

THE ECONOMICS OF SUSTAINABLE DEVELOPMENT: REFLECTIONS ON THE INDIAN ECONOMY

Gorkhnath Uttekar

Assistant Professor, Department of Economics, SVKM's Mithibai College of Arts, Chauhan Institute of Science and Amrutben Jivanlal College of Commerce and Economics, Vile Parle (W), Mumbai, Maharashtra, India.

Abstract

The concept of sustainable development brings a new optimistic vision of economic development. It is an attempt to clarify the balance between economic growth on the one hand and the protection of environment on the other. Sustainable development aims to improve the quality of life in a comprehensive manner, taking into consideration economic prosperity, social equity and environmental protection. This paper discusses the concept of sustainable development, its dimensions and various measures. The paper also highlights the national strategy for sustainable development in India.

Keywords: Sustainable Development, Social Equity, Environment and Economy.

Introduction

Environmental and geographical factors are the prime factors that determine the development of any nation. But over the years, due to negligence and so many unplanned activities, it has resulted in many environmental problems. During the last few decades, many experts have drawn attention to the close links between environment and 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 (Gorkhnath Uttekar and Prakash Salvi, 2018). 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 near future. Many later studies have also highlighted the danger of environmental degradation (Cropper and Griffiths, 1994 and Hess 2013). Hence, the focus has now shifted to "environmental protection". Therefore, environmental protection should form a part of any comprehensive programme of the industrial development. In this context, the economist now emphasis the concept of sustainable development.

Economic Growth and Environmental Degradation:

To achieve the goals of economic development, countries adopt the path of rapid industrialization. The general belief is that, the faster economic growth will lead to higher income generation and thereby helps to reduce poverty, income inequality and unemployment. However, this rapid industrialization is achieved at the cost of environmental and ecological damage. This will cause health hazards, natural calamities and will deteriorate quality of life.

According to World Bank Report, 2013, the total cost of environmental degradation in India is about Rs. 3.75 trillion annually, which is equivalent to 5.7 percent of GDP in 2009. In addition to this, India has experienced damages from natural disasters such as floods, storms and tropical cyclones. This has resulted in the loss of life, losses of livestock and crops, and losses to property and infrastructure.

The Environmental Kuznets Curve:

The EKC hypothesis states that as per capita incomes grow, environmental impacts rise, hit a maximum, and then decline. According to Dinda S. (2004), there are two reasons for the EKC. They are (i) as the economy progresses from agrarian economy to service economy the use of natural resources decreases; (ii) there is a tendency of people that as income increases they prefer for environmental quality.

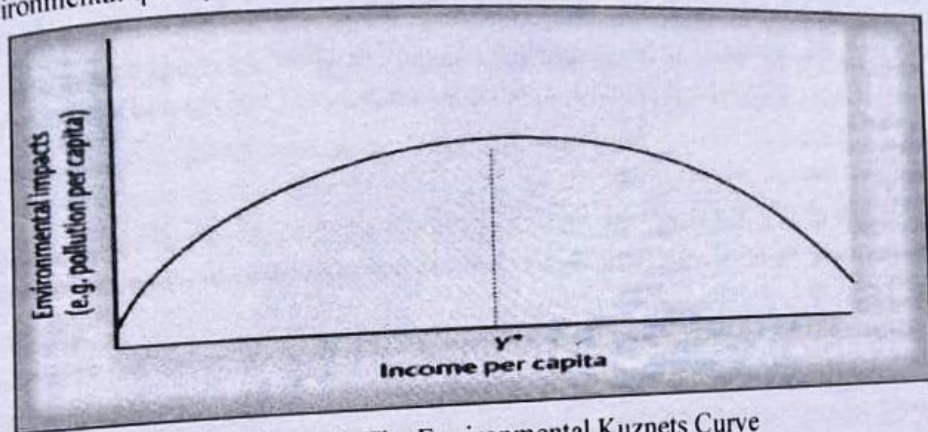


Figure 1: The Environmental Kuznets Curve

Source: Hanley et al (2004): "Introduction to Environmental Economics", Oxford University Press, New Delhi.

In the figure 1, we can observe the two parts of the curve, before and after a turning point at Y^* . Upto Y^* emissions are rising and environmental quality is falling. This is because:

- i. Economic growth results in an increasing use of resources and land clearance; this gives rise to an increase in waste.
- ii. If a country starts from an early development stage as an agricultural economy, then industrialization (the Industrial Revolution) also leads to an increase in emissions, as manufacturing takes over from agriculture as the dominant economy activity.

After Y^* , though, emissions fall and environmental quality rises. This is because:

- i. There is an increasing demand for environmental quality as incomes go up. Technological improvement over time makes production per unit of output cleaner.
- ii. Changes in the structure of the economy occur, such as moves from manufacturing to service sector or high-tech industries.
- iii. Increasing scarcity of 'environmental quality' drives up its relative price and this means less is 'consumed' and more is preserved.

The Economics of Sustainable Development:

The term sustainable development became a political buzzword since the 1992 Rio Conference on Environment, organized by the United Nations. It is used to serve multiple goals such as economic development, better environment, reduce absolute poverty, improving quality of life, controlling population growth, conserving and preserving environment (Pearce and Atkinson, 1998 and Dixon, 1989, Kumar 2007). According to The Brundtland Commission (World Commission on Environment and Development 1987) "sustainable development seeks to meet the needs and aspirations of the present without compromising the ability of future generations to meet their own needs" (World Development Report, 2003). It implies that each generation should satisfy its needs in a manner that its well-being is no less than that of previous generation. Sustainable development can be achieved only if the environment is conserved and improved (Pezzey, 1992). Moreover, a development path is sustainable, "if and only if the stock of overall capital assets remains constant or rises over time." This implies keeping the stock of natural capital at least constant (Pearce and Warford, 1993). In other words, if an environmental resource is damaged or depleted in one area, a resource of equal or greater value should be regenerated elsewhere (Todaro and Smith, 2003).

Dimensions of Sustainable Development

According to Barbier (1987) and Basiago (1999), following are three dimensions of sustainable.

Economic Dimension: According to (Barbier 1987), an economy must be in a position to produce goods and services on a continuous basis.

Following are major economic dimensions of sustainable development (Chavan 2014).

1. Creation of New Markets: For the sustainable development, the new markets and new market strategies should be encouraged and these in turn will promote the environment-friendly and renewable resources-based products.
2. Creation of New opportunities: The new markets can create new opportunities for economic growth. These new opportunities generate interest in the new products and it will promote the sustainable growth of the economy.
3. Creation of Additional Value: The new products are accepted by the society only if these have some additional value in terms of its quality or utility. Therefore, products of additional value should be produced. The additional value may attract the attention of people and generate interest.

Environmental Dimension: This dimension takes into account a system that avoids over-exploitation of renewable resource resources and depleting non-renewable resource. The environmental dimension of sustainable development includes (Chavan, 2014)

1. Waste Reduction: Production of any material goods needs raw materials and part of it is wasted. This waste is generally dumped into the natural environment in fully treated or partially treated or untreated form. This waste is a burden on the environment. Those production processes which have the least waste production should be used because it will reduce the burden of waste on environment.
2. Use of Renewable Raw Materials: Non-renewable materials are limited in their stocks. These stocks go on reducing as they are used in the production process and these will exhaust with time.

Instead of these, the renewable raw materials should be used. The supply of these renewable raw materials will last for indefinite period. Therefore, the developmental process will sustain in a long run with the use of renewable raw materials.

3. Minimum Exploitation of Resources: Less use of any resource is an indirect way of resource conservation. The exploitation of resources should be based on actual need. So that it leads to less wastages and efficient use of available resources.

Social Dimension: According to Harris, (2000) this dimension focuses on equity, provision of social services, political accountability and participation of the people. Local people and their communities play very important role in sustainable development. Social concerns of these people vary with geographical, environmental and economic conditions and status.

Following are the major social dimensions of sustainable development (Chavan 2014).

1. Workers Health and Safety: The workers are major elements in the production processes. The development process depends upon the production of goods by the workers. Health and safety of workers plays an important role in producing quality goods. Therefore, proper safety measures to ensure the health of workers are essential. Workers must have access to adequate training for the augmentation of environmental awareness to ensure their safety while achieving economic welfare.

2. Impact on Quality of Life: The local community is much influenced by the unplanned development activities. Their quality of life deteriorates as the development takes place. This needs to be avoided. The impact on local communities should be reduced and quality of life should be improved with the process of development.

3. Benefits to Disadvantaged Groups: In the social structure, many disabled are to survive. The development overlooks these disabled groups. There are few social groups which are disadvantaged by the developmental activities. The development path must take into consideration these disadvantaged groups and disabled individuals. If the benefits are spread to these disadvantaged groups and disabled individuals then it will result in achieving higher economic welfare.

Economic Indicators of Sustainability:

Since the Brundtland Commission (1987) several attempts have been made to develop indicators of sustainability. They have been developed from a number of different disciplinary perspectives, including economics, ecology, politics and sociology (Hanley et al 2004). However, the progress in developing indicators for measuring sustainability is restricted to environmental and economic aspects. Social indicators are yet to be refined. Hence we shall restrict our analysis to only economic indicators.

Green Gross National Product:

Traditional measure of gross domestic product (GDP) provides only a partial picture of changes in welfare-capturing flow of goods and services transacted in markets. In estimating real GDP or national income the costs of environmental damage caused by environmental degradation and

pollution of air and water by the firms in the production process of goods must be subtracted. This is known as green GDP. This has been put forward by Arrow (2012) and Pearce and Warford (1993) for preservation of environment for sustainable of growth. According to them, the condition for sustainable development can be written as:

$$NNI^* = GNI - D_m - D_n$$

Where,

NNI^* = sustainable level of national income

GNI = Gross National Income

D_m = depreciation of manufactured capital assets

D_n = depreciation of environmental capital resources

Todaro and Smith (2003) have proposed a better measure of sustainable development, though difficult to calculate but provide a better indicator of sustainable development. They write the condition for sustainable development as under:

$$NNP^* = GNP - D_m - D_n - R - A$$

Where,

NNP^* = sustainable net national product which does not diminish over the course of a year.

GNP = Gross National Income

D_m = depreciation of man-made physical capital stock

D_n = decrease in the value of destruction of natural capital over the course of year

R = expenditure required to replenish environmental capital (forests, fisheries etc) destroyed during a year.

A = expenditure required to prevent destruction of environmental capital such as air, water, air quality etc.

Genuine savings:

An alternative economic indicator of sustainable development which is closely related to sustainable development is the genuine savings. This concept was put forward by Pearce and Atkinson (1993) and Pezzey (2002). According to World Bank (2003), change in a wealth is a good indicator of a country's ability to sustain consumption.

Genuine savings compares reinvestment in an economy with depreciation of both natural and man-made capital. It is defined as

$$GS = S - \delta_m - \delta_n$$

Where, GS - genuine savings

S - Total (aggregate) savings

δ_m - depreciation of man-made capital

δ_n - depreciation of natural capital

National Strategy for Sustainable Development in India:

In 1972, under the Department of Science and Technology, the National Council on Environmental Policy and Planning was set up in India. Later on in 1985, it was renamed as Ministry of Environment and Forests (MOEF). The prime objective of the MOEF is to regulate and guarantee environmental protection in India. It is also responsible for national strategy for sustainable development (Taneja and Myer, 2010).

The **Ninth Five Year Plan (1997-2002)** has identified the close linkages between environment, health and development. According to the International Institute for Sustainable Development, it identified the need for ensuring environmental sustainability of the development process through mobilization of resources and people's participation at all levels as one of the core objectives (www.iisd.org). In 2002, India presented its perspectives on sustainable development before World Summit for Sustainable Development in the form of detailed study "Empowering People for Sustainable Development" (EPSD). The EPSD has four main objectives: (i) Combating poverty (ii) empowering people (iii) using core competence in science and technology (iv) setting environmental standards: conservation of natural resources and improving core sectors of the economy (Taneja and Myer, 2010).

The government's commitment to sustainable development is reflected in the **Tenth Five Year Plan (2002-07)** in the form of specific and monitorable targets relating to a few indicators of human development and conservation of natural resources (GoI, 2005).

The strategy for sustainable development in the **Eleventh Five Year Plan (2007-12)** involves the following main issues. It covers various areas such as increase in forest cover by 5 percent of the total geographical area, improving air quality through the Central pollution Control Board (CPCB) and the Pollution Controls Boards (PCBs) in the states.

The broad vision and aspirations which the **Twelfth Plan (2012-17)** seeks to fulfill are reflected in the subtitle: '**Faster, Sustainable, and More Inclusive Growth**' (Government of India, 2013). In order to help achieve the inclusive and sustainable growth, the Twelfth Plan covers a wide variety of sectors. There are programmes in health, education, drinking water and sanitation, infrastructure in rural and urban areas, programmes of livelihood support for the weaker sections of the society particularly the STs, STs, OBCs, Minorities, and other marginalized groups (Government of India, 2013). While trying for faster and more inclusive growth, the Twelfth Plan also pays attention to the problem of sustainability.

Conclusion

The sustainable development refers to a balance between the consumption of available resources and the ability of social systems to meet the needs of present and future generations. It is considered to be the prerequisites of the survival of not only the present but also the future generations of people. The concept of sustainable development brings a new vision that is development for everyone. The debate over the links between economic growth, environmental quality and quality of life are interlinked and they are conducted under the heading of sustainable development. We tried to make an attempt to see how economic indicators of sustainability can be calculated. It has

now been realized that the people's abilities are as important to secure sustainable development as safeguarding the environment.

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