34</sup> in his childhood between 1925-45 within the vicinity of the J.W. Roberts factory but it was not noticed until 1990. Seven years later, however, he died of this disease (Alyson 2003). In addition to the difficulties outlined above, further complexities emanate from our limited understanding about the policy options that may be available to mitigate these harms and to lower the direct costs of pollution as well as the costs from the unintended and unforeseen consequences of governmental intervention.

#### Inadequate Enforcement

Apart from the inadequacy of both the policy and legal instruments, the enforcement of the existing environmental rules and regulations has been problematic especially as there are no clear demarcation of responsibilities between the Agency, Federal and State Ministries the inadequacy of the monitoring and enforcement mechanisms.

The use of law as a tool for sustainable development cannot be over-emphasized. However, for law to be continuously relevant in the sustainable development paradigm there must exist a sound legal framework for environmental protection. Such legal framework must possess three essential characteristics. The first element represents the legally binding nature of the rules. Environmental rules and standards, whether legislative or administrative in character, should not only be known in advance but they must also apply equally to all those issues addressed by them. Their content should address the genuine social and environmental needs and where appropriate, reflect a pre-existing or emerging public opinion on the matter. They should be based on sound social, ecological, economic and scientific principles. A sound environmental law must regulate all the media of pollution and provide for adequate civil and information. The second element consists of the appropriate processes through which such rules are made and enforced in practice. The appropriateness of such processes of rulemaking, rule enforcing and rule changing, obviously varies according to the culture, political system and other circumstances of each country. Experience shows, however, that legal processes will normally succeed to the extent that they are not complex or arbitrary. Sustainable development laws, made upon consultation with the people they affect, are realistic in terms of implementation and transparency. Simplicity of procedures, transparency of legal processes, participation of the affected people and the accountability of public officials involved in the regulatory processes add to the legitimacy of the rule and contribute to the public confidence in the legal framework as a whole. The success of each enforcement mechanism depends on how the State exercises its discretion in determining its particular needs and environmental priorities and on choosing the appropriate enforcement method. The legal transposition of sustainable development principles must be pursued objectively and scientifically so as not to exacerbate the current state of poverty mostly prevalent in our society. The law should not unnecessarily dislocate existing positive culture, structure and economic welfare of the people. For example, government policy that unduly imposes strict environmental law will discourage investment and render a majority of the citizens jobless.

Similarly, government policies that discourage large-scale farming and modern agricultural practice under the guise of sustainability risk the invasion of famine, war and hunger. The third element consists of well-functioning public institutions such as regulatory agencies, efficient court system and administrative agencies that are staffed by trained personnel. These are transparent and accountable to the citizens and apply such environmental regulations without arbitrariness or corruption. A well-functioning law enforcement apparatus and judiciary, in which judges normally apply the law in a fair, justiciable and predictable manner, without undue delay or unaffordable cost, are essential conditions and proper legal framework for sustainable development. The existence of an efficient and honest regulatory body for environmental monitoring and surveillance will ensure the appropriate application of legal rules, especially when its decisions are subject to judicial review. Without some efficient and honest institution for the enforcement of rules and the resolution of conflicts, the first two elements: "rules and processes" will fail to provide a sound legal framework for sustainable development. The foregoing calls for a review of environmental laws and policies as a means of reducing multiplicity and duplication of institutions, laws and policies. It also calls for domestication of some of the international environmental treaties to which Nigeria is a signatory.

#### Funding

The major constraint to the implementation of Agenda 21 remains the financial provision for implementation. The average annual incremental cost of implementing Agenda 21 in developing countries have been estimated at 600 billion dollars out of which only 125 billion dollars or 25% is expected to be contributed by developed countries. This implies that a larger proportion of the money is to be sourced by the developing countries including Nigeria. The country's high debt servicing profile makes this impracticable. Currently about one-third of the annual budget goes into external debts servicing.

Accordingly, implementation of Agenda 21 in Nigeria will require the assistance of relevant international, multilateral and bilateral agencies, such as the United Nations, the World Bank/IDA, the International Monetary Fund (IMF), and the Global Environmental Facility (GEF). Possible assistance options that may be considered by the IMF and the World Bank/IDA is the conversion of the country's debt service flows into investments in environmental management and protection programmes and projects.

#### Manpower

Inadequate of trained manpower in the area of integrated environmental management is a major constraint. Also, there is inadequate awareness on the importance of environment and natural resources management especially in resource accounting.

#### Technology

Available technology in the country appears grossly inadequate to meet with the challenges of the environment and the programme of transfer of technology is yet to take off fully.

#### Inadequate Public Awareness

Lack of appreciation and involvement of the general public in environment related issues and development as well as insufficient popular participation in project design and implementation will for some time constrain the attainment of the environmental sustainability in Nigeria.

Another strategy for achieving compliance with environmental laws includes motivating the community and creating public awareness through education and incentives. Environmental education must be integrated into the curricula of primary and secondary schools to enable the citizens inculcate environmental culture at earlier stages of their lives. It will not be out of place if environmental studies are integrated into the curricula of primary and secondary schools. It will allow our children to appreciate the environment early enough and understand the basis for its protection. We need to develop an environmental ethic and redesign our decision-making procedure and educational process to address these problems by going back to the oldest values of community responsibility by giving a great regard for the land and the resources we share.<sup>40</sup> Mass media must be deployed to inform, educate and mobilise our citizens (old, young, educated and uneducated) to appreciate the importance of healthy living and protection of our common heritage: environment. Again, access to environmental information and public participation in environmental decisions constitute another impetus in achieving environmental compliance and efficient enforcement of our environmental laws. This will involve amending our environmental laws to allow citizens to participate in environmental decision-making at different levels particularly as it affects them most and to have access to courts when State refuses or neglects to act on environmental issues.

#### Conclusion and Recommendations

This paper has closely examined both from the theoretical and practical points of view the modalities for achieving effective and efficient enforcement of Nigerian environmental laws. While environmental regulation is justified in one breadth, strict application of command and control approach may be counter-productive in environmental management. What is needed to be done to complement the carrot and stick approach is the infusion of public confidence in environmental management through continuous environmental education and training. This will require a change in approach in environmental governance.

Government must promote, implement and enforce environmental policies in a transparent manner. This calls for accountability and transparency in the environmental law making process, environmental policing and environmental prosecution. It will also involve liberalizing public participation in environmental decision-making and accessibility to environmental information and courts to prosecute environmental

delinquents in cases. In order to build on the gains so far achieved in environmental protection efforts and ensure that environmental protection programmes are anchored on solid foundation, the following recommendations should be implemented as part of the necessary pre-requisites for the achievement of sustainable development in Nigeria:

1. Integrating environment into development planning and decision-making.  
Strengthening the legal basis for sustainable development.
2. Creating and improving capacity for Sustainable Development.
3. Harmonizing Federal, States and Local Governments responsibilities for environmental management.
4. Adopting and promoting the use of existing environmentally friendly technologies.
5. Promoting Research and Development of environmentally Sound Technologies.
6. Forging viable Partnerships among various Stakeholders and Interest Groups both at National and International levels.
7. Managing Environmental Information and education to generate adequate public awareness for Decision Making.
8. Internalizing Environmental Costs through the use of Economic Instruments in themanagement of Natural Resources.
9. Alleviating Poverty.
10. Improving the funding for Sustainable Development.

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