GLOBAL IMPACT OF ENVIRONMENTAL SUSTAINABILITY ON DEFORESTATION

Elegbeleye Oladipo

Cyprus International University, Lefkosia via Mersin 10, Turkey

elegbeleyedipo@yahoo.com

Department of Environmental Science

Abstract— Deforestation in several countries has led to the crumbling and disintegration of forest with high effects of vulnerability on forest habitat, vegetation structures and extinction of wild life. Unfortunately deforestation affects the sustainability of the environment on a global scale with more detrimental effects on developing countries. Consequences of deforestation include global warming, flooding, climate change, water and air pollution. Removal of trees without proper replacement with new ones threatens human live which can lead to poverty. Findings reveal that at least 70% of the developing world lives below poverty line. This paper talks about deforestation on a global scale, how it affects human life, its benefits and how we should join hands with the relevant authorities to stop the damages done to the environment by cutting down trees.

Index Terms— Deforestation, Global Warming, Economic Sustainability, Planting of Trees

1 INTRODUCTION

Deforestation can be defined as the process of general disruption of a forest ecosystem that occurs when trees are cut on a large scale. It also refers to any process that alters an original tree covers, which includes felling of all trees on a site, thinning a forest and setting bush on fire. Trees are cut down by people for various reasons, examples include trees being cut down and used or sold as fuel in the form of charcoal and sometimes it can be used as pastures for livestock , building of houses and settlements etc. The removal of trees without adequate planting or reforestation can result to loss of biodiversity, habitat and aridity. Removal of trees can also be used in war to rob enemy of cover for its forces and vital resources

Deforestation is a severe crisis that continually threatens many of the earth's delicate ecosystems. Although its effects are well known and have been documented on various occasions, deforestation is an environmental threat that remains although scientists and researchers around the world have given several warnings to this effect

1.1 CAUSES OF DEFORESTATION.

The disruption of a forest ecosystem can be caused by various reasons; one of the major

reasons is corruption at the government institutions whereby wealth and power are used in harvesting of the riches of the forest.

1.2 ILLEGAL LOGGING:

Many government agencies are waging war against illegal logging to protect the forests. Never the less, any form of logging legal or illegal results in deforestation. Forests are degraded indiscriminately and randomly by logging companies, to meet the demands of the wood market. This does not give a chance to the local wildlife and trees to regenerate and sustain themselves. Thus, leading to loss of wildlife.

2 LITERATURE REVIEW

Deforestation can be defined as the process of general disruption of a forest ecosystem that occurs when trees are cut on a large scale. It is a major concern for the developing countries in the tropics (Myers, 1994) because of the shrinking region of the tropical forests (Barraclough and Ghimire, 2000) which results into loss of biodiversity, habitat and enhances the greenhouse effect (Angelsen et al., 1999). FAO considers growing of trees established majorly for timber making into forest and does not classify or categorize natural forest conversion to plantation as deforestation (however it is being recorded as a loss of natural forests). Never the less, FAO does not regard tree plantations that offer non-timber products to be forest although rubber plantations is being classified as forest. Forest ruin happens when the ecosystem roles of the forest are degraded but the area remains forested (Anon., 2010). 30% of the earth's land area or about 3.9 billion hectares is sheltered by forests. It was assessed that the original forest shelter was approximately six billion hectares (Bryant et al., 1997). The Russian Federation, Brazil, Canada, the United States of America and China were generally known as the most forest rich countries bringing them to 53% of the entire forest region of the world. Another 64 countries having a joint population of 2billion was said to have forest on less than 10% of their total land area and sadly10 of these countries have no forest at all. Among these countries sixteen have relatively substantial forest areas of more than 1 million hectares each and 3 of these countries namely Chad, the Islamic Republic of Iran and Mongolia each have more than 10million hectares of forest. The forest area is quite stable in North and Central America even as its extended in Europe in the past decade. Asian continent particularly in India and China due to their wide scale afforestation programme in the last decade registered a net gain in forest area.

However the South America, Africa and Oceania had registered the net annual loss of forest area (Anon., 2010; 2011a).

2.1 DEFORESTATION IN NIGERIA

As stated by the international institute of Tropical Agriculture (IITA) (2011), Nigeria is ranked as one of the worst country with the highest rate of deforestation. Deforestation rate in Nigeria is set at 3.5% and 400,000 hectares yearly according to the Federal Ministry of Environments, meaning at least 400 out of every 1,000 of forestland are deforested yearly and only 26 hectares of these lands are reforested thus leaving about 374 hectares of land deforested (Babalola,2012). Throughout the course of the deforestation, forests and woodlands are permanently and totally destroyed (Institute for Environment and Sustainability-Global deforestation). The situation can be reversed with the right attitude to nature treatment. Over 90% of Nigeria's forest has been lost to deforestation (Peacock 2011). He then added that the huge demolition of the forest calls for intervention by the younger generation that is coming up. In terms of the loss of major forests which is also known as old- growth forest, Nigeria still has the highest deforestation rate ion the globe (FAO, 2005). Nigeria lost 55.7% of her major forests. According to (FAO), about 6million hectares of the world major forest is still lost per annum. This is very vital because major forests are taken as the most biologically diverse ecosystem on the planet.

It was further stated that major forests are being replaced by less bio-diverse plantations and secondary forests. Deforestation is to be expected when about 90% of a population depends on wood as fuel for heating and cooking. Poor agricultural practices such as slashing and burning also add to deforestation (Terminski 2012). Research shows that about 60% of Nigerians make use of firewood for cooking because of the high rise in the cost of kerosene (Akinbami 2003). At times sadly some persons ignorantly set fire on forests contributing primarily to deforestation. According to FAO, developing countries from the tropics suffer most from deforestation between 2000 and 2005 which shows us that there's a link between poverty and deforestation. We can therefore say that poverty caused by human activities are the main causes of deforestation in Nigeria (Terminski 2012).

Corruption is also another serious issue in Nigeria which contributes massively to illegal logging by companies and forest officials (Global witness 2013). As stated by Goncalves, Panjer,

Greenberg & Magrath (2012), an area of forest about the size of a foot ball field is clear-cut by illegal loggers every two seconds. Illegal trading in timber and its products lead to great economic losses and environmental damages (Transparency international 2011).

2.2 BRAZILLIAN AMAZON

In the past 3 decades, the use of land in the Brazilian Amazon has been branded by severe abuse of natural resources which has resulted in habitats altered by human without any actual enhancement in the quality of life and revenue distribution for the local populace. About 17 percent of the Amazon forest, or 60 million hectares – an area equivalent to France – has been converted and turned to other land uses in the past 30 years (INPE, 2008). Most of this area has been changed into low-productivity pastures. These changes were the outcome of former strong governmental incentives for forest transformation and population movement to the region, characterizing a growth pattern at that time where forests were seen as a form of obstacle for economic development. The trees in the Amazon forests have about 60 to 80 billion tonnes of carbon, more than the global emission caused by humans in a decade. Deforestation in the Brazilian Amazon alone emits about 200 million tonnes of carbon yearly, accounting for about 3 percent of global net carbon emissions and 70% of national discharge (Houghton, 2005). About 1.5 million hectares annually are harvested for timber (Asner *et al.*, 2005), often using unsustainable and weak practices that increase forest ruin which is linked to biodiversity loss. Almost one-third of the Amazon forest has been ruined by the use of unsustainable and weak practices. Furthermore, the summed end product of deforestation, poor harvesting and slash-and-burn agricultural practices which puts millions of hectares of forests at high risk. In El Niño years, forests are even more prone to fire because long periods of dearth and famine make forests drier and ends up in gathering of dead leaves (fuel)on the ground (Nepstad *et al.*, 2004).Forest misuse and conversion have not brought true growth and employment opportunities including better revenue distribution for local residents or benefits to the area. Currently, about 45% of the population of the Brazilian Amazon has revenue below the poverty line.

This paper focuses on deforestation as an increasing threat on a global scale it also discusses issues on environmental sustainability global warming health implications as well as how abuses, exploitations and damages to the

environment can be controlled or averted

3 Global Warming As Related To Deforestatation

Global warming includes anthropogenically made climatic and ecological issues which includes clear climatic temperature shifts and precipitation management. in some area, this can be seen in sea level rise, stratospheric ozone depletion, atmospheric effluence and forest degradation. Tropical forests are shrinking at an alarming rate of about 5% per decade as forests are cleared to provide local, national and world marketers for wood products, bio-fuels and agricultural turnouts(Anon., 2007; 2010). One of the key consequences of deforestation is its impact on the global atmosphere. Deforestation adds to global warming which happens from accumulated atmospheric concentration of greenhouse gases (GHG) resulting in a raise in the global mean temperature as the forests are the main terrestrial sink of carbon. As a result, deforestation can disrupt the global carbon cycle raising the concentration of atmospheric carbon dioxide. Tropical deforestation is said to be responsible for the discharge of roughly two billion tonnes of carbon (as CO2) to the atmosphere annually (Houghton, 2005). Emission of the carbon dioxide because of global deforestation is the same as an estimated 25% of discharge from combustion of fossil fuels (Asdrasko, 1990).

3.1 Health Problems Associated With Global Warming

Health issues related with global warming include famine, floods and storms etc and this problems are capable of threatening human survival. Harvard Medical School doctors credited recent outbreak of malaria and dengue fever in the West to climate change in connection with global warming. Incidence of kidney stones and other health problems are on the high rise with increased threat to human existence (Health Effects of Global Warming, 2009). Other possible health problems linked with global warming include heat stroke, climate stress on agriculture, malnutrition, increase in the amount of malaria-carrying mosquitoes which puts about 65% of the global population on the risk of having malarial infection (Health Effects of Global Warming, 2009). High temperatures which is also linked with global warming raises the ozone concentration at the lowest level there by making it a harmful and dangerous substance capable of deteriorating existing case of asthma and also cause damage to the lung tissues. It should be noted, however that ozone layer at its

normal position in the upper atmosphere protect the earth from the harmful effects of ultra violet radiations (Health Effects of Global Warming, 2009).

3.2 Benefits Of Deforestation

Deforestation have several benefits and one of the primary and the most obvious of this benefits are

3.2.1 It Gives Room To Expand

The major reason that trees in the forest are being cut down is to create room for expansion whereby things like economic stimulating businesses can be built with improvement in road systems

3.2.2 Agriculture

Rain forest deforestation occurs mainly because of farming. Rooms is giving to impoverished and local farmers to provide for their families. For every land cleared of trees through deforestation land becomes available for farming by planting crops, raising live stocks etc. Deforestation also allow farmers to practice commercial and subsistence farming as well

3.2.3 Planting Of Trees

Planting of trees play a very important role in the absorption of excess ground water. They suck up the extra moisture up through their roots and give it back into the atmosphere. This plant life help to regulate and control the excess water from rain when the soil become waterlogged. Planting of trees will play essential role in flooding of the area, as well as surrounding areas.

3.2.4 Revenue

Deforestation provides a strong source of income for governments to stimulate economy especially in countries that are developing.

3.2.5 Urban Construction

The felling of trees for lumber helps in building, and making use of paper products which have major impacts on forest life. Forests are sometimes cleared to contain expanding urban areas which can result to massive deforestation.

3.2.6 Grazing Land

Trees are cut down in order to create land for grazing cattle in which they require enormous amount of food to survive. Forests are sometimes cleared out to make way for this grazing cattle.

3.2.7 Fuel

Deforestation occur in developing countries and they used as firewood or turned into charcoal, which can be used for heating and cooking purposes.

3.2.8 LUMBER AND PAPER PRODUCTS

Human beings will not be able to carry out basic daily tasks without the use wooden amenities for example every home contains some type of wooden fixtures be it chairs, tables, fittings in the kitchen and rooms etc human life depends mostly on lumber gotten from deforestation therefore for everyday life wood is needed.

3.2.9 EMPLOYMENT

Deforestation provides employment in that trees that are cut down will be cleared by some people this also extends to those who process trees into paper and those who make raw lumber to make wood by products. Therefore, if deforestation cease to exist unemployment will become a major issue

Looking at deforestation closely, it tell us that it is one means of advancement. However, we should be able to attain a balance between reforestation and deforestation. If this can be attained, we are assured that everything will be alright.

4 DEFORESTATION AND ECONOMIC SUSTAINABILITY

Deforestation is a universal crisis which threatens environmental sustainability and is capable of making human life unbearable. It has been observed by Researchers that the lands

which go through the process of deforestation lose their fertility gradually and they are not capable of carrying on agricultural activities. The moment the trees gets logged off, the subjected land loses its arability and efficiency. Deforestation can cause the dislocation of local indigenous communities whereby government neglect local and indigenous society and thus settle down the civilized and enlightened societies only. Deforestation can also cause what we call a domino effect to the global world, and this includes loss of biodiversity, extinction of the indigenous people, and global climate change. The loss of plant and animal life can lead to poverty and also result to partial human life loss. Negative aspect of deforestation should be put to mind so that you might have a good knowledge and better comprehension of what deforestation entails.

4.1 Deforestation and Intervention Measures

Firstly, to reduce deforestation, there must be an improvement in the welfare of cultivators at the forest frontier. There is no general or any universal approach since these differ with region and changes with time. However all approach require co-operation, goodwill and teamwork. Effective implementation, performance and execution is vital including stakeholder contributions, development of management plans, including monitoring and close observation. The approach should be one in which the critical roles of national, state and municipal governments will be recognized and at the same time empower the general public and the private sector to take a positive step in reducing deforestation.

4.2 Reducing Emissions From Deforestation and Forest Degradation

International organizations including the United Nations and the World Bank have started to develop programs to limit and reduce deforestation primarily through Reducing Emissions from Deforestation and Forest Degradation (REDD). Most of the time direct and straight monetary or other incentives are used to motivate developing countries to reduce deforestation as much as possible. Considerable work is underway on tools for use in monitoring and observing developing country with strict adherence to their agreed REDDS targets (Chomitz et al., 2007).

4.3 Reduce population growth and increase per capita incomes

Reducing population growths in developing countries will grossly the rate of deforestation. Consequently, reduced population will give rise to increase in per capita income which will also cause increase in revenue and literacy rates. This however will reduce pressure on the forests for human settlement and land use.

4.4 INCREASE THE PERCEIVED AND ACTUAL VALUE OF FORESTS

There are many ways of accomplishing and increasing the actual value of forests. Governments can enforce realistic prices on stumpage and forest rent and can work on improving or making better the sustainable productivity and efficiency of the forest. National and international recipients of the environmental services of forests have to pay for such services to increase the value (Chomitz et al., 2007). Success has been recorded in devising schemes to collect payments for environmental services like biodiversity conservation, catchment protection and ecotourism. This success can further be realized by joining forces with the management in these collection schemes to make sure rights and equity in resource, which in turn is a benefit for improving the livelihood of the rural indigenes who actually are the major stakeholders of conservation and management.

4.5PROMOTE SUSTAINABLE MANAGEMENT

For sustainable forest management, there must be sustainability socially, ecologically and economically. Achieving ecological sustainability signifies that the ecological values of the forest must not be tarnished and if possible there should be a significant improvement on the part of the management. This means that management should ensure that there is no soil erosion and soil fertility should not be lost, water quality on and off site should be maintained and preserved. Likewise forest health and strength should be protected. However, management for environmental services on their own are not economically and socially sustainable. This is because developing nations have not attained a stage of development and affluence that they can hold the costs of doing so. Alternatively, the developed nations must be ready to meet all the costs (Chomitz et al., 2007; Anon., 2010; 2011).

4.6 INCREASE INVESTMENT IN RESEARCH, POLICY, AND REGULATORY MEASURES

Training and education of stakeholder's make people understand and value how to reduce and avoid unpleasant environmental effects related with deforestation and forestry activities and

take appropriate action when necessary. Research helps in understanding the problem, its cause and mitigation better. However, this area is falling behind for lack of funds and investment. Unfortunately, knowledge and information on forests and forestry is lacking among the civil and local indigenes. Forest managers and those developing forest policies should to be educated and see the need to value the complexity of the interacting ecological, political, economical, cultural and social factor involved. Several policy statements, regulatory and legislative measures have been created to protect and keep forests but they are not effectively enforced. New modifications are needed on site for specific conditions. Laws, policy and legislation should be such that they motivate local indigenes and institutional participation in forestry management and conservation. Protecting indigenous people's traditional rights should also be put into consideration. Various formal and informal enforcement methods are used to prevent deforestation and environmental problems from forestry activities. These approaches include negotiation, warnings, fines, court action, arrests and notices of violation.

5 Conclusion

Economic globalization coupled with the impending universal land scarcity increases the difficulty of impending pathways of land use. Although human beings cannot survive or live outside his immediate environment, his actions are rapidly speeding up the damage of the environment. In a more organized world, agricultural growth causes more cropland expansion and development where by trade-offs amongst forest and agriculture can be reduced through spatial management and the use of low competition of lands (Lambin and Meyfroidt, 2011). Community based forest management can be further addressed by building on political benevolence and strong community establishments. Challenges from climate change needs urgent and quick action to explore, discover and keep the significance of forests for livelihood and survival. This is actually true in the light of emerging events assumed as part of REDD+ activities where forest governance are aligned and taken care of.

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ABOUT THE AUTHOR

Elegbeleye Oladipo Ayodamope ,is currently a PHD student of Evironmental Science in Cyprus International University, Lefkosa, via Mersin 10, Turkey. His research interests is Advance oxidation processing.

E-mail:elegbeleyedipo@yahoo.com