

Technology, Knowledge and Environment in Africa

A Perspective from Nigeria

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Environmental Degradation in Africa: A Challenge to Sustainable Development in Nigeria

Dominic Akpan

Introduction

Man is at the centre of the environment issues. Thus everything that sustains the physical and psychological existence of man can be regarded as consisting man's environment. However, for decades the issue of environmental degradation was never taken seriously in this part of the world until, a couple of years ago. Environmental degradation is a product of man's rising demand for food, grazing ground for animals, fuel, fibre and recreation. The burden on land to accommodate these needs exposes land to problems especially when unassisted by returning nutrients, cover crops of planting or trees. The ability of the land to provide is set by the soil type, climatic conditions and the management of the land. Often times, the over-exploitation of land to obtain the maximum yield results in degradation and declining yields in many parts of Africa especially and sub-Saharan region.

Africa is facing many problems, the most pressing which, needs urgent attention is hunger. However, many countries in Africa face exceptional food shortages, and millions of people still face the threat of famine and starvation. Such countries include Zimbabwe, Mozambique, Chad, Niger, Burkina Faso etc. Most of the countries affected share common borders with the Sahara Desert. Apart from starvation, it is contended that malnutrition is also a factor. Indeed, according to World Bank, just under half of the

region's populations suffer from some level of food deprivation, with serious consequences for health and productivity.

It is agreed that the environment has been persistently abused in many parts of Africa for more than six decades. That there are no inhabited areas of Africa that is not prone to soil and environmental degradation of one sort or another. Africa therefore loses an estimated 5 million hectares of tropical forest area per year. Land degradation is estimated to affect about 230 million hectares annually¹.

Indeed, most of the human activities that lead to land degradation include over-cropping, deforestation, bush burning, grazing, oil spillage, poor disposal of industrial waste, mining and quarrying among others. However, some of these act as engine or propeller for natural forces such as erosion and flood. At that the issue of land degradation was regarded as mean until the work of the Brundtland Commission of 1983. Brundtland Commission stimulated discussion on the environment in many countries and organizations including Nigeria. For now many governments and organizations are feverish at finding solutions to the many environmental crises. The paper focuses on the concept, causes, effects and control of environmental degradation in Africa with specific reference to Nigeria.

The Concept of Environment

UNESCO defined environment as the physical and social resources available to a given time in a given location for the satisfying of human needs and aspirations. The environment, therefore, comprises the land, water and other living and non-living resources. By implication, an environment represents the total surrounding biological, physical, chemical and others impacting on the life and activities of man in his day to day interaction with nature.

One of the vexed issues in international fora is the issue of environment and its degradation. The issue of degradation has reflected in several reports of land, water and air pollution. Indeed, there is desertification and famine in Africa, tsunami in Indonesia and Sri Lanka, flood in India and Bangladesh, Earthquake in China, Turkey etc., bush burning in Arizona and many other disasters caused by environmental degradation. In the words of Korthof and Stelling Werf quoted by Oyeyinka defined environmental problems as a decline in the quality of the environment and experienced as such by a group of people. Environmental problems can be divided into three groups viz exhaustion of natural resources, pollution of natural environment and damaged ecosystems².

In Africa and indeed Nigeria, population growth leads to reduced fallow periods and increased farming intensity. This in turn, reduces soil productivity. Thus population growth is associated with environmental degradation as communities expand to ecologically fragile lands or urban peripheries³. As it is, since hunger and poverty still abound and in addition to the low technological capacity to improve production per unit land, degradation of the environment will continue.

Poverty is a deplorable state of human welfare, and it is closely linked to environmental degradation. The poor are both victims and agents of environmental damage. Put differently, poverty affects the environment and environment affects poverty. In this connection, poverty is both a cause and effect of environmental degradation. Poverty to a large extent produces negative and unjust social conditions such as structural inequality. Hence, the concept of equity and of meeting the needs of the citizens is central to sustainable development⁴.

However, those who are poor and hungry will often destroy their immediate environments in order to survive. They will not be tired of tilling 'tired' soils and cutting down

forests. They live in slums and throw waste into gutters and streams, because to them life is cruel. They lack resources and materials necessary for living within a minimum standard conducive to human dignity and well-being. The poor have many children typical of Nigerian poor dwellers. Over-population is an environmental problem because it brings undue pressure on scarce resources and adversely affects the environment and by extension sustainable development⁵.

Environment is degraded when extraneous substances are found in an inappropriate position. Though a lot of the discussion will centre on man's activities on land. But the issue of water and air would come in since they constitute part of the environment, and have effect on environmental degradation. Sustainable development implies long lasting benefits derivable from long human interactions with the environment. Individuals should be aware of their roles towards environment. Therefore for development to be sustainable, it requires full understanding and participation of citizens in their environment for their benefits and for the future. Sustainable development embraces economic development, some political development, environmental development, intellectual development-all are interwoven in providing the balance for man's overall existence⁶.

Dimension of environmental pollution in Nigeria

There are various dimensions of environmental pollution in Nigeria. These are listed below:

Water Pollution/Degradation:

Water pollution occurs when effluents are discharged into water making it unfit either for man's or animal consumption or for industrial use. Oil spillage has been one of the ways in which Nigerian coastal waters are polluted. They are polluted

owing to the activities of multinational companies doing businesses in Nigeria such as Shell Petroleum Development Company, Mobil Oil (now Exxon-Mobil) Agip, Chevron etc. It is agreed that there were over 4,000 recorded oil spills in the Niger Delta alone between 1960 and now as a result of the activities of these companies. Most of these oil spills are either into water or land. On land it caused the destruction of vegetation, fish ponds, and into water destroys the aquatic lives. The effect on the people is well known⁷. To further illustrate the evil of oil spills, Kokodiagbene Youth Development Association opined

we have lost close to 5,000 fishing ponds around Warri as a result of the activities of these multinationals. Othuke Omudhuwho added ... lost five fish ponds to the oil spills that occurred between 1993 – 1994 in which about 1,400 people were killed⁸.

Other processes in which water lost its pure state are through the discharge of untreated industrial water into streams, rivers, lakes e.g. Kaduna River receives untreated water from National Fertilizer Company of Nigeria (NAFCON) and other companies. That river is unfit for man's use for a long time now. Most of the industrial giants in Nigeria do not treat their effluents before discharging them into Nigerian waters.

In the same corollary, gas flaring has assisted in the degradation of Nigerian environment. That in Nigeria gas flaring from oil prospecting companies is highly inefficient and releases large amount of methane with very high global warming potential. That the methane is accompanied by the major greenhouse gas, carbon dioxide. Nigeria was estimated to have emitted more than 34.38 metric tons in 2002, and perhaps much higher. One should understand that when carbon dioxide comes in contact with some percentage of water it

forms a weak acid, which have a corrosive effect on vegetations. In the process it becomes an agent for land degradation. Other forms of air may also pollute the environment such as through burning of fossils, bush burning, fumes from car exhausts⁹.

Desertification:

Desertification is the process where the quality of lands are reduced through hostile human activities or sometimes caused by nature, and the areas mostly affected are the Savanna States of Northern Nigeria. The natural activities include short or inadequate rainfall and longer dry season, while man-made activities include over cultivation, over-grazing, bush burning, deforestation and other processes in which the environment is put, in an improper use.

Desertification is 95 percent man-made. The main cause of desertification is the felling of trees for fuel wood. About 90 percent of the citizens in Northern Nigeria rely on fuel wood. Apart from searching the fuel wood which usually leads to felling down of trees, other activities involve farming. The common farming method used is the slash and burn. Hence, with the process of opening up the land, waters and wind erosion prevails. Hence, the desert activities or functions manifest itself. Other activities are those of herdsmen, whose animals graze on the available vegetation and compound the problem, leading to forest retreat and a progressively low annual cropping¹⁰. The states highly prone to desertification include Kebbi, Zamfara, Katsina, Yobe, Sokoto and Bauchi. In Kebbi the following local government area are on the cross-roads of desertification. These include Arewa, Argungu, Birnin-Kebbi and Jega for show-casing. However Yobe and Bornu are threatened by desert encroachment¹¹. It does not allow for food security as rain will come late, farmers always abandon their homes for new ones – they lost much income.

Over-Cropping:

It is the practice of putting a piece of land on a continuous planting of one or more crops without returning alternative nutrients to the soil. Or sometimes, continuous cropping with the application of only artificial fertilizer. In Nigeria especially in the South population pressure, soil erosion, seasonal flooding of farmlands has led to most farmers putting a piece of fertile farmland into maximum use. Often most crops cultivated under this method, no cognizance is taken which of the crops would require surface feeding or deep-rooted crop. What is important is to push all available crops into the land. When the soil is exhausted and overstretched, it no longer supports any good yield. In most instances the soil becomes sandy-very common in the Southern part of Nigeria. The over-cropping practice is a common practice in areas with high population pressure as in South-East, South-West and South-South geo-politic¹² it causes food insecurity and affects their income.

Bush Burning:

It is a farming practice that had been in use among the Africans many centuries ago. The Nigerian peasant farmer man or woman believe in (Slash and burn, slash and till) as a method of farming. Many Nigerian peasant farmers are illiterates who live in rural areas. Many are poor and lack finances live in rural areas. Many are poor and lack finances required to hire labour for clearing their farmlands or other farm requirements. They also lack the application of modern technology. Even where the technology is available, the necessary finances are not there to hire. When threatened by the diminishing soil fertility, they abandoned it to seek for fresh land. This method causes a lot of damage to biodiversity in all part of Nigeria, it also cause reduction in soil fertility as well as exposing the top

soil to erosion and other consequences such as global warming¹³. It is common in all parts of Nigeria.

Deforestation:

It is the clearing of forest and vegetation without its replacement. It is considered to be one of the world's most pressing land use problems. It is very common and a problem in Nigeria. Selective logging of closed forests causes enormous degradation. Conversion to agricultural land is also a major cause of deforestation. Other factors are Commercial timber logging, planned migration and resettlement, large-scale construction projects and the expansion of commercial ranches. Commercial logging for the creation of wealth and employment among Nigerians, become a common phenomenon among young men who are interested in making a good living. It is not peculiar to a certain section of the country, it is experienced all over Nigeria. Planned migration and resettlement is the compulsory or force ejection of people from their original homes to another environment for the purpose of development. For instance, the Gwari people who occupied Abuja were compulsorily relocated to Kubua and elsewhere for the purpose of building a new administrative capital for Nigeria. Or when Kainji Dam was built, the people of Bussa were resettled at New Bussa. Or where large-scale construction is involved such as airports, roads, industries, dams, commercial ranches. In the process of building or constructing, damaged has to be done to forests – clearing. When Abuja was planned and constructed, or as Abuja – Suleija road was built, forests gave way for such constructions. At a very local level demand for fuel wood, fodder and grazing contribute to the loss of forests. All these activities are common in all parts of Nigeria¹⁴. It opens the soil for erosion. Erosion does not support good farming yield hence constitute a problem to food security. Though on the other hand it is

income generating venture, and employment avenue. But this is only a short term.

Poor Disposal of Industrial Waste:

Nigeria generates millions of tons of solid waste daily. For instance, according to Adekeye¹⁵, between 522,043 and 342,352 metric tons of solid waste are generated annually in Lagos and Rivers States. He went on to say that solid waste increases as population grows. Put in another way, there is a high correlation between population growth in cities and waste generation. Most of these wastes are indiscriminately dumped without recourse to its effects. However, studies have shown that dumps are not environmentally friendly. Apart from the contamination of soil and agricultural land by other elements, lead alone has a poisoning effect. Improperly managed solid waste emits offensive odour, thus polluting the air and favour the breeding of rodents, mosquitoes and harmful reptiles. Dump-sites are homes to flies, fleas, mosquitoes, rats and other vectors which are responsible for diseases such as malaria, filariasis, lassa fever, yellow fever. These are common sites in our cities and towns. Equally discovered is that malaria, diarrhea, intestinal worms and upper respiratory tract infections are prevalent in the communities around dump¹⁶. These have negative impact on the productivity of individuals living in these environments.

The works of Eddy, Odoemelem and Mbaba of the Department of Chemistry, Michael Opara University Umudike showed that solid waste harbours radioactivity properties like flammability, explosivity, corrosivity, toxicity and mutagenicity, antimetabolic properties like allergenicity and infectivity¹⁷.

Erosion:

Mining is man's activity that enhances his living standard and development. Mining directly interferes with the landform especially when such mineral is located close to the land surface. This is typical of Jos Plateau where Tin and Columbite are mined through the open cast system. Another form of land degradation emanates from quarrying, where stone or rock is being transported to several regions in Nigeria for building and other construction purposes. Okigwe escarpment, Akamkpa Crush in Cross River, Abakaliki in Ebonyi and Nasarawa and Plateau States¹⁸. Umeuduji added that running wastes increase the sediment load of the rivers that drain the region coupled with the rapidly lowering of the topographic surface.

Indeed, the erosion threat is well pronounced in the North Central of Nigeria, the South-south, and Southeast. The prevailing condition is caused by the local people inability to embark or reduction on bush burning and large scale felling of trees. Besides, there is shortage of farmlands and the situation has driven them to over-cropping and the need for fuel wood¹⁹.

Impact of Environmental Degradation

Poor management of environment is often met with disaster. The Ur of the Chaldeans was once a flourishing community, today it is in ruins. Sahara desert is known to be an environment that supported life, today it is a mass of sand with dotted Oases. Its desiccation started about 10,000 BC. Environmental degradation is experienced the world over. Nigeria is experiencing serious environmental challenges because of cruel human activities which include continuous cropping, deforestation, over grazing, oil spillage and gas flaring, mining and quarrying, careless dumping of solid waste.

However, continuous cropping of recent does not make meaning in terms of yields or productivity. It is reasoned that putting a piece land under such process makes the land highly fragile. In the Northern fringes of Nigeria, the danger of expanding desert conditions is imminent and drought can only aggravate the situation. It is known that the Sahara desert has taken over or encroach in marginal areas in Northern Nigeria where the soil has been overworked either because of continuous cropping or other agricultural or related activities of man. In Southern Nigeria continuous cropping is exposing the land to the activities of denudation. In the rainy season the soil would be exposed to flood and run-off. In all, it reduces soil fertility, which in turn reduces productivity. This has a serious problem on the economy as food situation depends on imports. Secondly, more than two thirds of the people living in these areas spend their income on food. Deforestation has a great impact on Nigerians. Loss of trees results in a reduction in the earth's capacity to absorb carbon dioxide and to a large extent contribute to global warming. Equally, certain species of plants, the potential source of life saving medicine gradually disappear. Indeed, apart from those factors mentioned above, deforestation does not support good farming yield because of erosion when the soil had been exposed especially in the Southern part of Nigeria.

When animals are allowed to feed on a given area for too long, the vegetation and the ground cover are destroyed either by trampling on the soil, completely removing the vegetation thus exposing the soil to the agents of denudation. Wind or rainwater usually affects the area or portion involved adversely. It may lead to erosion, it can also cause flood, thus the food supporting layer of the soil completely depleted. The soil is no longer able to support agriculture thus reducing the crop yield, this can also lead to food insecurity if unchecked or

allowed to continue for a long time. This is a common practice among the cattle rearers in Northern Nigeria.

The people of the Niger Delta are directly affected by this phenomenon. Prior to the discovery of oil the people lived on land and water. That is their means of livelihood centred and sustained on agriculture, fishing and lumbering. They were self-employed. With the discovery of oil and subsequent exploitation, the new economy totally dislocated the traditional means of livelihood of the people. This dislocation comes in the process of frequent oil spills and gas flaring by oil companies into farmlands, rivers and streams. Thus farmlands, rivers and streams no longer support agriculture, fishing is no longer lucrative. Many people become unemployed and it is partly responsible for the restiveness in the Niger Delta.

These in no small measure have destabilized the ecosystem and the problems again transferred to man in a different form. In the same process the problem of erosion, desertification, siltation of in land and coastal water ways become a bane for development. It can reduce income, decline in employment and can lead to social problems.

Recommendation

The first recommendation is environmental education for all. Illiteracy and ignorance have been identified as a bane to achieving a sustainable society. That all Nigerians should be provided with basic education, particularly women and children. Environmental education should be included in the curriculum of the Universal Basic Education.

Ecological fund to states should be directly managed by the Federal Government, especially now the present administration appears to have human face. The issue of poverty in the country should be addressed. Poverty cannot totally be removed from the system but it could be reduced.

Hence the government should think seriously about that for the wealth of this planet ends on this planet.

Conclusion

Nigeria is purely an agricultural country where the majority of the people are poor and living on land. It is through this land that the peasant farmers produce food for the populace. Continuous degradation of the environment would mean a deleterious stiffening of the land; and in the long run may lead to food insecurity, farming systems according to peculiar environment should be encouraged.

Land degradation may not be prevented, but could be minimized to some degree. Environmental management and control be left in the hands of experts. Policy and decision makers should not cast it in the mould of other policies. Experts should be allowed to bring their ingenuity and experience to bear on the planning, management and implementation of acceptable policies and practices to reshape the environment for sustainability development.

Endnotes

¹ The United Nations Environment Programme (UNEP) 2005.

² Oyeyinka 2000.

³ Pearce, D. W. and Warford, J. J., *World Without End, Economics, Environment and Sustainable Development*, Oxford: Oxford University Press, 1994; Awake, *Who is killing the Rain Forests?* Benin City, March 22, 1990.

⁴ Anijah-Obi, *Environmental Protection and Management, Planning, Process and Strategies*. Calabar, University of Calabar Press, 2001.