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# **The Poverty - Environment Nexus in Developing Countries: Evidence from Ethiopia: A Systematic Review**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author GK designed the study, and wrote the protocol and wrote the first draft of the manuscript. Authors BT and ND managed the literature searches. All authors read and approved the final manuscript.*

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## **ABSTRACT**

The relationships between poverty and the environment are highly contested, debated and researched. Environmental degradation and poverty, however, may have mutual causality. This paper, therefore, tried to examine whether there is an association between poverty and environmental degradation in developing countries. An extensive literature review was made to evaluate the effect of environmental degradation on the poor. The paper posited that poverty worsens environmental degradation by leaving poor with no alternatives rather than degrading their environment to meet their present needs at the expense of future benefits. Conversely, environmental degradation exacerbated poverty through deteriorating poor's livelihood, income and health. Therefore, an effort has to be made to curb the effect of poverty on the environment.

*Keywords: Poverty; land degradation; deforestation; environmental degradation; developing countries.*

## 1. INTRODUCTION

Many developing regions have experienced environmental problems leading not only to numerous negative consequences on health and the environment but causing also economic losses to households [1]. Environmental degradation is usually understood in terms of high use of scarce non-renewable resources, damage or destruction of key renewable resources (such as soils and forests) and the generation of wastes that are not easily assimilated or broken down by natural processes [2]. The more visible environmental problems are mostly associated with regenerative resources, which are in constant danger of exhaustion from excessive use particularly in the developing countries [3]. Ironically, the worst recorded air pollution is not found, as might be expected, in the highly industrialized cities of high-income countries, but rather in the major cities of lower-income countries [4]. This proves that poverty is the real enemy of the environment [5].

The poor have traditionally taken the brunt of the blame for causing society's many problems including environmental degradation [6]. The reason for blaming the poor as a culprit for environmental degradation is based on the premise that the poor, in an effort to survive, overuse resources and pollute their environment [5]. To put it differently, the struggle of the poor to survive is a core cause of problems such as deforestation, desertification, and unsanitary water [7]. The World Bank [8] stated that poor families, who have to meet short-term needs, undermine the natural capital by excessive cutting of trees for firewood and failure to replace soil nutrients. Unfortunately, poverty offers the poor a few choices to intensively rely on and use available natural resources. This reliance creates complex, dynamic interactions between environmental conditions and poverty [9].

Many scholars argued that poor and vulnerable groups suffer disproportionate burdens and impacts of environmental degradation. Poor and vulnerable communities suffer from various forms of environmental injustice [10]. According to Slingenberg et al. [11] the world's poor will most likely bear the immediate and direct costs of biodiversity losses. This is because when ecosystem functions are impaired, this inevitably leads to a narrowing of livelihood choices and an

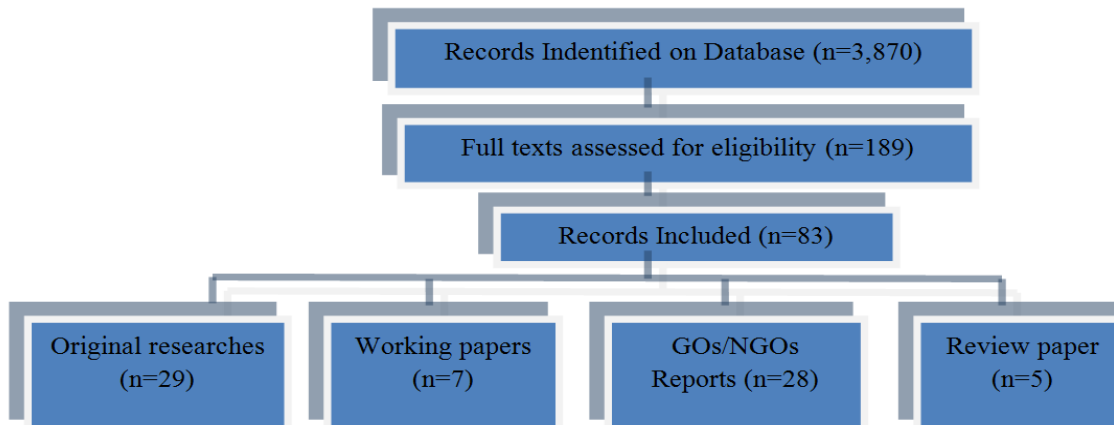
increase in the vulnerability of the poor [12]. The poor, all in all, suffer disproportionately from more frequent and severe storms, floods and droughts, health impacts of toxic pollution, and insecurity of access to productive resources such as arable land, freshwater and sustainable energy [10]. Depletion of many environmental resources, thus, makes the poor highly impoverished and destitute.

The general consensus is that poverty is viewed as both a cause of environmental degradation and also a result of people living in fragile and ecologically vulnerable environments [13]. On the basis of this premise, this paper, therefore, tried to review how a changing environment increases or decreases poverty, or how changing poverty levels damage or improve the environment. Given that the natural resource base constitutes an important source of income in developing countries, especially for the poorer groups in society, a better understanding of the poverty–environment relationship can lead to better policies that support the natural resource assets of the poor.

## 2. METHODS

We undertook a systematic review to evaluate the nexus between poverty and environmental degradation. Most of the related research findings, reviews and reports were used to conduct this review. From a total of 3,870 papers retrieved on Google Scholar, 189 of them were imported in reference manager software.

Written records were systematically retrieved using a 5-way strategy that combined search terms (keywords) related to: 1) environmental degradation in developing countries; 2) poverty; 3) deforestation, 4) land degradation and 5) environmental health. Retrieved papers were shortlisted if the title and abstract indicated that they reported similar results in English language. Selected papers were also required to have been undertaken in developing countries and to report the association between poverty and environmental degradation. Organizational reports that were released before 1980 were excluded since information published on old reports might not reflect the current environmental problems in developing countries and its inter-link with poverty. Finally, 83 papers including original researches, reviews, books, and reports were reviewed and combined.



**Fig. 1. Procedures for selecting Records**

### 3. THE POVERTY-ENVIRONMENT NEXUS

Environmental degradation is the deterioration of the environment through depletion of resources such as air, water, soil, destruction of ecosystems and extinction of wildlife [14]. When the environment becomes less valuable or damaged, environmental degradation is said to occur [15]. Since environmental degradation often appears hand in hand with high incidences of poverty, one is tempted to conclude that the two are causally interconnected [1]. For instance, in the Bruntland Commission report, it is explicitly stated that poverty is a major cause of environmental problems and amelioration of poverty is a necessary and central condition of any effective program to deal with environmental concerns [6]. In the NEPAD Environmental Action Plan too poverty is identified as the main cause and consequence of man-made environmental degradation and resource depletion in Africa [16]. The condition of the majority of the rural poor in many developing countries is, therefore, a vicious circle between environmental degradation and poverty. Eventually, it can be argued that environmental degradation and poverty are inextricably intertwined. The effect of poverty on environment and how a degraded environment affects the lives of the poor are explained as follows:

#### 3.1 Poverty Worsens Environmental Degradation

Poverty is a global problem that affects citizens around the world. Poverty does not simply mean a lack of income or consumption. Rather, poverty has various manifestations, including lack of

income and productive resources sufficient to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments; and social discrimination and exclusion [17]. Thus, poverty means the inability to meet basic needs, including food, shelter, clothing, water and sanitation, education, and healthcare [18]. More specifically, in terms of income, poverty refers to purchasing power parity of less than US\$1.25 a day [19]; as indicator of food consumption, poverty is defined as the intake of less than 2,200 calories per day [20]; and in terms of assets, poverty indicates deprivation of basic needs, goods and services [21] such as cattle holdings, the quality of agricultural implements, housing materials, labor resources, access to land and the ability of the household to produce food [22]. Therefore, people can be said to be in poverty when they are deprived of income and other resources needed to obtain the conditions of life - the diets, material goods, amenities, standards and services - that enable them to play the roles, meet the obligations and participate in the relationships and customs of their society [23]. In simple words, poverty has been viewed as "individual deficits", social disadvantages and denial of specific rights or access to minimal resources [24].

Poor face daily risks and hardships those determine their very survival [25]. Based on World Bank's international poverty line, there are still 1.4 billion people living in poverty [17]. Around 26 percent of those live in low-income

countries [18]; and over 78 percent of the poor reside in rural area, while the rural population is 58 percent of the developing world [26]. Various multidimensional aspects of poverty and multiple forms of deprivation are closely connected to the nature of ecosystem services, natural resource access and benefit-sharing [10]. The quality and bounty of the local environment certainly affect living conditions of the poor, and their poverty is often seen as a contributing factor to the degraded condition of the local environment [27].

The struggle of the poor to survive is a core cause of problems such as deforestation, desertification, and unsanitary water [7]. This is because the poor lack an ability to forgo present subsistence in favor of savings for future consumption or environmental quality [28]. Poor and hungry often destroy their immediate environment for their survival. They cut down forests; their livestock overgrazes grasslands; they overuse marginal lands; and they crowd into congested cities in growing numbers. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge [29]. They are basically short-run maximisers trying to meet the needs of the present at the expense of future benefits. The relationship between poverty and environmental degradation is longstanding. Thomas Malthus indirectly suggested that the poor are more likely to engage in an environmentally deleterious behavior because they are incapable of thinking beyond the next meal [22]. The World Commission on Environment and Development [30] emphasized that poverty was a major threat to the global environment and poverty reduction as a tool to save the environment. It is often stated that poverty imposes an inherently short time-horizon on the use of environmental resources.

### **3.1.1 Poverty and land degradation**

Land degradation is a global problem affecting an estimated 1.5 billion people and a quarter of land area in all agro-ecological zones around the world [31]. Land degradation takes a number of forms, including depletion of soil nutrients, salination, agrochemical pollution, soil erosion, vegetative degradation as a result of overgrazing, and the cutting of forests for farmland [32]. Land degradation is a serious and growing global issue resulting in losses to Gross Domestic Product (GDP) and local livelihoods, food insecurity, climate change and biodiversity loss [33]. The United Nations Convention to

Combat Desertification (UNCCD) estimates that land degradation affects up to two thirds of the productive land area in Africa [34]. Consequently, out of the total land area in Africa (2,966 million hectares), 494 million hectares are degraded [35].

Land degradation poses serious threats to global food security, water availability, adaptation and mitigation to climate change and the livelihoods of millions of people. The inter-linkages between land degradation and poverty are thought to be strong in the rural areas of low income countries where livelihoods predominantly depend on agriculture [36]. Poverty may lead to poor land management, which causes land degradation and a decline in agricultural productivity, which in turn can cause further impoverishment. Titenberg [4] asserted that soil erosion is caused, in part, when the poor are driven to farm highly erodible land in an attempt to survive. Lack of institutions, poverty, and insecure land tenure may underlie land degradation by hampering incentives to invest in sustainable land management practices [37].

### **3.1.2 Poverty and deforestation**

Forests cover 30 percent of the Earth's land but, despite efforts to protect them, around 13 million hectares vanish each year [38]. Forest degradation involves a change process that negatively affects the characteristics of a forest such that the value and production of its goods and services decline [39]. Deforestation and forest degradation results in loss of habitat for all species, a decrease in freshwater quality, an increase in soil erosion, land degradation and higher emissions of carbon into the atmosphere [40]. Forest degradation is a serious environmental, social and economic problem [39].

As in many parts of the developing world, many poor households use wood fuel, fodder, construction materials, medicine and other products from forests and other natural environments to meet subsistence needs and generate cash income [41,42]. More than 70% of sub-Saharan Africa's population depends in large measure upon forests and woodlands for livelihoods and 60% of Africa's energy demand is met by forests [43]. Those facts are indicative of poverty being one of the main causes of forest and woodland degradation [44]. According to Titenberg [4], deforestation is caused in part by the migration of landless fewer peasants into the

forests, seeking a plot of land to work. Aggrey et al. [45] also noted that there is positive relationship between poverty levels and forest clearance suggesting that poverty is a major determinant of deforestation. When people lack adequate financial and other resources, they are left with no choice but to turn to the unsustainable use of natural forests. Thus, activities such as peasant agriculture and charcoal production undertaken by the poor are considered crucial in deforestation and forest degradation [2].

### **3.2 Degradation Perpetuates Poverty**

Poor people are the main victims of a bad environment. The poor are often the most affected by unclean water, indoor air pollution, and exposure to toxic chemicals; and they are particularly vulnerable to environmental hazards (such as floods, prolonged drought, and attacks by crop pests) and environment-related conflict [46]. The poor are more vulnerable and exposed to environmental disease and have lower resistance to infection [47].

#### **3.2.1 Effect of environmental degradation on poor's livelihood**

Natural resources are central to the livelihood and coping strategies of the poor providing food, livestock feed, household products, income and also environmental services [13]. In the World Bank report it was stated that environment-based wealth accounted for 25% of the total wealth in low-income countries, 13% in middle-income countries, and only 3% in OECD countries [48]. World Bank suggested that over 1 billion people world-wide depend to varying degrees on forest-based assets for their livelihoods (Vedeld et al., 2004).

Poverty is increasingly caused by environmental scarcities of arable land and water, resulting in loss of livelihoods [49]. The loss of potential and existing agricultural land to drought, floods, and land degradation affects vast swathes of the world's poor, many of whom depend on agriculture for their livelihoods and nourishment [50]. Crop yields in Africa could be halved within 40 years if degradation of cultivated land continues at present rates [51]. This implies the environment matters greatly to people living in poverty. A degraded environment affects not only the well-being of the present generation; but also affects the livelihood possibilities of future generations who are reliant on those resources

and leaves them more exposed to environmental shocks [52].

#### **3.2.2 Environmental degradation and poor's health**

Worldwide the greatest effects on the health of individuals and populations result from environmental degradation and social injustice [53]. Environmental factors are responsible for almost a quarter of all disease in developing countries [51]. According to Prüss-Üstün and Corvalán [54], developing countries disproportionately carry the environmental burden of disease, with the total number of healthy life years lost per capita as a result of environmental burden per capita being 15-times higher in developing countries than in developed countries. Pearce [55] also reported that 20 percent of the total loss of life expectancy in developing countries is attributable to environmental causes.

The poor often live on marginal lands, such as steeply sloped areas, where they are at higher risk of landslides and resulting loss of life during storms and floods [56]. Poorly designed irrigation and water systems, inadequate housing, poor waste disposal and water storage, deforestation and loss of biodiversity, all may be contributing factors to the most common vector-borne diseases including malaria, dengue and leishmaniasis [57]. Diseases primarily stemming from a poor water supply include diarrhea, dysentery, cholera, conjunctivitis and typhoid [58] more likely to affect the poor due not only to their greater exposure, but also because low nutrition makes them more vulnerable [13]. Stunningly, respiratory infections and diarrheal diseases are the two biggest causes of death among the poorest 20 percent of the world's population as ranked by national gross domestic product per capita [59]. Malaria, on the other hand, is the tenth biggest killer of the world's poor, responsible for 4 percent of deaths. Women and children are vulnerable to illness and death caused by indoor air pollution, which accounts for a greater share of lost life expectancy in developing countries [55]. Indoor air pollution, caused by smoke from stoves and fires, causes around 1.6 million deaths per year in developing countries [57]. This, all in all, implies the burden of environmental disease falls more harshly on the poor (PEP, 2008). Consequently, the low income groups are the hardest hit by health deterioration.

### **3.2.3 Impact of environmental degradation on poor's income**

Environmental degradation depresses the poor's ability to generate income requiring them to divert an increasing share of their labor to routine household tasks such as fuel wood collection; and also by decreasing the productivity of those natural resources from which the poor wrest their livelihood [60]. Sudden or prolonged ill health often results in a downward spiral of asset loss and impoverishment as people are forced to abandon productive activities [61]. When a poor or socially vulnerable person becomes ill or injured, the entire household can become trapped in a downward spiral of lost income and high health care costs [62]. A day lost due to illness implies a day's loss of wages as well as the possibility of job loss [6].

## **4. ENVIRONMENTAL RESOURCE DEGRADATION IN ETHIOPIA**

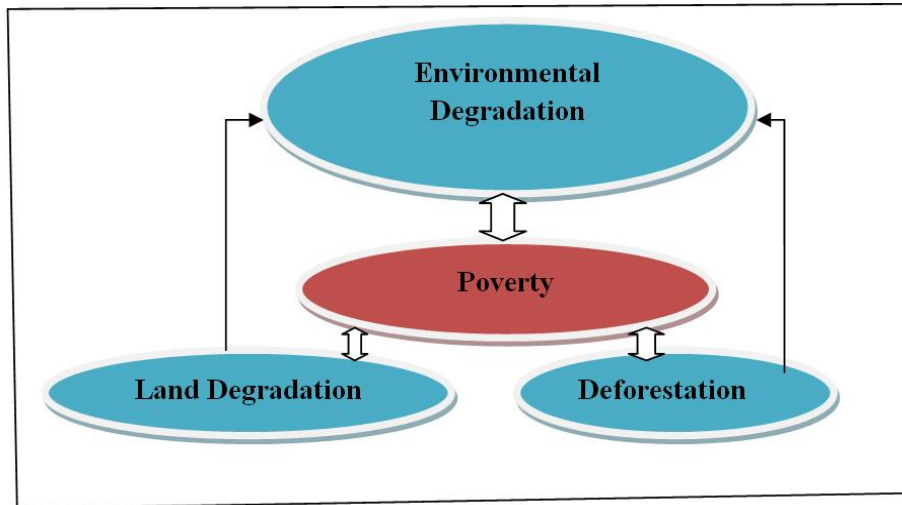
Ethiopia is one of the fastest growing non-oil economies in Africa [63]. In spite of the two-digit (11 percent) economic growth in the past consecutive years, the country remained one of the poorest countries on earth with a per capital income of \$660 [64]. Agriculture remained the principal cornerstone of the country's economy with 43 percent of share in GDP and more than 80 percent employment opportunity. Nonetheless, agriculture is characterized by smallholder production which constituted more than 95 percent of the total farming in the country. According to IFAD [65], more than half of the country's 12 million smallholders have 1 hectare or less of land. Thus, the low level of agricultural productivity, coupled with smaller holdings has made the country among the poorest countries in the world with a daily per capita income of less than \$0.50. Consequently, out of the total 102 million populations, around 60 millions of them live in extreme poverty earning a daily income less than \$1.

It is evident that the Ethiopian economy is highly dependent on natural resources. Ethiopia now consumes over 100 million cubic meters of wood fuel each year, with roughly a third of consumption from unsustainable use of forests and woodlands. Forest and Non-timber forest products (NTFPs) such as honey, spices, forest coffee, bamboo, gums and resins are playing an important role in rural livelihoods. Excessive reliance of households on environmental

resources for their sustenance may, therefore, leads to high rates of deforestation and forest degradation [66]. Resource degradation can also compel sedentary farmers and pastoralists to adopt difficult methods of cultivation, accessing water, acquiring fuel and construction material, and feed for livestock which may lead to progressive deterioration of their living standards [67]. Deterioration of the natural resource base amplifies exposure to substantial environmental and climate risks that affect food and water security, energy, and human health [50]. Exploitation of these natural resources may generate large economic benefits in the short term, but the unsustainable use of these natural resources, in the long run, increases not only environmental degradation but decreases economic growth and livelihood opportunities [68].

The major environmental problems in Ethiopia are land degradation which resulted from soil erosion, loss of soil fertility and biodiversity; and deforestation. In the highlands, land degradation, mainly due to soil erosion and nutrient depletion, is one of the most severe environmental problems [13]. 27 million ha or almost 50% of the highland area was significantly eroded, 14 million ha seriously eroded and over 2 million ha beyond reclamation [37]. It is estimated that nearly 2 billion tons of soil are washed away from agricultural land every year [69]. The monetary estimates of the annual costs of land degradation related to soil erosion and nutrients loss from agricultural and grazing lands is about \$106 million, which is about 3% of agricultural GDP [70]; while the estimated gross discounted present value of cumulative losses caused by erosion ranges from ETB 3 billion to EEB 7 billion [71]. On the other hand, estimates of productivity loss in grain due to land degradation are believed to feed more than more than 4 million people [72].

Deforestation has posed a severe threat to Ethiopia's GDP. With an estimated forest-land loss of 150,000-200,000 hectares annually, environmental degradation in Ethiopia has been persistent, widespread, and costly. A more recent accounting of available forest cover reveals that the 1990-2000 decade in Ethiopia saw an average yearly deforestation rate of 0.8 percent; among the highest in the world [73]. There is an annual loss of 65,540 ha of high forest, 91,400 ha of woodland and 76,400 ha of shrub land due to land-clearing



**Fig. 2. Conceptual framework of poverty and environmental degradation in Ethiopia**

for agriculture and settlement, which amounts to woody biomass losses of approximately 3.5 million tons [74]. In the year 2000 alone, 87.5 million of timber was cut down for fuel wood [73]. According to Yesuf et al. [70], the annual loss via deforestation is estimated to be \$23 million. The net forest values lost due to deforestation in the past twenty years was estimated to be about \$303,190,753 [75].

Poverty posited to contribute to environmental degradation in Ethiopia as a result of poor households' inability to invest in natural resource conservation and improvement. Poverty in Ethiopia is mainly linked to low and declining agricultural productivity, land degradation, land fragmentation, deforestation, recurrent drought and low adoption of improved technologies. Regarding its contribution to land degradation, poverty limits farmers' ability to purchase feed or livestock products, contributing to overgrazing, and their ability to purchase chemical fertilizer, contributing to soil nutrient depletion [76]. Conversely, land degradation can contribute directly to poverty through its direct impact on agricultural productivity. In terms of the inter-linkage between poverty and deforestation, Million [77] explained that declining standard of livelihood of the farming communities and their close dependence on forests and woodlands have led to clearing for subsistence farming, cutting of trees for fuel wood and charcoal production both for consumption and sale, construction material and over-grazing. Poor are more reliant on forest product and forest income contributes larger shares to their income [78].

Thus, the reliance of the poor on forest for livelihood and energy can trigger forest degradation. Conversely, forest degradation can also impoverish the poor through its direct impact on poor's livelihood and agricultural productivity.

Environmental degradation has a serious impact on the health of the poor in Ethiopia. According to UNICEF [40], an estimated three-quarter of the health problems of children and communicable diseases, originate from the environment. Diarrheal diseases and Lower respiratory infect are the Top two causes of death in 2016 [79]. Nearly 60% of the Ethiopian population lives in malarious areas and 68% of the country's landmass is favorable to malaria transmission [80]. IFAD [65] reported that the HIV/AIDS pandemic is driving poor people even deeper into poverty, depriving families of the young adults who are their most productive members. The high prevalence of communicable diseases in the country is linked to the poorly developed socio-economic and environmental factors that have been inherent for centuries. Fortunately, more than 80% of communicable diseases in Ethiopia are believed to be preventable using environmental health interventions [81].

For many years, Ethiopia has dealt with poverty and environmental problems. There is a vicious circle inter-linkage between poverty and environmental degradation. Poverty induces the poor to become both agents and victims of environmental degradation. The low level of agricultural productivity and lack of economic

opportunities in the country forced the majority of the poor to rely on the environment for survival. In order to survive in a subsistence economy, the rural poor are forced to mine soils and to cut down trees leading to major environmental problems like land degradation and deforestation. Consequently, environmental degradation becomes a result and a cause of economic stagnation, which is aggravated by poverty.

## 5. SUSTAINABLE DEVELOPMENT AS A REMEDY TO ENVIRONMENTAL DEGRADATION

Poverty reduction, economic growth, and the maintenance of life-supporting “environmental

resources” are closely linked. For instance, sustainably managed forests have multiple environmental and socio-economic functions which are important at the global, national and local scales, and they play a vital part in sustainable development. Sustainability echoes notes of intergenerational equity in environmental resource utilization. The concept of sustainable development – ‘development which meets the needs of the present without compromising the ability of future generations to meet their own needs’ – as advocated at the UN conference on Environment and Development (1987) should have brought a systematic relationship between different aspects of poverty and the environment to the fore [13].

**Table 1. Sustainable development goals and targets**

<b>Goal 1: End Poverty in all its Forms Everywhere</b>	
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.
1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.
1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
1.5	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.
1.a	Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programs and policies to end poverty in all its dimensions.
1.b	Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.
<b>Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all</b>	
7.1	By 2030, ensure universal access to affordable, reliable and modern energy services.
7.2	By 2030, increase substantially the share of renewable energy in the global energy mix.
7.3	By 2030, double the global rate of improvement in energy efficiency.
7.a	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.
7.b	By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programs of support.



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**Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.**

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- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands, in line with obligations under international agreements.
  - 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
  - 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.
  - 15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
  - 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.
  - 15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.
  - 15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products.
  - 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species.
  - 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.
  - 15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.
  - 15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation.
  - 15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.
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Source: World Bank Group, 2016 [38]

The United Nation's 2030 SDGs (Sustainable Development Goals) focus on five themes: people, planet, prosperity, peace, and partnership. Countries have resolved to end poverty and hunger and ensure that all people can fulfill their potential in dignity and equality and in a healthy environment; to protect the planet from degradation and take urgent action on climate change; to ensure that all people can enjoy prosperous and fulfilling lives and that progress takes place in harmony with nature; to foster peaceful, just, and inclusive societies free from fear and violence; and to mobilize the means to implement Agenda 2030, focused on the poorest and most vulnerable, through strong global partnership [50]. Thus, working to achieve the 2030 SDGs will help tackle the problem of environmental degradation and poverty.

## 6. CONCLUSION

Poverty and environmental degradation are closely associated and causally interlinked. They

are linked in a vicious cycle. In one way, poverty worsens environmental degradation because the poor cannot afford to take proper care of the environment since they have no alternative but to degrade their environment to meet their most pressing problem in life – survival. For the poor degrading the environment is merely a rational decision to address doubts relevant to their basic survival. Their poverty makes them subservient to present needs at the expense of future benefits. In contrast, environmental degradation seriously impoverishes the lives of the poor by distorting poor's livelihood, income and health. Living in a degraded environment makes the poor vulnerable to economic and health risks. In short, the poorest people and the poorest countries are the most affected by environmental degradation.

Generally, a degraded environment exacerbates poverty conditions, preserving the environment, therefore, helps to safeguard food production, protecting air and water

from contamination, sustaining livelihoods, and preserving health.

Based on the review result, the following policy recommendations are forwarded:

- It is observed that environmental conditions and access to a variety of natural resources are crucial to the ability of poor people to sustain their livelihoods. Thus, diversifying livelihood and income opportunities can contribute to better management of the environment.
- Forest provides a score of high value exportable commodities which can generate foreign currencies to developing countries. Thus, sound forest management can open a door to a range of industries which can generate considerable employment opportunities.
- Since land degradation is the major cause for low agricultural productivity and food insecurity in developing countries, reversing land degradation implies moving toward advanced cropping techniques, improved seeds, and making full use of available information technologies which helps poor farmers and nations to exploit market opportunities.
- Environmental degradation worsens the health conditions of the poor. Therefore, sound environmental management can help to improve the health conditions of the poor.
- Finally, poverty and access to environmental resources are closely linked. Thus, reversing environmental degradation can be realistic through reducing poverty.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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