

ENVIRONMENT, ECONOMIC GROWTH, AND GOVERNMENT IN DEVELOPING COUNTRIES

UDAY DESAI

Introduction

Think globally, act locally is a popular environmental slogan. Nature is a seamless global whole. The world's natural environment is intricately interwoven. A small change in a faraway place may have major consequences on the amount of our rainfall or the severity of our summer storms. Destruction of Brazilian rainforests, deforestation in Thailand, air pollution in Mexico all have worldwide consequences: global warming, a hole in the ozone layer and the destruction of biodiversity. These, in turn, affect human health and well-being across the globe.

Our growing knowledge of the interconnectedness of the global environment inevitably leads to the study of environmental problems and policies in countries around the globe. While initially the focus of contemporary Western environmentalists' concern was the degradation of the environment in the industrialized West (Carson 1962), it has increasingly shifted to environmental pollution and degradation in the poor countries. Partly this is a reflection of the realization that life in the industrial countries is affected by the environmental degradation in the poor countries. Global warming and depletion of the ozone layer caused by the destruction of rainforests and use of chlorofluorocarbons (CFC) in the poor countries are going to jeopardize the lifestyles and comfort of the citizens of wealthy countries perhaps even more than those of the poor countries. It is in the self-interest of the wealthy industrial nations to be actively concerned about the state of the environment in the poor countries.

Another reason for the increasing concern with environmental destruction in the poor countries has been the heightened recognition that the earth's natural resources are finite and that the existence of modern industrial societies depends on the continuing availability of these resources. There has been

steadily growing recognition by all but a few "true believers" in the magic of the market (Tucker 1982; Simon 1981, 1980; Beckerman 1974) that earth's resources and earth's ability to absorb pollution are already strained and that its ability to sustain our materially rich lifestyles is in serious jeopardy. Therefore, it is now widely conceded, especially in the industrial West, that the earth's natural resources must be considered in a "global" context. They must be utilized in a carefully planned and rational manner and must be protected from waste and overexploitation (Gamman 1994; Bennett and Chaloupka 1993; Porter and Brown 1991).

A small group of environmentalists, "deep" ecologists, have focused attention on the poor countries by developing a strong critique of the very basis of the political-economic system of wealthy industrial societies. They argue that the "commodification of relationships under capital and markets . . . are at the heart of current environmental problems" (Rogers 1994:2). They consider the "treadmill of production" and the "logic of competitive productivism" of the modern industrial society fundamentally incompatible with the planet's ecological well-being (Schnaiberg and Gould 1994; Sachs 1992). They consider global environmental degradation as a reflection of "a civilization impasse—namely, that the level of productive performance already achieved turns out to be not viable in the North, let alone for the rest of the globe" (Sachs 1992:35–36). For these deep ecologists, the global environmental crisis is really a "civilizational crisis." The very foundations of modern industrial society—that is, science and technology, market capitalism and the idea of domination over nature—are challenged (Rogers 1994; Sikorski 1993; Sachs 1992; Evernden 1985; Leiss 1994). These critics bring attention to environmental policies and problems in poor countries by challenging the viability and even desirability of industrial civilization. They challenge the model of development based on the idea of domination over nature that has been followed by the West and is being aggressively pursued in the poor countries, often at the urging of the wealthy industrial countries.

A fourth reason for the increasing attention to environmental conditions in the poor countries is the recognition, often not explicitly or publicly articulated, that serious damage to the environment and thorough exploitation of natural resources have already taken place in the industrial countries. It is recognized that it is nearly impossible politically, if not ecologically, to reverse this environmental degradation. It is cheaper to prevent or reduce environmental degradation in poor countries than in the rich ones. This is reflected, for example, in increasing interest in debt for nature swaps.

Whether it is self-interest in maintaining a high material standard of living or self-doubt about its viability and desirability, or the genuine belief that the fate of all living things, including humans, is tied together on this spaceship earth, or some combination of all of these reasons, the problems of

environmental pollution in a country are no longer the concern of that country alone. They have become the concern of many nations. The Rio Earth Summit is perhaps the most spectacular evidence of the internationalization of environmental concerns. This globalization of the environment has raised many difficult issues for the international community. The debates and disagreements surrounding the five Rio agreements, officially known as the United Nations Conference on Environment and Development (UNCED) agreements, concern many of the most contentious of these issues (Grubb et al. 1993).

There are two main concerns. First and central is a broad concern with the relationship between economic growth and environment. Second is concern with the roles of governments and markets and their consequences for the environment. There is a related concern about the relationship between democracy and environmental protection. These are overlapping and interrelated concerns. We discuss them in turn.

Environment and Economic Development

This is perhaps the central issue in the global environment debate. The dominant model of economic growth, based on neoclassical economics, does not consider the environment to be relevant to economics or economic development. It assumes that "there is not only an infinite supply of natural resources but also of 'sinks' for disposing of the waste from exploiting these resources—provided that the free market is operating" (Porter and Brown 1991:27). In this view, "the problems of raw materials exhaustion or pollution are minor diversions"; environmental pollution is an example of "negative externality" and only a matter of "minor resource misallocation" (Pearce 1986:15).

The environment is in an enduring conflict with this model of growth (Schnaiberg and Gould 1994). Economic growth requires exploitation of natural resources for expanding production of material goods and dumping of the waste products of this production into the environment. The modern "treadmill of production" inexorably degrades the environment (Schnaiberg and Gould 1994:v). In rich countries, mass production and consumption is a major cause of environmental degradation and destruction of natural resources. In poor countries, "the creation of value and access to subsistence are typically linked to *sacrificing* environmental quality for short-term economic gain" (Redclift and Goodman 1991:5). Poverty and subsistence do not always lead to environmental degradation. The poor often adopt sustainable use strategies, since their continuing survival depends on such strategies. However, among the multitude of poor and for most governments in poor countries, survival and reduction in poverty take precedence over concern for the environment. Questions of environmental quality are unlikely to receive careful hearing amid the overwhelming problems of poverty.

In addition, most of the poor countries, especially in Asia and Latin America, are now urbanized and semi-industrialized economies with sizable middle classes. These middle classes expect to achieve a relatively high material standard of living like their counterparts in the rich industrial countries. They are "oriented towards private consumer goods" (Redclift and Goodman 1991:13) and are unlikely to be enlisted in the cause of environmental protection at the expense of economic growth. The resistance of semi-industrialized countries, such as Malaysia, India, and Brazil, preceding the UN Conference on the Human Environment at Stockholm in 1972, to industrialized countries' focus on global environmental protection has continued. Developing countries, especially their governments and economic elites, consider environmental protection a luxury that can be considered only after the rising level of economic growth is secured (Grubb et al. 1993).

Long and hard bargaining preceding the Earth Summit in Rio focused on the developing countries' insistence on linkage between environmental protection and economic development. Poor countries demanded that the rich countries provide them with increased aid to compensate for their increased costs and for the adverse impact of environmental protection on their economic growth. The poor countries also demanded that the rich ones transfer advanced environmentally friendly technologies to them at low or no cost so that they can protect the environment without reducing their economic growth rate. Many developing countries refused to reduce their economic growth targets. China, for example, remains "committed to doubling its gross national product in twelve years at most" (Newhouse 1992:74).

However, it is not only the poor countries that resist sacrificing economic growth for environmental protection. Rich countries, especially the United States, have also generally refused to protect the environment at the expense of economic growth (Beckerman 1974). Richard Darman, a former director of the office of Management and Budget, expressed the sentiment shared by many when he said, in a lecture at Harvard University in 1990, "Americans did not fight and win the wars of the twentieth century to make the world safe for green vegetables" (quoted in Newhouse 1992:70). Recent legislations passed by the U.S. Congress in 1995, allowing oil drilling in Alaska's Arctic National Wildlife Refuge (not signed into law by President Clinton), reducing environmental regulations when they affect economic growth or jobs, generally reducing environmental regulation, and placing economic growth ahead of environmental protection, attest to the continuing priority of economic growth over environmental protection in the U.S. Even though there is increasing awareness of the need to protect the environment in the industrial countries, the pro-economic growth attitudes and mind-set are still dominant within "the most powerful institutions in the U.S. and elsewhere in the industrialized world" (Porter and Brown 1991:32).

Because pro-economic growth attitudes are held by the powerful elites and institutions as well as by a large section of the populace both in the rich industrial and in the poor industrializing countries, attempts have been made to reconcile economic growth with environmental protection. The poor countries' insistence that reducing poverty be the first goal has been the catalyst in developing approaches to reconcile economy and environment. The idea of "sustainable development" is the most widely accepted approach to reconciling economy and environment in a global context. The World Commission on Environment and Development (WCED) in its now famous report, "Our Common Future" (1987), developed the broad framework for what it called "sustainable development." It is a framework for the future of global human society. It is cautiously optimistic. It sees "the possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base." It also considers "such growth to be absolutely essential to relieve the great poverty that is deepening in much of the developing world" (1987:1) and declares that "Environment and development are not separate challenges; they are inexorably linked" (1987:37).

While sustainable development has become the dominant framework in discussions on global ecological preservation and international aid programs, questions about the wisdom of tying preservation of global ecology to economics have continued (International Union for Conservation of Nature and Natural Resources 1991; Wells, Brandon, and Hannah 1992; Pearce, Markandya, and Barbier 1989; Goodman and Redclift 1991; Redclift 1987, 1989). Some environmentalists have argued that economic growth is incompatible with ecological preservation. "The connotation of sustainable growth is that you can have development that is not detrimental to our environment, and that's where it becomes an oxymoron" (Robinson 1994:4). These environmentalists "fear that the new emphasis on human needs, . . . means a loss of commitment to the primary objective of conserving biological diversity" (Fuller 1994:2). They worry about the implicit threat that making "everything economic" poses to "reverence for life" on the planet (Wright 1994:3). Others suspect that "the ready adoption of sustainable development rhetoric implies a continuation of the present development models and policies" (Porter and Brown 1991:32).

While the difficulties of achieving economic growth without adversely affecting the environment are becoming increasingly apparent both in practice and in theory, it is also becoming abundantly clear that poverty exerts pressures that are equally perilous to the environment. A dominant current of thought addresses this paradox by stressing scientific knowledge and technological innovation as the key to reducing poverty through economic growth without degrading the environment. It places faith in human technological ingenuity and rational planning to enable us to escape the environmental costs

of economic growth. Its advocates see earth as a store of resources that are limited, finite, and exhaustible. They argue for careful management of all earth's resources, its air, water, forests, minerals, biological diversity. In this perspective, humans must use their unparalleled rational powers, their science, and their technological prowess to manage judiciously the earth and its resources in the interest of human prosperity and ecological integrity. In this view the environmental crisis is "a crisis of will and rationality" (Caldwell 1990:7). Much of the writing on environmental problems and policies by economists, political scientists, and environmental policy experts takes this "resource management" perspective (McNeely 1988; Pearce, Markandya, and Barbier 1989; WCED 1987). In this view, economic incentives and penalties, as well as regulations when there is no properly functioning "market," would protect the environment and promote more efficient use of resources, thereby increasing overall economic efficiency. This view emphasizes efficiency. It does not pay much attention to "equity."

There is a small but persistent group who insist that equity considerations are vital to environmental protection, especially in the poor countries (Goodman and Redclift 1991; Hecht and Cockburn 1989; Schnaiberg, Watts, and Zimmerman 1986; Schnaiberg and Gould, 1994; Watts 1986; Shiva 1989). There are two types of equity considerations. One deals with the assessment of how environmental pollution and hazards are distributed, both within and between countries. There is growing evidence that the poor, in both rich and poor countries, bear a disproportionate share of the hazards of environmental pollution. Poor communities in the United States seem more frequently to be home to toxic dumps and more often have more degraded environmental quality (Bullard 1993, 1990; Bryant 1989). Most victims of the Union Carbide chemical plant disaster in Bhopal, India, were poor squatters in shanty towns around the plant. In recent years, rich countries also have tried to export their highly toxic wastes to poor countries. Areola for instance, points out in his chapter in this volume that there was a national scandal in 1987 when it was discovered that an Italian ship covertly brought in toxic waste to be buried in Nigeria. It was not long ago that the U.S. media reported a barge laden with garbage from an American city stranded at sea when it was not allowed to dump its "cargo" in a nearby nation. The growing concern about the export of toxic wastes was reflected in poor countries' demand for a total ban on exports of hazardous waste to their countries, in Agenda 21 at the Rio conference. Though this demand was not adopted, chapter 20 of the agenda calls for ratification and implementation of the global Basel Convention and African Bamako Convention regulating and restricting transboundary movement of hazardous wastes (Grubb et al. 1993:133-34).

There is a second type of equity concern that deals with distribution of the economic benefits and costs of growth. In poor countries reducing poverty

by a more equitable distribution of the fruits of economic growth is not a minor element but the central necessity in protecting the environment (Redclift and Goodman 1991). Environmental protection policies have been shown to have regressive distributional effects on personal incomes (Zimmerman 1986). Thus, it would seem important to include equity considerations in all discussions of environmental policy. However, there is generally little attention given to these equity considerations and "little attempt has been made in policy to redress" the regressive effects of environmental policy (Watts 1986). Concern with the distributional consequences may grow, especially among the poor themselves, and especially if economic growth becomes anemic. A slow-down in growth is more likely to hinder than help policies to protect environment. It is more likely to lead to "a trend away from environmental protection altogether," rather than to "a development towards an equitable environmental policy" (Watts 1986:6), unless much greater attention is paid to equity in the distribution of the benefits of economic growth and of the costs of environmental protection policies.

Equity considerations at the global level, that is, distribution of the resources and benefits of economic growth among nations is equally critical in protecting global ecology. McNeely sums up the issue well in the context of conservation and sustainable use of global biodiversity: "A fundamental issue which remains to be solved is determining the optimal distribution of benefits from utilizing biological resources" (1988:iv). Most of the benefits flow to the global community while local, often poor, people bear the bulk of costs. McNeely's "global community" is, more often than not, the rich countries. Poor countries pay the price of protecting the environment and preserving biodiversity of the species, largely for the benefit and preferences of the rich countries. Environmental policy ultimately is an "inevitably distributive policy, and this applies as much to the global level as within individual countries." Given this, it is not possible to achieve sustainable development "without achieving greater global equality and more global responsibility" (Redclift and Goodman 1991:17).

Problems of poverty, its causes and its effects, are complex and seemingly intractable and inevitable. Environmental scholars and activists especially in the United States generally pay little or no attention to the connection between poverty and environmental degradation. They pay little attention to the adverse economic consequences of environmental policies on the poor. They generally do not concern themselves with the hardships that, for example, a ban on the use of forests or wilderness areas would impose on the subsistence of the poor who depend on them, except when these poor people engage in "illegal" activities to continue to eke out subsistence level living from these areas. (There are exceptions of course. For examples, see Hecht and Cockburn 1989; Goodman and Redclift 1991; Schnaiberg and Gould 1994.)

For some environmentalists poor countries are the major culprits for global environmental degradation. For them, poor countries with their burgeoning population of poor and illiterate people are not only incapable "of helping themselves" but are even beyond "being truly helped by other nations" (Caldwell 1990:19). For these Western environmentalists, the poor countries show by their actions that they "reject the social restraints." Instead, these countries have found an expedient solution to their difficulties in "the export of surplus poor people, chiefly to the industrialized countries" (Caldwell 1990:19).

From this perspective, one of the major problems is that there is no way "under the present disposition of national power and politics that nations may coerce one another into environmentally prudent policies"(Caldwell 1990:18). The idea of "national sovereignty" has become a problem for these environmentalists. They have even suggested that activities in one country that are detrimental to the environment of neighboring countries constitute "an international security issue" (Caldwell 1990:13). Presumably, such a situation would justify the affected countries' taking action to defend their "national security" by all necessary means, including coercion and intervention. Not surprisingly, many in the poor countries see the environment as "an excuse for political intervention" by the rich countries (Redclift and Goodman 1991:17; also Cleary 1991). One difficulty in considering another nation's environmental policies a national security issue is that "few developed countries would agree to intervention in their environments on the grounds of global necessity" (Redclift and Goodman 1991:17). Indeed, a great many of the U.S. government's objections to the Rio Earth Summit agreements were grounded in unwillingness to agree to anything that even remotely seemed to impinge on its sovereignty (Grubb et al. 1993; Newhouse 1992).

Environmentalists in the West, especially in the United States, find the ecological destruction in the poor countries alarming. They consider poor countries' unwillingness to give highest priority to environmental protection dangerous to the global environment. They find the poor countries' demand for monetary compensation for foregoing the use of their environmental resources offensive. And they find their inability to make poor countries protect their environment, for the present and future good of the world community, extremely frustrating. Poor countries, on the other hand, often consider Western environmentalism a disguise for neocolonialism. They see it as a program to perpetuate existing inequities between the rich and the poor, as a way to deny poor countries the opportunity to achieve the wealth and good life that the West enjoys (Porter and Brown 1991:127-28).

While economic growth seems to contribute to environmental problems, economic prosperity and security seem to contribute to environmental protection. Redclift and Goodman argue that increasing concern with environmental

protection is part of the "quality-of-life" considerations which have surfaced in developed countries "precisely because of the success of industrial capitalism in delivering relatively high standards of living for the majority" (1991:4).

Paehlke believes that "the future success of environmentalism depends on a reasonable level of security and comfort for the majority in society" (1989:9). The basis of environmental activism in industrial countries has been the economically secure, college educated middle class. A study of the Green party in Germany found that "Green voters have tended to be under thirty-five years old, highly educated, new middle class (salaried white collar or professional), urban or university town residents" (Frankland and Schoonmaker 1992:2-3). Some Western environmentalists suggest that the highly educated, economically secure, white-collar, middle-class individuals are the post-materialist vanguard for a new society (Milbrath 1984). For these writers the future of environmentalism and the fate of the global ecology depend upon the transition to "a truly post-industrial era" (Paehlke 1989:9). Broad-based popular support for the protection of the global environment is possible only "in a society well beyond industrialism" (Paehlke 1989:9). Only post- (or advanced) industrial societies, in this view, could create the postmaterialist majorities necessary to protect the global environment. Inglehart has argued that the "values of Western publics have been shifting from an overwhelming emphasis on material well-being and physical security toward greater emphasis on the quality of life" (1990:5). The culture of Western publics, according to Inglehart, has shifted from materialist to postmaterialist (1990). And herein lies the hope, perhaps the only hope in the minds of many Western environmental scholars and activists, for the defense of the global environment.

We come full circle. Economic growth and environmental protection, some argue, are inherently incompatible (Schnaiberg and Gould 1994). Others argue that sustained economic development to relieve the poverty of the multitudes in poor countries is an essential precondition for the long-term protection of the global environment (WCED 1987). Some counter that poor countries are the major threat to the global environment (Caldwell 1990) and that long-term protection of the global environment depends on the economically secure, highly educated, young middle-class professionals in the advanced industrial societies (Frankland and Schoonmaker 1991; Paehlke 1989; Caldwell 1990; Milbrath 1984). Others argue that environmental policy is inevitably a "distributive policy" within individual countries but especially between rich and poor countries (Goodman and Redclift 1991). The fate of the global environment, they argue, depends on making the world more equitable and just. They believe protection of the environment, especially in the third world, rests on one word: *justice* (Hecht and Cockburn 1989). All seem to agree that environmental protection is inseparable from economic well-being.

Democracy, Markets and Environment

In popular thinking democracy is friendly to, and sometimes even necessary for, the protection of the environment. Political democracy allows citizens to influence public policy by participating, individually and collectively through "interest" groups, in their formulation and implementation. Fair periodic elections, freedom of speech, assembly and organization, and generally free press seem essential for citizens' ability to influence their government and keep it accountable. The vast scale of environmental destruction in the ex-Communist countries of Eastern Europe and the old Soviet Union has strengthened the idea that democracy is better able to protect the environment than authoritarian regimes (Albrecht 1987; Alcamo 1992; Bolan 1992; Feffer 1992; Singleton 1987; Ziegler 1987). The lack of freedom for citizens and the victims of pollution to openly organize and oppose environmental destruction in the ex-Communist countries has been considered a major reason for this unchecked destruction. The lack of political democracy in these countries contributed significantly to the lack of environmental protection (Debardeleben 1991; Jancar-Webster 1993; Singleton 1987; Ziegler 1987). Protests against environmental destruction became an important part of the general opposition to the Communist regimes in Eastern Europe that eventually resulted in their collapse (Desai and Snavely 1995; Jancar-Webster 1993).

Non-Communist authoritarian regimes seem to be equally unfriendly to the environment. In Nigeria and Indonesia, as Areola and Cribb point out in their chapters in this volume, the military dictatorships have paid little attention to the vast environmental destruction in their drive to exploit resources: oil and forests. The recent hanging of a Nigerian poet and playwright, Ken Saro-Wiwa, and eight other members of his Ogoni tribe underlined among other things the dangers of protest against environmental destruction in a military dictatorship. Lack of openness and lack of information about the government policies along with lack of freedom of speech and organization in authoritarian regimes make it very difficult to deal effectively with the problems of environmental pollution and destruction. Political democracy, with its freedoms and its openness and free flow of information, seems better designed and more likely to deal effectively with environmental problems.

The connection between political democracy and environmental protection appears less compelling when focus is on the rich industrial countries. Environmental pollution and ecological destruction have reached very high levels in the Western democracies. Most of the greenhouse gasses responsible for global warming, most of the chemicals responsible for the hole in the ozone layer, and most of the hazardous and toxic wastes are produced by the democratic industrial countries.

Democracy itself seems to be at least partly dependent on the level of a country's economic development (Lipset 1960). Lipset argued that "democracy is related to the state of economic development. The more well-to-do a nation, the greater the chances that it will sustain democracy" (Lipset 1960:31). The studies over the last three decades seem generally to support the causal relationship between economic development and democracy (Diamond 1992). As sustaining democracy is dependent on economic development, and since economic growth and prosperity generally result in environmental pollution and ecological destruction, democracy would not necessarily be protective of the environment. Freedoms associated with democracy perhaps provide a better potential for environmental protection, if (and only if) protection of the global environment becomes a highly desired value over a long and sustained period of time, for a large majority of the people. However, democracy's dependence on economic development means that for democracies to be friendly to the environment would require fundamental changes in the individual values and the dominant social paradigm that justify ever increasing material wealth and prosperity even at the expense of the environment. The historical record of ecological destruction in democracies does not inspire much confidence in their ability to protect the environment.

Notwithstanding the current popularity of the "market" as a solution for all social problems, much of the argument for the environmental regulations enacted over the last twenty-five years in market democracies is based on the need for government action to counter the limitations inherent in the working of the market (Hardin 1968; Hodge 1995; Tietenberg 1992). Problems of environmental pollution and destruction are, in neoclassical economics, a result of market failure (Samuelson 1983). In economic theory, environmental pollution in a market economy is a problem of externality, a result of the fact that not all the costs and benefits of the use of environment are reflected in market transactions (Hodge 1995; Andersen 1994). However, continued environmental pollution and ecological destruction in spite of environmental regulations have in recent years brought increasing attention to the failure of government regulations to protect the environment. Many explanations have been advanced for continuing ecological destruction and for inability of environmental regulations to stop it. Some environmentalists blame it on the continuing dominance of belief in perpetual economic growth and unchecked industrial expansion (Rogers 1994; Sachs 1992; Tokar 1987). However, believers in the superiority of the market have blamed it on the self-interested behavior of bureaucrats and the inherent inefficiency of administrative regulations (LeGrand 1991; Wilson 1980; Niskanen 1971). They argue that government regulations are not only ineffective and inefficient, but are also counterproductive. They believe that more extensive property rights to natural resources (including the natural environment) would protect more efficiently

the environment people want to protect. They advocate "free market environmentalism" instead of environmental regulation (Andersen and Leal 1991).

Many of those between the true believers in the magic of an unfettered market and those who completely reject the market and the modern industrial order attribute the continuing environmental degradation both to market failure and to state failure (Janicke 1990; Cairncross 1994).

Many policy makers and academics, especially economists and political scientists, have increasingly advocated use of the "polluter pays" principle through market mechanisms such as green taxes and levies and tradeable pollution permits, as effective ways of dealing with market failure to protect the environment (Andersen 1994; Barde 1994; Baptist 1994; Mitnick 1980; Marcus 1982). While there have been relatively few empirical studies of the effectiveness of these economic instruments (Andersen 1994; Hidefumi 1990; OECD 1989; Hudson, Lake, and Grossman 1981) there is increasing evidence that such economic instruments in practice produce more mixed results than economics textbooks predict (Andersen 1994; OECD 1989; Majone 1989). Market-based instruments have serious limitations in protecting the environment in practice. Their effectiveness depends on the institutional setting, including national policy style (Andersen 1994).

The willingness and capacity of governments in poor countries to enforce environmental policies and regulations are often questionable. Corruption among politicians as well as bureaucrats is widespread in many poor countries. Polluting industries and businesses fend off and ignore environmental regulations by routinely bribing or buying off government officials. Wang and Cribb in their chapters in this book provide examples of the corrupt nexus between businessmen and politicians in Taiwan and Indonesia respectively. In poor countries, there is often a general lack of scientific knowledge about the environment in the very agencies that are entrusted with protecting it. These agencies also often lack the professionalism, independence, and resources necessary to effectively enforce the regulations. In addition, the centralized nature of environmental protection agencies and policies reduce the government's capacity to control pollution and protect the environment. Some environmentalists and scholars suggest that grass-roots community and nongovernmental organizations provide a more effective alternative to government agencies in protecting the environment and in using natural resources wisely (Reilly 1993; Ostrom 1990; Ostrom, Schroder, and Wynne 1993).

This Book

The primary purpose of this book is to provide, under one cover, an overview of environmental problems, policies, and politics in industrializing

countries. It discusses important environmental problems and public policies to deal with them in ten selected industrializing countries. It also explores some of the powerful interests and institutional forces that have created or contributed to the environmental problems and shaped the policies to deal with them in each of these countries. Each chapter, written by recognized scholar(s), discusses the increasingly international context of domestic environmental policies. The authors identify some of the major impediments both to well-designed environmental policies and to their effective implementation. The ten countries discussed here—Czech Republic and Slovakia, Nigeria, China, India, Indonesia, Taiwan, Thailand, Mexico, and Venezuela—represent all five continents, over half the world's population, and most of the major industrializing countries.

Considerations of cost as well as ease of use put constraints on the total number of pages that can be included in any single volume. This makes it necessary to limit the number of countries that can be discussed, if the depth of coverage of each country is not to be seriously compromised. Choosing any ten countries out of some one hundred fifty developing countries is inherently difficult. Any such list is going to leave out many countries worthy of our attention.

Several considerations guided the choice of the ten countries included in this volume. Size, location, and potential global as well as local ecological impacts of the developments were considered. Large and economically rapidly growing countries in Asia are especially important. Five of the ten countries included in this volume are in Asia. China, India, Indonesia, Taiwan, and Thailand are among the fastest growing developing nations in the world. Three, China, India, and Indonesia, are among the most populated in the world. Between them, these five contain about half of all humanity. The present rapid economic growth in these countries, especially in China, India, and Indonesia, is sure to have a most profound impact on global ecology in the next few decades (Brown 1995). Mexico and Nigeria are large, petroleum exporting, industrializing economies in two different continents. Their inclusion is important in any broad consideration of ecological issues in developing countries. We have developed summary tables of important demographic, economic and environmental statistics for each of the ten countries. They are included at the end of this chapter.

Including countries with different political systems was another important consideration. The highly authoritarian political regimes in China, Nigeria, and Indonesia; the democratic polities of India and Venezuela; the modestly open and democratic regimes of Mexico and Thailand; and Czech Republic and Slovakian regimes in transition provide a wide spectrum of political systems in developing countries. Including these countries with different political systems facilitates understanding of the interplay of politics,

policy, and environmental pressures. It also points to the universality of environmental issues regardless of political system.

It was important to include at least one country from each continent to provide as comprehensive a global coverage as possible with only ten country chapters. The Czech Republic and Slovakia broadly represent what is happening ecologically in the former Communist states in Eastern and Central Europe. Venezuela provides a good case study of a medium size, moderate income, industrializing country in South America. A more practical concern was the availability of established scholars in the various countries to prepare a chapter; this played at least a minor role in selecting the countries.

A number of common themes emerge from these nine chapters. Desire for economic growth seems to be the central driving force in all of them. Rapid economic growth through industrialization and exploitation of natural resources appears to be the overriding national purpose and a guiding principle for all public policies. In a conflict between economic growth and environmental protection, the environment almost always loses. In the centrality of economic growth, there is little difference between the democracies, such as India, Venezuela, and Mexico, and the dictatorships, such as China, Nigeria, and Indonesia, included in this book. The desire of the elites to achieve higher material standards of living for themselves and sometimes for their countrymen, even at the expense of environmental degradation, is a common thread in all ten countries. In the Czech Republic and Slovakia, as Catherine Albrecht points out in her chapter, economic reform and privatization have become the top national priority. Public concern for environmental degradation has eroded. The public's attention has been focused on economic matters: entrepreneurial opportunities, the prospects for unemployment and inflation.

Stephen Mumme, in his chapter on Mexico, observes that Mexico's environmental problems are "rooted in an economic development strategy that favors rapid industrialization." A generally widespread acceptance of this economic development through industrialization strategy is reflected in the failure of Mexico's Ecology Party (PEM) to get even 1.5 percent of the national vote in 1991. Lack of green parties in the poor industrializing countries indicates a general popular acceptance of the primacy of economic growth. In Nigeria, Olusegun Areola points out in his chapter, environmental politics is basically the politics of natural resource allocation. Issues of environmental protection are only "residual considerations" in the struggle for natural resources. It is only recently that Nigeria has seen the beginnings of a change in the attitude that considers environmental protection and economic growth to be totally incompatible. Large-scale irrigation projects such as Tehri Dam and Sardar Sarovar, carried out in India, are justified on the basis of their contribution to economic growth. A large majority of people have supported these mega projects, even in the face of local and international protests. As R.

K. Sapru, in his chapter on India, shows, the desirability of economic growth is universally recognized in India. The basic question, for him, is not whether to choose development or environment. Economic development is essential. The issue is to select economic development patterns that also improve environmental quality. The story is the same in other industrializing countries. In Venezuela, mega projects in mining, oil, and heavy industry were developed in the 1960s and 1970s to create rapid economic growth. Economic crisis in recent years, Pablo Gutman observes in his chapter, has probably distracted Venezuela from environmental concerns.

Economic growth has been the primary public concern for decades in Taiwan. In Indonesia, as Robert Cribb shows in his chapter, the elites have emphasized economic growth at the expense of environment to enrich themselves and to improve the material standard of living for their supporters. In Thailand, the elites consider environmental protection "a luxury that the kingdom could ill afford," as Rigg and Stott point out in their chapter. Even in China, as Lester Ross shows in his chapter, economic growth has become the central concern of the ruling Communist party. Economy and environment are intimately intertwined in all ten countries. In all ten countries, economic growth takes precedence over environmental protection. In some, Indonesia and Nigeria for example, economic growth means exploitation of the country's natural resources. In others, Taiwan, China, Mexico, and India, for example, economic growth through rapid industrialization and consequent environmental pollution is the pattern. In democracies, economic growth is justified and pursued to relieve mass poverty. In a dictatorship, it is pursued largely to enrich the elites and their supporters. Nevertheless, it is pursued by all ten countries.

However, the adverse environmental consequences of industrialization and resource exploitation have become increasingly apparent. In the last twenty years, many laws and policies have been enacted in all the ten countries to protect the environment. The chapters following summarize the major laws and policies in each country. Environmental laws and policies have become more extensive over the years in all of them. However, powerful economic and political interests continue to influence these policies. In Taiwan a strong link exists between business and political elites as Wang illustrates in the golf course case. In Indonesia and Nigeria political elites use their power to secure enormous economic gains by exploiting their countries' vast natural resources in partnership with domestic and international businesses, with little regard for the environmental degradation. In China, the Czech Republic and Slovakia, India, Mexico, and Venezuela, state-owned industrial enterprises, along with private industries, represent powerful interests against environmental protection policies. In many of them heavily subsidized agriculturalists also exert considerable influence, through political parties, against policies designed to

protect the environment by reducing subsidies or by increasing the prices of natural resources to fully reflect the environmental cost associated with their use. In democracies and in dictatorships, powerful economic and political interests, often working in symbiotic interdependence, determine the shape and the reach of environmental protection policies.

Increasing economic wealth and well-being and a growing middle class have increased awareness and demands for environmental protection in most of these countries. In China, as Lester Ross points out, environmental conditions are no longer ignored and "as the country is becoming wealthier and younger and better educated officials assume positions of responsibility." In almost all of these ten countries, except China, environmental groups have become an increasingly important voice in public debates. In many cases, for example in India and in Thailand, they have joined forces with other non-governmental organizations fighting for the rights of the poor, rural, or minority populations. Unlike in the industrial countries, the environmental movement in many poor industrializing countries is centered more in rural, poor, and minority community organizations. In the more industrialized and richer of these ten countries, Venezuela, Taiwan, and the Czech Republic, however, the environmental movement is centered more in the urban, educated middle class.

In all ten countries the international context and pressures for environmental protection have become an important force. In Mexico, Indonesia, India, the Czech Republic, Thailand, and even Nigeria and China international pressures to reduce air pollution, greenhouse gases, destruction of the forests, and displacement of indigenous peoples are often used by national environmental and other organizations to further pressure their governments to prevent or reduce ecological degradation. However, in Nigeria, and to a lesser extent in India, China, Venezuela, and most other developing countries, the international pressure for environmental protection often has led to resentment of the West and international environmental organizations. As Areola points out in his chapter, the concern for protecting the environment in Africa by Western powers and institutions has "long been viewed with apprehension by the Nigerian elite who perceive this concern as emanating from selfish economic and political motives." India, China, Mexico, and others also have often viewed Western concern with environmental protection similarly. Often this concern is viewed simply as a way to prevent these countries from acquiring the wealth and power that the West already possesses. Whether these industrializing countries welcome or resent international pressures for environmental protection, these pressures are real, and they play an increasingly important role in their environmental policy.

In all ten countries there are serious limitations to governments' capacity to implement effectively the already existing environmental policies and regulations. The management capabilities of government agencies entrusted

with environmental policy implementation are found to be quite weak. There is a serious lack of resources, personnel, and expertise. The environmental ministries and agencies are generally weaker than the economic and industry ministries and agencies in the government. In addition, often there is lack of coordination among various official bodies responsible for environmental protection. Decision-making authority in environmental matters is often either too highly centralized or too fragmented. The issue of governmental capacity to implement environmental policies receives especially detailed attention in the chapters on India, Venezuela, Mexico, and Nigeria.

Market forces have very limited influence on environmental protection in these countries. There are some attempts being made now, for example in China and India, to use market mechanisms for environmental protection. The impact of middle-class-centered "postmaterialist" values on environmental protection in these industrializing countries is very modest, if any, although there may be some signs of it in Taiwan. There are indications, however, that in some of these countries there are indigenous nonmaterialist values, especially among some rural and tribal communities, that are fueling local environmental activism.

The central theme emerging from the chapters in this book is the centrality of economic growth and development. Powerful economic interests generally win over environmental concerns. However, international pressure and in some cases increasingly active nongovernmental organizations are becoming important forces in favor of environmental protection. Weak governmental capacity to implement environmental policies and enforce environmental regulations is a major constraint on effective environmental protection in most of these countries.

TABLE 1.1

Demographic and Environmental Statistics of China

Total population 1995 ¹	1,221,462,000
Urban population ²	30.3%
Average annual population increase 1990–1995 ¹	1.1%
Average annual growth in labor force 1991–2000 ¹	1.2%
Total area in square kilometers 1994 ³	9,596,961
Density per square kilometer ³	126
GNP per capita ⁴	\$362
Life expectancy in years ⁵	
male	67
female	69
Literacy rate ⁶	81.5%

Access to safe drinking water ⁷	
for rural population	68%
for urban population	87%
Land use ⁸	
arable land	10%
permanent crops	0%
meadows and pastures	31%
forest and woodland	14%
other	45%
Protected areas ⁹	
in square miles	84,738
of total land area	2.3%
Deforestation in square miles per year ¹⁰	0
Number of cars in 1991 ¹¹	1,764,900
Carbon dioxide emissions (000 metric tons) ¹²	2,667,982
Sulfur dioxide emissions (000 metric tons) ¹³	
in 1980	13,370
in 1987	19,990
change between 1980–87	50%
Nitrous oxide emissions (000 metric tons) ¹⁴	
in 1980	4,910
in 1987	7,370
change between 1980–87	50%
Greenhouse gases	
Methane (000 metric tons) ¹⁵	47,000
Chlorofluorocarbons 1991 (metric tons) ¹⁶	43,252
Halons 1991 (metric tons) ¹⁶	19,569
Nonmethane volatile organic compounds ¹⁷	NA

1. World Resources Institute (1996) 190–91.

2. Seager, et al. (1995) 92–99.

3. United Nations (1996) 126–33.

4. World Resources Institute (1994) 485.

5. Reddy (1994) 194.

6. United Nation's Educational, Scientific, and Cultural Organization (1995) 1–8 to 1–17.

7. World Resources Institute (1994). Figures dating generally from 1988 are supplied to the World Health Organization (WHO) by national governments and may represent optimistic assessments. *Urban population's* access to safe drinking water is defined as access to piped water or to a public standpipe within 650 feet of a dwelling or housing unit. *Rural population's* access to safe drinking water is defined as treated surface water or untreated water from protected springs, boreholes, and sanitary wells located such that a family member need not spend a disproportionate amount of the day fetching water (WHO, 485, 684). *Copyrighted Material*

8. Reddy (1994). Land use is human use of the land surface categorized as *arable land*—land cultivated for crops that are replanted after each harvest (wheat, maize, rice); *permanent crops*—land cultivated for crops that are not replanted after each harvest (citrus, coffee, rubber); *meadows and pastures*—land permanently used for herbaceous forage crops; *forest and woodland*—land under dense or open stands of trees; *other*—any land type not specifically mentioned above (urban areas, roads, deserts) (194, 1036).
9. World Resources Institute (1994). 1990 total protected areas (over 2,471 acres) under national protection in one of five World Conservation Union categories and where access is at least partially restricted: scientific reserves; national and provincial parks; natural monuments and natural landmarks; managed nature reserves and wildlife sanctuaries; and protected landscapes and seascapes. *Percent of total* is calculated on the basis of total land area (485, 683).
10. World Resources Institute (1992). *Deforestation* is defined as the permanent conversion of forest land to other uses. Areas that are logged are not counted as deforested if natural or artificial reforestation is planned (411, 591).
11. Seager, et al. (1995) 92–99.
12. World Resources Institute (1996) 326–27.
13. United Nation's Environment Programme (1993). Per capita emissions of SO_2 in 1990 are based on UN population statistics for 1990 unless otherwise indicated. The calculation of emissions of SO_2 per unit GDP is based on World Bank estimates of GDP in 1990 in US currency as reported in the World Development Report 1992. Emissions of SO_2 per unit GDP are given in kg a^{-1} per 10^3 .
Note that emissions are given in units of 10^3 t a^{-1} as sulfur dioxide (SO_2); to convert to emissions in 10^3 t a^{-1} as sulfur (S) divide by 2.0.
Data presented in the above table generally represent official country emissions estimates as reported in "state of the environment"-type reports or as reported to the European Monitoring and Evaluation Program. As methods of estimation may vary between countries, intercountry comparisons should be made with caution. Trends observed within each country are more reliable than comparisons between countries (44–46).
14. United Nation's Environment Programme (1993). Per capita emissions of NO_x in 1990 are based on UN population statistics for 1990 unless otherwise indicated. The calculation of emissions of NO_x per unit GDP is based on World Bank estimates of GDP in 1990 in US currencies as reported in the World Development Report 1992. Emissions of NO_x per unit GDP are given in kg a^{-1} per 10^3 (47–48).
15. World Resources Institute (1996) 328–29.
16. United Nation's Environment Programme (1993). Chlorofluorocarbons (CFCs) refer to the Group I compounds: CFC-11, CFC-12, CFC-113, CFC-114, and CFC-115. Halons refer to the Group II compounds: Halon-1301, Halon-1211, and Halon-2402. Data on consumption of CFCs (Group I) and halons (Group II) are based on official reports submitted to the Ozone Secretariat, UNEP, under the terms of the Montreal Protocol (40–42).
17. Information not available.

TABLE 1.2

Demographic and Environmental Statistics of Indonesia

Total population 1995 ¹	197,588,000
Urban population ²	32.5%
Average annual population increase 1990–1995 ¹	1.6%
Average annual growth in labor force 1991–2000 ¹	2.1%
Total area in square kilometers 1994 ³	1,904,569
Density per square kilometer ³	101
GNP per capita 1993 ⁴	\$740
Life expectancy in years ⁵	
male	59
female	63
Literacy rate ⁶	83.8%
Access to safe drinking water ⁷	
for rural population	33%
for urban population	35%
Land use ⁸	
arable land	8%
permanent crops	3%
meadows and pastures	7%
forest and woodland	67%
other	15%
Protected areas ⁹	
in square miles	68,725
of total land area	9.3%
Deforestation in square miles per year ¹⁰	3,475
Number of cars in 1991 ¹¹	1,416,200
Carbon dioxide emissions (000 metric tons) ¹²	184,585
Sulfur dioxide emissions (000 metric tons) ¹³	
in 1980	329
in 1987	485
change between 1980–87	47%
Nitrous oxide emissions (000 metric tons) ¹⁴	
in 1980	465
in 1987	639
change between 1980–87	37%
Greenhouse gases	
Methane (000 metric tons) ¹⁵	10,000
Chlorofluorocarbons 1986 (metric tons) ¹⁶	2,489
Halons 1986 (metric tons) ¹⁶	5
Nonmethane volatile organic compounds 1989 ¹⁷	NA