

## The Linkages between Economy and Environment

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**Abstract:** Environmental economics is concerned with how economic activities of producers and consumers affect the environment, in which we live. The environment supports economic activities in many ways. Due to excessive use of environment, many environmental problems have emerged. These environmental problems can undermine the goals of development in various ways. The environmental issues and their implications are important for future development of the world. This paper highlights various aspects of linkages between economy and environment. It also attempts to explain how population growth and poverty are interlinked with environment.

**Key Words:** Environmental economics, economic activities, population growth, environmental problems.

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### I. Introduction

Environmental and geographical factors are the prime factors that determine the development of any nation. The worsening environmental situation due to negligence and unplanned developmental activities has led to the re-examination and reconsideration of the policies, strategies and programmes for 'economic development'. During the last few decades, many experts have drawn attention to the close links between environment and economic development (Panayotou, T., 1993, Grossman and Krueger, 1995). The mad rush for industrial growth over the years, has led to environmental degradation on a large-scale accompanied by massive resource depletion. Meadows et. al (1972) in their study drew attention to the fact that there are a number of non-renewable resources whose present levels of consumption are such that these resources will be exhausted in distant future. Many later studies have also highlighted the danger of environmental degradation (Cropper and Griffiths, 1994, Schmalensee et al., 1998 and Hess 2013). Hence, the focus has now shifted to "environmental protection".

Environmental problems can undermine the goals of development in two ways: "First by worsening environmental quality and second, by damaging the environment. First, environmental quality, i.e. if the benefits from rising incomes (development) are offset by the costs imposed on health and the quality of the life by pollution (air and water) this cannot be called development. Second, environmental damage can undermine future productivity. Soils that are degraded, aquifers that are depleted, and ecosystems that are destroyed in the name of raising incomes today can jeopardize the prospects for earning income (development) tomorrow" (World Development Report 1992)

In recent years economists have increasingly become interested in environmental economics. Environmental economics is concerned with how economic activities of producers and consumers affect the environment, in which we live. It also explains the policies to improve the quality of life of the present and future generation. Hence, it is imperative to explain how environment supports economic activities. The economy is a system consisting of producing firms, consumers and market system where interaction between the producers and consumers takes place. The purpose of economy is to produce goods and services to satisfy human wants.

Modern economics is not only concerned with financial matters but also with several unpriced services and resources which natural environment provides us. Environmental issues are more important for developing countries where poverty prevails on a large scale and acceleration of economic growth is urgently needed.

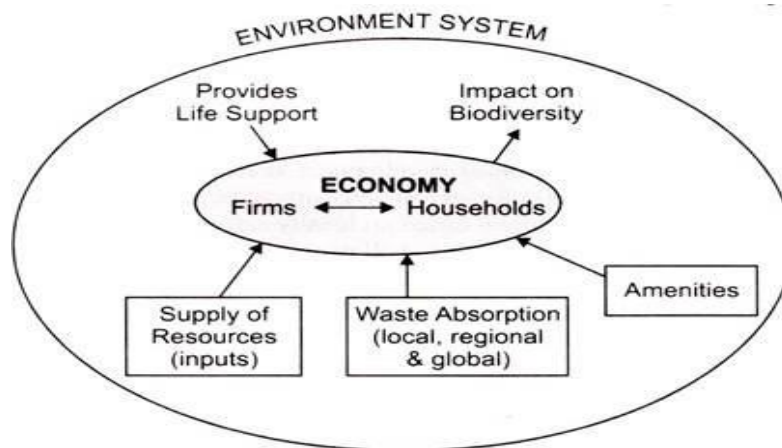
### II. The Linkages between Economy and Environment

The environment supports economic activity by man in four ways: it provides life support, supplies natural resources for production and consumption, absorbs waste products and supplies amenity services (Ahuja

2016). The economy works from inside the environmental system and its activities affect the environment and the latter also affects the economy.

For the production of goods and services, the economy uses man-made capital, labour and natural resources (such as coal, oil, petroleum and diesel, CNG gas), minerals and metals etc from environment. Resources can be renewable or non-renewable. The renewable resources are those whose quantity can be increased when they are depleted. Forests and fishing come in this category. On the other hand, the non-renewable resources are those resources whose exhaustion as a result of their use cannot be made up. Coal, iron ore, crude oil come in this category of non-renewable resources. These resources cannot be produced by man. Hence, they are also called exhaustible resources.

How the economy is related to the environment is depicted in the following figure. The environment in the figure is represented by the whole big circle. The environment means all natural resources such as land, ecosystem, all mineral and metals deposited under the land surface, world's ocean and atmosphere and natural climate. The economy is shown inside the environment system in which works.



**Figure 1 Economy-Environment Linkages**

**Source:** Ahuja H.L. (2016): "Development Economics", 1<sup>st</sup> edition, S. Chand Publication, New Delhi.

In the economy the firms produce goods and services with the use of natural resources, man-made capital and labour to satisfy the consumption wants of households. There are many relations between the environment and the economy.

**First**, the environment system that includes the air and atmosphere, rivers, the fertility of the soil and biodiversity (i.e. various types of plant and animal life) on which life of households depends. They are essential and necessary for their existence of human beings to live. If there is any large reduction in these conditions provided by environment system, there will be highly devastating effect on human life. This life-support function of the environment system is shown by the arrow towards the economy in the upper part of Fig. 1.

**Second**, the environment provides raw materials and energy resources such as minerals, metals, food, wood and cotton for production and use by the firms and households in the economy. These natural resources may be renewable or non-renewable. Some non-renewable resources must be preserved for future generations and in this regard efforts should be made to find their man-made substitutes. For example, to save coal, solar energy can be used. Besides, even renewable resources can be used in sustainable manner. For example, to ensure deforestation should not result in desertification, new trees be planted to make up the loss of trees. The use of renewable resources is shown in the above diagram by opposite flow of resources from the economy to the environment. As regards non-renewable resources such as coal and crude oil, their use causes permanent reduction in their stock.

**Third** important function of environment is to absorb the waste products such as carbon dioxide (CO<sub>2</sub>) which originates from the production processes of the firms, from power plants or the consumption activities of the households which originate garbage for collection and disposable. Thus, the environment is used as a **waste sink**. Wastes may be in a variety of forms, such as solid, air and water-borne. It is important to note that environment has a limited assimilative capacity to absorb these wastes or to dispose of them safely. That is to transform them into some harmless substances.

The different parts of the environment system may perform more than one function. For example, "the oceans are important in determining the life-support system provided by the global and microclimates; they are sources of many minerals and other resources; they assimilate many different wastes and they provide the space and opportunity for marine pastimes" (Thirlwall 2011). The functions of environment may be competitive or

complementary. For example, the excessive deposit of wastes in ocean will reduce their capacity to provide habitat for fish stock. Environment functions may be complementary as the forestry policy of planting more trees can ensure sustainable way of reducing soil erosion (providing life support function), a source of timber (a function of natural resource supply) and absorbing carbon dioxide from the atmosphere (a waste absorption function).

Thus, the linkages between the economy and the environment are evident from the above chart.

### III. Trade-off between Economic Growth and Environment

The relationship between economic growth and the environment is controversial. Traditional economic theory posits a trade-off between economic growth and environmental quality.

In early 1990's some economists (Panayotou, T., 1993, Grossman and Krueger, 1995) took up some studies to explore the relationships between level of economic development and environmental quality across countries. They found remarkable similarity in the relationship between level of economic development and environmental quality and Kuznet's findings, about two decades earlier, between Per Capita Income and inequality across countries. Thus, this relationship came to be known as the Environmental Kuznet's Curve (EKC). The associated hypothesis with this curve has been put as "the environmental pressure tends to rise faster than economic growth in early stages, then slows down and reaches a turning point after which it tends to decline with further growth. The last phase is referred to as delinking of environmental pressure from economic growth" (Grossman and Krueger, 1995)

The Environmental Kuznets Curve (EKC) hypothesis points towards a trade-off between environment and development i.e. it seems to suggest that underdeveloped countries will have to forgo environmental quality for the sake of attaining a higher level of development. This is because, these countries need resources desperately. Without assets or income, they have little choice, but to overuse the resources and to destroy their natural environment simply to survive. As the income and consumption levels of the poor increase, there is likely to be net increase in environmental destruction. As the poor countries desire more economic growth they will use more available natural resources resulting in environmental degradation.

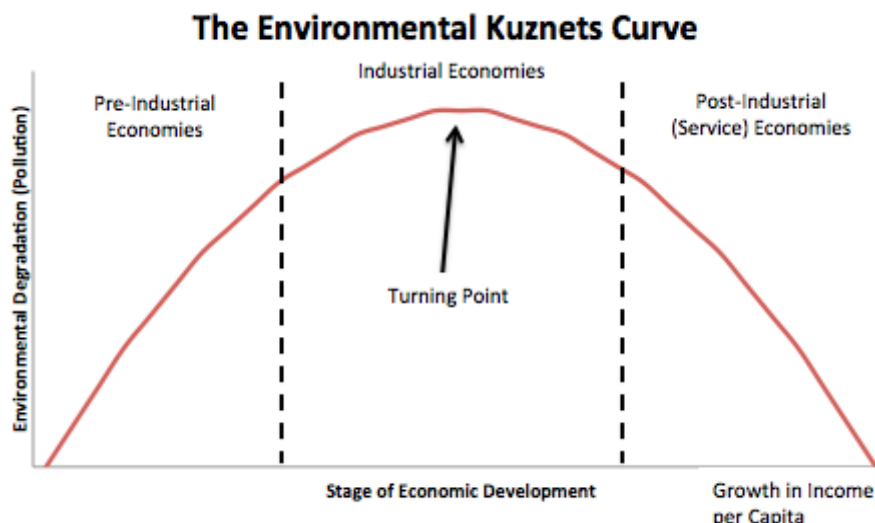


Figure 2: The Environmental Kuznets Curve

The EKC depicts the empirical pattern that at relatively low levels of income per capita, pollution level (and intensity) initially increases with rising income, but then reaches a maximum and falls thereafter. Thus, the EKC shows that the relationship between economic growth and pollution is an inverse U shape (Grossman and Krueger, 1995)

The EKC theme was popularized by the World Bank's World Development Report 1992 (World Bank, 1992), which argued that: "The view that greater economic activity inevitably hurts the environment is based on static assumptions about technology, tastes and environmental investments" but "As incomes rise, the demand for improvements in environmental quality will increase, as will the resources available for investment". Others have expounded this position even more forcefully with Beckerman (1992) claiming that "there is clear evidence that, although economic growth usually leads to environmental degradation in the early stages of the process, in the end the best – and probably the only – way to attain a decent environment in most countries is to become rich." However, the EKC has never been shown to apply to all pollutants or environmental impacts and recent evidence (Dasgupta et al., 2002; Perman and Stern, 2003) challenges the notion of the EKC in general.

In order 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. However, the earning capacity of under-developing countries is continuously declining due to protectionism of the Developed Countries. According to the United Nations estimate of 2001, annual losses of the developing countries due to lack of access to the goods markets of the developed countries were more than double the total amount of aid received in 2000 from all resources. If lack of access to capital and labour markets is included the total annual losses it will be about \$500 billion. In addition to trade barriers, the industrialized countries are panelizing the poor developing countries by heavily subsidizing their own agricultural sectors, which is estimated to be around \$300 billion per annum. The industrialized countries must change their policies to enable the less developed countries to break vicious circle of absolute poverty (Awan, 2013).

#### **IV. Population and Environment**

There has been a growing concern between population and environmental degradation. This is because the population may increase to a level whose needs cannot be met by earth's resources resulting in fall in the standard of living of the people. Increases in population cause over-exploitation of natural resources such as forests, water, fisheries and minerals at a rate far greater than their capacity to regenerate. Besides this, population pressure on land forces us to cultivate land more intensively by using chemical inputs such as fertilizers and pesticides which cause soil degradation. Further, increase in population through its effect on deforestation by the rural and urban population for timber and fuel leads to the increase in carbon dioxide in the atmosphere and therefore causes air pollution.

According to Ahuja, population is linked with environment in three ways: (a) space for living, (b) a stock of supply of resources such as food, energy, water and minerals and (c) as a sink for absorption of wastes (Ahuja, 2016).

Population increases cause over-exploitation of land and water resources and loss of biodiversity and forests. Therefore it will endanger sustainability of agriculture and food security of any country. According to M.S. Swaminathan "The capacity to support even the existing human and animal population has been exceeded in many parts of the world and if population growth is not checked, it will endanger the attainment of food security" (Swaminathan, 2002).

#### **V. Poverty and Environment**

Poverty is also responsible for environmental degradation. Poor people rely on natural resources for their livelihood. For survival, the rural poor are forced to cut forests for timber and fuel. Besides this, when the cultivable land becomes short relative to population, the poor people are forced to make their subsistence by cultivable fragile land on hills and mountains resulting in soil erosion on a large scale. It is in such environment that poverty becomes a vicious circle. Poverty leads to land degradation and this accelerates the process of impoverishment because the poor people depend directly on exploitation of natural resources on which property rights are not properly assigned. Moreover, poverty results in malnutrition and reduces poor people's capacity to do work. Thus poverty is both a cause and effect of environment degradation.

The solution to the poverty problem lies in land reforms, generation of more employment opportunities and improvement in productivity of land in use, for example, shifting the poor from poor resources-based to modern science-based agriculture. This is what has been sought to be achieved through green revolution technology (Ahuja, 2016).

#### **VI. Conclusion**

The conflict between economic growth and environment is sharper particularly in developing countries with fast growing population and mass poverty. The developing countries are making efforts to balance their need for rapid economic growth with the environmental concerns for keeping their natural base intact. The adoption of development strategy based on industrialization, energy-intensive technologies and biochemical – based agricultural technology has led to environmental degradation. The linkages between natural environment and development have put forward the concept of "sustainable development". Sustainable development today aims to improve the quality of life in a comprehensive manner, including economic prosperity, social equity and environmental protection. It also states that economic, social, environmental and cultural aspects.

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