

Rekha Krishnan (ed). *Growing Numbers and Dwindling Resources*. New Delhi: Tata Energy Research Institute, 1994. XVIII+171 pages. Indian Rupees 440.00. US \$44.00. Hardbound.

The issue of sustainable development, which is defined as the balancing of environmental protection with the generation of increased opportunities for employment and higher living standards, has assumed great importance in recent years. This has been due to the concern expressed by environmentalists that economic growth in developed and developing countries is having a negative impact on regional and international eco-systems. The increasing global environmental degradation has even spurred international organisations like the World Bank to provide capital and other expertise to help halt and, where possible, to reverse the process of environmental decay.

This volume consists of papers presented at a two-day seminar on Population and Natural Resources organised by the Tata Energy Research Institute (TERI) in New Delhi in the latter part of 1993. Divided in seven sections, it examines in detail the relationship of the growth of population, poverty, and economic activity with the environment, and the implications that this has for sustainable development.

Sections 1 and 2 discuss demographic issues and their impact on the environment. In particular, these sections examine the inter-relationship between the growth of the population and environmental degradation in the context of the availability of finite natural resources. More specifically, the paper on global population dynamics discusses the issue of demographic transition. The increase in population in the past 50 years or so has been largely due to the decline in death rates brought about by improved public health measures in many developing countries as well as the development of vaccines for such killer diseases as cholera, smallpox, malaria etc. Child immunisation programmes have also played a significant role in lowering mortality levels. The paper also examines the ways and means of introducing effective family planning programmes.

Section 3 reviews the problems of rapid urbanisation and its effects in India. This section looks at the problem of providing affordable and adequate housing to urbanites. As the rate of urbanisation is high in India, as well as in other developing countries, this also implies an increased need for transportation facilities, whether by road, rail or any other means. The choice of the transport mode, which can have serious adverse environmental consequences, is also examined in this section.

Section 4 looks at the role of technology in the population-environment nexus. Three issues are addressed here. The first deals with the management of natural resources. This is an important issue as good management is reflected in reducing, if not alleviating, environmental degradation. The second issue is that of participatory development which has assumed significant importance in recent years. Community-level participation, in particular, appears to be one answer to halt

environmental degradation, especially in the countries of South and Southeast Asia, as well as in Central and South America. The third issue is that of measuring natural resource degradation of exhaustible minerals such as oil, gas, and coal. A balance needs to be maintained in order to optimise their benefits. This issue is also examined in this section.

Section 5 quantifies population–natural resource linkages. There is only one paper in this section which highlights the interlinkages between high rates of population growth and dwindling resources, particularly those of the land and the minerals beneath it. Ecological issues such as desertification, deforestation, increased use of pesticides in agriculture, etc., all result from increases in population growth. Although ‘green’ technologies are now being developed to counter some of the worst effects of rapid industrialisation and population growth, it is still important to develop a quantified relationship between population size and the depletion of natural resources. This paper, therefore, develops a micro-watershed model in which two distinct modelling aspects are shown. However, for this model to be fully operational, it would require large amounts of quantified data, which are not available in the developing countries.

Section 6 discusses environmental issues in a North–South perspective. The two papers in this section look at environment issues as viewed from the South. Although the discussion is focused on the Indian experience, attempts have been made to highlight the commonality of issues with other developing countries. The central message of the paper is the importance of having effective family planning programmes aimed at controlling the growth of population. A major component of such a family planning programme would include raising the status of women by raising their literacy levels. Other aspects that are examined in an Indian context are energy, agricultural development, and urbanisation.

The second paper in this section discusses environmental sustainability in the context of over-consumption by the developed countries, often referred to in the literature as the North. The central feature of this paper is the use made by the author of Ehrlich and Holdren’s Identity ‘ $I = PAT$ ’ to evaluate the anthropogenic impact on the natural resource base. The author concludes that the most important factor that can mitigate environmental degradation is political will, which is required to restructure the economies of the developed countries away from over-consumption to a more responsible use of the factors of production. From the perspective of the South, however, high levels of economic growth are required to lower the growth of population; only then would the problem of poverty be addressed. Hence their concern about pressure from the North about the state of the environment, for if it were to be taken into account, the growth rates would plummet, worsening the poverty situation. Some trade-off is needed whereby the North should help the South in achieving sustainable development.

Section 7, is limited to the panel discussions of the seminar. Like other books brought out by TERI, such as *Global Partnerships for Sustainable Development* (1994), *Climate Change in Asia and Brazil* (1994), and *Joint Implementation of Climate Change Commitments* (1994), this volume also reflects the concern about the state of the world's environment and the measures that need to be taken to restore the quality of life.

Growing Numbers and Dwindling Resources is a good summary of the issues involved with respect to population growth and its impact, adverse or otherwise, on the environment. Sustainable development has now become a global problem and environmental issues are commonly discussed in academic and non-academic fora, with non-governmental organisations particularly playing a leading role in alleviating the environmental side-effects. Governments, especially those in the developed world, have begun to implement various policy measures to combat environmental degradation caused by industrialisation and the excessive use of chemicals in modern agricultural production. It may have been useful to have a section at the seminar devoted to various types of policy and policy instruments to achieve these objectives. For example, under policy objectives, such matters as environmental asset protection, project selection, and poverty and inequality, etc., could have been examined exclusively. Again, looking at policy instruments, for example, the role of taxation, the issue of private property rights, etc., could have been elaborated and reviewed critically. Another issue that has not been sufficiently highlighted is that of trade and the environment. Nevertheless, the book on the whole can serve as a good introductory guide to making people more aware of the consequences of rapid population growth on the environment.

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