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# ENVIRONMENTAL EDUCATION AS A CATALYST FOR SUSTAINABLE DEVELOPMENT GOAL IMPLEMENTATION

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**Abstract:** Human interaction with and exploitation of the environment for survival and convenience has led to a wide range of environmental problems, many of which threaten the planet and deepen the hardships of rural communities. Despite long-standing efforts through Environmental Education (EE) to promote sustainability and envision a future where natural resources and human needs coexist harmoniously, the world remains less environmentally sustainable than in the past. This paper emphasizes the urgent need to reinvigorate and rethink Environmental Education to address current environmental challenges.

The study argues that for EE to be effective in driving behavioral change, sustainable lifestyles, and responsible development, it must be more potent and contextually grounded. This includes equipping schools with adequate instructional materials, trained personnel, and learning environments that promote environmental awareness and action. A key strategy proposed is the transformation of teacher education to prioritize environmental literacy, ethical reasoning, and value-based learning. Furthermore, integrating natural and cultural resources within local communities into EE curricula can foster place-based learning and deepen individuals' connection to their environment.

The paper advocates for an EE approach that cultivates environmentally responsible citizens and institutions by embedding moral and ethical considerations into the learning process. In addition, the development of a national innovation system that supports eco-friendly policies, community engagement, and sustainability-driven research is proposed as a long-term solution to environmental degradation. Ultimately, transforming education is seen as essential for nurturing a society capable of safeguarding the integrity, stability, and beauty of the natural world

**Keywords:** environment, sustainability, development, equity, education

## Introduction

In the 1960s, people became more aware of their own impact on the environment in their everyday life and, in parallel, their influence on the way their local community is run. The idea emerged that an informed citizen could influence public decisions that impact ones quality of life. That is when the need for Environmental Education (EE) emerged, covering two aspects: inform people of environmental systems and educate them so that they adopt a more responsible attitude towards the environment, although the intent then was not to dictate how to behave but to help people make informed choices (Wagner, Fagot, Verre, Doler & Vogrin, 2011).

Decade later, a great effort was jointly made by United Nations Educational, Scientific, and Cultural Organization (UNESCO) and United Nation Environmental Programme (UNEP) to put EE higher on the agenda, to define its scope, to state clearly some quality measures and guidelines, and by all this to promote EE as an essential part of the multi-faceted solutions to environmental problems produced by man (UNESCO-UNEP, 1975; UNESCO-UNEP, 1978). Consequent upon this, the UNESCO (1978) defined EE as a formal and informal education, aiming

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to raise the awareness of people for ecological dynamics, their natural surroundings, environmental problems, and interdependencies with economic, social and cultural development.

In furtherance of this in 1990s, the UNESCO (1995a), within the framework of its International Environmental Education Programme, proposes sustainable development as the ultimate goal of "man's" relation with the environment. It is therefore suggested to "reorient" EE (1995b) and moreover, to "reshape" the entire educational process to meet this end (UNESCO, 1992). In the light of this, Education for Sustainable Development (ESD) became more and more important at the beginning of the 21st century and was viewed as a broadening and strengthening of Environmental Education (UNECE, 2005). ESD was then proposed to enable people to enforce and support development that ties together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity in their regions and globally (Kahle and Gurel-Atay, 2014). Then in 2002, the United Nations decided to organize the Decade of Education for Sustainable Development (DESD) from 2005 to 2014, in order to promote the value of respect for others and respect for the planet and what it provides us with (resources, fauna and flora) (UNESCO, 2005). This was meant to challenge us all to adopt new behaviours and practices to secure our environment, by emphasizing respect to others and to nature as a basis of sustainable development.

In spite of all these efforts, the conservation and sustainable use of environment and the eradication of extreme poverty are two of the main global challenges of our time. It has been recognized by the international community that these two challenges are intimately connected, and require a coordinated response. Essentially, the protection and sustainable use of natural environment is essential in the fight to reduce poverty and achieve sustainable development, in that 70% of the world"s poor live in rural areas and depend directly on biodiversity of natural environment for their survival and well-being (CBD, 2009). For these reasons the impact of environmental degradation is most severe for people living in poverty, because they have few livelihood options on which to fall back.

Meanwhile, efforts of Nigeria government at securing sustainable environment for sustainable development has not yielded desired result as evident by increasing probability of natural disaster, unsustainable agricultural production (Robinson, 2013), and further impoverished of rural poor who depends on the biodiversity of natural environment for sustenance. Therefore, to create a future society where people are aware of their civic responsibilities to others and their environment, and are ready to play useful roles as citizen"s conscious of their environmental impact (NERDC, 1998; ICSE, 2000), citizens needed to be empowered with essential and relevant knowledge and information to enable them pressurise leaders at all levels to develop and implement policies for securing the environment for healthy development and life (Ogundele, Adesope & Obanisola, 2015; Govindaswamy, 2015). On this premise, this paper stressed reasons for reinvigoration and proper integration of functional and potent EE, at all levels of Nigeria educational system, into sustainable development programmes considering the fact that educational institutions are the places where the contact of the society is more. Specifically, the paper examined the nexus of environmental sustainability and sustainable development, roles of environmental education in the attainment of Sustainable Development Goals (SDGs) 2030 targets and how EE can be positioned to create pipelines of environmental informed citizens who will be motivated to transform and secure our world.

**Concepts of Education, Development, Environment and Sustainability**

Before we examine the relationships between EE and sustainable development it is very necessary to revise the meaning of education and development, environment and sustainability.

Generally, education is a process whereby knowledge, skills, attitude, and behaviour are acquired for the overall development of man and the general good of the society. Learning and training are other related concepts. Learning is the human process by which skills, knowledge, habits and attitudes are acquired and utilized in such a way that behaviour is modified, while training is considered as the organised procedure by which people learn knowledge and/or skills for definite purpose (Beach, 1975). Development in the general sense is many sided

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process. At the individual level, it implies increase skill and capacity, greater freedom, creativity, self-discipline responsibility and material well being (*Rodney, 2005*). The achievement of any of these aspects of personal development is very much tied with the state of the society as a whole. At the level of social groups, development implies an increasing capacity to regulate both internal and external relationship/environment. *Rodney (2005)* notes that development when used exclusively in economic sense refers to how members of a society increase, jointly exercise their capacity for subduing the environment. This capacity is dependent on the extent to which they understand the laws of nature (science) and on the extent to which they put technology to use and the manner in which society is organized (Ogundele & Abiola, 2006). All these are assisted by the processes of education in the society, while the specific roles of education in development are to make society take inform decision, and make development more impressive and sustainable. Hence, education irrespective of the type is the backbone of development and in Nigeria education is touted as instrument „par excellence" for effecting national development. Environment comprises of living things and all that surrounds it. It includes the physical, biological and chemical factors that affect organisms, its form and survival. In a broad sense, the environment includes many things the natural (land, water and air, all plants, animals and microscopic forms of life on earth) and built environment, and technological and social, economic, political and cultural, ethical, aesthetic activities that form part of everyday life (UNESCO-UNEP 1977). In a nutshell, environment include not just the nature (biosphere, lithosphere, atmosphere, and hydrosphere) and what all humans have created as their surroundings but also our interaction and relationship with the nature and other forces that sustain it (Wikipedia, 2016).

Sustainability can be defined as the practice of reserving resources for future generation without any harm to the nature and other components of it (Wikipedia, 2016). Sustainability rests on the principles that we must meet the needs of the present without compromising the ability of future generation to meet their own needs. Therefore, stewardship of environment (both natural and human resources) is of prime importance in sustainability. Stewardship of human resources includes consideration of social responsibility, the needs of the society, and society health and safety both in the present and the future while stewardship of land and natural resources on the other hand involves maintaining or enhancing this vital resource base for the long term (Ilori, 2013). Thus, sustainability attempts to strike a balance between the needs of the nature and human, present and future development, rural and urban communities, poor and rich, female and male, developed and developing nations. Sustainability is then all about nature, justice and time, and it can only be ensured through proper knowledge and understanding of nature, what it provides us with and forces that sustain them, undeniably the function of environmental education.

**Nexus of Environmental Sustainability and Sustainable Development**

Morelli (2011) defined *"Environmental sustainability as meeting the resources and services needs of current and future generations without compromising the health of the ecosystems that provide them….and more specifically, as a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity".* A cursory look at concept of Environmental Sustainability (ES) as aptly described revealed that its concerns the natural environment and how it endures and remains diverse and productive, while its main goal is to achieve "highest sustainable quality of living" for generality of mankind through rational utilization of the environment. Thus, environmental sustainability requires society to design activities to meet human needs while preserving the life support systems of the planet.

Sustainable development had been variously defined by several authors but the most frequently quoted was by the UN-sponsored Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UNWCED, 1987). Two key concepts were embedded in the definition: (i) the concept of needs, in particular the essential needs of the world"s poor, to

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which overriding priority should be given; and (ii) the idea of limitations imposed by the state of technology and social organization on the environment‟s ability to meet present and future needs.

Therefore, sustainable development as described integrates three main goals of environmental health, economic profitability, and socio-economic equity. Again sustainable development like environmental sustainability is about nature, equity and time. Interestingly, people in many different capacities have shared this vision and contributed to it, and despite the diversity of people and perspectives the aforementioned themes commonly weave through explanation of sustainable development and environmental sustainability.

In the main time, Harris, (2000) stated the following as the goals of sustainability in relation to sustainable development: (1) An economically sustainable system must be able to produce goods and services continuously, support local livelihood, maintain manageable levels of government and external debt, avoid extreme sectoral imbalances which damage agricultural or industrial production; (2) An environmentally sustainable system must maintain a stable resource base, avoiding over exploitation of renewable resource systems and depleting of non-renewable resources, maintain biodiversity, atmospheric stability and ecosystems. (3) A socio-economic sustainable system must achieve distributional and generational equity, adequate provision of social services including health, education, gender equity, political accountability and participation. In this regard, sustainable development attempts maintaining a balance between improved human well-being and environmental needs, interestingly covert goal of EE.

**Table 1: Guiding Principles of Environmental Sustainability for Sustainable Development**

| S/N | Needs/Constrains | Guiding Principles |
|---|---|---|
| 1. | Societal Needs | Produce nothing that will require future generations to maintain vigilance<br>Design and deliver products and services that contribute to a more sustainable economy<br>Support local employment or livelihood<br>Support fair trade<br>Review the environmental attributes of raw materials and make environmental sustainability a key requirement in the selection of ingredients for new products and services |
| 2. | Preservation of Biodiversity | Select raw materials that maintain biodiversity of natural resources.<br>Use environmentally responsible and sustainable energy sources and invest in improving energy efficiency. |
| 3. | Regenerative Capacity | Keep harvest rates of renewable resource inputs within regenerative capacities of the natural system that generates them.<br>Keep depletion rates of nonrenewable resource inputs below the rate at which renewable substitutes are developed. |
| 4. | Reuse and Recycle | Design for re-usability and recyclability.<br>Design (or redesign, as appropriate) manufacturing and business processes as closed-loop systems, reducing emissions and waste to zero. |

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| 5. | Constraints of Nonrenewable Resources and Waste Generation | The scale (population x consumption per capita x technology) of the human economic subsystem should be limited to a level that, if not optimal, is at least within the carrying capacity and therefore sustainable. <br> Keep waste emissions within the assimilative capacity of receiving ecosystems without unacceptable degradation of its future waste absorptive capacity or other important ecological services. <br> Develop transportation criteria that prioritize low-impact transportation modes. <br> Approach all product development and product management decisions with full consideration of the environmental impacts of the product throughout its life cycle |
|---|---|---|

**Source: Adapted from Morelli (2011)**

Meanwhile, table 1 above contains 15 guiding principles, collected from a variety sources by Morelli (2011) to stimulate thought as well as provide advice on environmental sustainability for sustainable development. Therefore, sustainable development when look in relation to its goals and human needs as stated by Harris (2000), and principles listed by Morelli (2011) raises the issues of: (1) whether the present lifestyles or consumptions are acceptable; (2) whether there is any reason to pass them on to the next generation, and; (3) whether the development patterns that perpetuate today‟s inequalities are sustainable or worth sustaining (UNDP, 1994). Ilori (2013) then sees sustainable development as a culturally directed search for a dynamic balance in the relationships between various components of the environment (social, economic and natural systems). The balance seeks to promote equity between the present and the future consumption, man and his environment, countries, races, social classes and genders, and this is the basis for the achievement of global sustainable development.

**Features of Environmental Education**

EE as a process is directed at creating awareness and understanding of the relationship between humans and their many environments. EE provides real-world contexts and issues from which concepts and skills can be used, connects learning experiences to learners' everyday lives, and supportive of the development of an active learning community where learners share ideas and expertise, and prompt continued inquiry (North American Association for Environmental Education (NAAEE,) (1996a).

Summarily, EE as an educational programme possess the following features among others:

1. EE is neither environmental information (which focuses on general public rather than specific target) nor advocacy but communication (NAAEE, 1996b). Although information can be very useful to the highly motivated individual who is concerned about a specific topic or issue and can be a critical element of environmental communication.

2. EE is learner centered, about facts, fairness and accuracy. As a learning process, EE utilizes processes that involve recipients in observing, measuring, classifying, experimenting, and other data gathering techniques, which enable recipients make informed decisions about environmental issues that affect them and others (Govindaswamy, 2015).

3. EE promotes and builds lifelong skills such as critical and creative thinking, problem solving and action skills, and effective decision-making skills (Govindaswamy, 2015).

4. EE adopts appropriate and sound assessment and interdisciplinary approach to curriculum implementation (UNECE, 2005; Omoogun *et al.,* 2014).

Caduto, (1985) pointed out that these characteristics, when applied in conjunction with the goal and objectives for environmental education, have allowed environmental educators to develop programs that lend to the formation of positive beliefs, attitudes and values concerning the environment as a basis for assuming a wise stewardship role towards the earth. Unfortunately, the EE as it is offered in Nigeria schools in terms of content

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and implementation is geared towards producing self-oriented individuals rather than enlighten populace who are concerned with their own well being and well being of others in the environment. For instance, Ogueri (2004) and Adeosun, Olaniyan & Omogoye (2014) observed that it is devoid of practical experiences and lays too much emphasis on memorization, environmental information and advocacy, and not often related to the needs of the recipients in relation to the society. The authors also reported irrelevance of the curriculum contents, incompetent teaching personnel and inadequate facilities for learning as the bane of EE in Nigeria. This kind of EE when considered with respect to above listed features of EE may not foster on recipients comprehensive knowledge to connect the environment with man continuous existence. Again, Ogundele, Adesope & Obanisola (2015) reported that this kind of EE resulted in low level of EE among Nigerian students, and is partly responsible for the negative attitude of most youths towards the environment. Therefore, for EE to perform its roles in sustainable development the instruction being passed must be potent and organized, while the potency of the instruction depends on a number of variables which include the instructional materials, the environment and the personnel (Owoade, Bolaji & Bamidele, 2010).

**Environmental Education for Attainment of Sustainable Development Goals**

On 25 September 2015 the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled Transforming our world: the 2030 Agenda for Sustainable Development. The document contains 17 goals and 169 targets. A panoramic view at Table 2 revealed that the goals are interlinked and placed moral and ethical demand on the entire world community. Also, the relationships between the goals and principles listed in Table 1 revealed that the goals can be attained partially or wholly through promotion and development of value of respect for others, nature and what it provides us with at a global level.

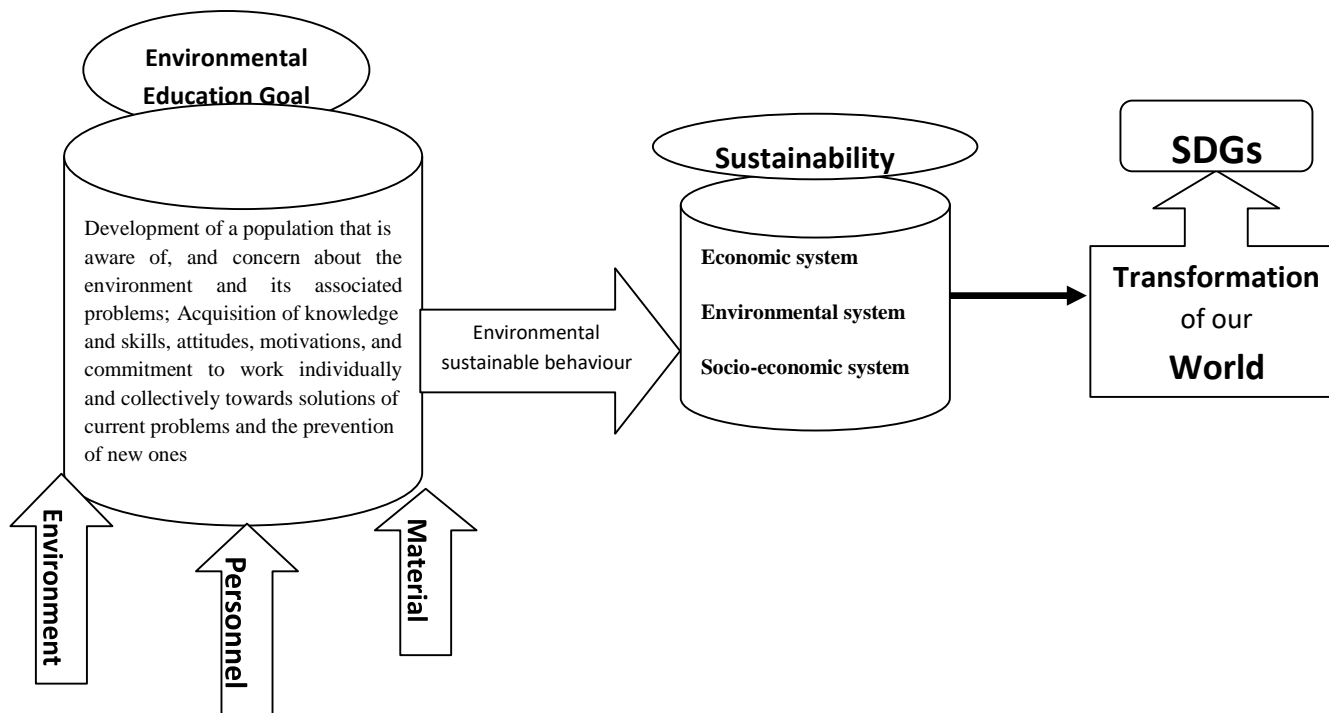| S/N | Sustainable Development Goals (SDGs) |
|-----|--------------------------------------|
| 1. | No poverty, end poverty in all its forms everywhere. |
| 2. | Zero hunger, end hunger, achieve food security and improve nutrition and promote sustainable agriculture. |
| 3. | Good health and well being, ensure healthy lives and well-being for all at all ages, |
| 4. | Quality education, ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. |
| 5. | Gender equality, achieve gender equality and empower all women and girls, |
| 6. | Clean water and sanitation, ensure availability and sustainable management of water and sanitation for all, |
| 7. | Affordable and clean energy, ensure access to affordable, reliable, sustainable and modern energy for all; |
| 8. | Decent work and economic growth, promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, |
| 9. | Industry, innovation and infrastructure, build resilient inclusive and sustainable industrialization and foster innovation, |
| 10. | Reduce inequality within and among countries, |
| 11. | Sustainable cities and communities, make cities and human settlements inclusive, safe, resilient and sustainable, |

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| | |
|---|---|
| **12.** | Responsible consumption and production, ensure sustainable consumption and production pattern, |
| **13** | Climate action, take urgent action to combat climate change and its impacts, |
| **14** | Life below water, conserve and sustainably use the oceans, seas and marine resources for sustainable development, |
| **15** | Life on land, protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss; |
| **16** | Peace, justice, and strong institutions, promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive instructions at all levels. |
| **17** | Partnerships for the goals strengthen the means of implementation and revitalize the global partnership for sustainable development. |

**Table 2: Sustainable Development Goals 2030 (SDGs)**

A cursory look at the themes of sustainable development revealed that it poses two fundamental education challenges. One promotion of positive attitudes and informed decisions of citizens and leaders that is conducive to sustainability, while the other is to teach people at all levels the benefits of integrating conservation priorities with the need for development (Ogundele, Adesope & Obanisola, 2015). Interestingly, EE has the potential to make a major contribution to sustainable development by demonstrating ways to overcome these challenges in the following ways: (1) It ensures the environment and what it provide us with continuously support human existence through proper understanding of the environment and forces that sustain it; (2) It promotes responsible environmental behavior and value of respect towards others, the planet and what it provides us with (resources, fauna and flora); (3) it enables people to make decisions that will satisfy the needs of the present without compromising the needs of future generations by changing values, attitudes and behavior (UNESCO, 2010); (4) It equips present and future generations with the innovative skills and moral imperatives to apply knowledge of sustainable development to their own actions and improvement of quality of life of the populace (Govindaswamy, 2015); (5) It builds lifelong skills such as critical and creative thinking, problem solving skills and action skills that enable recipients to prevent and address environmental issues resulting from developmental effort. (6) It promotes civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental issues as a basis for environmental problems solving and action to improve quality of environment and life. (7) It promotes awareness that motivates recipients to develop and adopt appropriate technology needed to sustain production and production system (8) It develops necessary skills and knowledge to conserve and develop natural resources in a way that will ensure perpetual enjoyment; and (9) It motivates the recipients to maintain an acceptable balance between present and future consumptions, poor and the rich, nature and human. For these aforementioned reasons it is now very clear that EE is extricably linked with sustainable development (see figure 1) and it‟s essential for sustainable economic, environmental and socio-economic systems. Hence, promoting EE is fundamental to securing our future in the wake of grievous environmental challenges threatening

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**Figure 1: Linking Environmental Education to Sustainable Development Goals**

human sustenance, especially those of rural poor who depends on the biodiversity of natural environment for sustenance.

**Demands of Environmental Education as Agent of Sustainable Development in Nigeria**

The main task of EE is to develop responsible environmental behavior (figure 1) for sustainable development (UNESCO, 1995a; UNESCO, 2005), while „responsible environmental behaviour' is defined as "the whole of actions of an individual within the society, that takes into account, in a conscious way, the perennial and harmonious relationship between these actions and environment" (Govindaswamy, 2015).

Today more than ever, society needs high-quality EE programmes that succeed in moving values and changing behaviours in the direction of sustainability and environmental conservation (Ogundele, Adesope & Obanisola, 2015; Govindaswamy, 2015), especially in the face of increasing probability of "man provoked" natural disasters. Therefore, to create pipelines of enlighten populace who will behave responsibly and motivated to innovatively transform our world with minimal environmental degradation the following actions are necessary with regards to EE in Nigeria.

- Re-thinking environmental education curriculum and customising to local context. The curriculum should be structured to create pipelines of enlighten populace who are concerned with their own well being and well being of others in the environment in contrast to present efforts which is geared towards producing a self-oriented individuals. The curriculum needed to be well organized, coordinated and connected to the needs of the recipients and level of development of the society (Govindaswamy, 2015). Hence, EE approach that focuses on moral values and the natural and cultural resources present within each community or region should be introduced from early stage. This will enable pupils from the early stage to explore and develop interest in the environment, motivated to respect nature and others, and develop a responsible environmental behaviour.

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- Re-profiling of teachers in form of training and retraining. EE needed to be revolutionized, to emphasise creative teaching methodologies in the overall context of transformational pedagogy. This transformational pedagogy will aims at transforming the students at various levels– intellectually-enhanced creative thinking; attitudinally- enhanced capacity to explore,  to take strategic initiatives; in terms of value orientation- enhanced commitment to converting obstacles to challenges; emotionally-enhanced self awareness, self management, and social awareness for improved social action  and team membership- (Obanya, 2010). To this end the demands of today"s world required the reprofiling of teachers in form of training and retraining, as EE is about experiencing, sharing, creativity, pleasure and sensitivity to the environment and forces that sustain it (Wagner, Fagot, Verre, Doler & Vogrin, 2011).
- Value reorientation and development of ethically desirable behavior in relation to the general society. Urgent value re-orientation needed to be carried out at societal level through public education and communication to correct the misconception about environment and what it produces as "free gift of nature" or "common property". Populace should be connected to the environment and made aware of environmental values and consequences of their actions and inactions, thereby motivated to protect their environments (Govindaswamy, 2015). The populace should be made to realize that the environment is a natural capital which may be non-substitutable and whose consumption might be irreversible (Dyllick & Hockets, 2002), and must be treated accordingly. Hence society through community participation and involvement (workshops, volunteering, formation of clubs and societies, excursions, role play and field trips) has to sit up to fulfill their environmental sustainability roles while the government regulatory functions should be strictly implemented.
- Development and provision of indigenous and appropriate in-and out-of-classroom educational materials such as text books and workbooks,  film and slide shows, cartoon and awareness raising films, games in and out of class, posters and shows for students and general public to make the tripod identified above stable. This become necessary as most of the available resources (where available) have foreign content and emphasised issues that were not related to local environment (Omoogun, Onnoghen, & Ateb, 2014; Adeosun, Olaniyan & Omogoye, 2014).   Again field trips and excursions to nature sites should be encouraged from early age to inculcate attitude of nature appreciation from childhood.
- Reinvigoration of National Innovation System (NIS). Integral elements for a sustainable development are research and innovation activities (Ilori, 2013). Government, development agencies and private sector should partnership to develop the NIS through adequate funding and support of research and educational institutes. These institutions will engage in rapid design and development of systems and technologies that are flexible, reversible, and appropriate for local environment and our level of development, and discoveries that render existing resources obsolete through destructive creativity.

**Conclusion**

Undeniably, interest in environmental education as a means for sustainable development has blossomed in recent years, but we are only beginning to realize its potential considering the myriads of environmental challenges, especially, those that threatening the survival of rural poor who depends on biodiversity of natural environment for sustenance. This situation necessitate the need  to instill genuine environmental sustainable behaviours by revolutionizing EE in the overall context of transformational pedagogy, as conventional educational methods are no longer adequate for the real needs of tomorrow. This action is fundamental in nurturing environmentally informed and responsible individuals, organizations and communities, who will be motivated to develop genuine environmental respecting ethical and moral values to transform our world and fast track the attainment of SDGs 2030 targets.

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**References**

Adeosun, A.O., Olaniyan, S.T. & Omogoye, A.M. (2014) Awareness and views of Agricultural students on Environmental Education at the Emmanuel Alayande College of Education, Oyo, Lanlate Campus International Journal for Special and General EducationVol. 4

Beach, P.S. (1975): Personnel Management of People at Work, 3rd Ed. New York; Macmillan Publishing Co. Inc

Caduto, M. J. (1985). A Guide to Environmental Values Education Environmental Education Series #13, UNESCO-UNEP International Environmental Education Programme.

Convention on Biological Diversity (2009) A Good Practice Guide: Sustainable Forest Management, Biodiversity and Livelihood: International Union for Conservation of Nature (IUCN)

Dyllick, T & Hockets, K. (2002) Beyond the business case for corporate sustainability. Business

Strategy and the Environment, 11 (2): 130-141

Govindaswamy, Vennila (2015). Importance of environmental education for sustainable development

http://wgbis.ces.iisc.ernnet.in/biodiversity/sahyadri_enews/newsletter/issue22/art4.htm

Harris, J.M. (2000). Basic Principles of Sustainable Development. Global Development and Environment Institute Working Paper 00-04

Ilori, M.O. (2013) Vocational skills acquisition, technical education and entrepreneurship for poverty alleviation and sustainable development; a lead paper presented at the 1st

international conference organised by VSESC, the Polytechnic Ibadan, Nigeria. Held between 10th and 14th june, 2013.

ICSE (2000) International Council for Science and the Environment: Recommendations for Improving the Scientific Basis for Environmental Decision Making. December 2000. Kahle, L. R. & Gurel-Atay, E. (Eds) (2014) Communicating Sustainability for the Green

Economy. New York: M.E.

Morelli, John (2011) "Environmental Sustainability: A Definition for Environmental Professionals," *Journal of Environmental Sustainability*: Vol. 1: Iss. 1, Article 2. DOI: 10.14448/jes.01.0002 Available at: http://scholarworks.rit.edu/jes/vol1/iss1/2. Accessed on 22/05/2016

NEEAC (1996). Report Assessing Environmental Education in the United States and theImplementation of the National Environmental Education Act of 1990. NEEAC, Washington, DC

North America Association for Environmental Education (1996a). Environmental EducationMaterials: Guidelines for Excellence. NAAEE, Rock Spring, GANAAEE (1996b) http://www.naaee.org/programs-and-initiatives/guidelines-for-excellence

**Original Article**

Obanya, Pai (2010) Re-Profiling Teachers and Teachers Educators A paper presented at 1ˢᵗNational Conference of School of Education Emmanuel Alayande College of Education, Oyo

Ogueri, C.A. (2004). The need for Environmental Education in secondary education Level in Nigeria: Problems and Challenges, Unpublished Master„s Thesis. Department of Environmental Technology and Social Studies, Roskilde University, Denmark

Ogundele, O.J.K & Abiola, J. O. (2006) Entrepreneurship and national development: A proposal for evangelistic agenda European Scientific Journal March edition vol. 8, no.6 ISSN: 1857 – 7881

Ogundele, A.T., Adesope, A. O. & Obanisola, M. O. (2015) Environmental Education: a pedagogical tool for ameliorating environmental problems in Nigeria IJSGE Vol. 5 No.1 May, 2015

Omoogun, A.C., Onnoghen, U. N. & Ateb, G. A. (2014) Adequacy of knowledge of Environmental Education Concepts among Junior Secondary School Teachers for the Multidisciplinary Approach of Implementing Environmental Education Curriculum Journal of Education and Practice, 5(36): 106-111.

Owoade, O.A., Bolaji, O.A., & Bamidele, A.D (2010) *Actualising Nigeria Vision 20:2020 through repositioning Science Education for technological and innovation development.* Proceedings of International Conference on Research for Sustainable Development: Strategies and Procedures for Developing Nations held at Accra, Ghana.

Robinson, J.O. (2013). Environmental Education and Sustainable Development in Nigeria: Breaking the Missing Link. International Journal of Education and Research, Vol.1 No.5 Rodney, W (2005): How Europe Underdeveloped Africa, Abuja, Panaf Press

UNDP (1994) Human Development Report. Publication of United Nation Development Programme

United Nations Economic Council of Europe (UNECE) (2005) *UNECE strategy for education for sustainable development.* UNECE Committee on Environmental Policy, Vilnius. Retrieved from http://live.unece.org/?id=24444

United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2005) *UN Decade of Education for Sustainable Development 2005 – 2014: The DESD at a glance.* Retrieved from www.unesco.org/education/desd

United Nations Educational, Scientific and Cultural Organization (UNESCO) (1995a) Éducation relativeà l'environnement, quo vadis?. *Connexion*, *20*(2), 1-2.

United Nations Educational, Scientific and Cultural Organization (UNESCO) (1995b) *Interregional Workshop on Re-orienting Environmental Education for Sustainable*

*Development, June, 26 30, 1995*. Athens: UNESCO

United Nations Educational, Scientific, and Cultural Organization (UNESCO). (1992) *Refonte de l'éducation pour un développement durable- Reshaping education for sustainable*

**Original Article**

*development)*, Dossiers Environnement et Développement. Paris: UNESCO

United Nations Educational, Scientific and Cultural Organization and United Nations

Environment Program (UNESCO-UNEP) (1975) *The Belgrade Charter: A framework for environmental education* Retrieved from http://unesdoc.unesco.org/images/0001/000177/017772eb.pdf

United Nations Educational, Scientific, and Cultural Organization and United Nations Environment Program (UNESCO-UNEP) (1978) *Intergovernmental conference on environmental education: Final report* Retrieved from http://www.gdrc.org/uem/ee/EE Tbilisi_1977.pdf

United Nations World Commission on Environment and Development (UNWCED) (1987) *Our common future*. Oxford University Press, Oxford

Wagner, M., Fagot, M., Verre, J., Doler, A., & Vogrin, M. (2011). Environmental education:Contribution to a sustainable future. Retrieved 15/5/2016 from http://www.surf-nature.eu

Wikipedia (2016) Sustainable development: Retrieved 15/5/2016 from http://en.m.wikipedia.org/wiki/sustainabledevelopment