

Economics of Environment and sustainable development

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Economists have become increasingly concerned about the important implications of environmental issues for the success of economic development efforts. Now it is well-known that the interaction between poverty and environmental degradation can lead to a self-perpetuating process, in which as a result of ignorance or economic necessity, people may destroy or exhaust the natural resources on which they survive.

Rising pressure on increasingly used environmental resources in developing countries can have severe implications on the developing country's self-sufficiency, income distribution, poverty and future growth potentials. This suggests that economic development itself is an important and lasting solution to some of the problems connected with environmental degradation, provided it is attempted through the least destructive path.

Environmental quality, some believe, is a luxury good which only wealthy can afford. This is a misconception. This controversy can be harmonised only if the two aspects of environmental use is properly understood. Environment can be an input in production or can be an amenity. The possibility of environmental degradation detracting from the pace of economic development, by imposing heavy burden on developing country effort on economic development, through health related expenses and reduced productivity of scarce resources, is underpinning this novel pursuit that environmental quality is not a luxury.

The population explosion on marginal land is also responsible for severe environment degradation which has led to de-forestation, falling farm productivity and per capita food production. Since people involved in cultivation of marginal land are lower income groups, unfortunately losses are suffered by those who could least afford them. I believe the solutions to all these environmental problems involve in enhancing the productivity of resources, eliminating ignorance, promoting environmental friendly attitudes and improving economic status of the poor. Environmentally sustainable growth is synonymous with economic development.

Environmental costs associated with various economic activities are not accepted without disputes. However, recently consensus is growing among development economists that environmental considerations must form an integral part of policy initiatives. As the modern system of calculation of national income (United Nations System of National Accounts) takes cognisance of only those factors



which affect money income of the individual or a business concern as the case may be, it deliberately ignores the environmental implications of economic activities, i.e., inadequately measures the impact of an economic activity to the society, when environmental damage occurs and neglects the services provided by natural resources to the society; and presents distorted national income figures.

However, the damage caused to soil, water supplies and forest, resulting from unsustainable methods of production, while enhancing the current national income, greatly reduces long term national productivity. This demands sound environmental policies domestically and globally.

During the last decade or so international economic integration has accelerated as a result of economic policy reforms and the communication revolution. Integration has brought with it greater scrutiny of domestic policies including environmental policies. There are vast differences across countries in environmental policies, just as there are vast differences in policies affecting other economic issues.

These policy differences are natural consequence of differences in national income, endowments, urbanisation, preferences, available technologies and information. Differences in per capita income is of special interest because as countries become richer they increase their demand for normal goods, including environmental standards. Differences in per capita endowments of natural resources and environmental amenities too matter because, other things being

equal, they tend to be the greatest concern in countries where they are scarcest.

When considering economics of environment certain basic issues have to be clearly defined. The concept of sustainable development, linkage between environment and population and resources, poverty, economic growth, rural development, urbanisation and the global economy are some of them. However, here our interest is on the sustainable development and the cost benefit analysis of environmental policies.

Sustainable development

This concept is used by the environmentalists in an attempt to clarify the desired balance between economic growth in one hand and environmental preservation on the other. As pointed out by Brundtland Commission, basically sustainability refers to meeting the needs of the present generation without compromising the needs of future generation. For economists the envisaged development path is sustainable only if the shock of overall capital assets, does not deplete in the process of development.

This, in other words states, that the future growth and overall quality of life, are critically dependent on the quality of environment (bio-diversity), which suggests that the natural resource base of a country and the quality of air, water and land belongs to the common heritage for all generations. We destroy this endowment indiscriminately in aiming at achieving short term economic goals penalising both present

and especially, future generations. The need of the day is that development planners must consider incorporating some form of environmental accounting into their policy decisions. Here what is required is that preservation or loss of valuable environmental resources should be incorporated into the estimates of economic growth and human welfare, by including them into the computation of national accounts. This entails valuing benefits offered by these resources and cost involved in preserving them.

To incorporate environmental variables into economic growth, a novel concept of sustainable net national income has to be considered. This is easily estimated if another novel concept is defined, i.e., overall capital assets.

According to Pearce and Warford (1993), overall capital assets not only include manufactured capital like machines, factories and roads but also human capital such as knowledge, skills and environmental capital such as forest, soil quality etc. Todaro (1997) following them introduced a formula to estimate sustainable national income.

$$NNP^* = GNP - Dm - Dn - R - A$$

Where NNP^* is sustainable national income; Dm depreciation of manufactured capital assets and Dn depreciation of environmental capital - monetary value of environmental decay over the course of the year. R , is the expenditure required to restore environmental capital and A , is expenditure required to avert destruction of environmental capital such as air pollution. However, here too GNP has been taken as it is, without engrossing benefits of the environmental quality, amenity, which increases human welfare. Hence, this too under-estimates the "real income".

There are practical difficulties to estimate; and almost impossible in developing countries to estimate, owing to lack of data and also improbability of occurrence of the expected results in the future. The new technologies in the future might make certain environmental resources redundant by producing far superior substitutes, and retain the same or better environmental quality with depleted environmental resources, e.g. technical ability to create rain.

Recent attempts to apply natural accounting to developing countries have been made by UNEP and UNSO the World Bank and the World Resource Institute. In certain countries such as, Germany, the Netherlands and the United States the already imperfectly accounted environmental degradation have been more accurately measures in national accounts. Environmental degradation such as in Indonesian forests, petroleum and soils; Costa Rican fisheries and forest Chinese minerals depletions have been explicitly accounted in the conventional national income figures in order to estimate net national income.

(To be continued)