# Chapter 9

# The Environment

9.1 Much has been written on environmental issues. We address them here because of their increasing impact on and implications for the development process and relations between developed and developing countries. This has followed from the dramatic upsurge in international concern about environmental degradation during the past decade and the significant changes which have occurred in perceptions of the problem. Advances in scientific knowledge have exposed grave threats to our common future—such as would follow global warming and ozone depletion—which were barely understood or thought to exist a decade ago. A better understanding of ecology has also led to greater awareness of how irreversible damage has been done to some of the Earth's life-support systems. Conventional notions about economic growth and development are increasingly being questioned as environmental awareness grows. Nowhere is this more apparent than in the energy sector, which perhaps more than any other highlights the linkage between environmental and developmental concerns. On the one hand, energy is vital to economic growth and development. On the other, it is the cause of many environmental problems.

9.2 Although all countries have a common interest in safeguarding the future of the planet, there are serious differences of view between them on environmental problems. Developed countries consider that developing countries should participate in global environmental conservation efforts. Developing countries accept this, but point out that it is the developed countries which have caused the greater damage to the environment in achieving their high living standards and that it is these countries which still consume a disproportionate amount of non-renewable resources (particularly fossil fuels). Developing countries are also

concerned about the imposition of new forms of conditionality—based on environmental criteria—with no assurances that significant additional resources will be forthcoming to meet the high costs of environmental conservation. There are strongly held fears that resources will be diverted from traditional development assistance to the environmental sector. Developed countries, for their part, are concerned about the domestic budgetary implications of allocating additional resources to support environmental conservation in developing countries.

9.3 These divergencies are the cause of serious problems. But they also give developing countries leverage in negotiations and provide them with other opportunities. Some progress in resolving the difficulties has already been made. Agreements on burden-sharing have been reached in certain areas (for example in reducing ozone depletion), and international institutions including the World Bank are devoting more resources to global and domestic environmental protection. But a more comprehensive understanding between countries is clearly needed on this issue in the interest of securing a global partnership to tackle environmental problems.

**The Nature and Scale of the Problem**

9.4 The impact of human activities on the biosphere, which was marginal for almost the entire history of human evolution, has increased exponentially in the last two centuries through industrialisation and other forms of economic development and, more recently, through the population explosion. The consequent damage to the environment manifests itself at different levels.

9.5 Some phenomena such as the threat of global warming, the depletion of the ozone layer, and the loss of biodiversity, constitute global changes harmful to all humanity. Others, ranging from sulphur dioxide emissions to illegal dumping of noxious waste, have trans-border implications. Finally, problems such as soil erosion and riverine flooding have serious implications which are usually confined to a single nation. We restrict ourselves here to noting those problems which are causing the greatest concern.

9.6 Human activities are substantially increasing atmospheric concentrations of gases, posing the danger of global warming through the 'greenhouse effect'. The most important cause is the burning of fossil fuels (see next paragraph). A clear scientific consensus has emerged on the range of global warming (and consequent sea-level rise) which can be expected during the twenty-first century. The findings of the 1989 Commonwealth Report on Climate Change have largely been confirmed by the United Nations Intergovernmental Panel on Climate Change. In

the absence of action to limit growth of greenhouse gas emissions, by the year 2100 the world is likely to be 3 degrees centigrade warmer than today and global sea-level 65 cm higher. Although significant uncertainties remain, the ensuing climatic changes might place stresses on natural and social systems unprecedented in the past 10,000 years. A rise in sea-level of one metre, for example, would engulf low-lying islands and coastal zones and displace tens of millions of people.

9.7 Largely because of the burning of fossil fuels, the energy sector accounts for roughly half of the anthropogenic emissions of gases which are accelerating global warming. Coal-burning thermal electricity generating plants pollute the air and cause acid rain. In many developing countries part of the reason for the increasing rate of deforestation is the need to meet the growing demand for fuelwood in poor rural and urban households.

9.8 The atmosphere is also being affected in other ways. Increased emissions of chlorofluorocarbons (CFCs) as a result of the expanding use of aerosols, refrigerators and plastics are causing complex chemical reactions which are breaking down the ozone layer. It has been scientifically established that the present rate of depletion of the ozone layer has significantly increased the risk of skin cancer and other ailments because of ultraviolet radiation. Nuclear accidents like that at Chernobyl have also caused much environmental pollution and increased the incidence of cancer.

9.9 Deforestation contributes to global warming but also carries with it the loss of biological diversity. The current rate of deforestation is such that perhaps a quarter of the earth's species may be extinguished in the next 20 to 30 years. At the national level, deforestation is also a major cause of soil erosion which has already led to the advance of the desert in many developing countries. Today, two-fifths of Africa's non-desert land risks being turned into desert, as does one-third of Asia's and one-fifth of Latin America's. The potential loss of agricultural and pastoral production threatens the livelihood of many millions and the food supply of many more. Inequitable land distribution and population pressures compel millions of the rural poor to clear hillside forests for agricultural purposes as well as for fuelwood. In an increasing number of developing countries, this has caused serious erosion of upland watersheds, with grave consequences for agricultural production downstream in valleys and deltas. But environmental problems are not restricted to the land. Indiscriminate fishing and pollution of fishing grounds have done great damage to marine resources in many areas. Oil spills have also caused much ecological damage as recent events in the Gulf have shown.

9.10 Almost all these events are symptoms of the fundamental problem

of unsustainable development highlighted by the 1987 Report of the World Commission for Environment and Development (the Brundtland Commission). The growth and development strategies which have created today's $20 trillion world economy —characterised by vast international disparities in consumption and wealth—cannot be sustained indefinitely in ecological terms. There are finite limits to the capacity of the biosphere to accommodate and support human activities. The world invites ecological catastrophe if it breaches those limits. The Commission, therefore, called for a profound change in economic development policies based on the principle of environmental sustainability: development should meet the needs of the present generation without compromising the ability of future generations to meet their own needs. It was optimistic to think that a 'new era' of ecologically sound growth could ensure higher living standards for all without doing further damage to the environment. This would require the integration of environmental considerations in every aspect of economic, social and political life. The Commission also stressed the need to address a related developmental challenge: the alleviation of poverty. It warned that a world in which poverty is endemic will always be prone to ecological and other catastrophes. The satisfaction of basic needs in developing countries is therefore essential to achieving sustainable development.

9.11 The principle of sustainability, among other things, requires that the environment be seen as a form of capital which is producing a flow of services (providing raw materials, absorbing waste products, and supporting life) to humanity. A major reason for the continued degradation or depletion of the environment is that humanity is trying to enjoy too many of those services as if they were free, and continuing largely to ignore full cost accounting for environmental destruction (for example air and water pollution).

**Causes of Environmental Degradation**

9.12 All countries have contributed to the world's environmental problems, but the degree to which they have done so varies substantially. With only a fifth of the world's population the developed countries account for over three-quarters of its consumption of non-renewable resources. They consume 85 per cent of the world's fossil fuels, whose burning is the main cause of the greenhouse effect. Their energy use releases perhaps three-quarters of the sulphur and nitrogen oxides that cause acid rain, and their industries generate most of the world's hazardous chemical wastes and CFCs which are damaging the ozone layer. The dissemination of scientific facts about environmental degradation has caused profound changes in public perceptions and preferences in many developed countries. Environment has moved to the top of the political agenda in several of them. But despite growing

awareness and concern about environmental matters, the developed countries have not so far succeeded in checking, let alone reversing, the increase in the damage they do to the environment.

9.13 The developing world, on the other hand, has so far contributed relatively little to the degradation of the global environment. What damage it has caused is largely local and has flowed in particular from its poverty. Peasant farmers destroy their own future livelihood by indiscriminate tree felling, but do so only because they have no immediate alternative. The excessive depletion of tropical rainforests, partly to provide timber for developed country markets and partly for agricultural settlement, attracts justified concern for the future. An estimated 470 million (or 60 per cent) of the developing world's poorest people live in areas which are already ecologically fragile. The sheer pressure of population on scarce resources (land, water and firewood) or improper land utilisation is exacerbating problems such as deforestation, desertification, soil erosion and water pollution which, in turn, are causing further immiserisation. Breaking this vicious cycle of poverty and environmental degradation in these marginal areas will require major investments which developing countries will be unable to finance without substantial external assistance.

9.14 Environmental degradation results partly from the unmet basic needs of the poor but more so from the over-consumption and waste by the rich. With continuing population growth and the manifest need for development to raise living standards, developing countries will increasingly add to the burden on the global environment. Meeting their needs will require that consumption of water, energy and forest products continues to increase. But if further pressure on the world's fragile eco-systems is to be avoided, we believe it inevitable that developed countries will have to reduce their consumption of energy and raw materials and use them far more efficiently. The crucial question is how, and how rapidly, a 'culture of sustainability' can replace deeply entrenched values which equate happiness with continuous increases in material consumption.

**Solutions on a National Scale**

9.15 No country can alone assure its own environmental well-being. But each should take primary responsibility for its own problems. We consider the key to success lies in implementing the concept of sustainable development along the lines espoused by the Brundtland Commission (see para.9.10). In essence, economic growth and development must respect, not destroy, environmental capital. This represents a daunting challenge because economic and political systems are still biased towards meeting immediate needs. Until very recently the welfare of future generations rarely figured in this short-term calculus.

9.16 To put the concept of sustainable development into practice even within one country requires action on many issues. Due weight needs to be given to environmental assets and costs in the process of arriving at every economic decision. In particular, these environmental assets need to be treated as capital, not free goods.

9.17 Many familiar instruments of economic policy can be used to promote environmentally sound activities and behaviour. For industrial countries we propose that taxes and subsidies be used more actively to alter market prices and thereby encourage a switch in production and consumption from environmentally harmful products to benign or less harmful ones. We recognise that in some cases, these mechanisms would need to be supplemented by regulatory instruments.

9.18 For developing countries the overall solution is more fundamental and depends in large measure on alleviation of the sort of poverty which compels people to think only of the daily imperatives for survival. Only when their position has been altered substantially will it be possible for peasant farmers, for example, to avoid over-grazing grasslands to rear cattle, over-exploiting soils to produce more food, and over-cutting their woods to meet requirements for firewood. Degradation in terms of soil loss, urban congestion, water pollution and deforestation are taking place at an alarming scale in many parts of the Third World.

9.19 Economic development will greatly help developing countries to reduce their population growth and improve their capacity to protect the environment. Their domestic environmental problems cannot be treated as if they were separate from their general development problems. Additional external assistance can attenuate the dilemma many developing countries confront of having to allocate scarce domestic resources away from pressing needs to ensure sustainable development. Such assistance—and efficiency in resource allocation—is urgently needed for environmental protection purposes. But we emphasise that it must be additional to that for other purposes: diverting aid is not the solution since the maintenance of economic growth is vital for providing the resources and technical capacity to deal with environmental problems. And aid generally should not be made conditional on environmental protection measures which can often be undertaken only if growth can proceed.

9.20 In both the industrial and developing countries, the case for energy conservation and greater efficiency in the production and use of existing energy resources, and the development of new and renewable ones, has been strengthened greatly by the type of environmental concerns we have sketched out above. Currently, renewables (almost entirely hydropower and biomass) account for 18 per cent of the world's energy consumption

and nuclear power for another 4 per cent. The remainder is met by fossil fuels. There is growing recognition that energy prices should reflect more closely the external social costs of production and use, including the dangers from air pollution and nuclear contamination, and the economic, ecological and health costs of global climate change. Measures like carbon taxes, which have been introduced in some Scandinavian countries and are being considered in several others in the industrial world, will be crucial in encouraging a shift away from more polluting fossil fuels (such as petroleum and coal) to less polluting ones (for example natural gas). They can also help to make non-polluting sources like solar energy more competitive, although it is likely that more radical steps such as subsidies on research and development will also be required. As for nuclear energy, while there is renewed interest in it as a medium-term solution, it is unlikely that there will be a major shift in investment as long as concerns about safety and waste disposal remain acute.

**International Solutions**

9.21 Countries acting individually through domestic measures can achieve much. But the global or trans-border nature of many environmental problems requires international solutions through strengthened international cooperation and institutions. We note that there have been some encouraging signs of progress. The world community has, for example, put in place reasonably effective measures to slow and eventually prevent further depletion of the ozone layer (see Box 9.1 on p.134).

9.22 As the extent of past environmental destruction and new environmental threats becomes clearer, there is growing concern about how the high costs of environmental protection will be met. It has been estimated that those not presently covered would cost developing countries between $20 and $50 billion a year during the 1990s. If developed countries—which currently spend 1-2 per cent of their total output on pollution control—are concerned about diverting resources to environmental protection, such concerns are far more acute in developing countries. It is being increasingly recognised that, unaided, the latter cannot hope to reconcile other pressing development needs with taking measures to protect the environment.

9.23 In respect of global environmental problems such as ozone depletion, global warming, tropical deforestation and the loss of biodiversity, we believe the developed world has a self-interest, as well as an obligation, to provide additional financing to help developing countries. For without the participation of the latter, an effective response to these problems will be very difficult and perhaps impossible. We consider it is also in the developed world's interest to facilitate the transfer, to the developing countries, of the technologies which will be

**Box 9.1**

**The Environment: Some Recent Initiatives**

i) March 1989: Basel Convention adopted on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

ii) May 1989: UNEP Governing Council asks Ad Hoc Working Group of Experts on Biological Diversity to expedite preparation of an international legal instrument to protect bio-diversity.

iii) October 1989: Leaders of 47 Commonwealth nations meeting in Kuala Lumpur adopt the Langkawi Declaration on the Environment: a commitment to foster sustainable development through national and collective efforts.

iv) December 1989: UN General Assembly decides to convene a United Nations Conference on Environment and Development, to be held in Brazil in June 1992.

v) June 1990: Parties to the 1987 Montreal Protocol to protect the ozone layer agree to phase out CFCs and other major ozone-depleting chemicals by the year 2000. They also agree to establish an Interim Multilateral Fund to help developing countries phase out CFCs.

vi) November 1990: Second World Climate Conference endorses the conclusion of the WMO-UNEP Intergovernmental Panel on Climate, that without actions to reduce greenhouse gas emissions the rate of global warming over the next century will be historically unprecedented.

vii) November 1990: $1.2-$1.5 billion Global Environment Facility established under the auspices of the World Bank, UNEP and UNDP to help developing countries participate in global environmental protection efforts.

viii) February 1991: UN Intergovernmental Negotiating Committee begins negotiations on a Framework Convention on Climate Change.

needed to take effective global action. There has been some progress on the financial side. Multilateral arrangements, such as the interim fund to help developing countries phase out CFCs, and the recently established Global Environment Facility (under the auspices of the World Bank, UNEP and UNDP) will provide some assistance, but this is likely to be still far short of requirements. Bilateral official development assistance can also help, particularly if it is used in part to subsidise the transfer of technology, as we have suggested earlier (see para 8.32). But even if this were to happen, adequate resources will probably not be forthcoming from traditional sources. We propose that consideration be given to tapping new sources of funding such as international taxation. For such taxation to be fair and progressive, the burden should be borne mainly by developed countries. One example could be an international tax on carbon dioxide emissions. Although we recognise that its collection and distribution would pose considerable logistical and other problems, we still consider it worthy of examination.

9.24 The Third World's inability to mobilise adequate resources to tackle environmental problems which do not have global implications may also have adverse, if indirect, repercussions for the developed countries. Continued neglect of serious problems like soil erosion and desertification in some countries could lead, in the future, to a large-scale exodus of 'environmental refugees' across borders, causing crises which would necessitate emergency aid. In some regions, notably the Middle East, international assistance to support joint projects for the management of scarce common water resources can, in the long run, avert conflicts which may have international ramifications. We believe such projects are worthy of increased support.

9.25 The North also has an environmental interest in assisting the South to use energy more efficiently and to switch to more benign forms, such as natural gas rather than fuelwood unaccompanied by reafforestation. On the basis of current trends, it is estimated that in about 20 years, developing countries will be consuming as much energy as the industrial countries do now. A key issue is whether these countries can avoid repeating the mistakes of the industrialised world and meet their energy needs in ways that are less damaging to the environment. Capital and technological constraints are the major impediments to increasing energy efficiency and developing renewable sources like solar power.

9.26 Increased assistance to developing countries in respect of their energy transformation, transportation and utilisation is urgently needed. It is particularly important for environmental as well as more narrowly economic reasons that these countries (and those of Eastern Europe) raise the efficiency of their energy utilisation. The World Bank's Energy Sector Management Assistance Programme has found that

some of the more industrialised developing countries use four times as much commercial energy per unit of GDP as do the countries of Western Europe. Part of this divergence reflects the different sectoral proportions of their economies, but most of it is a result of using obsolete technologies. The Bank has estimated that updating those technologies could save about 20 per cent of the energy used. Inefficiencies have been especially marked in some of the heavy users of commercial energy such as thermal electricity generation, metal smelting and cement production. Inefficiencies have also been of considerable environmental significance in the household and rural uses of energy from fuelwood and other biomass, where improvements in technology ranging from better designed domestic ovens to the use of genetic engineering for creating fast-growing species of trees could greatly improve the lives of the poor.

9.27 The developing countries are currently receiving some support for this from the international system. The UN Fund for Science and Technology for Development and UNIDO have assisted in the development of energy technologies, for example, while UNCTAD has helped developing countries in the transfer of these technologies; the UNDP and World Bank have undertaken energy management and assessment programmes. But the help provided is far from adequate to meet the need.

9.28 In the longer run, it is vital that developing countries are able to acquire the technology, capital and other resources needed for the large-scale exploitation of new and renewable sources of energy from commonly available elements such as hydrogen, or from the sun, wind or sea. Support for these activities is available from several UN agencies. The UNDP's Energy Account, for example, has since 1980 made funds available for exploratory surveys, inter alia for natural gas and renewable sources of energy (especially hydropower sites), focusing on the poorest countries and those most severely affected by rising costs of fuel imports. The UN Revolving Fund for Natural Resources Exploration has since 1983 played an important role in the search for geothermal energy resources. But in both cases their resources are small.

9.29 An increasingly important issue which is emerging on the international agenda is the imposition by some developed countries of unilateral restrictions against certain imports from some developing countries on environmental grounds. This is often the result of pressures from NGOs; examples include recent US restrictions on imports of tuna and citrus fruit from Mexico and of grapes from Chile. The 'greening' of politics and the 'greening' of trade are closely intertwined as the recent debate on the proposed US-Mexico free trade agreement has illustrated. Since the GATT already permits import restrictions for health, phytosanitary and national security reasons it has been argued that

restrictions necessary to satisfy environmental conservation requirements might similarly be recognised and acted upon.

9.30 But this raises several controversial issues. One is the degree to which each GATT contracting party should have discretion to impose such restrictions. More serious, as we have said earlier (see para.7.17), is the danger that environmental factors will simply be used as pretext to impose new non-tariff barriers to imports. Developing countries would be particularly vulnerable to such measures. There have already been controversial cases where restrictions have been imposed on imports of products not because these did not conform to domestic environmental standards but because they were judged to have been produced or processed in the exporting country in an ecologically unsustainable way. While recognising that there can be difficult cases, we emphasise the need for legitimate environmental considerations to be reconciled with trade requirements in ways which do not hurt the equally legitimate export interests of developing countries. The GATT Contracting Parties are beginning to address this problem but they should do so more actively. It would be particularly important to ensure the transparency of any trade restrictions imposed on environmental grounds and to establish effective mechanisms for dispute settlement and compensation. Finally, we urge the lifting of trade restrictions (for example on processed timber products) which perversely serve to encourage ecologically unsustainable practices.

**Conclusion**

9.31 Environmental problems have several dimensions and need to be tackled in a multifaceted way. Both developed and developing countries need to intensify efforts to deal with their local environmental problems by integrating ecological considerations into economic policies and using economic instruments to promote sustainable development. But these are not the only types of environmental problem.

9.32 Those which pose a global threat to humanity underscore the interdependence of nations. They also risk becoming a major arena for North-South confrontation. They can only be confronted effectively through truly global responses. Other environmental problems may also have serious international repercussions. Their solution also requires international co-operation. Agreement on how to deal with global environmental problems and on the financing and other mechanisms to help developing countries participate in the solutions must be expedited (see Box 9.1 on p.134, items v and vii). A consensus on fair burden-sharing in paying for the high costs of environmental protection will be essential in order to create the global partnership that is needed to avoid conflict and secure humanity's common future. The North has

incurred a large ecological debt to the world due to its environmentally destructive patterns of production and consumption. It is in the interests of the developed countries to mobilise adequate additional financial resources to help developing countries achieve environmental and other developmental objectives, without imposing new forms of conditionality in development assistance. But donor countries' fears about having to meet all the costs of global environmental protection must also be recognised.

9.33 We hope the revival of multilateralism in some aspects of international behaviour has improved the prospects for negotiating a global compact to meet the world's environmental challenges in a way that is consistent with development. The 1992 UN Conference on Environment and Development will provide the international community with a unique opportunity to forge it.