

co-operate in the undertaking, the samples are likely to be more representative of TNCs which are more environment conscious and tend to comply more with governmental rules and negotiations than of the TNC population as a whole.

It is difficult to give any kind of summary of the diverse and sometimes disparate findings based on these surveys undertaken in the six countries studied. There is also the question of how useful many of these findings are for promoting understanding of the actual impact of TNCs, bearing in mind the points made in the previous paragraph. To illustrate, take for example the following extract from the study on Malaysia: "In addition to the questions asked on environmental concerns and measures taken, the TNCs were also asked to assess the adequacy of the measures they had taken. All except two of the TNCs and one local firm felt that they were adequately protective of the Malaysian environment. They claimed to have taken adequate anti-pollution measures for those aspects of the environment that were relevant to their operations" (p. 110), or the following extract from the study on the Philippines: "Regarding the plans of TNCs on how to deal with emergencies, it was the perception of the majority of the firms that their plans were comprehensive (84 per cent)." These findings are clearly only of limited usefulness in contributing to our understanding of the objective state of affairs.

More interesting are the responses in the Philippines study to the request for suggestions to further improve the environment in the Philippines. They were unanimous in suggesting stricter government control and enforcement! Also interesting are the findings from the Malaysian survey that TNCs had no specific programmes for monitoring workers exposed to occupational carcinogens such as electronics, asbestos and plastics. Also of interest is the finding in the Thailand study that many chemical factories either store toxic wastes on factory premises, simply discharge

wastes into public drainage systems or hire contractors to dump the waste in unknown places, the existing laws being ineffective partly because of a lack of approved dumping sites.

This review gives a taste of the wide-ranging and extensive material put together in this volume by the ESCAP/UNCTC Joint Unit on TNCs and by the authors of the individual country studies. The material will be of special interest to those wishing a better understanding of the problems of environmental management in developing countries, particularly in those experiencing rapid industrialization. The detailed review and discussion of environmental legislation in these countries and of the related problems of implementation and enforcement will be of particular interest in this respect. The volume also provides some useful insights into the role of TNCs in this context, and while the methodology used limits somewhat the usefulness of the results, it does provide a good beginning for future studies bearing on this issue. All in all, the authors are to be commended for a very useful contribution to an important subject.

NASSAU A. ADAMS

*United Nations Conference on Trade  
and Development*

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***Philippines: Environment and Natural Resource Management Study.*** World Bank Country Study. Washington D.C.: World Bank, 1989.

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The last years of the 1980s brought great transformations in international affairs. First, there was profound change in the Soviet Union and Central Europe. Second, there was growing understanding that population growth and massive demand for energy and other materials

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were causing severe or relatively severe problems for all countries, whether advanced or developing, and could involve adverse climatic change over the long run.

This World Bank study of the management, or lack of it, of the environment and resources of the Philippines illustrates how times are changing and not necessarily for the better. The World Bank, fortunately, seems now to have moved from the "economic growth" model to the "sustainable development" model. If this Report is any indication, we can look forward to a whole series of perceptive and concerned studies of environmental and resource problems in the Asian Pacific region.

The authors get at the fundamentals of the economic and social future of an important archipelagic country which has been ravaged not by overseas invaders but by its own government and the sheer pressures caused by increasing numbers. While problems of population growth, urban environment, especially of mega-Manila, and industrial pollution are touched on, the Report concentrates on the problems of deterioration of the coasts, agricultural land and the once forested uplands.

The picture which emerges is ugly. It raises doubts about the economic future of what was once potentially one of the most benign and productive countries in the Pacific. Now the reefs are deteriorating, mangroves are disappearing, forests are cut ruthlessly or slashed and burned, watersheds are being denuded, excessive flows of unchecked storm water threaten rice and other crops in the lowland areas.

Some of the burgeoning population of this island country have emigrated to the cities. More importantly, others have moved on to the public land of the hills and mountains. The objective for most of these people is subsistence. The consequences are serious erosion in almost all its manifestations. It is noted in the Report:

In combination, these efforts are damaging water conservancy systems in the lowlands,

reducing productivity and increasing cost of maintenance and restoration of the irrigation and hydropower systems. Deteriorating productivity in the lowlands contributes to the migratory 'push' (into uplands) completing a vicious cycle. The degradation of the uplands thus entails high social costs.

World Bank teams work constructively with governments. This team effort reflects an understanding of the social, economic and administrative realities. Problems are daunting. They are dealt with frankly. There is lack of data and capacity to analyse what is collected. There is rivalry between agencies, between central and local authorities. There is a gross insufficiency of resources for management of public lands, coasts and reefs. There is pervasive corruption.

Part VI sets out "Strategic Proposals for Improved Resource Management". Here one finds, among many sensible proposals, a text for our times:

Any strategy for sustainable development of national resources will founder if it does not simultaneously address the issues of population growth, impoverishment and unequal access, and the absorption of labour into manufacturing and intensified lowland agriculture.

The thrust of most of these proposals is closely related to what must be attempted if a country with a burgeoning population and limited resources is to aim for sustainable development: managing the remaining public forest, expanding new forests, developing a viable upland agriculture, limiting upland population, protecting reefs and mangroves, rationalizing administrative structures, entrusting responsibility to people at local level and making best use of what public and private capital will be available.

The World Bank does not go in for being alarmist. But the Executive Summary in this Report contains a sombre final paragraph which is relevant to all tropical countries which have succumbed to pressures to develop without much heed of the consequences for their

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land and marine resources:

A family which squanders its inheritance is destined for impoverishment and extinction. As poor as the Philippines is now, continued depletion and degradation of its natural resources will leave future generations with little basis for livelihood. It is the eleventh hour and a serious action program is necessary to preserve the common national heritage of the Philippine people.

ALAN BURNETT

*Department of International Relations  
Research School of Pacific Studies  
Australian National University*

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***Economic, Natural-Resource Scarcity and Development: Conventional and Alternative Views.***

By Edward B. Barbier. London: Earthscan, 1990. Pp. 223.

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Edward Barbier has produced a wealth of theory and practical ideas on various aspects of environmental economics, and has painstakingly and productively cultivated this field into a formal discipline of its own rights. The main aim of this work is to explore new avenues with an alternative approach to natural resource-scarcity problems, which are cumulative products of irreversible environmental degradation.

Dr Barbier's comment on the rising costs in the economic system associated with environmental degradation serves as an *aide-mémoire* especially to the natural resource base economies of Asian and Pacific regions. Some of these nations are rather reluctant to accept the fact that their natural resources may not, in the long run, be environmentally sustainable. This book gives insight for reappraisal of absolute and relative natural resource-scarcity problems that are facing countries in these regions.

The expressed purpose of this book is to

have an understanding of the ways in which increasing exploitation of the environment would result in the deterioration of the quality of environment, which is directly related to relative scarcity of essential environmental services and ecological functions. Over a period of time this process may pose an absolute constraint on economic-environment systems. Furthermore, the alternative view of natural-resource scarcity is applicable to deforestation, desertification, watershed degradation, climatic change from global warming and acid rain problems, and provides insight into the type of economic strategies required to solve these problems. The concept of sustainable economic development has different implications for advanced industrialized economies and developing economies. Thus, if the sustainability of these ecological processes underlying economic activity is recognized to have value, sustainability should be explicitly included as one of the objectives to be pursued by economic policymakers and planners.

This book is organized under nine chapters from "Historical Approaches to Natural-Resource Scarcity" to "An Economic of Sustainable Development" plus detailed notes, references and appendices. The author has generally grouped the chapter into four parts. The first part gives an overview of the historical perspectives and fundamental ideas on environmental and resource economics, and further analyses the impact of environmentalism, ecology and thermodynamics on conventional economic approaches. The second part highlights the more recent development and extensions of conventional approaches in environmental and resource economics, and the third part leads to the development of an "alternative" approach to the economic analysis of environmental degradation. The final part discusses the implications of taking a new direction in the analysis of environmental and resource problems — the development of an emerging economics of sustainable development.

The author further explores a new class of