

ENVIRONMENTAL EDUCATION:

A TOOL FOR SUSTAINING LIVELIHOODS AND MANAGING NIGERIA'S ENVIRONMENT

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ABSTRACT

The search for livelihoods in Nigeria is negatively impacting the natural environment and sustainability by extension. This is because, several socio-economic activities through which livelihoods are derived such as agriculture construction, mining and others are being carried out in unsustainable manner. Although Nigerian government have over the years promogated a number of environmental laws aimed at addressing the rapid rate of degradation induced mainly by unsustainable use of resources, environmental challenges in the country still remain high because the of low level of awareness of environmental laws and weak mechanism of enforcement. Degradation activities impede sustainable livelihoods in any geographical area. One way by which sustainable livelihoods can be achieved for the purpose of sustainability is through education, hence the examination in this paper the concepts of environmental education and sustainable livelihood; the link between livelihood and environment; spatial pattern of environmental problems and their effect on livelihoods and methods of promoting environmental education for sustainable development.

Keywords: Livelihood, Environment, Resources, Sustainability, Education

INTRODUCTION

Livelihood is a process by which make people a living through specific capabilities, assets and activities (Ellis, 2000). It comprises of resources or capital such as income, food, security, well-being and sustainable use of natural resources that enable strategies to be employed in order to survive and attain desirable living outcomes. Livelihood is a means of making a living. It encompasses people's capabilities, assets, income and activities required to secure the necessities of life. According to Chambers (1993) livelihood indicates level of wealth, and of stock and flows of food and cash which provide for physical and social well-being and security against impoverishment.

The search for livelihood is degrading the natural environment on a daily basis, especially in developing countries where people mainly depend on land resources for survival through mining and agricultural activities. Agricultural practice according to Pagiola and Holden (2001) affects the greatest proportion of earth surface, it is the single biggest user of fresh water and is by far the largest single sources of livelihoods (Ohlsson, 2000). While some environmental changes are caused by natural processes; changes in landuse induced by search for livelihood can be held accountable for much of the environmental changes on the earth.

Although, many human activities are absolutely essential for the sustainability or livelihoods as they either provide critical natural resources and ecosystem services that are needed in supporting life, some activities degrade ecosystems and the service they provide (Foley et al 2005). Such activities disallow sustainability of livelihood by allowing man to only enjoy short term benefits at the expense of long term environmental services.

Livelihood is considered sustainable if it meets three conditions. Such conditions according to Chambers (1995), Hyden (1998) and Scooores (1995) include;

- i. adequate for the satisfaction of self-defined basic needs,
- ii. resilient to shock and stress, and
- iii. do not undermine the natural resources base that forms the basis of the future options

It is the identified third condition for sustainability that is being examined in this paper. This is the human resource development aspect of livelihood strategies, and in particular, its relationship with education.

To undermine according to Longman Dictionary of Contemporary English (2009) is to gradually make someone or something less strong or effective. It is to degrade a situation or condition. This is exactly, what many action of man in the course of his search for livelihood is doing to the environment. According to Kwame (2008); environmental degradation has been going on for centuries ever since man began to find ways of living on the planet earth. Man's socio-economic activities such as farming, mining, transportation, lumbering and construction are negatively affecting the physical environment. Although, these activities constitute man's major source of livelihood, the uncontrolled manner by which such activities are carried out degrades the environment, erode livelihoods, displace people and subsequently force the people displaced to develop alternative sources of livelihoods which further destruct the environment.

One notable implication of environmental degradation for social existence is that it usually disrupts the socio-economic life of human population who are immediately dependent on natural resources for sustenance (Onuoha, 2008). According to Ohlsson (2000) one common denominator of many, if not most of the civil wars and conflicts which plagued Africa, south Asia and Latin America during the last decade is poverty resulting from loss of livelihoods which in turns is exacerbated by environmental degradation.

Although various strategies have over the years been proposed and implemented by the Nigeria government towards curbing environmental challenges and sustaining livelihoods, many of these efforts have however not been effective. This according to Iroye (2017) is because, the root cause of the problem have not being addressed as most of the strategies focused on treating the problem rather than preventing it. Solution to environmental problems according to Norris (2016) lies in knowledge, attitude and behavior of the general public towards nature; and this can only be achieved through education. Environmental education will not only help in curbing environmental problems, but will also aid in maintaining environmental resources even at critical levels for the sustainability of livelihoods.

THE CONCEPT OF ENVIRONMENTAL EDUCATION

Education is the aggregate of all processes by which of person develops the abilities, attitudes and other forms of behavior which are of positive value to the society in which lives (Fafunwa, 1974). It is one of the most effective tools to shape the world and solve its problems (Mustapha and Unal 2014). Education is a critical driving force for change.

The term environmental education was first developed within the conceptual framework that emerged from the first International Conference in Tbilisi in 1977. It can be defined as the technique used in increasing the knowledge of populace with the view to creating in them, positive attitude and behavior towards the environment. It is education for sustainability. According to Norris (2016), environmental education helps in enlightening individuals and gives them greater insight into their own nature and the consequences of their actions. Environmental education is indeed highly useful in developing the citizenry to discover new ways of fostering positive attitude and attributes to overcome environmentally destructive behaviours. The term environmental education should however not be confused with schooling which Jimoh and Ajibade (1995) considered as one form through which education is provided.

There are basically three forms through which education can be delivered. These according to Farrant (1980) are through formal, non-formal and informal method. While the learning process in formal education is highly organized and guided by a formal curriculum, the learning process in non-formal education is loosely organized and may not be guided by a formal curriculum. In the informal education however, learning process takes place unconsciously as there is no formal curriculum. The teacher in this method of education according to Iroye (2017) can be anybody with greater knowledge such as parent, neighbour or even a colleague at work. Environmental education can be subsumed under informal education.

Informal learning under system of education has a number of advantages when compared with the other two forms of education. Such advantages according to Koltookian (2012) include:

- i. learning situation are less costly and more efficient because of the use of different social media technologies and electronic devices,
- ii. learning process is more personal and thus can be less intimidating,
- iii. experts on subject being discussed are usually more willing to share their knowledge with others in this way, and;
- iv. learners are usually less likely to resist learning new things because such learning process occur naturally during the flow of people's work day.

The use of informal system in promoting environmental education is highly rewarding. This is because, learning process under the system is more relaxing as learners do not entertain any fear in failing examination or project. The effect of informal education on learners according to Jimoh and Ajibade (1995) is more permanent. This according to them is because informal education usually pursues its own course at its own pace, by its own means, throughout the learner's life.

Environmental education is now considered a necessity globally due to the high rate and degree of environmental degradation taking place in different parts of the world. This fact was buttressed by National Environmental Education Advisory Council (2000), in its report to the congress observed thus:

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

Iroye (2017) observed that, it is the inadequate attention being paid to environmental education in developing countries including Nigeria that is making people to cut trees indiscriminately, set bush on fire anyhow and ply road using vehicles that do not combust fully.

The importance of environmental education was first brought to light in Stockholm at the United Nations Conference on Human Environment in 1972. At the conference, participants highlighted the importance of education as a means of solving and preventing global environmental problems. It was in one of the several conferences that followed three years after that led to the establishment of the Belgrade Charter which provided a framework for global environmental education. The goal of environmental education as defined in the charter is:

“...to develop a population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solution of current problems and the prevention of new ones”.

To attain these goals, the workshop identified six objectives which were later reduced to five in Tbilisi Declaration in 1977. The objectives are:

- i. Awareness: To help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.
- ii. Knowledge: To help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.
- iii. Attitudes: To help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.
- iv. Skill: To help groups and individuals acquire the skills for identifying and solving environmental problem
- v. Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward the resolution of environmental problems.

The aforementioned objectives indicates that the ultimate goal of environmental education is to provide individuals with the opportunity to explore environmental issues, engage in problem solving and take action to improve the environment. This goal in UNEP and IEEP documents is to be achieved through formal, non-formal and informal education. Awareness and understanding of environmental issues as in the Belgrade Charter provide the basis and rationale for commitment and meaningful action towards developing sound environment and creating sustainable livelihoods.

THE CONCEPT OF SUSTAINABLE LIVELIHOOD

Livelihood according to Ellis (2000) is a process by which people make a living through specific capabilities, assets and activities. It is an ensemble of activities, capabilities and resources need to organize and maintain a living (Onuoha, 2008). According to Titi and Singhn (1994) livelihood expresses people's capacity to generate and maintain their means of living, enhance their well-being and that of future generations. These capacities according to them are contingent upon the availability and accessibility of options which are ecological, economic and political and which are predicated on equity, ownership of resources and participatory decision making. Thus a person's livelihood refers to means of securing the basic necessity of life which are food, water shelter and clothing. It is a means of gaining a living (Chambas and Conway 1992).

Livelihood becomes sustainable when it can cope with and recover from shocks and stress and maintain and enhance capabilities and assets, both now and in the future without undermining the natural resource base. It is livelihood that is sustained forever. According to Onuoha (2008) sustainable livelihoods are derived from people's capacity to make a living by surviving shocks and stress and improving their material conditions without jeopardizing the livelihood option of other people, either now or in the future.

Sustainable livelihood lays emphasis, especially on the livelihood system of marginal groups, particularly, the poor, and the way in which they adapt to maintain their livelihoods under conditions of severe environmental, socio-economic and political stress. The concept of sustainable livelihood was first proposed as a way of linking socio-economic and ecological considerations of rural areas in a cohesive policy relevant structure by Chambers and Conway (1992). The concept was later developed as a broad goal for poverty eradication at Agenda 21 of United Nations Conference on Environment and Development where it was recognized as an integrating factor that allows policies to address development, sustainable

resource management and either to, attempt at poverty eradication simultaneously eradicating poverty only focused on certain aspects or manifestation of poverty such as low income. It does not consider other vital aspects of poverty such as vulnerability and social exclusion. However, these factors and processes have been discovered to either constrain or enhance poor people's ability to make a living in an economically, ecologically and socially sustainable manner.

Chambers and Conway (1992) defined sustainable livelihoods in respect of rural areas as:

“comprising the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable if it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generations and of which contributes net benefits to other livelihoods at the local and global levels and in the short and long term”.

However, in the report of a research conducted on behalf of Institute of Development Studies, Scoories (1998) modified Chambers and Conway (1992) earlier definition of sustainable livelihood thus:

“A livelihood comprises the capabilities, assets (including, both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover ever from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base”.

The main difference between Chambers Conway (1992) and Scoories (1998) definitions is that the latter do not include the requirement that for livelihoods to be considered sustainable, they should also contribute net benefits to other livelihoods, however, both recognized the importance of not which undermining the nature resource base is the crux of this particular article.

THE NEXUS BETWEEN LIVELIHOOD AND ENVIRONMENT

Environmental refers to the sum total of all surroundings of man, including natural resources and other living, things, which provide condition for development and growth as well as of danger and damage. The environment provides all life support system for man. Amongst such life support systems which are built and sustained by natural environmental resources found in atmosphere, land and water include air, arable land, plants, animals and water bodies with all its aquatic organisms.

Environmental resources which often come in different quality and variable quantity are usually exploited by man for survival; this is where the connection lies between livelihood and environment. While livelihood exercises pressure on the environment through population growth and urbanization process, the environment exercises pressure on livelihood through climate change and hazards (Fig. I).

The overuse and misuse of environmental resources by man in the course of his search for livelihoods deplete valuable biodiversity, degrades the environment and results in climate change.

The variability in resources induced by climate change is limiting agricultural choices of the people because of changes in ecological conditions in different regions of the world while environmental hazards of soil erosion, sedimentation landslide and flooding are negatively influencing livelihood activities in different areas of human endeavours.

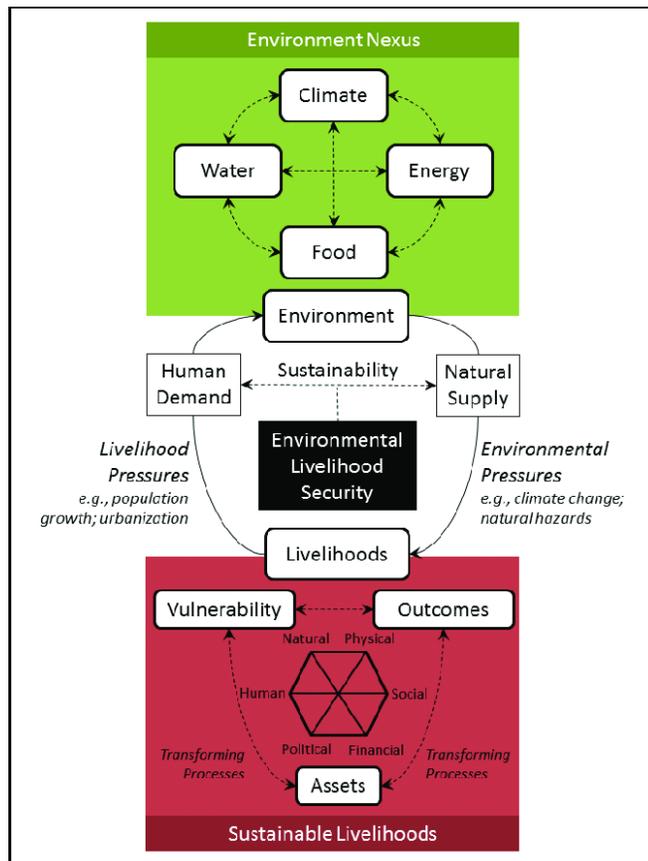


Fig I: Livelihood-Environment

Source: Biggs et al (2015)

INTERACTION

In most environment, the amount of natural resources, such as timber, firewood and fodder has been drastically reduced by man in the course of his search for livelihoods while decreasing water, both in quantity and quality resulting from climate change is driving people from more sustainable livelihoods of agriculture to alternative livelihoods which in the long run is exposing rural livelihoods to unsustainable risk.

The interaction between environment and livelihood is most clearly demonstrated through landuse. This is because landuse acts an interface between the two as it forms a unifying concept where socio-economic and agro-ecologic variables coincides

(Kruseman et al 1996). While the connection between livelihood and environment is by no means deterministic, the direct effect of environment on livelihood cannot be overestimated.

Spatial Pattern of Environmental Problems and their effect on Livelihoods in Nigeria

Nigeria is located between longitudes $2^{\circ}49'$ and $14^{\circ}37'$ east of Greenwich Meridian and between latitudes $4^{\circ}16'$ and $13^{\circ}52'$ north of the Equator in tropical zone of Africa. The country is well drained by network of rivers and approximately 11.5% of her 94,185,000 hectares surface area is covered by water.

Nigeria has three main environmental regions (Savannah, Tropical Forest and Coastal Wetland) which can be further subdivided into eight ecological zones of ultra humid (26%) Plateau (20%), Mountain (4%), Dried-Sub-Humid (27%) and Semi-Arid (4%). These ecological zones greatly influence the culture and livelihood of the people who reside in them. Accessibility to land according to Nhamo and Inyang (2011) plays a significant role in livelihood security.

The Nigeria government has over the years made several efforts through legislation, regulations and policies to manage the environment; amongst such efforts include;

- i. Forest ordinance of 1937 which lead to the establishment of various forest reserves in the country.
- ii. Criminal code of 1958 which ban burial in houses to control water pollution
- iii. Public health act of 1958 which controlled the spread of diseases through slaughtering of sick animals
- iv. Infusion in 1950's of environmental content in Biology syllabus of West African Examination Council
- v. Infusion in 1960's of hygiene and nature study to be taught as environmental subject
- vi. Promulgation in 1974 of petroleum refining regulation act to curb oil pollution especially in the Nigeria Delta wetland
- vii. Establishment in 1982, of the Nigerian conservation fund (NCF)
- viii. Directive in 1988 by Federal Government to NERDC (now NERC) to infuse environmental elements into the citizenship education review conference.
- ix. Promulgation of Federal Environmental Protection Agency Act of 1988 (FEPA Act)
- x. Promulgation of harmful waste (Special Criminal Provision ect) Act in 1988 Harmful Wastes Acts.
- xi. Adoption of National Conservation Education Strategy in 1989 as sponsored by UNESCO.
- xii. Promulgation of Environmental Impact Assessment Act in 1992 (EIA Act)
- xiii. Environmental Law in Section 20 of the 1999 Nigeria Constitution)
- xiv. Repeal and replacement of FEPA Act in 2007 by the National Environmental Standards Regulation Agency (NESREA) Act.

Today, the National Environmental Standard Regulation Agency (NESRA) has the responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources, environment, technology including coordination and liaison with relevant stakeholders within and outside Nigeria on matter of enforcement of environmental standards, regulations, rules, laws policies and guidelines.

It is however disappointing to know that most of the environmental laws in Nigeria are not being respected as they are poorly implemented and enforced by government agencies. This is borne out of the fact that majority of the citizenry do not really value nature. They do not understand the inter-dependence of nature; the interaction between the various species on the planet. A better understanding of man-environment relationship when combined with behavioural change in matters concerning the environment will not only improve the Nigeria environment, but will also help in sustaining livelihoods.

Environmental problems in Nigeria are neither concentrated in any specific location nor their occurrence evenly distributed. While their spatial distribution are determined by both natural and anthropogenic factors, their frequency of occurrence, magnitude and effects are influenced by factors such as population, rate of use of resources and attitude towards the environment amongst others. Table 1 depicts the spatial pattern of environmental problems in Nigeria and their effects on livelihoods.

The degree of effects of environmental problems on livelihoods is however determined by the causative factor, frequency, magnitude and time of occurrence. Other effects of environmental problems apart from impoverishment of communities that rely on the resources as means of livelihoods include loss of lives and properties, loss of habitats, global warming and bio-diversity loss.

Table 1: Pattern of Environmental Problems and their Effects on Livelihoods in Nigeria.

S/ N	Environmental Problems	Causes	Areas Mostly Affected	Livelihoods Mostly Affected
1	Flooding	Natural and Anthropogenic	Urban areas, in Very Humid and Humid areas and along river courses and Coastal belts	Transportation, Agricultural activities and Commerce
2.	Sedimentation and Siltation	Natural and Anthropogenic	River courses mostly in urban areas and settlements on low relief	Fishing, Water Transportation and Agricultural activities
3.	Soil Erosion	Mainly Anthropogenic	Ultra Humid, Very Humid and Humid Zones especially in states such as Enugu, Anambra, Imo Abia, Ondo, Ekiti, Akwa-Ibom Ebonyi	Agricultural activities and Transportation
4.	Drought	Natural and Anthropogenic	Dry-Sub Humid and Semi-Arid regions especially in states such as Sokoto, Jigawa, Yobe, Bauchi, Kebbi Zamfara and Borno State	Agricultural and Domestic activities
5.	Dust Storms	Natural and Anthropogenic	Dry-Sub Humid and Semi-Arid regions especially in states such as Sokoto, Jigawa, Yobe, Bauchi, Kebbi Zamfara and Borno State	Animal Husbandry, Transportation and Commerce
6.	Coastal Erosion	Natural	Lagos, Ondo, Delta, Rivers, Akwa-Ibom, Bayelsa and Cross River states	Agricultural activities, Water Transportation and Fishing
7.	Desertification	Natural and Anthropogenic	In northern states especially around Borno, Yobe Jigawa, Kano, Bauchi Sokoto Adamawa, Katsina, Zamfara and Kebbi State	Arable Agriculture and Animal Husbandry
8.	Bush Burning	Anthropogenic	In dry humid and semi-arid states, especially in the middle belt of the country	Arable Agriculture
9.	Water Pollution	Anthropogenic	Generally in urban areas	Fishing, water supply, Agricultural Activities
10.	Air Pollution	Anthropogenic	Generally in urban areas	Transportation
11.	Solid Waste	Anthropogenic	Generally in urban areas	,Water supply Fishing and Agricultural activities
12.	Oil spillage	Anthropogenic	Delta Region	Fishing and Arable Agriculture

Source: Author's Compilation (2018).

Methods of Promoting Environmental Education for Sustainability of Livelihoods

The pursuit of sustainable livelihoods regards the general public to be sufficiently sensitized on issues concerning the environment. Such awareness and understanding will help in educating the citizenry, the basis and rationale for commitment and meaningful action on matters relating to the environment. One way by which this sensitization can be carried out is through environmental communication.

Environmental communication can be defined as the sharing of information, insights and opinions on issues relating to trends, condition and solutions to environmental problems using different means of communication ranging from inter-personal methods to means of mass communication using either modern or traditional media. This technique is an informal method of education and a strong complementary practice to environmental education.

Amongst some of the ways by which environmental communication can be carried out especially in Nigeria for the purpose of managing natural resources and sustaining livelihoods includes;

- i. **Awareness Raising Campaigns:** This can be carried out using postal, slide presentations, and exhibitions especially in urban areas, during sporting events, social engagement and religious activities to educate the citizenry for example, on ways to treat their wastes and revitalize nature in degraded areas so as to sustain livelihoods. Such campaign may come in form of protest and agitation against policies and practices that are considered to be harmful to the environment. The awareness raising campaign can also be carried out using the methods adopted by the UNDP- Funded Asia Pacific 2000 Initiative in South Asia where NGOs and other citizen's group used letter writing, rallies and sit-in protests to lodge their complaints on issues relating to unsustainable use of environment.
- ii. **Interactive Activities by Government Ministries and Agencies:** Government Ministry and Agencies such as Ministry of Environment, Ministry of Health, National Environmental Standards Regulation Enforcement Agency (NESREA), Nigerian Conservation Fund (NCF), Forest Research Institute of Nigeria (FRIN), National Biosafety Management Agency (NBMA) National Oil Spill Detention and Response Agency (NOSDRA) etc. can also make use of campaigns to rally support from the citizenry on issues concerning the environment. Such campaigns as frequently used in developed nations can be tagged "Clean and Green Week", "Stop Drain Blockage" "Save Energy", "Save Water" etc. Such campaigns can even be directed at educating the people on the ways to managing their wastes as it is being done in Japan where the month of October each year is set aside as Recycling Promotion Month during which all government ministries and agencies concerned with the environment campaign to support recycling.
- iii. **Voluntary Community Work:** Residents, both old and young within a locality can be mobilized to take up voluntary community work. Participants in such activities will have the opportunity to learn, observe and develop solutions to different environmental problems. Voluntary work can be considered an informal way of education because the events which take place in such activities are usually unpredictable. Citizenry who took part in voluntary community work will after the event, reflect on their experiences and develop awareness on the vital link between environment and livelihoods.
- iv. **Information Communication Technology:** The use of ICT has grown rapidly in the last two decades. Digital technology, particularly the internet service can be of good assistance in providing environmental education informally. This fact has long being recognized by developed nations where it is being used to exchange information and carry out advocacy and public awareness. Examples of social platforms where environmental communication can be carried out include Youtube, Facebook, Twitter, Google, LinkedIn, Tumblr etc. Government and government agencies concerned on issues of environment, non-governmental organization and private individuals can promote environmental education in Nigeria using these platforms. Information put on social platform will not only serve as reinforcement of knowledge to someone seeking information on environment and livelihoods, but will also allow other people coming across such information under their own stream to leave their comments and opinion on discussion boards for other people to read.
- v. **Folk Media:** This represents the traditional ways of carrying messages, thoughts and feelings to the people. The technique is as old as man. Folk media has over the years been used to carry information in Nigeria through songs, riddles, dance, folktales, theater performance, festivals, town criers, talking drums amongst others. This technique which has played significant roles in promotion of new ideas in different parts of the globe is highly valued in developed nations despite the advances in modern means of communications in those countries. Nkala (2002), Ottah (2016) and Bamigboye et al (2018)

have earlier enumerated the importance of the use of folk media in communication in Nigeria while Ajibade (In-Press) specifically suggested the hiring of theatre groups by government agencies responsible to stage plays in local dialects on pressing environmental problems. Such plays which can also be sponsored on electronic media will no doubt help in educating the citizenry on the linkage between their environment and livelihoods.

vi. Faith Organization: Environmental education can also be carried out through activities of faith based organizations such as NASFAT, Full Gospel Business Men Fellowship, Christian Association of Nigeria, Federation of Muslim Women Association of Nigeria, and National Association of Committees on Muslim Youths Association (NACOMYO) etc. This approach has earlier been used successfully in the 1980s when leaders of the world major religious organizations converged to discuss issues on the environment.

CONCLUSION

The loss of livelihood resulting from environmental degradation is fast becoming a growing concern in Nigeria because of its negative effect on sustainability. Environmental degradation resulting from unsustainable use of resources is not only rapidly disrupting the socio-economic life of a significant number of people who depend on those resources for their sustenance, but is also generating a number of social negative social consequences. Environmental degradation induces vicious circle of problem which commence with natural resource scarcity. The scarcity created by degradation activities promotes social inequalities and rapid increase in economically marginalized people. And because, the livelihoods of those marginalized are threatened, such people utilize the limited resources available to them unsustainably thus further degrading the environment. Attempt at curtailing the rapid rate of environmental degradation towards sustaining livelihood calls for the exploration of the human resource development aspects of livelihood strategies with particular reference to informal education. This is germane because informal education will assist in promoting among the people, the awareness and understanding of the workings of their environment, their relationship with it, and the concern and responsible action necessary for sustainable livelihoods.

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