



# **Environmental Degradation in the Natural Eco Zone of the Niger Delta: The Response of Environmental Adult Education**

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## **ABSTRACT**

The study focused on Environmental Degradation in the Natural Eco Zone of the Niger Delta: the Response of Environmental Adult Education. In Nigeria for instance, researchers have shown that the country is facing the problem of environmental degradation, both in the urban and rural areas (NEST). Frankly speaking problems with environmental degradation are often linked with process of development and therefore have effects on local, regional, as well as global levels. It is evident that Environmental adult education creates relationship between professionally trained people willing to assist direct or shed more light and guide other persons who cannot function in the desired direction due to circumstances beyond their control

**Keywords:** Environmental Degradation, Environmental Adult Education

## **INTRODUCTION**

It is very imperative to understand the true meaning of the term environment. Our environment is highly complex and involves so many components each having its own risk factor, understanding the environment therefore, requires knowledge of the global realms; atmosphere (air), hydrosphere (water), lithosphere (land) and biosphere(abiotic) which result as man's induced action in the environment. The term environment has been defined by many scholars in attempt to capture the exert meaning and the special interest of the scholars (PhilEze,2001).Environment according to Iso 14001, is "Surrounding in which an organization operates, including air,water, land,natural resources, flora and fauna, humans and interrelation". Getis and Getis (2005) defined environment as the "surrounding, the totality of things that in any way may affect an organism, including both physical and cultural conditions; a region characterized by a certain set of physical conditions". Many will say that environment is the sum total of our surrounding or the external conditions influencing the development of any organism. It is the living space, including the atmosphere, water, land, wastes, plants and animals (domestic and wild) and micro-organisms in the human habitat and endangered species. But, for the interest of this paper an environment can be seen as any physical, chemical, and biological presence of living and non-living things outside an individual species. The existence of man partly depends on his ability to meet his needs through the exploitation and exploration of his natural environment. These human activities impose a lot of stress on the environment. Recently, the intrusion of human activities into the environment has become increasingly apparent through the depletion of natural resource stocks and decreasing environmental quality (Akinwumiet *al.*, 2001; Tonukariet *al.*, 1995), i.e., environmental degradation.

The first global awareness of the issue of environmental degradation took place in 1972 when the United Nations organized a conference in Stockholm on the Human Environment.

One of the consequences of that conference is that the developing countries have come to realize that environmental problems are not the exclusive concern of the developed countries (Egunjobiet *al*, 1989). In Nigeria for instance, researchers have shown that the country is facing the problem of environmental degradation, both in the urban and rural areas (NEST). Frankly speaking problems with environmental degradation are often linked with process of development and therefore have effects on local, regional, as well as global levels. The impacts as a result of human activities have devastating consequences on the environment which are harmful on human beings, animals and plants and can be passed on from generation to generations. (Acho, 1998; Danish International Development Agency, 2000; Kjellstrom and Mercado, 2008). Environmental degradation is the deterioration of the environment through depletion of resources such as air, water, and soil, the destruction of ecosystems and the extinction of wildlife. (Wikipedia 2017). When the environment becomes less valuable or damaged, environmental degradation is said to occur. There are many forms of environmental degradation. When habitats are destroyed, biodiversity is lost, or natural resources are depleted, the environment is hurt. Environmental degradation can occur naturally, or through human processes (Anthropogenic). The largest areas of concern at present are the loss of rain forest, air pollution and smog, ozone depletion, and the destruction of the marine environment. Environmental degradation are mainly related to the impacts of human activities on natural resources.

Degradation of the environment is one of the essential subjects where our mother earth is dying because of its hazardous, irresponsible, unthinkable, and permanent cause in this present era. Mindless consumerism and the hunger for more economic development or growth started its dreadful effect on Mother Nature. In the present case, sustainable development becomes a meaningless word. It happens in several ways, such as the extinction of species, pollution of common assets, deforestation, and most rapidly by population growth.

Other causes include urbanization, increase in energy consumption, economic growth, and agriculture intensification. Therefore, we should understand the types, causes of environmental degradation and its harmful effects on our dynamic environment.

#### **Environmental Degradation**

There are many forms of environmental degradation, such as soil degradation, water degradation, atmospheric degradation, and pollutions.

#### **Land and Soil Degradation**

This results from the excessive use of nature. Soil quality is essential for microorganisms and all plants, but due to human interference, its quality is declining. Poor farming practices, excessive usage of fertilizers and pesticides are the leading cause of this degradation.

#### **Water Degradation**

Water is a crucial natural component for both animals and plants. So, we need to keep it pure and pollution-free. The discharge of fertilizers, industrial waste, and some compounds' biological activity are some of the deadly causes of water degradation.

#### **Atmospheric Degradation**

We need atmospheric gases for our survival. However, pollution or degradation of the atmosphere pushes the world into a dark future. The increasing number of automobiles, industries, and other electrical for mechanical components are the leading causes of atmosphere degradation. One of which includes the increased rate of greenhouse gases which results in global warming and ozone depletion like problems.

#### **Pollution**

Besides the above types, there are several other pollutants that are the critical cause of environmental degradation. The rise in radioactive wastes leads to nuclear contamination, nuclear pollution, Light pollution, and further noise pollution. Other elements like deforestation are also occurring for a degrading environment.

#### **Causes of Environmental Degradation**

Both natural calamities and human interventions are the reasons for environmental degradation. The major causes of environmental degradation is human (modern urbanization, industrialization, overpopulation growth, deforestation, etc.) and natural (flood, typhoons, droughts, rising temperatures, fires, etc.) cause. Environmental pollution refers to the degradation of the quality and quantity of natural

resources. Different kinds of human activities are the main reasons for environmental degradation. The automobile and industries increase the number of poisonous gases like SO<sub>x</sub>, NO<sub>x</sub>, CO, and smoke in the atmosphere. Unplanned urbanization and industrialization have caused water, air, soil, and sound pollution. Industrialization, urbanization, and sewage waste help to increase pollution of the sources of water (Olorodeet *al.*, 2015). Similarly, the smoke emitted by vehicles and industries like Chlorofluorocarbon, nitrogen oxide, carbon monoxide, and other dust particles pollutes the air. Since man began to use tools and gradually formed a society, he began to play an important role in the evolution of the natural environment shown in Figure 1.

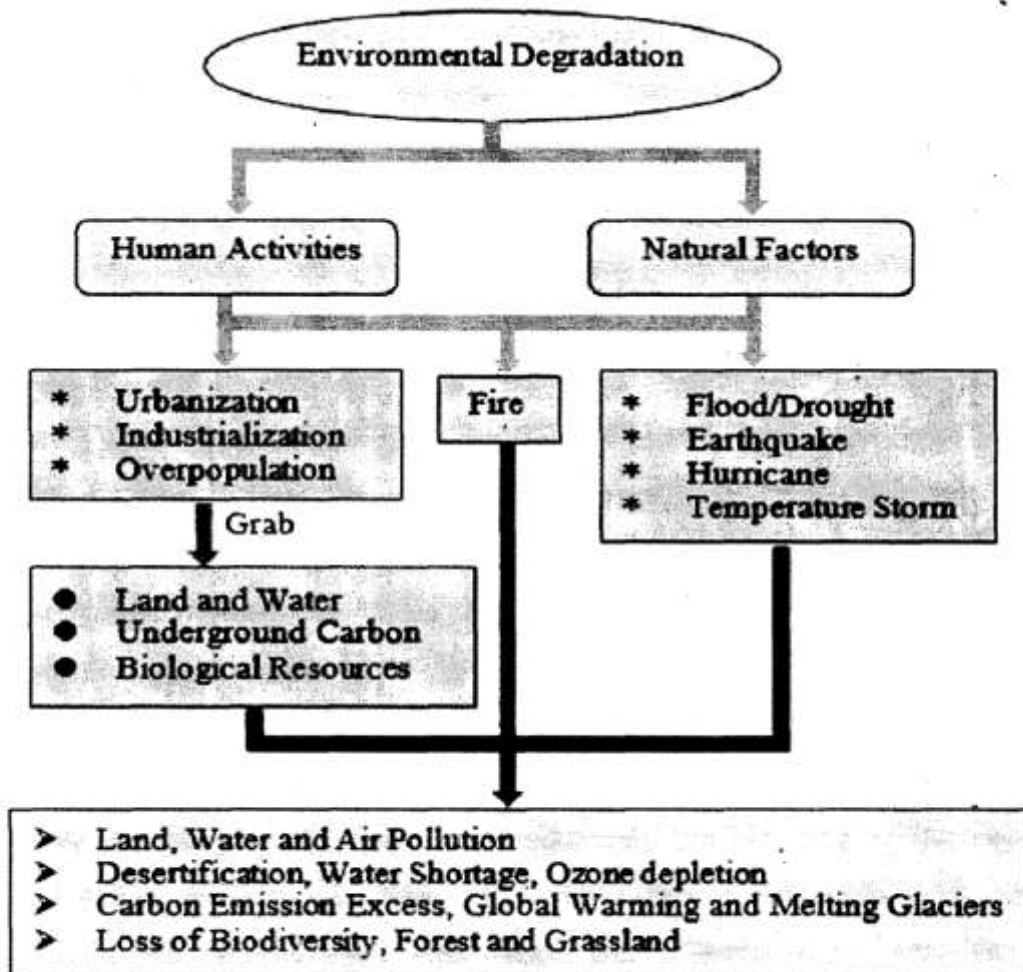


Figure 1. Different causes of environmental degradation

### Anthropogenic Causes

The environment is degrading, mostly because of anthropogenic reasons, rather than natural disasters. There are many causes for which the environment is deteriorating by human activities, like land disturbance/degradation, deforestation, landfill, urbanization, industrialization, increased energy use, population growth, mining, etc. Therefore, we need to be concerned about our activities that lead to an unstable ecosystem.

### **Land Disturbance/Degradation**

We can define land disturbance as the human-made physical change of the land, leading to soil erosion, loss of topsoil, and increased sedimentation caused by vegetation. Such activities are not limited to clearing or removing vegetation striping, but also excavating, filling, and storing materials, e.g., mining. Land degradation is a worldwide problem: land degradation may occur naturally as well as manmade activities. The climate change majorly combined with human activities for continuous soil degradation. Vanacker *et al.*, (2014), Maurya and Malik (2016a), noted that surface soil disturbances can modify surface topographical features and the vegetation patch structure (Mohr *et al.*, 2013; Malik and Maurya, 2015). The deforestation, desalination, waterlogging desertification, wasteland and soil erosion. FAO estimated that about 2 billion people (or 3/4 of the population of developing countries at that time) depended on biomass for their daily energy consumption (Kumar *et al.*, 2020).

### **Pollution**

Air pollution refers to the release of harmful contaminants (chemicals, toxic gases, particulates, biological molecules, etc.) into the earth's atmosphere. These contaminants are quite detrimental, and in some cases, pose serious health issues. Water pollution is said to occur when toxic pollutants and particulate matter are introduced into water bodies such as lakes, rivers, and seas. These contaminants are generally introduced by human activities like improper sewage treatment and oil spills. Pollution is a very serious worldwide problem, pollution resulted in the deterioration of the quality of natural biotic and abiotic factors (Rahman *et al.*, 2017; Cheng *et al.*, 2016). Water pollution is a very big problem especially in developing countries in the world. The water covered about 71% of the total earth's surface and groundwater. The groundwater scarcity is especially in the developing countries of the worldwide (Karikari and Ansa, 2006). Water is one of the more demandable of all urban and rural amenities and indispensable for human activities including water for drinking and irrigation, recreational opportunities and habitat for economically important fisheries. Pollution poses a serious risk to life, especially when the water is a source of drinking and for domestic purposes for humans, polluted waters are potent agents of diseases such as cholera, typhoid, and tuberculosis. Olaniran (1995) defined water pollution to be the presence of excessive amounts of a hazard (pollutants) in water in such a way that it is no longer suitable for drinking, bathing, cooking or other uses. Pollution is the introduction of contamination into the environment. Water pollution is generally induced by humans. It results from the actions of humans carried on to a better self. These could be treated under the various activities that man engages in, which leads to pollution. The growth of the human population, industrial and agricultural practices is the major cause of pollution (Maurya and Malik, 2016a). As they respire, the decomposers use up dissolved oxygen (O<sub>2</sub>) and the Biological Oxygen Demand (BOD) reduces. The flora and fauna of the rivers experience change and reduction in number due to death by suffocation (Maurya and Malik, 2016b; Maurya *et al.*, 2019). The growing problem of pollution of the river ecosystem has necessitated the monitoring of water quality. Freshwater is a finite resource, essential for agriculture, industry and even human existence, without freshwater of adequate quantity and quality, sustainable development will not be possible. Industry and automobiles are the primary and secondary contributors to air pollution worldwide (Kay, 1999); the automobiles are used every gallon of gasoline manufactured, distributed and then burned in a vehicle, produced along with carbon dioxide, carbon monoxides, sulfur dioxide, nitrogen dioxide, and particulate matter; these emissions contribute to increased global warming (Alexander and Kanner, 1995; Mark, 2000).

The environmental protection agency (EPA) estimates that industrial workers suffer up to 300,000 pesticide-related acute illnesses and injuries per year, mostly cholinergic symptoms from anticholinesterases and lung disease from airborne exposure (Hansen and Donohoe, 2002; Mellon *et al.*, 1995). These are toxic, remain in the environment long-term, resist degradation, and can travel long distances.

### **Global warming**

Global warming which is also referred to as climate change is the observed rise in the average temperature of the Earth's climate system the global surface temperature is likely to rise a further 0.3 to 1.7 °C in the lowest emissions scenario, and 2.6 to 4.8 °C in the highest emissions scenario. These readings have been recorded by the "national science academies of the major industrialized nations". Future climate change and impacts will differ from region to region. Expected effects include an

increase in global temperatures, rising sea levels, deforestation, imbalance climatic condition, changing precipitation, and expansion of deserts (Cunningham et al., 1999). Global warming has several adverse effects on human health, and agricultural production. It leads to an increase in heat-related diseases, civil conflict, decreases economic sources. Besides, it also indirectly affects human health due to the higher incidence of malaria, dengue, yellow fever and viral encephalitis caused by the expansion of mosquitoes and other disease carriers to warm areas. The adverse effect on agricultural production is due to the increased frequency of droughts, floods and hurricanes and increased incidence of pests, causing a shortage of food (Maurya et al., 2020).

### **Overpopulation**

It is very likely that population growth as a missing scientific agenda accounts in part for the reduced public knowledge and interest in this issue. The extent of environmental degradation varies across countries and regions of the world. Rapid population growth puts a strain on natural resources which results in degradation of our environment. The mortality rate has gone down due to better medical facilities which have resulted in increased lifespan. More population simply means more demand for food, clothes, and shelter. You need more space to grow food and provide homes to millions of people. This results in deforestation loss of biodiversity, destruction of the ecosystem which is another factor of environmental degradation (Maurya et al., 2020).

### **Landfills**

Landfills pollute the environment and destroy the beauty of the city. Landfills come within the city due to the large amount of waste that gets generated by households, industries, factories, and hospitals. Landfills pose a great risk to the health of the environment and the people who live there. Landfills produce a foul smell when burned and cause huge environmental degradation (Maurya et al., 2020).

### **Deforestation**

Trees are the storage house for CO<sub>2</sub>, as required in the process of photosynthesis for food preparation. Thus, these autotrophs capture atmospheric CO<sub>2</sub> and provide us with oxygen without which we cannot survive for a minute. Thus, deforestation includes the major causes of environmental degradation. Forest is the only source of an enormous amount of oxygen. Deforestation is the cutting down of trees to fulfill a human need. The rapid growth of industrialization, population, and urbanization are the leading cause of deforestation.

Apart from this, animal grazing and making infrastructure can also be the causes of deforestation. By taking the Amazon forest as an example, we can see that every second one-half an acre of forest land would be free from trees for fulfilling humans' greed. Almost 40% of the forest loss happens in the tropical region than in the temperate zone.

Forests are invaluable property of a nation because they provide raw materials to modern industries, timber for building purposes, habitats for numerous types of animals and microorganisms. Good fertile and nutrient-rich soils having a high content of organic matter offer protection to soils by binding the soils through the network of their roots and by protecting the soils from the direct impact of falling raindrops. They encourage and increase the infiltration of rainwater and thus allow maximum recharge of groundwater resources, minimize surface run-off and hence reduce the frequency, intensity, and dimension of floods. Deforestation is the cutting down of trees to make way for more homes and industries. Rapid growth in population and urban sprawl are two of the major causes of deforestation. Apart from that, the use of forest land for agriculture, animal grazing, harvests for fuelwood and logging are some of the other causes of deforestation. Deforestation contributes to global warming as decreased forest size puts carbon back into the environment (Maurya et al., 2020). Deforestation gives birth to several problems encompassing environmental degradation through accelerated rate of soil erosion, increase in the sediment load of the rivers, siltation or reservoirs and river beds, increase in the frequency and dimension of floods and droughts, changes in the pattern of distribution of precipitation, intensification of greenhouse effects increase in the destructive force of the atmospheric storms, etc.

### **Industrialization**

After the 19th century of the industrial revolution, the need for land and infrastructure rapidly increased. This leads to deforestation, water pollution, air pollution, soil pollution, etc. Hence, it is one of the main causes of environmental degradation.

### **Natural causes**

Ecological degradation is mainly caused by human activities. However, the fact is that the environment also continually changes over time naturally. Constant Alteration is also a massive challenge for adaptation. Things like landslides, earthquakes, tsunamis, hurricanes are the reasons for the unstable ecosystem. These things either come under physical destruction like natural disasters or by the long-term degradation process. Natural disasters such as hurricanes, typhoons, and cyclones can cause significant damage to different parts of the environment. Things like avalanches, quakes, tidal waves, storms, and fires can totally crush nearby animal and plant groups to the point where they can no longer survive in those areas. This can either come to fruition through physical demolition as the result of a specific disaster or by the long-term degradation of assets by the presentation of an obtrusive foreign species to the environment. The latter frequently happens after tidal waves, when reptiles and bugs are washed ashore, of course, humans aren't totally to blame for this whole thing. Earth itself causes ecological issues, as well. While environmental degradation is most normally connected with the things that people do, the truth of the matter is that the environment is always changing. With or without the effect of human exercises, a few biological systems degrade to the point where they can't help the life that is supposed to live there (Maurya *et al.*, 2020).

### **The economic logic**

Environmental change is one of the myriads of pressures or demands made upon state resources and attention. Many of the responses to environmental stress that occur involve uncoordinated human responses greatly affected by markets. Accordingly, producers and consumers respond to changes in prices, relative incomes, and external constraints. But frequently market 'signals' do not reflect social values, as in the case of intergenerational equity, for example, or the deleterious effects of environmental degradation are not internalized in market prices and remain as 'externalities'. As a result, states often choose to intervene with collective actions aimed at managing environmental change and reducing the associated adverse social and economic effects (Maurya *et al.*, 2020).

## **Effect of Environmental Degradation**

### **Impact on human health**

Human health might be at the receiving end as a result of environmental degradation. Areas exposed to toxic air pollutants can cause respiratory problems like pneumonia and asthma. Millions of people are known to have died off due to the indirect effects of air pollution (Adakole & Oladimeji, 2006).

### **Loss of biodiversity**

Biodiversity is important for maintaining the balance of the ecosystem in the form of combating pollution, restoring nutrients, protecting water sources and stabilizing climate. Deforestation, global warming, overpopulation, and pollution are a few of the major causes of loss of biodiversity. Biodiversity is the principal balance of the ecosystem in combating pollution, restoring nutrients, protecting water sources, and stabilizing climate. Now the world is facing a speed-up rate of species extinction, primarily for human interference. Human activities like deforestation, which is the leading cause of habitat loss for many organisms, indiscriminate agriculture practice, also be a reason for land fragmentation, and overexploitation caused the extinction of thousands of species. Climate change results in global warming, also responsible for the extinction of species. Besides, population growth, pollution, and research and development also affect biodiversity significantly.

### **Ozone layer depletion**

The ozone layer is responsible for protecting the earth from harmful ultraviolet rays. The presence of chlorofluorocarbons, hydro-chlorofluorocarbons in the atmosphere is causing the ozone layer to deplete. As it will deplete, it will emit harmful radiation back to the earth (Buhaug *et al.*, 2010). Ozone is a membrane present in the stratosphere of the atmosphere, which prevents UV radiation from entering the earth. Moreover, the increased rate of environmental degradation is caused by ozone depletion. A hole in the ozone layer due to increased greenhouse gases makes the UV light quickly enter the earth. The anthropogenic activities lead to the increment of greenhouse gases like CO<sub>2</sub>, CFC, CH<sub>4</sub>, N<sub>2</sub>O, and other ozone-depleting substances (ODS). Ozone plays a crucial role in absorbing 97-99% of incoming UV-B radiation. The consumption of ODS quality is high in China, which means it has a sizeable depleting potential. Because of the degradation of the environment, the ozone- depleting potential of CFC and

HCFCs increases, which may be a significant cause for breaking the rule. Vienna Convention (1985) and Montreal Protocol (1987) are two international efforts for reducing ozone depletion.

#### **Loss of Ecotourism**

The deterioration of the environment can be a huge setback for the tourism industry that relies on tourists for their daily livelihood. Environmental damage in the form of loss of green cover, loss of biodiversity, huge landfills, increased air, and water pollution can be a big turn off for most of the tourists (Maurya *et al.*, 2020). The environment and ecological features are beautiful enough to attract tourists towards it. Natural disasters, the greenhouse effect, deforestation, and increased endangered species are the causes of loss of tourism and affect the economy to a large extent. The pollution on the beach and the gradual accumulation of wastes also causes distractions. A report said that the tourism sector loses 50% of its income from tourists. Many people are also losing their livelihood for this.

#### **Scarcity of Resources**

We should manage, use, and reallocate our resources wisely and carefully. That means resources need to be sustainably used. Environmental degradation leads to scarcity of our critical resources like water, fertile land, pure air, medicinal plants, genetic resources, etc. It also leaves a footprint by causing natural calamity as both are reciprocal to each other. For example, in India, some states found lessening of natural assets (because of earthling cables) like water and food. Therefore, the insufficiency of resources is one of the significant consequences of environmental degradation.

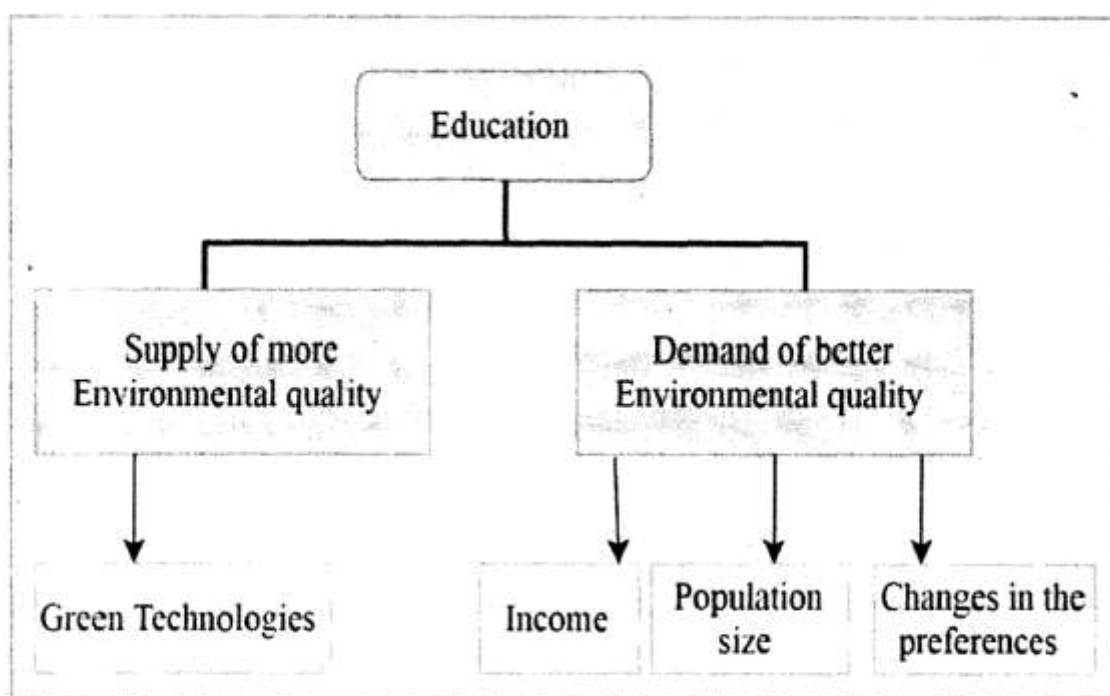
#### **Economic Effect**

The huge cost that a country may have to borne due to environmental degradation can have a big economic impact in terms of restoration of green cover, cleaning up of landfills and protection of endangered species. The economic impact can also be in terms of the loss of the tourism industry. As you can see, there are a lot of things that can have an effect on the environment. If we are not careful, we can contribute to the environmental degradation that is occurring all around the world. We can, however, take action to stop it and take care of the world that we live in by providing environmental education to the people which will help them pick familiarity with their surroundings that will enable to take care of environmental concerns thus making it more useful and protected for our children and other future generations (Maurya *et al.*, 2020).

#### **The Response of Environmental Adult Education**

Environmental adult education as a professional field of inquiry geared towards assisting individuals and communities to realize their strengths and weakness in order to function effectively in our dynamic environment. It has a number of services meant to facilitate human development. Environmental adult education creates relationship between professionally trained person willing to assist, direct or shed more light and guide other persons who cannot function in the desired direction due to circumstances beyond their control. Environmental adult education render service within the guidance of environmental principle of conservation of natural resources and equitable distribution of such resources within the confined of our environmental for sustainable use meant to ensure success of individuals in various settings but also an important segment in positioning individuals to attain various successes in life pattern and his environment. Through the use of environmental techniques, Environmental Adult Education can effectively work to assist individual to identify several ways of maintaining and improving the environment for sustainable development of the eco system in our natural eco zones.

Education is an essential tool for environmental protection. Environmental Adult Education enhances one's ability to receive, decode and understand information, and that information processing and interpretation have an impact on learning and change behaviors. In recent years, environmental adult education has been considered a vehicle for sustainable development and thus for the fight against pollution. Environmental Adult Education is "a permanent learning process that contributes to the training of citizens whose goal is the acquisition of knowledge, soft skills, and know-how and good manners. The positive effect of education on environmental quality can be channeled in three ways. Firstly, educated people tend to be more conscious of environmental problems and therefore would have behaviors and lifestyles in favor of environmental improvement and demand for environmentally friendly products and decreases the population growth, see Figure 2.



**Figure 2.** *Impact of education on environmental quality.*

## CONCLUSION

Environmental degradation linked with climate change scenario, which cause extreme weather /degradation is still occurring with its frequency and magnitude. This and other environmental challenges are real and they are happening in Nigerian Niger Delta and in the globe. So Nigeria, African nations and the world are exposed to ever growing risk of environmental degradation that threaten the society and man's existence. The reality is that disasters are recurring and the fear is that they are likely to happen again and again on human beings in the society. There is need to avoid unsustainable production and consumption and to ensure sustainable society and environmental responsibility. Several initiatives, reforms of environmental friendly strategies by international conferences, treaty commissions and conventions have provided EAE strategies and principles that will guarantee sustainable development. The guidelines on sustainable strategies have facilitated and motivated local, regional and global environmental stakeholders to imbibe and be committed to sustainable society and environmental protection and conservation.

The answer necessitates continuous renewal, reform and repositioning EAE, be it permanent or continuing to disseminate regularly information on current environmental strategies in the management of environmental degradations, disasters and climate change effects. There is need for national governments, states, NGOs etc to disseminate information on current and updated local, regional and global best environmental protection practices or strategies.

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