

*Review*

# **An appraisal of the role of environmental education in the sustainable utilization of land resources in rural areas of Nigeria**

**Amuyou U. A, Okon A.E\* and Oko P**

\*Department of Geography, School of Art and Social Sciences Federal College of Education, Obudu, P.M.B.1038, Obudu Cross River State, Nigeria.

\*\*Department of Geography and Environmental Science University of Calabar, P.M.B. 1115, Calabar Cross River State, Nigeria

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**“Ignorance” of the relationship between man and his environment has been the bane of achieving environmental sustainability. Man’s relationship with his environment especially land and its resources has always changed with time, depending on his understanding, technological capabilities and knowledge of the physical environment. Lack of understanding of the dynamics of the relationship has resulted in serious environmental problems. The increasing threat from offshoot of the ecological footprints of anthropogenic activities reinforces the need for concerted efforts toward achieving sustainable resource exploitation in all realms. Educating the public remains the most powerful instruments for creating awareness on the impacts of human activities and transforms his behaviour towards sustainable utilization of resources. Policies cannot work in a vacuum; environmental education remains the engine that can drive the lofty land management policies into meaningful actions, which require citizens’ participation for awareness and sensitivity about the environment and environmental challenges; Knowledge and understanding about the environment and environmental challenges; Attitude concern for the environment and help to maintain environmental quality; Skills to mitigate the environmental problems; Participation for exercising existing knowledge and environmental related programs. It has become imperative that educators and policy should take cognizance of our old traditions and ethics that reinforces the need to sustainably manage our heritage.**

**KEY WORDS:** Environmental education, Land resources, sustainability, utilization, rural areas,

## **INTRODUCTION**

Land remains the most valued resource on earth. Its bounty continues to nourish civilization. In developing countries especially those of Africa, land is not only the farmer’s most important asset but it is also an important possession of mankind (Aina, 1998). Land and its resources are indispensable to the very human existence. It houses the living species, the water, and other material resources. These resources constitute the main livelihood security of rural people. This explains why they (rural people) always guard their land jealously whether it is currently under use or not.

The rural man depends on land resources like non timber forest products (NTFPs), economic trees of all kinds, the derivatives of agriculture etcetera, for their daily sustenance. The destruction of these resources will or has inextricably led to livelihood insecurity in Nigeria. Livelihood security is a condition when all people, at all times, have physical, social, and economic access to safe, adequate and diverse means of livelihood assets to meet their daily requirements of self-actualization, self-esteem and physiological needs as enunciated by Maslow.

Despite the value attached to land and its resources; the rural man is working the land to death. FAO (1990) noted that Africa’s lands—its croplands, savanna, bushes and forest are under attack, land degradation in the

\*Corresponding authors: E-mail: [asuquo4sec@yahoo.com](mailto:asuquo4sec@yahoo.com)

region is proceeding so fast that few African countries including Nigeria, can hope to achieve a sustainable agriculture in the foreseeable time. Man's relationship with his environment especially land and its resources has always changed with time, depending on his understanding, technological capabilities and knowledge of the physical environment. However, the natural environment is generally endowed with variable quantity and quality of resources within the environment. Thus, man has come to regard his environment as a depot housing his needs and therefore always seeking for ways of extracting the resources within it but always to the sad neglect of the environmental sustenance and consequently the emergence of a number of environmental stresses (Ezeaku and Alaci 2008).

The most comprehensive assessment of global land degradation, by Oldeman et al, (1991), classified the main types of land degradation as soil erosion from wind, and water, chemical degradation (lost of nutrients, soil salinization, urban industrial pollution, and acidification) and physical degradation, (compaction, waterlogging, and subsidence of organic soils). Out of the total land resource base of the world, they estimated that 1,964 million hectares have suffered some degree of degradation.

The problem of land resources degradation is on the rampage in Nigeria. For instance Jimoh et al (2011) chronicled quantitatively the rate of land spoliation in the eastern parts of Nigeria where erosion has virtually ravaged much of the vast lands in the area. They reported that both active and inactive gullied surface areas range from 0.7km for Ohafia and 1.15km for Abiriba in Abia State. In the northern axis of Nigeria, erosion is equally serious especially in places like Shendam and Western Pankshin of Plateau state, Efon Alaaye in Ondo State, Ankpa and Okene in Kogi State of Nigeria.

The current crisis of high food prices are footprints of man's inordinate actions on the environment. Land degradation remains an important global concern because of its adverse impacts on agricultural production, food security and the environment. Inappropriate land management practices, particularly in areas with high population densities and fragile ecosystems, further increases loss of productivity of resource-poor farmers. This in turn affects their food security and livelihood (FAO, 2001).

Food security means access to adequate food for a healthy life by all people at all times. Meanwhile, a secure system is that which has the capacity to not only produce sufficient food for its members, but is also ecologically sustainable so that natural resource base on which human life depend are protected and enhance over time (Barraclough, 2000; Population Reports, 2000). The main source of economic activity in rural areas of Nigeria is agricultural production, declining soil productivity means not only less food is grown but also that

production of cash crops and income are endangered. Thus, rectifying land degradation and enhancing productivity through environmental education that emphasizes appropriate soil management and conservation can play a major role in achieving farm household food security and agricultural development in Nigeria.

Ebong and Basse (2004) recognized the relevance of modifying human outlook of nature through education considering the fact that a glance at the past history of human existence confirms that the ways human beings have always organized and managed their environment have depended not so much on realities of the environment as objective science would prove them to have been, but rather to a very great degree on what those human beings imagined or as Wright (1947) puts it, the most fascinating terra incognita of all are those that lie within the hearts and minds of men.

The aim of this review therefore is to attempt an expository of the intervening variables of land resources degradation in Nigeria. Specifically, the paper shall be discussed under the following subthemes; Concept of environmental education and sustainable development, perpetuating variables of land degradation in Nigeria, the role of environmental education in sustainable land use, recommendation and conclusion.

### **Concept of environmental education**

Environmental Education is a dimension of education, which is interdisciplinary in approach which again recognizes the connection between a quality education and the quality of the environment. Environmental education can be described as the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among people, their culture and their biophysical surroundings. Environmental education also entails practice in decision making, and self-formulating of a code of behaviour about issues concerning environmental quality (IUCN 1970). The Australian Association for Environmental Education (AAEE) defines environmental education as seeking: ...to develop an understanding of the interrelationship between the elements of the total environment, positive attitudes towards it and skills which will enable people to actively promote its wellbeing (AAEE 1994).

The term is often used to imply education within the school system, from primary to post-secondary. However, it is sometimes used more broadly to include all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc. Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges,

and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, Tbilisi Declaration, 1978).

The overt goal of environmental education is producing a citizenry that is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems and motivated to work toward their solution. According to the Belgrade Charter on a global framework for Environmental Education (1975), the objectives of environmental education include;

### **Awareness**

to help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems.

### **Knowledgeable**

to help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity's critically responsible presence and role in it.

### **Attitude**

to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement.

### **Skills**

to help individuals and social groups acquire the skills for solving environmental problems.

### **Evaluation ability**

to help individuals and social groups evaluate environmental measures and education programmes in terms of ecological, political, social, aesthetic and educational factors.

### **Participation**

to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve these problems.

Similarly, the United Nations conference on

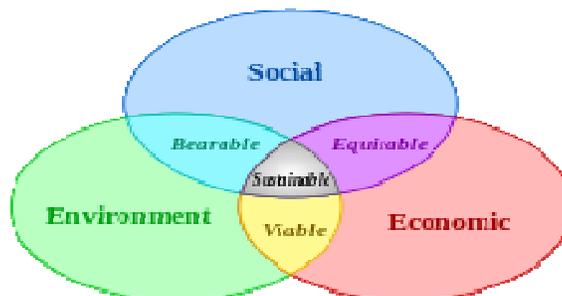
environment and development held in Rio in June 1992, stressed the importance of environmental education. Chapter 36 of Agenda 21 states 'there is need to increase people's sensitivity to, and involvement in finding solutions to environment and development problems'. Education give people the environmental and ethical awareness, values and attitudes, skills and behavior needed for sustainable development. The key educational concepts which flow from these definitions are: awareness, knowledge and understanding; skills; values and attitudes; and, practices and behaviour. From an educational perspective, behavioural change arises from the interaction of learning in each of these areas.

### **The Concept Of Sustainable Development**

Sustainable development refers to a mode of human development in which resource use aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The term 'sustainable development' was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UN, 1987). Sustainable development ties together concern for the carrying capacity of natural systems with the social challenges faced by humanity. As early as the 1970s, sustainability was employed to describe an economy in equilibrium with basic ecological support systems (Stiver, 1976). Ecologists have pointed to 'The Limits to Growth' (Meadows et.al. 1972) and presented the alternative of a "steady state economy' (Daly, 1973) in order to address environmental concerns in the world.

The concept of sustainable development has in the past most often been broken out into three constituent parts: environmental sustainability, economic sustainability and sociopolitical sustainability (Babier, 1987). More recently, it has been suggested that a more consistent analytical breakdown is to distinguish four (Figure 1) domains of economic, ecological, political and cultural sustainability (Diagana, 2003). Development is about improving the well-being of people. Raising living standards and improving education, health, and equality of opportunity are all desirable and are essential components of economic development. So that sustainable development must be a pro- active strategy to develop sustainability. Sustainable development requires mobilizing governments, the private sector, and the general public toward sustainable communities.

The increasing threat from offshoot of the ecological footprints of anthropogenic activities reinforces the need for all concerted efforts to be made toward achieving sustainable resource exploitation in all realms. On the whole, from the different perspective given the tenets of



**Figure 1:** Scheme of sustainable development; at the confluence of three constituent parts. (Diagana, 2003)

the concept of sustainable developments is anchored on not exhausting the resource base, sustainable development is economic development, without environmental sustainability it is impossible to achieve sustainable development.

### **The perpetuating variable of land degradation in Nigeria**

Nigeria like any other African country is confronted with myriads of ecological crisis. The lost/degradation of the rain forest, the savannization of her environment, the erosion of soil fertility, acute poverty and many more are recognized as being due to human unsustainable practices or to be 'anthropogenic' (to give a simple idea classical dignity). Prominent among the litany of ecological crisis is land degradation which is perpetuated directly or indirectly from the long held philosophy of 'taking' from the earth. Man's onslaught on land resources is exacerbated by unprecedented population growth in the country.

Agriculture is, in fact, a human activity that affects the greatest proportion of the earth's surface, is the single biggest user of fresh water (Pagiola & Holden 2001), and is still by far the largest single source of livelihoods and income (Ohlsson 2000) especially in Africa. Just as our collective land use practices are increasingly degrading ecological conditions across the globe, we have become dependent on an ever-increasing share of the biosphere (Vitousek et al. 1986). Global croplands, pastures, plantations and urban areas have expanded in recent decades, accompanied by large increases in energy, water and fertilizer consumption, along with considerable environmental degradation and losses of biodiversity (OTA, 1987). Even though it has been recognized that biodiversity is important for the functioning of all ecosystems, and that excessive loss of biodiversity imposes real costs on resource users (Heywood 1995), short term benefits are realized at the expense of long

term environmental services that we depend on.

Extensive agricultural growth is considered to be a major contributor to loss of habitat and the reduced environmental resilience that buffers agro-ecosystems against environmental and market shocks (Pagiola & Holden 2001). The poor have traditionally taken the brunt of the blame for causing society's many problems including, more recently, environmental degradation. There is a general consensus that poverty is a major cause of environmental degradation. For example, in one of the conclusions of the Brunt land Commission Report, which incidentally has been accepted as the blue print for environmental conservation, it was explicitly stated that, poverty is a major cause of environmental problems and amelioration of poverty is a necessary and central condition of any effective programmes addressing the environment.

According to the Millennium Ecosystem Assessment (MEA), 10 to 20 percent of dry lands are already degraded, negatively affecting the livelihoods of up to 6 percent of the 2 billion people that live in dry lands, while many more people are at risk from further degradation. The constituents of environmental degradation include: soil erosion, deforestation, animals facing extinction (loss of biodiversity), land degradation, and among others (Jimoh, 2000). When innovation in resource management is driven by perceived tradeoffs, participatory assessments of livelihood strategies are important for developing a common understanding of how these depend on natural resource assets (Carney, 1998). Both adaptive management and livelihood analysis approach NRM as a process of social change.

In Nigeria, although traditional approach to the utilization of the land is the tilling of soil in the form of agricultural practices; about 81.2 million hectares of arable land exist in Nigeria. Thirty four million out of this (42 %) is under cultivation (see Table 1). The uncontrolled conversion of natural land, the consequence of rainfall (land interaction) over the years have increased the intensity of splash erosion with the attendant

**Table 1:** Percentage Distribution of Land Use Types in Nigeria

<b>Land Use Types</b>	<b>Percentage Occupied</b>
Grassland/wooded grassland	49.31
Forest	9.59
Farmland	39.67
Plantation (timber, rubber, oil palm)	0.30
Rivers and Creeks	0.81
Built up areas	0.30
<b>Total</b>	<b>100.00</b>

Source: Federal Department of Forestry (1981), as cited in Next (1992)

cataclysmic effects on soil nutrient status and the general suitability for a number of other agriculture-related uses (Jimoh, 2000).

In addition, the harvesting of water resources such as fishes and other sea animals, in most cases, chemicals, such as Gamalin 20, are used to capture the fishes. These chemicals normally render the water resource unfit for human consumption and wipe the fishes out (Jimoh, 2000). This singular application of chemical to harvest the water-related resources' provokes water pollution (Olawepo, 2000). Also, the incidence of petroleum extraction is yet another serious issue, especially in the oil-producing areas of Nigeria. In these areas, oil spills are frequent and the attendant problems are several and hazardous on the environment.

### **The role of environmental education land resources management**

Our nation's future relies on a well-educated public to be wise stewards of the very environment that sustains us, our families and communities, and future generations. It is environmental education which can best help us as individuals make the complex, conceptual connections between economic prosperity, benefits to society, environmental health, and our own well being. Ultimately, the collective wisdom of our citizens, gained through education, will be the most compelling and most successful strategy for environmental management.

In this context the role of education is seen as essential, but moreover, it provides expectation of social inclusion and generation of stewardship relationships. Education must include consumers' education as a major effort in hindering the illegal marketing of wild life and other forest products (Lino, 2002). The role of Environmental education in and out schools should aim at creating; 1) Awareness and sensitivity about the environment and environmental challenges. 2) Knowledge and understanding about the environment and environmental challenges. 3) Attitude concern for the environment and help to maintain environmental quality. 4) Skills to mitigate the environmental problems. 5) Participation for exercising existing knowledge and environmental related programs.

We can achieve these by applying mix of approaches,

which according to (Auer, 2010) includes three broad classifications: Education about the environment—providing information about environmental phenomena; Education in the environment—using field sites for studies and skills development; Education for the environment—taking action on environmental concerns.

Environmental education increases our capacity to make informed decisions and to act effectively in addressing environmental and developmental issues. Through environmental education, we can possess sufficient skills and knowledge which must be applied in resolving land resources depletion issues confronting man today. Complex environmental issues call for new scientific and technology environment friendly inputs and additional environmental education. With environmental education, educators can strengthened rural institutional capacity to sustainably harvest land resources and manage impacted environments.

It is a known fact that education can play an important role in facilitating change. But, for it to do so, it needs to be well designed, targeted, coordinated and measured. A nation that Integrates environmental education in a truly national programme of sustainable development aimed at substantially reducing poverty, designing a secure future and facilitate the sustenance of her land and it resources for the benefit of her citizenry and the nation's economy in line with the principles of ecological sustainability and social equity will enjoy an enduring life of bliss.

This enduring life of bliss will mean a total reversal in mans activities that leads to environmental degradation. This will include a reversal from seeing the environment as containing infinite resources, a reversal from wanton forest destruction and exploitation of it resources, a reversal in high birth rate, reversal from introducing obnoxious substances into the land and water bodies, reversal from salinazation of waters, reversal from creating conditions for desert encroachment, reversal from accelerating soil erosion and soil fertility decline, reversal from consumerism, reversal from indiscriminate waste generation and disposal, reversal from working the land to death, reversal from any act that is capable of undermining the integrity of the environment. Imbibing the culture of environmental stewardship that our forefathers practice will guarantee both the life of the present and generation yet unborn.

## RECOMMENDATIONS AND CONCLUSION

Land and its resources are mankind's heritage; we must create and maintain conditions that will sustain it. Any programme or programmes introduced in formal schools and non-formal sectors will be an exercise in futility unless the populace internalized the objectives of such programmes. It is only through continuous environmental education and re-orientation for attitudinal change that the tenets of environmental education may be achieved.

Though not alluding to being an atheist, it has become common knowledge that the advents of Christianity in Nigeria may not be unconnected with the reduction of our forest cover. Our traditional norms and values such as creation and maintaining of forest groves, regulatory farming practices, hunting seasons, ethics for social behaviours have diminished due largely to the advent of the 'white man God'. The transfer of unsustainable cultures made it even worse. It has become imperative that educators and policy should take cognizance of our old traditions and ethics that reinforces the need to sustainably manage our heritage.

Curriculum is dynamic, elementary geography and geography should be made compulsory in our primary and secondary schools. Having knowledge of the environment at the formative age will likely have an ever lasting impression on the child. It is unfortunate that in the 21<sup>st</sup> century, curriculum developers in some of our Universities and Colleges of Education have refused to recognize that the fact that 'pure Geography' as course of discipline has continued to suffer isolation, the proactive (curriculum developers) ones saw this isolation early and decided to plunge the discipline back into the vital conduct of practical life by introducing components of the environment into it. Today Colleges of Education and Universities in Nigeria that offer either Geography and Environmental Education or Geography and Environment science courses to the predilection of our youths, revealed by the number of students seeking admission into such programmes. This is merely speculative.

Opinion leaders in rural areas should be massively mobilized and indoctrinated on the benefits of ensuring sustainable utilization of natural resources of the environment. This is where Civil Society Organizations (CSOs) and Non-Governmental Organizations (NGOs) have can bring to the fore their experiences with working closely with communities. In addition community education should be part of government and NGOs intervention agenda in rural areas of Nigeria.

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