

SUSTAINABLE DEVELOPMENT FOR VIABLE ENVIRONMENTAL RESOURCE MANAGEMENT

Ishaya K. Samaila

Abstract

This paper focuses on the concept of sustainable development and its implication on environmental resource management. The world economics are faced with the task of managing the environment at sustainable level. The Stockholm 1972 and Rio de Janeiro 1992 earth summits were convened to address global environmental issues and problems. *The* outcome of the conferences was the emphasis on nations to pursue programmes and policies aimed at sustainable development, hence the exploitation of resources, flow of investment and the direction of technological development should be in harmony and enhance both present and future potentials to meet human needs and aspirations. The paper posits that environmental management can best be achieved by addressing issues affecting sustainable development such as, poverty, overpopulation, increased fuel consumption, food production, illiteracy and ignorance.

Introduction

The greatest challenges confronting human race in our contemporary world and future generation, is the sustained development and intelligent management of the environment. The entire world is a global village and any harm done to any aspect of the environment has severe global consequences. Since the expression of human civilisation, the environment has been subjected to a myriad of problems differing in magnitude, which today are threatening sustainable development (Ohenhen, 1999),

In a general term, the environment can be conceived as the aggregate of all external conditions and influences affecting the life development of organisms. Sada (1988) however, sees the environment as a system within which all living organisms interact with the physical elements. The interaction with the physical environment by mankind has resulted in rapid expansion and intensification of economic activities inflicting incurable injuries and degradation, including depletion of renewable and non-renewable resources and pollution of the atmosphere, water and soils. The rapid degradation of the environment through over use, ignorance and abuse has generated overwhelming global concern and as we enter the 21st century, the degree and the rate of environmental damage have further heightened the concern.

World Commission On Environment and Development (WCED) (1987) identified poverty as one of the major causes of the accelerated depletion of environmental resources and the degradation of its forests, soils, species, fisheries, water and atmosphere. To support this, Falade (2003) posits that poverty, illiteracy and other socio-economic factors are the major causes of environmental problems in the developing countries. Many studies have indicated that the poor live in ecologically vulnerable areas with low productivity and high susceptibility to environmental degradation (Leonard, 1989). This then results in the poor depending largely on natural resources for employment and economic growth. Olusi (1998) observes that the poor do not have access to better their living conditions and as such have to prey on marginal lands and resource base and in the process incur disproportionate amount of environmental destruction such as deforestation, water pollution, soil erosion and waste disposal problems. There is therefore the general consensus that poverty and environmental degradation are interrelated (Oladipo, 2000). Any meaningful economic development will require the effective management of the environment by pursuing programmes; aimed at eradicating poverty, uplifting the general welfare of the people and equitable distribution of wealth.

The Concept of Sustainable Development

The concept of sustainable development was first presented at an international forum in the World Conservation Strategies by the international Union for the Conservation of Nature (IUCN, 1980). The concept tried to bring out the inextricable linkage between economic development and environment. Any development that does not take the environment into consideration is self-destructive. The concept invokes present development of environmental resources without

compromising the ability of future generations to meet their own. In other words it carries the connotation of economic growth without causing harm to the environment and human beings. The exploitation of resources, flow of investment and the direction of technological development should be in harmony and enhance both present and future potentials to meet human needs and aspirations (Pickering & Owen, 1995).

The Rio Declaration on Environment and Development Agenda 21 sees human beings at the center of concern for sustainable development. Present generations and those to come in the future are entitled to a healthy and productive life in harmony with nature (United Nation Council on Environment and Development (UNCED), 1992). The practical application of sustainable development must involve a greater environmental awareness of both governments and individuals. To achieve this, three priorities have to be incorporated into all development programmes, which should include, maintenance of ecological processes, sustainable use of resources and maintenance of genetic diversity.

The importance of the concept is to kindle development towards social and economic betterment that satisfies the requirements of present generation while maintaining future options of conservation and diversity (Mathew, 1998). It is in this respect that most governments can no longer envisage a serious environmental plan without considering the economic implications and vice versa.

Global Concern about the Environment

Environmental issues have become part of the tapestry of the world's political, economic and social antecedents and unsustainable economic development is a major problem confronting most nations today. The rate, at which environmental resources are eroding under human exploits and assaults, has heightened global concern on the environment, which has resulted in the search for radical solutions to salvage the ravaged environment from devastation by man.

The global environment is under threat from myriads of human activities such as deforestation, pollution, mining and industrialization, which today, have ravaged the environment to a state never experienced in the history of mankind. The rate at which environmental degradation is occurring, if nothing concrete is done to arrest the trend, human civilization will soon be phased out (O'Connell, 2000). The Stockholm conference of 1972 and the Rio De Janeiro Conference of 1992 were world summits convened to address environmental issues and to generate global awareness on the environment.

Sequel to the 1972 Stockholm conference, issues and studies on the environment attracted interest of governments, individuals and non-governmental agencies though such concerns evolved rather steadily (Filani, 2000). Greater concern about the environment took a radical change from 1985 which was in response to the dynamic nature of the environment, the fast depletion in environmental resources and the need for conservation. The concern was sparked off by the need to maximize economic growth without jeopardizing people and future resources of the environment.

After the Stockholm Conference of 1972, some new issues on the environment emerged while others remained just as poignant several years after and (the end to the cold war, which altered dramatically world political scene culminated in the Rio world summit of 1992. Since the Rio summit there has been greater awareness on the growing ecological crisis and this has heightened the concern of many nations to look beyond their national interests to arrive at general consensus over the management of the planet earth. Environmental related issues have spread like wildfire to all parts of the globe and it is now the general consensus that any meaningful development must look beyond meeting the need of the present generation for the future generations are also entitled to a healthy and productive environment. Environmental issues have today assumed global dimensions, and the world is now conceived as a global village (Ohenhen, 1999). The Kyoto accord was one of the outcomes of the Rio conference, which emphasized the need for developed countries to reduce the amount of greenhouse gases emission by about 5% in 2012 (Pickering & Owen, 1995). No matter what state of development a nation has reached the environment needs protection so as to meet developmental goals and aspirations not only for the present generation but for those to come in the future.

The State of the Global Environment

Sequel to Rio Earth Summit of 1992, governments are taking stock of their commitments to the climate and biodiversity conventions. The environment is under threat from rapid population growth and accompanied by increased human activities. The rate at which world population is

increasing globally is terrifying. There is the need for a population size that is in harmony with the earth resources. The National Academy of Science suggested that a world population of 10,000 million is close to the maximum that an intensively managed world might hope to support with some degree of comfort- Pickering and Owen (1995) however, observed that human population less than the present one would offer the best hope for comfortable living for our descendants, long duration of the species and the preservation of environmental quality.

Human quest for survival has intensified human economic activities resulting in the depletion of environmental resource bases leading to global environmental threats such as climate change, global warming, depletion of the, stratospheric ozone layer, loss of biological diversity and pollution of resources on land, the lower atmosphere and water in both surface and subsurface sources.

In semi arid regions of the world, desertification and its associated problems are devastating many parts of the world, especially developing countries. The United Nations Environmental Programme (UNEP) estimates that about 60% of the 3.3 billion hectares of agricultural land outside humid areas are affected to some extent by desertification (Schmidt & Herbert, 1994). Irrigation on marginal lands has caused the concentration of harmful ionic substances in the soil, which eventually find their way into the drainage system lowering the quality of water in most surface sources.

Air pollution has produced substantial local climatic changes such as local islands and smog in urban industrial areas. It has also resulted in the replacement of vegetation by heat absorbing and non-evaporating surfaces, intensive local energy release and a general interference in energy and hydrologic cycles. The release of chlorofluorocarbons and nitrogen oxides to the atmosphere has depleted stratospheric ozone layer, allowing the passage of harmful ultra violet rays to the earth surface. Atmospheric pollution has therefore created a hole in the ozone layer, the natural protective layer at the atmosphere space interface. And it is now feared that a tear rather than a hole has developed in this protective ozone layer (Olofin, 2000).

The generation of greenhouse gases such as carbon dioxide chlorofluorocarbons. sulphur. nitrogen oxide and carbon monoxide have created green house effect by allowing short solar waves to pass through to the earth's surface while restricting the passage of terrestrial long waves from escaping to space. This condition disrupts the global heat budget and balance, culminating in increased atmospheric temperatures causing global warming (Burton, 1989). Schmidt & Harbert (1994) estimate that in 1987 carbon dioxide (CO_2) accounted for about 50% of the atmospheric greenhouse gases and that 25% of carbon dioxide emission is from bush burning. Other sources include burning of fossil fuels, gas flaring and a number of other industrial activities.

The world's forests are fastly disappearing due to over exploitation. The rate at which the tropical and equatorial forests are harvested is frightening. It is estimated that the rainforests are disappearing at the rate of about 1 hectare per second (Pickering & Owen, 1994). It is in view of this that the United Nation Organization (UNO) observes that by the end of the year 2000 about 25% of the rainforests would be destroyed. The severity of soil erosion has led to rapid soil impoverishment in most parts of the world. UNF.P in 1984 reported that in the semi arid and sub-humid Africa, about 6900 million hectares including about 60% of the regions crop lands have lost between 25 and 100% of their productive capacity. Drought and its associated problem of famine are on the increase in most poor nations of the world and starvation has ravaged a large portion of the population in Africa.

Environmental Resource Management for Sustainable Development

The world economies are rapidly declining due to ignorance of the impact of the environment on the global economy. According to Adelabu & Kobiowo (1998), the wealth of a nation and wealth of its citizens depend largely on the effective management of resources within the environment. Effective environmental resource management is the solution to sustainable development, which is to direct investments, development, production and wealth towards meeting the need of the people and at the same time maintaining viable options for future generations.

Omofonmwan (1998) observes that sustainable development comprises four major entities.

1. It links economic development to environmental sustainability, which requires long term conservation measures aimed at enhancing the capacity of environmental resources for sustaining the present and future generations.
2. Sustainable development should be more concerned with long term than short-term

- development goals.
3. There should be firm understanding and plan of action with regards to population, distribution and consumption.
 4. It recognizes a growing interdependence and promotion of an integrated approach to environmental related problems.

Environmental management can be conceived as the control in the exploit and utilization of the nature endowed environmental resources in such a manner that affords opportunity for survival, development and resource replacement for benefit of present and future generations.

Ohenhen (1999) sees environmental management as care for nature, prevention of the exploitation of natural resources and the control of existing environmental problems. Environmental management does not refer to the preservation of natural resources but that there is the need for control in the use of resources in favour of the environment.

Addressing Issues Militating Against Sustainable Development

The main cause of stress on the environment is over-population of the human specie whose increase is creating additional environmental problems. Raising the overall quality of life and standard of living of the people in the developing nations can ameliorate the upsurge in population.

Poverty is one of the major causes of accelerated depletion of environmental resources and is an issue that is attracting global attention, especially as it relates with the environment. WCED posits that poverty must be eradicated and estimated that an annual national growth of 3.5 to 4.2 percent would be necessary to keep pace with global population. Most poverty alleviation programmes in the developing countries have not achieved the desired outcomes. The gap between developed nations and the under-developed must be bridged if international poverty is to be eradicated. Debt cancellation, free flow of goods from developing countries into international markets and the increase in financial aids should form the bases for poverty eradication in the developed nations. The less developed countries should improve the welfare of the poor by creating more job opportunities, provisions of loans and other basic necessities of life such as shelter, housing, water and social security schemes for the less privileged.

Global inequality in food production must be addressed much more effectively. The developed countries should increase funding on agriculture to improve the quality of the soil, water and vegetation. This would be beneficial in the long run to the farmers instead of providing subsidies for food production and will offset the remedial measures resulting from the degradation of land.

New sources of energy should be developed to reduce the stress on the environment such as rural electrification programs, which improves the lifestyle of those in poverty and has reduced their dependence on fuelwood. The introduction of alternative and renewable sources of energy instead of the conventional fossil fuels and fuelwood would help reduce pollution of the atmosphere and greenhouse effect.

Farming practice should be efficient but not to the detriment of the environment. The application of fertilizers should not pollute water resources or harm other aspects of the environment. Nations should work to reduce the agro-economic divide between developed and under-developed countries.

The assaults on forest resources for swidden agriculture have created landscapes, which apparently are completely divorced from the natural environment that proceeded. Lands cleared of vegetation almost immediately become unsuitable for any productive usage due to soil loss which results in shifting and deposition of materials, thus changing valley contours, extending the area subject to flooding and filling irrigation and drainage channels (Amanor, 1994). Aforestation programmes if embarked upon will reduce soil erosion and improve on the bio-diversity.

Conclusion

The environment is the interface on which all realms of life interact. Human interaction with the natural environment has resulted in depletion of resources on land, water and atmosphere leading to global environmental degradation.

Global concern about the environment gave rise to the earth summits of 1972 and 1992 and with the main goal of addressing environment issues and problems. The general consensus among world nations is that any meaningful developments must consider the environment that is the resource, base on which development relies. A sustainable development therefore means that, meeting the needs of the present generation should not compromise the ability of future generations to meet their own needs. Human beings are at the center of sustainable development. Present generations and those yet unborn are entitled to a healthy and productive life in harmony with nature. Practice! application of sustainable development must involve a greater environmental awareness of governments, individuals and private enterprises.

Environmental management is the care in the use of environmental resources in such a manner that affords opportunity for survival, development and resource replacement for benefit of present and future generations. This can best be achieved by addressing issues militating against sustainable development, such as poverty, overpopulation, deforestation, agriculture and fuel consumption.

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