INTERNATIONAL JOURNAL OF ENVIRONMENT
Volume-3, Issue-3, Jun-Aug 2014 ISSN 2091-2854
*Received:13 September 2013* *Revised:5 December 2013* *Accepted:21 January 2014*

# IS ENVIRONMENTAL TRAINING CRITICAL TO ENVIRONMENTAL SUSTAINABILITY BEHAVIOUR?

Aladesanmi, O.T.[1*], Ogundari, I.O.[2], Oladipo, O.G.[3], Ilevbare, O.E.[4] and Ali, G.A.[5]

National Centre for Technology Management (NACETEM)

Federal Ministry of Science and Technology, Obafemi Awolowo University, Ile – Ife

[*]Corresponding author: ttaladesanmi@gmail.com, titiakinsiku@yahoo.com

Tel.: +234 8035827392

**Abstract**

In the past few decades, concern for the environment has increased significantly with evidences of change in perception of people's values and attitudes towards the environment. This study presents the results of a survey carried out among postgraduate students undergoing training in environmental and non-environmental fields with the aim of comparing their environmental sustainable behaviour. The purpose of the study was to evaluate the impact of environmental training on the postgraduate students' awareness, perceptions and behaviours with focus on the attitudes of the respondents towards environmental sustainability, and how these attitudes affect their behaviour. A purposive sampling method was used to obtain data using a semi-structured questionnaire. The respondents comprised of 50 and 47 postgraduate students undergoing training in environmental and non-environmental respectively. The data was subjected to statistical analysis using SPSS. The results of the study revealed that most of the students in environmental fields readily transferred the knowledge acquired in their training to a sustainable behaviour.

Keywords: Environmental training, Environmental awareness, Environmental sustainable behaviour, Attitude, Environmental perception

## Introduction

Nigeria's natural environmental resources and its air, water, and soil quality are severely being threatened. Technological advances in agriculture, industry, and transportation have greatly contributed to environmental degradation of land, atmosphere, vegetation and rivers though man has indisputably utilized it to improve his way of life while providing raw materials for production of goods and services (Okojie, 1991; Oladipo, 2013). As in most other countries of the world, the Nigerian environment today is under pressure. Every state of the federation suffers from one form of environmental degradation or the other in varying

degrees. The northern part of the country is being literally "blown away" by floods, wind erosion and desertification, the east by gully erosion while the southern part is being washed away into the ocean. Kadafa (2012), reported that an estimated 9 million to 13 million (1.5 million tons) of oil has been spilled in to the Niger Delta ecosystem over the past 50 years. Urban cities and towns in Nigeria are increasingly threatened by pollution of air and water and improper disposal of solid wastes while the rural areas are plagued by soil erosion, deforestation, and bush burning (NEST, 1991; Oladipo *et al.*, 2011).

Environmental education is a process of developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (UNESCO, 1978; 2011). The universities in Nigeria are regarded as 'one of the best means for developing national consciousness' (FME 1981). The education given in Nigerian universities is expected to enable the recipients develop intellectual capacities to understand, appreciate and acquire objective view of local and external environments among other things. The universities and other institutions of higher learning can achieve this objective through teaching, research and dissemination of existing and new information. Universities should pursue service to the community and encourage specialized studies since they should be storehouses of knowledge.

Knowledge in itself does not harm or help the environment neither does human attitudes. Human behaviour, on the other hand, have greatly harmed, yet hold a great deal of hope for helping, the environment. Human behaviour must be addressed when discussing environmental sustainability. Behaviour, of course, must be supported by knowledge and attitudes. But research in the field of environmental education has shown that there is no cause-and-effect progression from knowledge to attitude to behaviour as educators have long believed (Hines, *et al.*, 1987; Steg and Vlek, 2009). In fact, the relationship among these three things is puzzling. Environmental education is mission-oriented and a good environmental education program does not stop with the presentation of information, but helps learners wrestle with values and gain the skills to take relevant and responsible action. Environmental education programs have five objectives. These objectives include; awareness, knowledge, attitudes, skills and participation. There is the need to acquire an awareness and sensitivity to the total environment and its allied problems, this will assist in gaining a variety of experiences in understanding of the environment and its associated problems. To acquire a set values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection there is the need to change general attitude towards environmental issues. These can be achieved by encourage citizens to be actively involved at all levels in working toward resolution of environmental problems (UNESCO, 1978; 2011).

Similarly, another objective of environmental education is to develop a fundamental acceptance in the community that the nation's environmental objectives should be accorded the same priority as its social and economic objectives. Environmental Education must be life-long. Information about environmental problems is always improving, as we learn from our past experiences and mistakes. As we develop and apply better environmental technologies, the ability of society and individuals to respond effectively also improves.

Environmental education teaches "how to think" not "what to think." Thus the goal of environmental educators is to help learners form the capacity to collect and analyze information, make good judgments, and participate fully in civic life. Research shows that people who take action not only have some knowledge and awareness of the problem they are addressing, but also knowledge of how to effect change. The goal is to instil in learners the knowledge about the environment, positive attitudes toward the environment, competency in citizen action skills, and a sense of empowerment. Environmental education materials and programs reflect an evolution from science-based information to skill-based participation in problem solving (Day and Smith, 1996; UNESCO, 2011).

According to Agboola (1993); Steg and Vlek (2009), cultural derivatives, beliefs, perceptions and attitudes are learned response sets. They can therefore be modified or changed through education. This point to the fact that people's unconcerned attitude towards a sustainable environment can be changed for the better through education. According to Pacey (1990) and Panda (2007), formal education for women is a pre-requisite for change in sanitation behaviour. Studies have found that general knowledge of environmental issues had a much smaller effect on environmentally responsible behaviour than knowledge of actions skills. Sherburn and Devlin (2004) employed the Environment Preference Questionnaire (EPQ) to assess the relationship between academic major, a valued place and environmental concern for a group of seventy undergraduate students at a small liberal arts school. It was found that environmental studies majors scored higher (more positively) than those in other academic majors. The findings suggested that those educated in the area of environmental problems tend to be more concerned with environmental issues. Effective environmental education must also encourage the pursuit of environmental goals in a way that acknowledges other powerful and legitimate social and economic goals - it should not be taught in a vacuum, or simply equip people to pursue an agenda on the margins of society.

Environmental education needs to incorporate this reality by providing people with the knowledge, understanding and capacity to influence mainstream society in a way which progresses environmental objectives along with other legitimate social and economic objectives. Studies have found that general knowledge of environmental issues had a much smaller effect on environmentally responsible behaviour than knowledge of actions skills (Siemer and Knuth, 2001). Effective environmental education must also encourage the pursuit of environmental goals in a way that acknowledges other powerful and legitimate social and economic goals - it should not be taught in a vacuum, or simply equip people to pursue an agenda on the margins of society.

In some nations, environmental education objectives nicely complement education reform efforts to make subject areas more relevant to local situations and to prepare students to become responsible citizens. Environmental education activities are easier to start in the informal education system, through youth group activities, religious communities, extension visits, agency outreach materials, and field visits to museums and zoos. Environmental educators develop and implement programs that engage learners in discovering information and developing skills to convert that information to meaningful practice (Day and Smith, 1996; UNESCO, 2011). Environmental awareness is a pre-condition for pro-environmental behaviour and sustainable environmental management. The paper therefore seeks to

investigate whether any relationship exists between environmental awareness/knowledge of selected students and their environmental behaviours.

**Methodology**

The primary purpose of this study is to examine the impact of environmental training on the postgraduate students' awareness, perceptions and behaviour. The study focused exclusively on selected postgraduate students of Obafemi Awolowo University, Ile – Ife, Nigeria. A purposive sampling was used to elicit information from the respondents. The empirical study was based on 50 students from environmental (Table 1) and 47 non – environmental fields (Table 2) undergoing postgraduate training.

**Table 1 : Composition of study sample (Environmental Studies)**

| S/N | Faculty | Department | No of respondents |
|---|---|---|---|
| 1 | Science | Institute of Ecology and Environmental Studies | 33 |
| 2 | Science | Geology | 2 |
| 3 | Environmental Design and Management | Architecture | 8 |
| 4 | Social Science | Geography | 7 |
| | Total | | 50 |

**Table 2 : Composition of study sample (Non-Environmental studies)**

| S/N | Faculty | Department | No of respondents |
|---|---|---|---|
| 1 | Art | English | 5 |
| 2 | Art | History | 3 |
| 3 | Social Science | Economics | 9 |
| 4 | Social Science | Sociology | 7 |
| 5 | Social Science | Demography | 2 |
| 6 | Social Science | Political Science | 2 |
| 7 | Administration | Accounting | 6 |
| 8 | Science | Physics | 7 |
| 9 | Science | Mathematics | 6 |
| | Total | | 47 |

A semi-structured questionnaire was used for the survey. The data was analyzed using SPSS. Cross tabulations were used to explore how demographic variables are related to various behaviours and also to examine the relationship between the awareness and behaviours of the environmental students (ES) and students undergoing training in Non Environmental Studies (NES). Chi-Square was used to measure the significance of the difference.

**Results and Discussion**

The survey which was purposive, sampled an evenly distributed number of ES and NES. Fig. 1 shows that 51.5% were environmental students with 4.1% and 47.4% undergoing Post Graduate Diploma (PGD) and Masters of Science (M.Sc.) programmes, respectively while the non-environment fields of 48.5% comprised of 2.1% and 46.4% PGD and M.Sc. students, respectively.


**Fig 1: Proposed qualification of the sample from different disciplines of studies**

ENVIRONMENTAL PERCEPTIONS

Table 3 shows the level of concern of the respondents on their local and global environments, where 35% of the ES and 34% of students undergoing training in OD were concerned about their local environment while about 20% of ES and 11% students undergoing training in NES were concerned about their global environment. This indicates that both groups have concerns on their local and global environment. About 45.3% of ES and 54.7% of NES indicated that they are not concerned about their immediate or global environment.

**Table 3: Concern of the respondents on their local and global environment**

| Respondents | Local Environment (%) | Global Environment (%) | Not Concerned (%) |
|---|---|---|---|
| Environmental students | 35.1 | 19.6 | 45.3 |
| Non-Environmental students | 34.0 | 11.3 | 54.7 |

This corroborate what Nazim (2008) stated that environmental concerns and public awareness of environmental issues and individual responsibilities are poor in both urban and individual societies. Environmental education can help people to recognize and understand the complex structure of environment, and it can promote importance of environment in development to people.

Table 4 shows the level of agreement of ES and students undergoing training in NES with some environmental statements. The students undergoing training in NES seem to be aware of few environmental issues however the overall response of the ES students shows they are more knowledgeable about environmental issues than the students undergoing training in NES. 41% and 30% of ES and NES respectively (Table 4) indicated that they wish there were more activities or events that involved environmental education in Nigeria as many environmental problems and their consequences are as a result of ignorance (Ambrose and Ali, 1995; Oladipo *et al.*, 2011).

**Table 4: Agreement levels of students undergoing training in NES on some environmental issues**

| | Some Environmental Issues | ES % | NES % |
|---|---|---|---|
| a. | An environmentally friendly lifestyle is good for one's health. | 44.3 | 16.5 |
| b. | I have recently been paying more attention to news stories about the environment. | 34.0 | 15.5 |
| c. | I feel guilty about the impact that I have on the environment. | 14.4 | 11.3 |
| d. | I wish there were more activities or events that involved environmental education in Nigeria. | 41.2 | 30.0 |
| e | Global warming is real. | 47.4 | 38.1 |

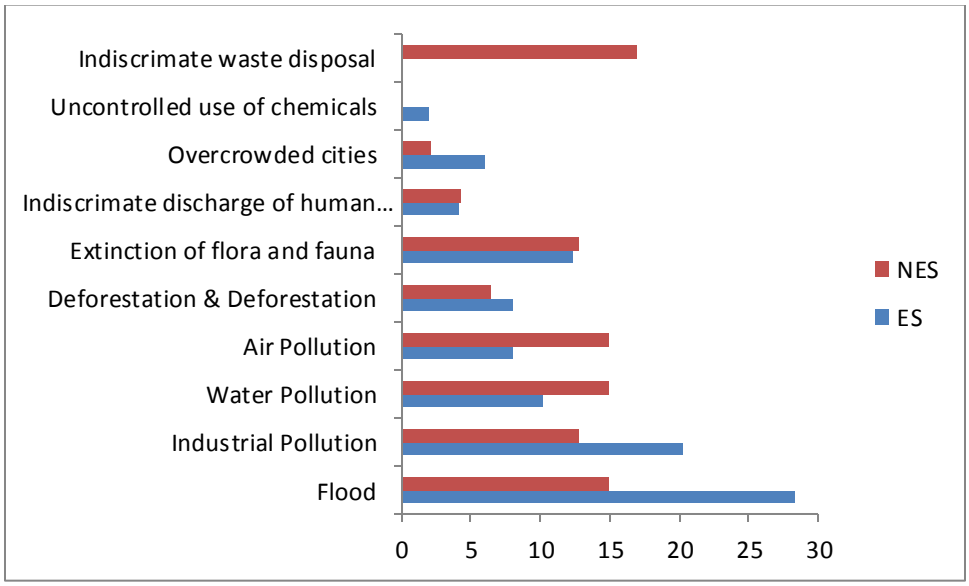


**Fig. 2. Environmental problems that worry ES and NES students in Nigeria**

Figure 2 shows the responses of ES and the NES to environmental problems in Nigeria. The environmental challenges that bother most ES are flood (28.3%), this cannot be farfetched from the impacts of global warming. But to the NES, it is the problem of indiscriminate waste disposal. Waste generation does not result in positive impacts on climate. Waste treatment and disposal can have both positive and negative climate impacts (UNEP, 2010). Therefore, there is the need to strengthen waste management activities in the context of climate change. Existing waste-management practices should be encouraged to provide effective mitigation of GHG emissions from industrial sector and provision of a wide range of environmentally-effective technologies to mitigate emissions.

Flood was also perceived by ES as a prominent environmental challenge that worry students. Flooding is among the most devastating natural hazards in the world claiming more lives and causing damage to property and infrastructure than any other natural phenomena (Nwilo *et al*., 2013).

ENVIRONMENTAL AWARENESS/KNOWLEDGE

Figure 3: shows the level of agreement or disagreement of the ES and NES with the statement "global warming is real".

**Table 5: Level of awareness of the Public Enlightenment Programmes on the Environment in Nigeria**

| | | ES (%) | NES (%) |
|---|---|---|---|
| a. | World Environmental Day | 34.0 | 25.5 |
| b. | Environmental Sanitation | 14.1 | 11.3 |
| c. | Afforestation programmes | 41.2 | 30.0 |
| d. | Campaign through media | 47.0 | 38.1 |

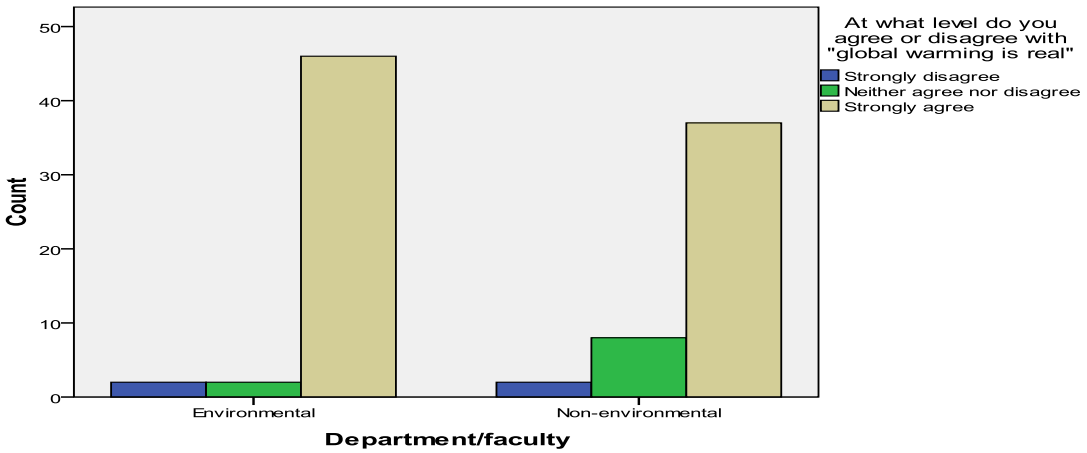


**Figure 3: perception of students about global warming**

About 90% and 75% of the students respectively agreed that global warming is real. Climate Change is severely affecting livelihoods in Nigeria by altering seasonal rainfall patterns. Based on this, the Federal ministry of Environment in Nigeria dedicated some of its human and financial resources to outreach strategies, ranging from increasing journalists' capacity on the issue, to reaching as many remote Nigerian communities as possible. The impact of this outreach can be seen from the perception of students undergoing ES and NES in their acceptance to the statement "global warming is real" as shown in Figure 3.

ENVIRONMENTALLY SUSTAINABLE BEHAVIOUR

Environmentally sustainable behaviours exhibited by the ES are: conservation of water, reuse of waste water, reuse everyday materials (i.e., metals, plastic, glass, paper etc.), turning off light/electronics when not in use among others as shown in Table 6. However, few of these behaviours such as conservation of water, reuse of waste water and reuse

everyday materials by the respondents, may be caused by the non-availability of the materials and not necessarily environmentally informed. Environmental awareness may be learned from one another and an outcome may also occur as a result of social interactions, social learning is frequently conflated with pro-environmental behavior (Reed *et al.*, 2010).

**Table 6: The percentage of respondents' compliance with some environmentally-friendly actions**

| | | ES (%) | NES (%) |
|---|---|---|---|
| a. | Purchase products specifically because they are environmentally friendly | 35 | 11 |
| b. | Use public waste evacuator | 25 | 14 |
| c. | Safely dispose electronic items (i.e. computers, mobile phones, batteries) | 38 | 13 |
| d. | Reuse/conserve water | 60 | 40 |
| e. | Reuse everyday materials (i.e., metal, plastic, glass, paper etc.) | 80 | 70 |
| f. | Turn off lights/electronics when not in use | 40 | 25 |

Environmentally sustainable behaviour cannot only be achieved by awareness/knowledge about the environment but can be influenced by factors like Cultural Beliefs, Financial Stability, Regulation Enforcement and Institutional Framework. However, the awareness/knowledge is a key factor that can influence the other factors as shown in the Figure 4. The framework suggests that environmental sustainability can only be achieved by creating environmental awareness/knowledge.

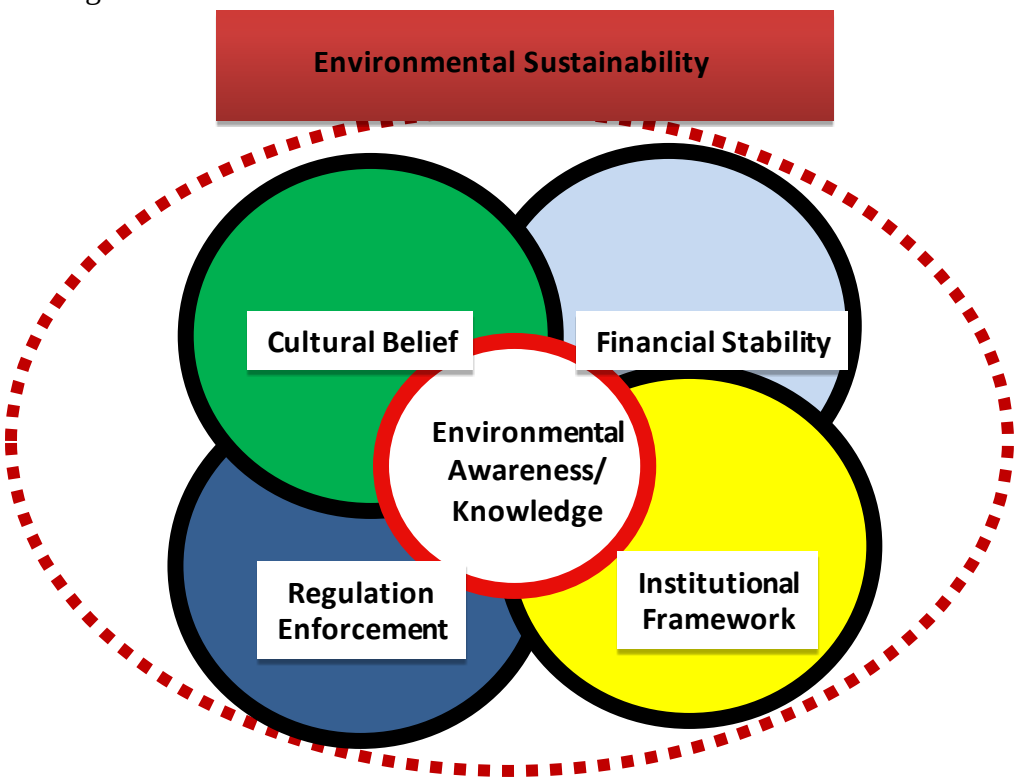


**Figure 4: Conceptual Environmental Sustainability Framework**

## Conclusion

The combination of expanding population and increasing industrialization puts increasingly severe demands upon the natural environment, the institutional structures and there sources available to manage them. A good environmental practice and resource management form the basis for a sustainable development. Environmental awareness/knowledge is however required to achieve this in Nigeria. Nigerians needs to understand some of the basic factors that ensure a healthy environment. Poverty and illiteracy are causes as well as consequences of environmental degradation. The high level of poverty and illiteracy in the country directly linked to the current level of environmental pollution and degradation in the continent. The poor and the illiterate are often more interested in issues related to their daily survival than environmental management; this lack of interest and awareness often lead to more reckless environmental behaviour which in turn breeds more environmental problems and leads to a vicious cycle of poverty.

Environmental awareness is a pre-condition for pro-environmental behaviour and sustainable environmental management. This study shows that the postgraduate students of Obafemi Awolowo University students are very much aware of environmental degradation implication. Most of them are ready to volunteer or donate money to environmental organizations; however most NES do not transfer their environmental awareness into a sustainable behaviour. This implies that most of the respondents are only aware of environmental problems that directly affect them and their immediate environment, however, there is need to bridge the gap between environmental awareness and behaviour change which is critical in increasing the adoption of environmentally sustainable behaviours.

## Recommendation

This study therefore recommends the following policy action:

i. Environmental training should be incorporated into the school curriculum at different levels in order to build a generation of environmentally conscious citizens, since habits are formed in the early stage of life.
ii. There should be provision for informal environmental training.
iii. Environmental education should include environment in its totality, natural and built-up, in an interdisciplinary problem solving approach.
iv. Environmental training should be incorporated in formal and non-formal settings.
v. Environmental education should be a continuous life-long process, to be provided for all age groups.

## References

Agbola, T., 1993. "Environmental education in Nigerian schools". In Filho W.L. (ed) Environmental Education in the Commonwealth, the Commonwealth of learning, Vancouver.

Ambrose, J and Ali, S.M.I., 1995. Environmental Management Project Bangladesh: A Project Concept, Centre For Advance Studies: Dhaka.

Day, B.A. and Smith, W.A., 1996. The Applied Behaviour Change (ABC) Framework: Environmental Implications, Advances in Education, pp. 5–9.

Hines, J.M., Hungerford, H.R. & Tomera, A.N., 1987. "Analysis and synthesis of research on responsible environmental behaviour: A meta-analysis." *The Journal of Environmental Education* 18(2), 1–8.

Ikporukpo, B.C.O., 1988. Managing oil pollution in Nigeria. In P. O. Sada and F. O. Odemerho (Eds.), Environmental issues and management in Nigerian development (pp. 224-229). Ibadan, Nigeria: Evans Brothers Ltd.

Kadafa, A.A., 2012. Oil Exploration and Spillage in the Niger Delta of Nigeria. *Civil and Environmental Research* Volume 2(3): 38 – 51.www.iiste.org ISSN 2222-1719 (Paper) ISSN 2222-2863 (Online).

Naznin, I., 2008. Public Awareness About Environmental Issues: Perspective Bangladesh Asian Affairs, Vol. 30, No. 2 : 30-56.

Nigerian Environmental Study/Action Team (NEST)., 1991. Nigeria's Threatened Environment: A National Profile. Ibadan: NEST pp. 5-16.

Nwillo, P., Ayila, C., Adzandeh, E. and Olayinka, L., 2013. From Catchments to Reaches: Predictive Modelling of Floods in Nigeria. A paper presented at FIG working week 6-10 may, 2013, Abuja-Nigeria.

Okojie, J.A., 1991. Misuse of Renewable Natural Resources and Environmental Degradation. A Paper presented at the symposium to mark the African Year of the Environment in Ogun state, Abeokuta, June, 25.

Oladipo, O.G., 2013. Effects of Microbial Heavy Metal Remediation in Soils from Selected Mine Sites in Osun and Ekiti States, Nigeria. A Ph D. Thesis of the Institute of Ecology and Environmental Studies, Obafemi Awolowo University, Ile – Ife, Nigeria. Pp 325.

Oladipo, O.G., Okoya, A.A., Aladesanmi O.T. and Ali G.A., 2011. Policy direction for municipal Solid Management. A book on environmental research and challenges of sustainable development in Nigeria. OAU press. ISBN: 978-136-188-3.

Pacey, A., 1990. "Hygiene and Literacy", in Kerr, C(ed), Community Health and Sanitation, Intermediate Technology Publications, Nigeria.

Panda, S.M., 2007. Mainstreaming Gender in Water Management: A Critical View. *Gender, Technology and Development* Volume 11 (3): 321–338. Sage Publications Los Angeles/London/New Delhi/Singapore DOI: 10.1177/097185240701100302.

Reed, M., Evely, A.C., Cundill, G., Fazey, I., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C., Raymond, C., Stringer, L.C., 2010. What is social learning? in: Ecology and Society (online): http://ecology and society.org/volXX/issYY/artZZ/

Sherburn, M. and Devlin, A.S., 2004. Academic major, environmental concern and arboretum use. Journal of Environmental Education, 35(2), 23-36.

Siemer, W.F. and Knuth, B.A., 2001. Effects of Fishing Education Programs on Antecedents of Responsible Environmental Behavior. Journal of Environ. Educ. 32(4):23-29.

Steg, L. and Vlek, C., 2009. Encouraging Pro – Environmental Behavior: An Integrative Review and Research Agenda. *Journal of Environmental Psychology*. Volume 29: 309 – 317.

United Nations Educational, Scientific and Cultural Organization (UNESCO)., 1978. United Nations Educational, Scientific and Cultural Organization *Final Report, Intergovernmental Conference on Environmental Education*, organized by UNESCOin cooperation with UNEP, Tbilisi, USSR, 14–26.

United Nations Educational, Scientific and Cultural Organization (UNESCO)., 2011. United Nations Educational, Scientific and Cultural Organization First Sub Regional Meeting on the Use of the Environmental Education Kits. Paper presented on April 26$^{th}$ to 27$^{th}$ at Dubai, United Arab Emirate.

United Nations Environment Programme (UNEP)., 2010. Waste and Climate Change: Global Trends and Strategy Framework. www.unep.or.jp assessed on 15/10/2011.