

## **Achieving Sustainable National Development through Environmental Education (EE): Implications for Curriculum Innovation**

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### **Abstract**

*The aim of this paper is to clarify the current position of teaching environmental education (EE) at all levels of education as part of efforts towards achieving sustainable national development in Nigeria. The paper discussed the concepts of sustainable development and environmental education and highlighted the objectives of environmental education. The paper also emphasised the place of environmental education in achieving sustainable national development in Nigeria, identified some environmental issues/problems facing the country which can be tackled through environmental education and discussed the implication for curriculum innovation of achieving sustainable national development through EE. Finally it was recommended among other things that EE should be taught as subject at primary and secondary education levels and be infused into areas of specialisation or part of the general education at tertiary level.*

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### **Introduction**

Human activities are responsible for the presence of pollutants in the atmosphere, destruction of forest (deforestation), and widespread environmental problems coupled with exponentially expanding world population and concomitant over consumption of resources, all of which has adverse effects on mankind and the environment as a whole. Environment, as the basis of our life, is currently endangered by industrialisation and urbanisation. Many countries have since recognized the danger and negative consequences of man's environmental behaviour and swiftly taken measures to address the situation. It would be very difficult for many regions and indeed for many countries to achieve sustainable development in the mid of these un surmountable challenges. Sustainable development implies a kind of society development ensuring that the existence of the environment and society is balanced out. This presupposes that future generations should have the same or equal opportunities in the use of natural resources as the present-day generation. Nigeria as a developing country is engulfed by a number of environmental challenges which act as bottle neck to transition to sustainable development. This does not mean to say that the country should give up pursuing a strategy of sustainable development. However, measures that contribute to sustainable development should continue to be pursued. Environmental education is a rapidly growing discipline that found place

in the country's education system. In Russia, as Irina and Nina (2007) put it, environmental education is playing a key role in the implementation of the sustainable development concept within the Russian educational system. Because of its global orientation in origin and link to sustainable development notion, EE has been recognized world wide as veritable educational programme for achieving sustainable development.

### **Conceptual Framework**

Many scholars and practitioners have invested much time trying to define Sustainable Development. Sustainable development is normally defined by dividing it into three elements: ecological, economic and socio-cultural sustainability (Sirpa, 2007). UNESCO (2005) specifies three spheres of which sustainable development is composed: the environment, society and economy. Although, definitions of sustainable development vary but most often they consist of environmental, economic, and social elements of sustainability. Sustainable Development is a term used to describe development that continuously meets the needs of present generation in a way that will not jeopardize the needs of the future generation. Hartwig, Sibylle and Yvonne (2007) conceptualised SD in their work as follows:

Sustainable development implies, therefore, the combination of ecological, economic and societal sustainability by the development of new production and consumption patterns, as well as new life styles, and last but not least by the creation of a new ethic for the individual through lifelong education (P. 245).

SD implies harmonious relationship between humans and nature which is characterized by existence of environmentally friendly behaviour, promotion of economic prosperity and development and at the same time creating equal social chances in the society. To this end, Secil and Mustafa (2007) stated that SD should aim not only to combat environmental degradation but also combat poverty and promote social and economic development. For SD to be achieved it is evident that citizenry require adequate information and skills for combating environmental challenges.

Environmental education (EE) has been defined by different people at different times. Several declarations of the United Nations (Stockholm, Tbilisi etc) have shaped the way EE is comprehended. For instance, The UNESCO, Tbilisi declaration (1978) defined E.E as a learning process that increases peoples knowledge and awareness about the environment and associated challenges, develop the necessary skills and expertise to address the challenges, and foster attitudes, motivation and commitments to make informed decision and take

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responsible action. Environmental education is an organized effort to teach about how natural environment functions and particularly, how human beings can manage their behaviour and ecosystems in order to live sustainably. According to Sirpa (2007) many theorists of EE have used three aspects to define the aims and contents of EE. These are: knowledge *about* the environment, action *in* the environment, and action *for* the environment. EE is a learning process that is concerned with inculcating into the people the right skills, knowledge and attitude as prerequisite for them to be aware of environmental issues and know how to protect and preserve the environment. EE provides people with knowledge of the environment and hence the need for them to be environmentally friendly by being lovers of the natural environment.

### **Sustainable Development (SD) and Environmental Education (EE): Are they really Related?**

Amongst researchers there exist a variety of views about the relationship between SD and EE. Okukpon (2002) stated that the concept of sustainable development recognizes that economic growth and environmental protection are linked and that the quality of present and future life rests on meeting basic needs without destroying the environment on which all life depends. Because of their common features, sustainable development and environmental education are sometimes used interchangeably and the latter can be seen as a contemporary phase of the process which started from the former (Sirpa, 2007). Over the years, EE has been used as an effective intervention to create awareness among people of the world on the importance of sustainable use of nature. This aspect of EE is subsumed under the present notion of SD together with economic and social dimensions of SD. Supporting this argument, Win (2007) asserted that in order to achieve SD, we must deliver sound EE. In achieving the objectives of sustainable development, environmental education has a major role to play.

### **Objectives of Environmental Education**

The Belgrade charter on a Global frame-work for E.E (1975) identified among others, the following as objectives of E.E

1. **Awareness:** to help individuals and groups be conscious of environment and its allied problems
2. **Knowledge:** to help individuals and groups acquire basic understanding of the entire environment, its problems and man's role in it,

3. **Attitude:** to help individuals and groups acquire values as well as develop concern towards protecting and improving the environment.
4. **Skills:** to help individuals and groups acquire skills for solving the problems of the environment.
5. **Evaluation ability:** to help individuals and groups use ecological, political, economic, social, aesthetic as well as educational factors in evaluating environmental measures and educational programme.
6. **Participation:** to help individuals and groups take responsibility as well as taking prompt steps toward solving environmental problems.

### **The Role of Environmental Education in Achieving Sustainable National Development in Nigeria**

The idea of sustainable development has its root in environmental education. Environmental education aims at healthy relationship between humans and environment. This relationship is that which encourages people to understand that environment and life are inseparably connected and that any harm on the environment is harm on humans too. As people aspire for more or better (development) in globalized world this is not without endemic consequences such as depletion of resources, pollution, climate change and so forth. While SD aims at improving the quality of life now without damaging the planet for the future, this could be only achievable through changing our habit on the way we see and relate with the nature and the social world. In this regard environmental education has a major role to play. Effective environmental education needs to help shift attitudes and behaviour of people to be environmentally mindful (Jane, 2012).

Adults and children should be enabled to have sustainable attitude toward ecological, social and economic dimensions of the environment. We therefore have to use education that aims at this goal. EE uses multidisciplinary approach to achieve its main objectives and make people have environmental awareness and perception. EE has the potential to minimize or remove unsustainable behaviour and attitude of people. Amplifying this, Njoku and Wokoma, (2012) stated that the inadequate environmental ethics, ignorance and inadequate environmental awareness, knowledge and skills in pupils and students in particular, can only be removed through EE. The guiding principles of EE as given by Win (2007) are the beliefs that:

- a. if the people are aware of environmental issues and know how to protect the environment, they will act to preserve it,
  - b. that schools should assume responsibility for providing education about environmental issues, and
  - c. that EE can be effective as a part of the school curriculum.
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E.E is provided through both formal and informal sectors of education. In the formal setting the main approach allows for objectives within a theme to be incorporated into existing school subjects at the primary and secondary schools or to be taught exclusively as a module of knowledge in the tertiary institutions (Njoku & Wokoma, 2012). This is called infusion strategy. It means that environmental issues are rather studied through existing subjects than having a distinct subject as environmental education. Both basic education and secondary education curricula were reviewed to incorporate environment education as part of the response to the challenges posed by social, economic, technological and environmental changes in the world. At primary school level, pupils learn EE via school subjects such as Primary Science, Mathematics, Social Studies English language and Religious studies. At secondary school level, subjects such as Geography, Economics, Biology, Chemistry, Physics, mathematics and English are potential subjects for teaching and learning of environmental education. This does not mean other subjects cannot be used to teach about EE. The content of EE can be infused into different areas of specialisation at tertiary level of education to enable the students have proper awareness on the environment. A number of these subjects have major role to play in the area of SD and EE. For instance, Haliru & Zuguru (2014) stated that Geography education helps people to have a consciousness and learning experiences with regard to SD because geography has two basic components, the nature and human.

While the informal or out-of-school setting of EE uses the print and electronic media to convey messages to public that aimed at raising people's consciousness on environmental conservation and protection. Usually, posters and billboards are the dominant print media used in Nigeria to educate people in addition to electronically communicated messages through radio and television stations. Development goals cannot be achieved without sound environmental education to combat environmental catastrophes that undermine development efforts in Nigeria. Nigeria faces

### **Environmental Issues in Nigeria**

A holistic approach to EE should take account of environmental issues at local, national, regional and global levels. Environmental issues currently facing Nigeria like other developing country include the following:

## **Climate change**

Climate change is a global phenomenon affecting every region or nation and therefore, Nigeria is not an exception. Climate change has been seen as any significant and persistent change in the climate of a place. This persistent variation is usually associated with other environmental problems ranging from increasing temperatures, sea level rise, increasing frequency and intensity of unusual or extreme weather related events such as; thunderstorms, lightning, landslides, floods, droughts, bush fires, unprecedented rainfall patterns, desertification and land degradation, to drying up of rivers and lakes and deforestation. Every part of Nigeria is today affected by the devastating effects of climate change. For instance, unprecedented rainfall patterns and attendant floods have rendered many families homeless and destroyed invaluable properties annually in all the geographical region of Nigeria.

## **Environmental pollution**

Human activities are responsible for presence of pollutants in the environment. The substances which pollute the environment are called *pollutants*. Such pollutants exist in the atmosphere as air pollutants, in the hydrosphere as water pollutants and in the lithosphere as land pollutants. Some of these pollutants may have short time in the environment, while others may persist for long time. Environmental Pollution is one of the major global environmental problems virtually affecting every country or geographical location. Large scale industrial activities of developed and developing nations are the leading factors behind emission of carbon dioxide into the atmosphere with US and china as the world biggest polluters. Oil exploration in the southern part of Nigeria pollutes the water, air and land. Specifically, Air pollutants are mostly from automobiles, industries and oil refineries which emit significant amount of carbon into the atmosphere. Bush burning and other agricultural practices pollute the atmosphere. Dust from mining industries and cement manufacturing areas / zones contribute to this menace. Water pollution is caused by sewage, and other waste, liquid or solid either from industries, households or farmlands etc. Land pollution is the degradation of the earth's land surface through misuse of the soils by poor agricultural practices, mineral exploitation, industrial waste dumping, and indiscriminate disposal of urban waste. Pollution has been the leading cause of many sicknesses and deaths in Nigeria, hence the need for urgent intervention.

## **Deforestation and desertification**

Deforestation refers to indiscriminate cutting down of trees usually for fuel wood and timber. Deforestation is one of the major environmental problems in Nigeria.

Although forest is found in the southern part of the country, but the problem of deforestation affects all regions especially in the north where the climate does not favourably support the growth of dense or luxuriant vegetation. Population explosion and concomitant excess demand for fuel wood and rapid urbanisation and construction activities are inter alia the underlying causes of deforestation. Large scale deforestation is the leading cause of desertification and drought in the far north. In state like Borno, Gombe, Yobe, Keebi, Sokoto to mention a few, desertification is a grave hazard to environment (Haliru & Zuguru, 2014). There is need for conscious effort to check these environmental issues.

### **Flooding**

Devastating floods are experienced year in year out in every part of the country. Persistent flood frequency in the country is one of the several adverse effects of climate change. As Haliru and Zuguru (2014) observed, from the year 2010 through 2013, flood tragedies befalling the country have exposed the government's unpreparedness to adapt to challenges pose by climate change.

### **Population Explosion**

Based on 2006 national census, Nigeria has population of over 150 million people. This number is actually large and poses many challenges including unemployment, poverty, youth restiveness, food insecurity, and low quality of life among others. Environmental problems have made million of people vulnerable to diseases especially in less developed countries. Millions of people die each year because of their poverty and extreme vulnerability to droughts, crop failure, lack of safe drinking water, and other environmentally related ills (Jeffrey, & Walter, 2006). Lack of opportunities in some areas resulting from population explosion with attendant desperation for food, land and sustenance is deteriorating the environment. Major cities and towns in Nigeria are characterized by over crowd, traffic jams, pollution and infrastructure deficit. Yet again, resulting from population explosion in the country are the problems of shelter/ housing and poor sanitation.

### **Implications for Curriculum Innovation**

Education is an effective instrument for achieving any development. The goal of sustainable national development can be achieved through effective EE. The school curriculum at all levels of education should, in response to the changes in the society and new aspiration for development, be revised to provide learning

goals for environmental awareness. As stated earlier that some school subjects already have environmental themes incorporated into them. However, the continued existence and proliferation of several unaddressed environmental issues in the country calls for curriculum renewal at all levels. As Njoku and Wokoma (2012) and Jane (2012) reported concerning inadequate environmental knowledge and skills in the county, the current strategy seems to be defective, hence the need for change.

Curriculum innovation/change is any purposeful change in the area of policy, objectives, content, materials, methods and evaluation strategies. Change in the needs of society such as the need for achieving sustainable environmental awareness, dynamic nature of curriculum, growing nature of knowledge are compellingly necessitating curriculum revision. To this end, a holistic change in EE curriculum is necessary to provide appropriate content and learning opportunities particularly at primary and secondary levels.

Available research evidence with respect to inadequate environmental knowledge and skills and persistent environmental challenges in the country call for curriculum revision as a way of addressing many defects associated with existing practice and as prelude to sustainable development. The change should take account of new facilities that aid learning such as E-learning, Web-based learning etc, more improved methods so as to attain the objectives of EE and subsequent transition to sustainable development.

As such therefore, the innovation should be able to change the people in terms of social practice and beliefs. Extra-curricular activities through environmental protection and conservation clubs and curriculum provision for celebrating such related events as World Environment Day in our schools should be given due consideration.

## **Conclusion**

There is no gain saying that Nigeria is in dire need for sustainable development. But there appears to be a number of challenges which have to be addressed in order to make the dream a reality. EE has a major role to play in the area of sustainable development. EE to raise environmental awareness and sustainable behaviour is therefore essential to increase public participation in environmental protection. Nigeria has already infused the contents of environmental education into the education system. Through EE the goal of sustainable national development can be attained. EE needs to be delivered as separate subject.



## Recommendations

The following recommendations are put forward:

1. In view of the importance of EE in attaining sustainable development, government and nongovernmental organisations should partner to create enabling environment for achieving the objectives of EE;
2. EE should be taught as subject of its own at primary and secondary education levels and be infused into areas of specialisation or taught as part of the general education at tertiary level; and
3. Ministries of environment and Environmental protection agencies at federal, state and local level should properly utilize the informal means of EE (the print and electronic media) to reach out to out-of-school population in order to change their attitude to desired direction.

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