
ENVIRONMENTAL ISSUES FOR DEVELOPING ECONOMIES

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ABSTRACT

Nature provides vital support to an economy as the source of resources for its production and as the sink for its wastes. The entropy law of thermodynamics sets capacity limits on the source and sink, and thereby imposes biophysical limits to economic growth. Environmental crises arise when economic growth overshoots these limits (or carrying capacity), resulting in ecological degradation. This has an adverse feedback effect on the economic system. Fundamentally, it is certain institutional failures that have been responsible for such crises. The character of these failures, however, differs with the state of development of an economy. The overpopulated, poverty-stricken, bio-mass-based developing economies face environmental problems due to both the pressure of population and the unsustainable use of resources. The latter arise from failure of social and economic institutions to resolve the problems of property rights, externalities, and income distribution. This thematic paper begins by clarifying background conceptual issues and an analytical perspective on such problems. It then discusses various environmental issues related to population growth, sustainability of the resource base (including exhaustible resources), and waste disposal, in the context of developing economies. These analyses and discussions illuminate the mechanics and consequences of local institutional failures while keeping in view the global perspective on such resource related problems. The article also discusses some global environmental policy issues and north-south trade and trade policy related environmental issues, along with their developmental implications for the developing economies. Finally, it delineates the concept of sustainable resource use and explains the associated green accounting approach, emphasizing among other things the role of institutions such as collective action in the management of sustainable resource.

Key words: Environment, Developing Economies, Resources, Policy

INTRODUCTION

Economic development has involved continuous interaction between the efforts of human beings to improve their material well-being, and the processes of nature. While the environmental challenges of development have induced many scientific discoveries and innovations in technology and social organization, efforts at development have sometimes resulted in environmental degradation, economic and social stagnation, and human suffering. The major environmental issues relating to the development process are discussed here within the broad framework of the relation between the human system and the system of nature.

Economy—Environment Relationship

Conventional development economics presumes that the well-being of a society depends on the flow of consumption of goods and services by its people. With the help of science and technology and their own labor, human beings transform the resources of nature into goods and services products, which are used for either consumption or capital formation. After the consumption or capital use, the physical content of the product flows back into nature in a degraded state as wastes. In such economic process of transformation of natural resources—biotic and abiotic—into economic products, and in their subsequent use, no basic constituent elements of matter and energy would be lost. However, any biotic or abiotic resource has a certain ordered structure. It is these orderly characteristics that enable the resource to render the useful service or to do the concerned work. With every use of the resource, its structure loses orderliness. The degree of disorder is called entropy. In the course of circular movement from the source in nature to the economy and from the economy to the sink of nature, the basic elements of energy and resources render utility to humans while moving along an increasing entropy gradient

Population, Environmental Resource Base and Poverty

The poor in the developing countries of the world are dependent on agriculture and the primary products of the environmental resource base. Population growth in poor economies with low labor productivity, inequality in income distribution, and high unemployment leads, therefore, to a rise in the number of people with no income and no property rights to well-defined resource endowments. Such people either join the landless labor class in the rural or urban system, or else try to survive by directly using the environmental resource base— for example, burning forests and converting them into

cropland or by forcible occupation of open access common property land. This leads to ecological imbalance in land use. The fuel needs of the poor also cause substantial over-harvesting of fuel wood from forests, causing deforestation. Deforestation and farming on hill areas cause soil erosion and flooding. However, even when rural marginal or poor farmers are able to stick to the land they possess, they often overuse it for cultivation, using unsustainable agricultural practices such as mono-cropping or shifting cultivation with too short fallow periods. Where there is no irrigation, this result in the exhaustion of soil nutrients. In most such situations, due to the pressure of population, people treat the common resources of the environmental resource base as open access, regardless of the legal status of such resources with respect to defined property rights. The overriding of property rights has often been the strategy of the poor for survival. The pressure of population on such economies, along with institutional failure, leads thus to a situation of straining the environmental resource base beyond its carrying capacity.

Human Population Growth

While the human population grew only very slowly for many millennia, population growth has accelerated rapidly during the past two centuries. The growth of human population—one of the major environmental stress factors to emerge in the twentieth century—is the result of nasality and mortality at global level. At the regional level, the net immigration into the particular regions has been a further source of environmental stress.

Human fecundity is the driving force behind the birth rate. However, the realization of its full potential has been constrained by both the scarcity of life support and socio-cultural restrictions introduced because of high population density. Malthus predicted that, with normal death rate, the realization of human biotic potential would result in geometric population growth while in the long run the food production could increase only in arithmetic progression. As a result, the human population would exceed the carrying capacity of land in terms of the number that can be provided the subsistence food requirement. According to Malthus, environmental resistance factors in the form of acute scarcity of food and consequent associated ill effects such as famine, war, disease, pestilence, etc. as induced by population density, would raise the death rate to bring down the level of population again to carrying capacity.

CONCLUSION

Remaining with the issue of migration, one may, however, argue that migration from rural to urban areas has happened significantly in developing countries through the urbanization process and industrialization, in spite of the low land-to-man ratio and the scarcity of other natural resources in an urban ecosystem. An explanation can of course be quite easily given in terms of relatively high levels of development and the availability of infrastructural capital as well as the heavy importation of resources into the urban centers from the rural parts of the economy. Highly energy-intensive industrial development and technological achievements in the urban centers and the contiguous suburban areas raise vastly the number of people that can live in such areas. However, one should also note that many hundreds of acres of land, thousands of liters of water, and huge amounts of other natural resources are required to provide support to these “hot spots” by supplying food and other life-supporting services and raw materials for industrial development. The heavy importation of resources from rural ecosystems has turned such urban centers into places of better economic opportunities in terms of more employment, higher wage rates, better standards of living and quality of life by improving the supply-side conditions. Such urban centers thus attract population while rural poverty pushes people out of the rural economies, particularly in places where agricultural productivity is low, land is too fragmented, and non-farm income opportunities are low.

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