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# Environmental Degradation and Poverty Nexus: A Literature Summary

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**Abstract**
Environmental degradation and poverty are considered to be caused by population growth. The purpose of this paper was to analyze the downward spiral hypothesis in the context of environmental degradation, and poverty. The danger of the Downward Spiral Hypothesis is that it may often lead to policies that either reduce poverty at the expense of the environment or protect the environment at the expense of poor people. In this paper I attempt to analyze the relationship between poverty and the degradation of the natural environmental resources.
**Keywords:** Degradation, Environment, Deforestation, Poverty, Population

## INTRODUCTION

The average human being has always interacted with natural environment for his subsistence by way of extraction, processing and consumption of natural resources to prosper and meet his economic needs (Ahmad, 2012). Poverty has increased dramatically in the last twenty years and is often associated with environmental degradation. The estimation that nearly half the world's poor live in environments that are highly degraded has led many observers to advocate that there is a causal link between poverty and environmental degradation (OECD, 2001).

Ahmad (2012) cited in Sharma 2004, as arguing that the realization of relationship between man and environment is the dictum that poverty leads to environmental degradation. His explanation of the above claim is based on the grounds that poor people directly depends on the environment, involve in over exploitation of natural resources for their sustenance because this is the only preferred resource available and known to them. The poor people are also ignorant of the limitations of resources use and the adverse consequences and this makes them over exploit the natural resources thus negatively affecting the natural environment and questioning the debates on sustainable development.

Sustainable development involves the level of utilization of environment and natural resources up to that optimum level which may not create any trouble for nature and environment. “The Brundtland Report “ or World Commission on Environment (WCED) in 1987 defines sustainable development as “Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs” Thus over exploitation of resources may compel human societies to compromise their ability to meet the essential needs of their people in future. The purpose of this paper is to examine the causes of environmental degradation and analyze the effect of the environment on poverty.

## CAUSES OF ENVIRONMENTAL DEGRADATION

The spate of degradation and its effects on the poor is quite an overarching issue in the developing economies and Africa in no exception. Degradation of the environment in sub-Saharan Africa has been attributable to mostly non-natural or man-made incidents such as climate change, invasive alien species, over-harvesting, deforestation, charcoal production and consumption, pollution, hazardous and untreated wastes, and land cover change. The study is particularly concerned with sub-saharan Africa in that the continent falls under the developing world. Africa's poverty is exacerbated by the paucity of resources that has forced communities to adopt survival mechanisms that are harmful to the environment as well as to the long-term well-being of the population. Rapid population growth, inadequate food production, poor access to social services and increasing degradation of natural resources have created a vicious circle of poverty and environmental degradation, especially in rural areas

Environmental degradation and poverty are interlinked. This results in a vicious cycle in which poverty causes the degradation of the environment, and the degradation perpetuates more poverty. As righty observed by Fabra (2002) ‘...poverty and environmental degradation are often bound together in a mutually reinforcing vicious cycle, and thus human rights abuses related to poverty can be both cause and effects of environmental problems’.

Environmental degradation lowers the labour productivity level of the poor by diverting their abilities to into ventures that eventually places more strain on the environment. Poor households spend an increasing amount of their productive time in activities such as collecting fuel wood. This productive time which could have been invested in ventures like agriculture has an opportunity cost for the poor results in their lower incomes. Poor families are unable to compensate for this diversion of labour resulting in a reduction in household income from agriculture and deterioration in food consumption levels and nutritional status.

 

Rising demand for fuel wood and charcoal for energy needs has been identified as one of the major causes of deforestation in sub-Saharan Africa. This is due to the poor people's incapacity to access modern and cleaner energy sources because of lack of income. The cutting of wood for fuel and excessive burning for charcoal production for energy purposes has adverse effects such as deforestation, loss of biodiversity as well as increased atmospheric air pollution in Africa. Research shows that charcoal production and consumption are believed to emit more GHGs than the industry and transport sectors combined. Where the poor depend on biomass fuel and confront increasing fuel-wood scarcity, they often shift to using animal dung, fodder, and crop residues for fuel. The reduced quantity of these materials returned to the soil may affect its fertility. Poverty may also constrain farmers' ability to maintain soil productivity through more intensive application of variable inputs.

Firewood is a major source of energy for people in the rural areas. Firewood extraction from indigenous forests is causing widespread deforestation in rural areas. Firewood is a cheap energy source for rural households especially the poor. Energy-related air pollution poses major health and environmental risks. In sub-Saharan Africa, air pollution from wood fuels in inefficient stoves or open fires is responsible for 1,100 respiratory-related deaths per day, primarily of women and children. . Women and children are the primary users of household energy and bear the burdens associated with the problems of access to reliable energy. Energy poverty can be defined as the absence of choice in procuring adequate, affordable, reliable, high-quality, safe, and environmentally benign energy services to support economic and human development. Energy is essential for sustaining people's livelihoods. At a basic level it provides cooked food, warm or boiled water, and warmth. Most poor people, particularly in sub-Saharan Africa, rely on biomass energy as the main source for basic energy services. In many areas an increasing shortage of biomass energy adds to the burden of women, who are generally responsible for collection of woody biomass. (OECD, 2004)

Inadequate access to land is another major contribution to poverty and is further compounded by high population growth rates. The extreme poor struggling at the edge of subsistence levels of consumption are pre-occupied with survival strategies on a day-to-day basis. The inability of the poor to plan ahead often reduces their income and forces them to the vicious circle phenomenon. The circle occurs where farmers, pushed by population increase and poverty extend cropping onto fragile marginal lands and degrade them. This results in reduced yield which further impoverishes them. (Dasgupta and M äler, 1994; Pearce and Warford, 1993; Mink, 1993). The high population in an area leads to uncontrolled clearance of trees and bushes and cultivation on fragile hillsides, overgrazing of hilltops, wild fires, drainage of wetlands and continuous cultivation of the small parcels of land are the major causes of land degradation.

A recent World Bank research has identified the vulnerability of people on fragile lands (i.e. lands that steeply-slopped, arid or covered by natural forest) as a major basis of rural poverty and natural resources degradation in developing countries (World Bank, 2003). Approximately 1.4 billion people live on fragile lands that are steeply-slopped, arid or forested and many of these people are poor and there is consensus among researchers and policy-makers that the people on fragile lands bear a high risk of natural resources degradation and they are improvished (Awan 2013)

Norman (1993) argues that the poor feel compelled to do what they often recognize is harmful to their own long-term interest yet they feel they have no alternative by virtue of their absolute poverty. Thus the poor through farming activities are often the principal cause of deforestation, desertification, and soil erosion with its resultant problems as watershed degradation, disruption of hydrological systems and mass extinction of species. The poor have no capital to invest in agricultural adaptations to make their farming less destructive environmentally so their own activities perpetuating more poverty. Poor households are at risk of falling below the subsistence levels of consumption so they treat available natural resources as an asset to be drawn down in times of emergency. On marginal lands the rural poor often find themselves pushed to over-exploit the natural resource environment through low-input and low productivity agricultural practices such as deforestation, overgrazing, and soil-mining, which may contribute to land degradation (UNFPA, 2001). Indigenous populations manage 25% of the remaining forests of the Amazon and are characterized by high fertility and extreme poverty.

Mining in the developed countries is another source of pollution which happens through potential soil and sediment erosion into and degrading surface water quality. These are influenced by volumes and velocity of runoff from precipitation events which penetrate downward through the soil. The major sources of erosion and sediment loading at mining sites may be from open pit areas, heap and dump leaches, waste rock to vehicle and equipment maintenance areas and exploration areas. During the raining season, the water may release effluent which contains toxic substances and these can seriously degrade water quality of surrounding rivers and streams, especially if the effluent is not treated prior to discharge.

Economic growth is vital for giving more options to poor societies. The desire for economic growth by poor countries will cause them to use more available natural resources resulting in environmental degradation. It is suggested that their models of development must become less energy intensive and more environmentally sound. There is tradeoff between economic growth and environment because of desire to high growth and

 

excessive use of resources that cause environmental pollution. Poor people and poor countries depend on the soil for food, the rivers for water and forests for fuel. Because they need these resources desperately, they have little choice, without assets or income, but to overuse them and to destroy their natural environment simply to survive. (Awan, 2013). To create balance between economic growth and environmental degradation it is necessary to break the cycle of poverty and environmental destruction in the less developed countries.

Poverty may also limit the responses that households have to environmental change (Carr, 2008). Impoverished households may be less likely to have adequate land resources to parcel to offspring, and have fewer resources to be able to obtain new land. They may also have little access to the financial capital necessary to intensify resource use through technological or physical inputs, invest in new agricultural products and techniques in response to changing markets, or have the means of accessing those markets. Poor households are less likely to have the financial and human capital necessary to migrate elsewhere in search of land or employment in response to limited local opportunity (Bremner et. al. 2010).

The majority of the rural poor inhabit low-potential land, with 60% of the rural poor in fragile and vulnerable areas such as arid and semi-arid lands, steep slopes, or in forests. The reason behind this is usually a combination of factors which vary from country to country, but which often includes demographics (United Nations, 1995). Some recent research by Bremner and Dorelien,( 2008), reveal high rates of fertility throughout remote rural areas and it's likely that high fertility in the rural areas will contribute to deforestation for years to come as the children of colonies create new households, clear land, and migrate to new areas of the frontier (Barbieri and Carr, 2005). Studies conducted by de Sherbinin et al., (2008) established a relationship among fertility, poverty, and the environment by examining how fertility and the migration of children are related to local land availability or perceptions of land availability. Geist and Lambin (2002) report that population growth, one of factors that act synergistically to cause tropical deforestation. Population growth and poverty interact with a host of economic, environmental, political, and sociological factors to affect land availability and use. (Lambin et al., 2001; Turner et al., 2001). The economic inducements refer to the basic desire to consume products such as timber, fuelwood and agricultural products and also market failures and the desire of national governments to generate capital such as cheap land, labour and fuel to prevent deforestation (Geist and Lambin, 2002). Deforestation aggravates climate change while a warming climate may in turn fast-track forest loss. When population growth and poverty interact with these processes climate change may speed up and make more salient the vicious cycle dynamics of human-environment systems.

Poverty does not always degrade the environment as we have been made to believe. There are other forms of demographic pressure rather than poverty drives deforestation and eventual environmental degradation. This implies that alleviating absolute poverty would be unlikely to reduce population-induced deforestation. Even though there is evidence in various literatures about the dependence of the poor on forest products and other natural resources for survival, it is difficult to maintain that reforestation would significantly improve the welfare of people living in absolute poverty and improve environmental degradation. This is due to the fact that empirical evidence on the prevalence and importance of the poverty-environment nexus is scarce, because the requisite data are often difficult to obtain in developing countries (Dasgupta, 2003).

**ENVIROMENT AND POVERTY**

Past resource degradation deepens today's poverty, while today's poverty makes it very difficult to care for or restore the agricultural base, to find alternatives to deforestation to prevent desertification, to control erosion and to replenish soil nutrients (Aggrey et al., 2010). People in poverty are forced to deplete resources to survive, and this degradation of environment further impoverishes people (Ostrom et. al. 1999). Poverty-constrained options may induce the poor to deplete resources at rates that are incompatible with long-term sustainability (Holden et al., 1996). In such cases, degraded resources precipitate a "downward spiral," by further reducing the income of the poor (Durning, 1989; Pearce and Warford, 1993) Environmental degradation can sometimes be associated with poverty, but there is not necessarily a direct causal relationship. Other factors also shape human behaviour to the environment. The danger of the Downward Spiral Hypothesis is that it may often lead to policies that either reduce poverty at the expense of the environment or protect the environment at the expense of poor people. The literature on the linkage between poverty-environment may be affected by factors as diverse as economic policies, resource prices, local institutions, property rights, entitlements to natural resources, and gender relations. However by implication, the relative strength of the links between poverty and environment may be very context-specific as advocated by ( Chomitz, 1999, Bucknall, Kraus, Pillai, 2001; Ekbom and Bojö, 1999). Since poverty is widespread, a share of this damage is generally borne by poor households; poor households may degrade the environment in ways that are damaging both to themselves and to others.

Conceptually, the existence of a "poverty/environment nexus" implies that one problem is a significant determinant of the other, reducing poverty therefore may be an effective way to reduce environmental damage, or vice versa (Dasgupta et. al. 2003). There are various descriptive and empirical studies that attempt to establish a relationship between poverty and environment (Ikefuji and Horii, 2005). They show that income distribution

 

plays a crucial role in shaping the poverty environment relationship. In their research for the UNPD, Jehan and Umana, (2003) found that Water-related diseases, such as diarrhoea and cholera, kill an estimated 3 million people in developing countries, the majority of whom are children under the age of five. Vector-borne diseases such as malaria account for 2.5 million deaths a year, and are linked to a wide range of environmental conditions or factors related to water contamination and inadequate sanitation. One billion people are adversely affected by indoor pollution. Nearly 3 million people die every year from air pollution, more than 2 million of them from indoor pollution of which more than 80% of these deaths are those of women and girls. A recent participatory poverty assessment, conducted in 14 developing countries of Asia, Africa, and Latin America, reveal a common perception by the poor that environmental quality is an important determinant of their health, earning capacity, security, energy supplies and housing quality (Brocklesby and Hinshelwood, 2001).

The World Bank's 1992 World Development Report defines environmental degradation as deforestation, land degradation, water shortage and contamination, air pollution and the loss of biodiversity occurring in both developed and developing countries. Poverty on the otherhand can be defined on the basis of human nutritional requirements. Environmental degradation also comprises a large degree of subjectivity on the part of the agents involved or who own the resources (Duraiappah1996). The relationship between poverty and the environment cannot be overemphasized, the environment affects poverty in that the environment provides sources of livelihoods to poor, and it affects their health and also influences their vulnerability. The well-being of the poor is strongly related to the environment in terms of, health, earning capacity, security, physical surroundings, energy services and decent housing. Poverty also encourages countries to promote economic growth at the expense of environment and also induces societies to downgrade environmental concerns (Jehan and Umana, 2003).

Poor people tend to have a lot of children as shown in various researches. As argued by Ding, (2000) there is a direct relationship between poverty and population increase and environmental degradation. He asserts that, an increase in the poor population may cause the environment to deteriorate, while deterioration in the environment causes population to increase. Ding explains that, as forests recede up the mountainside, it becomes difficult for poor households to have enough firewood this causes them to have an additional child to gather firewood. As children grow, so does the need in the house for more firewood, and poor people are compelled to collect more firewood at the risk of aggravating the deforestation in progress. To take a broad view of the above statement to other sectors where poor populations are merely dependent on a natural resource base, it becomes obvious that poor households have lower productivity, which provides incentives for them to raise large families. This mutual interdependence sets off a downward spiral.

Thus the poorer a household is, the more children it will need to secure a livelihood; the larger the family is, the more resources it needs; the higher the resources demand, the bigger the pressure on the fragile surrounding natural resource base; the more degraded the environment is, the more children the family needs to secure old age and provide essential goods and services; the more time children spend on collection, the less time is available for education and human-resource development; the less time for education, the greater the possibility to see poverty perpetuated into the next generation( Ding, 2000.)

Evaluating the UNDP Contribution to Environmental Management for Poverty Reduction in 2013, Juha Uitto, Deputy Director of the Evaluation Office reports that:

> Environment and poverty are inextricably interlinked; people who depend directly on natural resources for their livelihoods tend to be poorer in material terms. Whether working in agriculture, forestry or fisheries 'or relying on small scale extraction to eke out a living' the returns from their labor are subject to environmental factors. Even relatively small fluctuations in climate can make the difference between a high yield and crop failure. Because of this direct dependency, small farmers everywhere in the world have become masters at managing risk and adapting to changing conditions.

In the developing economies, environmental degradation reduces the ability of the poor to generate income. Due to environmental degradation, poor are forced to divert an increasing share of their labour to routine domestic activities such as travelling distances for fuel wood collection to feed for their households. This then decreases productivity of those natural resources from which the poor wrest their livelihood (Mink, 1993). This then justifies the basis for the 'vicious circle' perception which lies in the fact that in developing or relatively poor countries the poor depend directly on the natural resource environment for their livelihood.

## CONCLUSIONS

Poverty and environmental degradation limits peoples options to other alternatives an forces them to overuse and deplete their natural resources and thus perpetuates more poverty. This study, we have established that degradation and destruction of forests and woodland accelerates soil erosion, eliminates wildlife, causes loss of biodiversity, and has significant implications environment and poor themselves. For the poor people in developing economies such as Sub-Saharan regions, who mainly live on natural resources provided by forests, degradation and destruction of the forest threatens not merely their lifestyles and livelihood systems, but their

 

very survival. The coexistence of poverty and environmental degradation could easily lead to the conclusion that poverty limits people's options and tempts them to deplete natural resources faster than is compatible with long-term environmental sustainability. The poor people will therefore aggravate automatically the process of environmental degradation.

## RECOMMENDATIONS

To effectively address future environmental degradation and poverty issues successfully there need to be macroeconomic, social, as well as environmental policy interventions in developing countries such as sub-Saharan Africa. Such interventions would include but not limited to the underlisted: -

**Poverty Alleviation Policies**

Macroeconomic and social policies which are aimed at alleviating poverty such as income redistribution, provision of social services, promotion of rural infrastructure, employment promotion and provision of credit to the rural and urban poor have beneficial environmental impacts. Mink, (1992) asserts that, is income grows, rates of pure time preference decline such that individuals discount the future less strongly thus, people tend to degrade the environment less.

**Environment Specific Policies**

Sound environmental policies which focus on policies based on market-led solutions such as safeguarding natural resources and mitigating the adverse health impacts of pollution contribute to poverty alleviation. Thence the efficient use of natural resources will inhibit the rate of environmental degradation or pollution.

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