



## **Green Accounting: An Instrument for Sustainable Development**

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*Sustainable development and environmental degradation are interrelated concern. Un-sustainable economic development links with environmental degradation and emission of Green House Gases, which leads to variations in climate. This paper highlights the concept of sustainable economic development, its linkage with environment, measurement of sustainability via economic and accounting approach. Sustainability can be measure in economic terms through intergenerational equity in welfare. Sustainability can be measure in accounting terms through impact of our economic activities and development on the environment. This accounting measure of sustainable development is called Green Accounting. Green Accounting involves an array of quantitative estimations, which involves modeling and valuing the non marketed services of environmental assets such as forests, rivers etc., calculating the value of education, training and health as a generator of future incomes, valuing future liabilities in the form of environment pollution reduction costs and health costs, etc. Eco-Domestic Product is the most important indicator of Green National Accounting system, popularly known as the 'Green GDP'. Strategies for Sustainable Economic Development are also highlighted in the paper.*

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**Key Words:** Sustainable development, Environment degradation, Eco-domestic product, Genuine savings.

The meaning of term 'sustainable' is relatively easy to interpret: it means 'enduring' and 'to keep in being'. Development could be narrowly defined in traditional terms as real GNP per capita, but in broad term it could be to include other indicators such as health, education, living standard and some measure including human freedom. On similar ways, Sustainable Development has been defined as wider conception of economic, social and environmental sustainability. World Commission on Environment and Development's (popularly known as the 'Brundtland Commission') defines sustainable development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987). Sustainable development could be called equitable and balanced if for development to continue indefinitely and interests of different group of people which in the same generation and amongst generations are balanced. This balance is achieved simultaneously in three major interrelated areas economical, social and environmental. Sustainable development necessarily involves the pursuit of economic efficiency, social equity and environmental protection. According to Permanet *al.* (1999), the rationale for sustainable development arises from the 'desirability of cautious behaviour' with an objective to 'minimize ecological disruptions'. Such desirable behaviour, has moral, social, ecological, and economic grounds.

### **Indicators of Sustainable Development**

Sustainability links present to future. Achieving progress towards sustainability implies maintaining improvement in both, human and the ecosystem. We need simple



indicators to assess economic, social and environmental sustainability of the progress and development. Indicator should point out the progress towards the goal of sustainable development in context of a nation. All the economic, social and environmental changes should be reflected by such indicators. Some important indicators of sustainable development are as follows– GDP - Growth rate, Population stability, Human Resource Development, Employment status, Decrease in poverty incidence, Clean Air Index, Energy Intensive, Transport Intensive, Water use, Soil degradation, Forest cover ratio.

### **Sustainable Economic Development and Environment.**

Sustainable development deals with the interrelationship between economic development and environment. It has been observed that the economic development and environment are inseparably connected. There are very close and positive relationships between environment and development-

- Environment provides raw materials for production process.
- Environment provides life support services such as oxygen, water etc.

Economic development of any country is primarily depends upon available natural resources. Environment supplies raw materials for economic development of the economy, raw materials transformed into consumer product through the production process. It also clean up waste material and recycle them for renewable and reuse. Not only environment affects economic development but economic development also affects environmental degradation. Environmental degradation occurs as the result of our production and consumption related activities. Environmental degradation has an impact on green house gases emission that leads to global warming; Climate change is subsequence result of global warming. Thus Economic development links with environmental degradation, environmental degradation not only itself effects economic development leads climate change and climate change also has an impact on economic development of a country. Environment also affects the productivity and efficiency of human resource. Unsustainable economic development and human activities affect the environmental efficiency and altered the growth rate of development. There is a cyclic trend from environmental degradation to economic development showing in figure -1.



**Figure -1: Environmental Degradation to Economic Development**

### **Measuring the Sustainability**

Measuring sustainability is one of the most difficult tasks. It can be measure by two following approaches-

- Economic approaches and
- Accounting approaches.

### **Economic Approaches**

Economic sustainability designs a stable economy. It refers to such economic practices which support long-term economic growth and are not negatively impacting social, environmental, and cultural aspects of the countries and human society. This means that the public sector will provide support to occupations and create a better environment for better sense of well-being. Examples of economic sustainability is organic farming, green and socio-economic enterprises, etc. Economic sustainability can be analyzed through economic factors involving indicators related to safety, mobility, asset management, environmental protection, employment, income stability, profitability and clean energy etc..

Sustainability can be measure in economic terms through intergenerational equity in welfare. Sustainable development ensures that the future generations of individuals are enjoyed the same level of welfare as today's generation. Hence, intergenerational equity in welfare of the future generations lays most prominent part of sustainable development.

### **Accounting Approaches**

Sustainability can be measure in accounting terms through impact of our economic activities and development on the environment. It is important to consider the role of the



environment in our economy and the impact of our economic activities on the environment. Sustainable development is the concept of the relationship between economic growth and environment. Sustainable development deals with the linkage between economic development and environment. It has been observed that the economic development and environment are inseparably connected.

Hence, a true national income accounting system must consider the role of environment and the impact of economic activities and development on the environment. The value of environment degradation due to economic activities and development needs to be subtracted from the conventional concept of income to arrive at a true figure of net income. Such accounting measure is a true indicator of sustainable development. This accounting measure of sustainable development is called Green Accounting. Green Accounting estimates the prices for all national assets, including natural and human capital assets, and includes those estimates in the financial statement of the nation. Green Accounting involves an array of quantitative estimations, which involves modeling and valuing the non-marketed services of environmental assets such as forests, rivers etc., calculating the value of education, training and health as a generator of future incomes, valuing future liabilities in the form of environment pollution reduction costs and health costs, etc. One of the important indicators of Green National Accounting system is the Eco-Domestic Product, popularly known as the 'Green GDP'. The handbook on a System of Integrated 'Environmental and Economic Accounts' published by the United Nations (1993) defines eco-domestic product as follows:

$$\text{Eco-domestic product (EDP)} = \text{Gross domestic product (GDP)} - [\text{Depreciation of produced assets} + \text{Depletion of natural resources} + \text{Degradation and pollution damage}]$$

However, Eco-domestic Product does not directly measure whether this true income can be sustained. This leads to the concept of genuine savings, which can be conceived as the net change in wealth over an accounting period as new assets are invested, old assets depreciate, and natural resources are augmented or depleted. Since wealth represents the potential to generate income and induce well-being, changes in wealth or genuine savings are intimately linked with sustainability. The accounting definition of genuine savings is as follows:

$$\text{Genuine savings} = \text{Net savings} - [\text{Depletion of natural resources} + \text{Pollution damages}]$$

Where

$$\text{Net savings} = \text{Gross savings} - \text{Produced assets depreciation}$$



Therefore, using the accounting measure, we can infer a country as sustainable, if the genuine savings are non-declining over time. In other words, a country is sustainable if the growth in its genuine savings is persistently positive over time or environment degradation is minimizing during economic development process.

### **Strategies for Sustainable Economic Development:**

As we know economic growth directly links with environment degradation. Goal of high economic growth and development are related with some important environmental issues such as irreversible damage with implementation of food production, water supply, health, energy and bio-diversity. To minimize the environment degradation, most effective way is to adopt a sustainable development pathway by shifting to environmentally sustainable technologies and promoting energy efficiency, renewable energy, soil conservation, water conservation, forest conservation, afforestation, etc. Some important strategies are -

- **Sustainable Management of Natural Resource:** To avoid the over exploitation of natural resource, improve the efficiency of natural resources, manage the value of ecosystem and minimize the environmental degradation we can achieved goal of sustainable development and also save bio diversity.
- **Kyoto Protocol:** To limit the effect of climate change and environment pollution by meeting the commitment under Kyoto Protocol.
- **Combat Poverty:** Poverty is the major cause of un-sustainability, by eradicating poverty we can achieve sustainable economic growth.
- **Adopt Clean Development Mechanism:** The Clean Development Mechanism has accelerated the diffusion of renewable energy and energy efficient technologies by mitigating some of the risk associated with the adoption of new technologies.
- **Conservation of Natural Resources:** Adopt conservation of natural resources like soil, water and forest. Reforestation, afforestation and sustainable forest management can contribute to conserve bio diversity.
- **Minimize Pollution and Green House Gases Effect:** By adopting sustainable technique and clean energy sources as fuel we can be minimize the pollution and emission of GHGs and reduce the effecton environment.
- **Social Equality and Human Resource Development:** Limited major threats topublic health, ensuring food security, equality and sanitation.
- **Awareness:** Education and training can be given to common man to safe guard and adapt towardsenvironment.

### **Conclusion**

Environmentdegradation has been main issue of debate in recent time on global concern. It is the greatest challenge to sustainable development. It should be addressed by all countries with a shared perspective and agenda. The developed countries need to look beyond their narrow self interests and work jointly with the developing countries to evolve cooperative strategies on the issue of environment degradation, which is deeply related to the



future of mankind. However, the efforts so far in the direction of meeting the challenges of environment degradation and pollution, climate change are not sufficient; the world's current ecological, demographic and economic trajectory is unsustainable, need to turn it in sustainable manner. We urgently need a new economic paradigm, which is scientific, global, inclusive, cooperative, and environmentally sensitive.

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