

**ENVIRONMENTAL
LEGISLATION
AND
INSTITUTIONS
IN
INDIA**

**HANDBOOK ON NATIONAL ENVIRONMENTAL
LEGISLATION AND INSTITUTIONS IN INDIA**

**SOUTH ASIA COOPERATION FOR
ENVIRONMENT PROGRAM (SACEP) COLOMBO,
SRI LANKA**

**UNDER THE UNEP/ SACEP/ NORAD
PUBLICATION SERIES ON ENVIRONMENTAL
LAW AND POLICY**

PREFACE

The South Asia Co-operative Environment Programme (SACEP) has identified and managed this project for the preparation of Handbooks of National Environmental Legislation and Institutions in South Asia. The project is part of a publication series on Environmental Law and Policy under the auspices of the United Nations Environment Programme (UNEP), SACEP and the Norwegian Agency for Development (NORAD).

To undertake the project, National Task Forces of environmental law experts for each South Asian country were formed with the help of their respective Governments. Meetings of the National Task Force Members were organized by SACEP in Sri Lanka to formulate a common framework for the preparation of national reports on environmental legislation. UNEP, SACEP, and Country Missions attended the meetings.

The framework developed deals extensively with environmental issues and legislative responses in the South Asian region. It seeks to cover relevant topics although not all could be accommodated due to space limitations. To make use of the regional nature of the project, a regional overview sets the law and policy context. Then, for each country, the background of socio-economic development is described and roles played by the judiciary, NGOs, and civil society are highlighted. Emphasis is placed on descriptions of the institutions, legislation, policies and programmes that evolved after the Stockholm Conference on the Human Environment in 1972. National measures are analysed according to framework and sectoral subject matter. Enforcement of national and legislation and compliance with international obligations under Multilateral Environmental Agreements are focused on. The objective of the project was not merely to describe legislation and institutions in the South Asian region, but also but to assess their effectiveness in application as tools for environmental management. Thus, each publication focuses on environmental governance, particularly the implementation of legislation.

The information/material available on the web sites of UNEP and related organizations, such as ESCAP, UNDP, the World Bank, ADB, SACEP, SAARC and secretariats of the various environmental conventions were used by members of the National Task Forces in their research. Information available on the web sites of Governments of individual SACEP countries, including the websites of and national institutions were also utilised.

The Task Force Members for each country are listed in the national Handbook that they prepared. They each deserve primary credit for their respective Handbooks of National Environmental Legislation and Institutions in South Asia. Dr Rashid Hasan edited the composite national contributions in the form of a regional synthesis report under the title of the "South Asian Handbook of National Environmental Legislation and Institutions", shaping the contributions into a common format. Due to the size of this volume, it was then revised as a series of National Handbooks. The guidance of Mr. Lal Kurukulasuriya, Chief of Environmental Law, UNEP; Mr Anand Raj Joshi, former Director, SACEP; Mr. Maqbool Elahi, Director, SACEP; Mr Prasnatha Dias Abeyegunawardene, Deputy

Director, SACEP; and Mr. Nirmal Andrews, Director, ROAP/UNEP, Bangkok, are gratefully acknowledged for their direction and encouragement in preparation of the project.

National Task Members/Legal Experts

Country	National Legal Expert
India	Dr Rashid Hasan, Additional Director Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, Lodi Road New Delhi- 110003 Tel: 91-11-4363975 Fax: 91-11-433975

LIST OF OTHER COUNTRY CONTRIBUTORS**India**

1. Dr. Rashid Hasan; Addl. Director, MoEF, New Delhi
2. Officers relating to various Divisions of the Ministry

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CHAPTER I

EXECUTIVE SUMMARY

1. INTRODUCTION

The following handbook discusses the remarkable and progressive steps taken in India in recent years to develop sustainable legal and institutional frameworks for improved environmental management. It identifies numerous environmental problems faced by India, some having reached critical levels, and describes the legal and institutional framework that is evolving to counter these problems.

The environmental problems India faces include: deforestation; soil erosion; overgrazing; desertification; air pollution from industrial effluents and vehicle emissions; water pollution from raw sewerage and runoff from agricultural pesticides; undrinkable distributed water; loss of biodiversity; the negative effects of tourism and the strain the already huge and rapidly growing population imposes on natural resources.

These problems can essentially be classified into two broad groups: the problems arising as the result of the negative effects of development, and those arising from general conditions of poverty. The first category refers to the impacts of economic pressure and the desire for rapid development by those who are more economically advanced and the negative effects this inflicts upon India's natural resources. The second category relates to the negative impacts inflicted on the environment as a result of poverty and inadequate resources available to portions of society that are unable to fulfil the basic human needs of food, water and shelter.

During the United Nations Conference on Human Environment at Stockholm in 1972, the then Prime Minister, Indira Gandhi pointed out the difficulty of confronting environmental issues in the face of widespread poverty:

“We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people. Are not poverty and need the greatest polluters? ... When [the people] themselves feel deprived, how can we urge the preservation of animals? How we can speak to those who live in villages and slums about keeping the oceans, the rivers and the air clean when their own lives are contaminated at the sources.”

Despite such deep-rooted environmental and societal problems the methods of combating the problems have advanced markedly. Measures include the enactment of literally dozens of pieces of legislation, some overarching, others specifically dealing with environmental problems, the establishment of various institutions to steer, implement and enforce the legislative measures, the development of an activist judiciary, a recent

commitment to international multilateral treaties and amendments to the Indian Constitution.

2. THE CONSTITUTION OF INDIA

The Constitution of India is perhaps the first of its kind to provide for protection and safeguarding of the environment through its ‘Directive Principles’ and the ‘Fundamental Duties’.

Article 253 allows the Parliament to enact laws fulfilling India’s international obligations and any decision made at a conference, association or body. The wide scope of this article is illustrated by its use to enact fundamental legislation such as the Environment Protection Act 1986 and the Air (Prevention and Control of Pollution) Act 1981, which were both enacted to implement India’s commitments under the landmark UN Conference on the Human Environment, Stockholm 1972. Another crucial area of the Constitution discussed is the 42nd Amendment. Again in compliance with the Stockholm Convention, India enshrined the fundamental duty of the State and the citizen to protect the environment.

However perhaps the most important Constitutional provision discussed in the handbook is Article 21. The right to “life and liberty” referred to in the Article has been judicially interpreted to extend to imply a right to a clean environment. Hence despite having no express right to a clean environment, the people of India via an activist judiciary have obtained this fundamental right.

3. THE JUDICIARY

The Indian judiciary has in recent years broken the traditional mould and harnessed its power to create a just and humane society. The escalation of what is known as ‘public interest litigation’ has seen the courts redefine existing concepts of law, create new rights, develop new strategies for extending the arms of justice to all sections of society and give effect to what could be termed an ‘affirmative’ judicial relief system.

For example the Supreme Court case of *MC Mehta v Union of India and Others*, 1988 witnessed the deliberate judicial advancement of sustainable development. The court ordered that certain tanneries be closed, conscious that this closure would bring unemployment and subsequent socially undesirable outcomes. Despite the inherent negative outcomes, the decision to defend and improve the environment for present and future generations became the paramount goal. Other important cases include *Rural Litigation and Entitlement Kendra v State of UP*, 1988 and *Bombay Environment Action Group, Shaym H.K. Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board*, 1986.

Also using the specific provisions for environmental protection and Article 21 of the Constitution the activist judiciary has developed a range of rights and principles related to

environmental matters. They include: the right to a wholesome environment, the doctrine of locus standi, the doctrine of parens patriae, the precautionary principle, the polluter pays principle, the doctrine of public trust, intergovernmental equity, public liability and the right to information emphasized in *Bombay Environment Action Group, Shaym H.K. Chainani Indian Inhabitant, Save Pune Citizen's Committee v Pune Cantonment Board* 1986.

4. LEGISLATION AND INSTITUTIONS

India has developed a comprehensive framework of legislation and regulations relating to the protection and conservation of the environment. However, due to problems of implementation and enforcement many of the set goals have not come to fruition.

India has well evolved institutes at Central, State, District and village level and has constituted the National Environment Council headed by the Prime Minister on environmental matters. In 2003, a National Forest Commission was established under the Chairmanship of a retired Supreme Court Judge. However the responsibility for environmental oversight is scattered among several institutions resulting in the weak implementation of India's policies, plans and laws.

The discussion on institutions underscores the need for India to prioritise its environmental goals by taking a holistic approach and attempting to incorporate these goals into ecologically compatible projects and programs. A need to integrate environmental policy and take cognisance of long term developmental perspectives is seen as vital to the success of environmental institutions. The discussion suggests that institutions such as the Pollution Control Boards established by the Water (Prevention and Control of Pollution) Act 1974, need to be strengthened and their resources augmented to overcome the problem of weak enforcement of what appear to be strong laws.

The handbook breaks down India's environmental legislation and related institutions into seven chapters. These are Water, Atmosphere, Chemicals and Wastes, Forestry, Biodiversity, Wildlife and Eco-tourism. In each chapter the environmental problems are identified and the legislative solutions are described. Bodies are often created by Acts of Parliament and their fundamental role along with that of various other institutions is also described. For example, in the chapter on water, a comprehensive study by the Central Pollution Control Board is cited and the problem of water pollution in its various forms is determined. The subject matter then turns to a description of the responses to the problem. Legislation including the Water (Prevention and Control of Pollution) Act 1974 and the Water (Prevention and Control of Pollution) Cess Act 1977 is discussed along with the role institutions and frameworks such as the National River Action Plan, undertaken by the Central Pollution Control Board.

However, before each of the seven topics are discussed in detail, the Handbook draws attention to overarching legislation such as the Environment (Protection) Act 1986, the

National Environment Tribunal Act 1995 and principle institutions such as the Ministry of Environment and Forests (referred to throughout as MOEF), which are of paramount importance to discussion in the ensuing chapters.

There is little doubt that building upon and consolidating the gains of the recent past in the legislative and institutional fields and promoting more effective compliance and enforcement of existing laws will be a major focus in the coming years.

5. STATUTORY TOOLS

A product of the legislation enacted to combat environmental degradation is a series of statutory tools, described in the latter part of the handbook. These include devices such as product labelling aimed at increasing consumer awareness or more complex 'Environment Management Systems'. Other tools discussed include economic and market tools which, by providing economic incentives such as rebates or tax exemptions entice industries to adopt environmentally sound practices. Several tools are described in detail, the majority arising under enactments such as the Water (Prevention and Control of Pollution) Act, the Air (Prevention and Control of Pollution) Act or devised by the MOEF under the fundamental Environment Protection Act 1986.

Within the discussion, emphasis is placed on the introduction of Environmental Impact Assessment to India. EIA is a mandatory analytical tool for assessing development programs which have an adverse effect on environmental or on human health. By responding to the need to integrate environmental and developmental decision making processes, EIA has contributed to economically efficient, socially equitable and responsible environmental management. This tool has also been praised for its mandatory provisions for public input. A number of guidelines and bodies have been established by the MOEF to implement and enforce EIAs.

6. MULTILATERAL ENVIRONMENT AGREEMENTS AND THEIR IMPLEMENTATION

The final chapter of the handbook lists some thirty-one multilateral agreements that India has ratified. India has ratified most major environmental treaties clearly illustrating a thorough commitment to environmental conservation. India has also played role in negotiating and developing many treaties for example the United Nations Framework Convention on Climate Change (UN-FCCC) where Indian representatives actively participated in the INC and were included on the Bureau of the AGBM. India also served as Vice-Chairman of IPCC Sub Group-A "Energy and Industry" of Working Group-II and was elected Vice-Chairman of the Intergovernmental Panel on Climate Change in 1997. Moreover India was elected as the Chairperson of the Executive Committee of the Multilateral Fund of the Montreal Protocol at the 11th meeting of the Parties held on 3rd December 1999 in Beijing.

The handbook contains a discussion of seven major environmental agreements ratified by India. Central to the discussion is why India has adopted the various treaties and what stage of implementing the obligations of the treaties India has reached. The chapter gives a description of the measures India has taken to fulfil its commitments emphasising the relevant legislation, plans, schemes and programs such as the Country Program devised to phase out the use of ozone depleting substances in accordance with the Montreal Protocol. Future solutions and enhancements are also described, for example the planned strengthening of programs such as the Country Program as well as proposed legislation including the Ozone Depleting Substances (Regulation) Rules.

CHAPTER II

LIST OF ENVIRONMENTAL ISSUES, POLICIES, LEGISLATION, INSTITUTIONS AND INTERNATIONAL CONVENTIONS IN INDIA

Map of India



Key Environmental Issues

Air Pollution; Water Pollution, Land Degradation; Solid Waste Management; Hazardous Waste; Bio Medical Waste, Loss of Biodiversity; Conservation of Natural Resources; Forest Depletion; Environmental Education; Ground Water Pollution; Poverty

Alleviation; Rapid Urbanization; industrial Pollution Prevention and Control; Clean Technology; Urban Environmental Issues.

Environmental Policies

National Forest Policy 1988; National Wildlife Action Plan 1988; Policy Statement on the Abatement of Pollution 1992; National Conservation Strategy and Policy Statement on the Environment and Development; National Environmental Action Plan 1993; National Strategy for Conservation Macro level Plan for Conservation of Biodiversity 2000; National Action Plan, 2002; National Wildlife Conservation Strategy 2002;

Legislation Related to Environment

National Biodiversity Act 2002; National Environment Appellate Authority Act 1997, National Environment Tribunal Act 1995; Public Liability Insurance Act and Amendment 1991-92; Coastal Regulation Zone Notification 1991; Motor Vehicles (Amendment) Act 1986; The Environment (Protection) Act 1986; The Coal Mines (Conservation and Development) Amendment Act 1985; Model Regional and Town Planning and Development law 1985; Oil Fields (Regulation and Development) Act 1984; Air (Prevention and Control of Pollution) Act, Rules and Amendments 1981, 1982, 1983, 1987; Forest (Conservation) Act 1980; Wildlife (Protection) Act 1980, 1981; Water (Prevention and Control of Pollution) Act, Rules and Amendments 1977, 1978, 1982; Urban Land (Ceiling and Regulation) Act 1976; Merchant Shipping Act 1970; Insecticide Act, 1968; River Boards Act, 1965; Ancient Monuments and Archaeological Sites and Remains Act 1958; Mines and Minerals (Regulation and Development) Act and Amendments 1957, 1984; Industries (Development and Regulation) Act and Amendment 1957, 1987; Provision in State Acts on Town and Country Planning; Factories Act and Amendment 1948, 1987; Indian Forest Act and Amendment 1927, 1984; Indian Fisheries Act 1897; Indian Boiler Act 1923.

Environmental Institutions

Ministry of Environment and Forests; Central Pollution Control Board; State Department of Environment; Wildlife Institute of India; India Council of Forestry Research and Education; Dehradun Indian Institute of Forest Management; G. B. Pant Himalayan Institute of Environment and Development; State Pollution Control Boards; State Department of Environment; Botanical Survey of India; Zoological Survey of India; Ministry of Agriculture; Ministry of Water Resources; Ministry of Surface Transport; Ministry of Industry; Ministry of Health; Ministry of Agriculture; Ministry of Non-

Conventional Energy Sources; Ministry of Commerce; Ministry of Urban Development; Planning Commission; Supreme Court; High Courts; District Courts; Nyaya Panchayat, Panchayat Adalat, Gram Kachheri; Other Specialized Institutes funded/associated with the Ministry of Environment and Forests.

International Conventions/Treaties/Protocols (ICTPs) in the Field of Environment to which India is a Party

1. Waste Management and Hazardous waste

- Basel Convention on Trans-boundary Movement of Hazardous Substances 1991-92.

2. International resources

- The Antarctic Treaty (Washington, 1959).
- United Nations Convention on the Law of the Sea (Montego Bay, 1982).
- International Tropical Timber Agreement (Geneva, 1983).

3. Global climate

- Vienna Convention on Ozone Depleting Substances.
- Montreal Protocol.
- Framework Convention on Climate Change.
- Kyoto Protocol 1992.

4. Marine pollution (conventions of the International Maritime Organisation, IMO)

- The International Convention for the Prevention of Pollution from Ships 1973.
- The International Convention on Civil Liability for Oil Pollution Damage 1969 (effective from June 19, 1975).
- Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969.
- The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (effective from October 16, 1978).
- Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971.
- IMP Protocol 1978 and the IMO 1973 Convention.
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (Effective from August 30, 1975) not ratified by India, since it considers this convention to be linked with the Basel Convention on Transboundary Movement of Hazardous Substances.

5. Wildlife

- Convention on Biologic Diversity.

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Washington D.C.
- The Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (The Ramsar Convention).
- Convention relative to the Preservation of Fauna and Flora in their Natural State, London 1936.
- International Convention for the Regulations of Whaling (Washington, 1946).
- International Plant Protection Convention (Rome, 1951).
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979).
- Convention on the Conservation of Antarctic Marine Living Resources (Canberra, 1980) 1992.

6. Environmental Planning

- The Rio Declaration on Environment and Development.
- Agenda 21.
- Convention to Combat Desertification 1992, 1994.

7. Other environmental fields

- Convention concerning the Protection of Workers Against Ionising Radiation (Geneva, 1960).
- Protection (of Industrial Workers) Against Hazards of Poisoning Arising from Benzene.
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Brussels, 1975).
- Convention on the Protection of World Cultural and Natural Heritage (Paris, 1972).

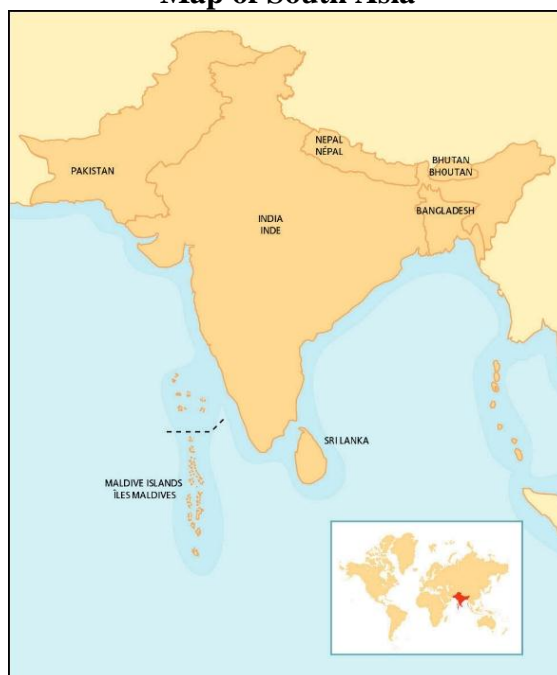
CHAPTER III

REGIONAL OVERVIEW

1. INTRODUCTION

The South Asian region comprises Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Given the economic, social and cultural context of the countries of South Asia, similar challenges confront these regions in relation to the protection of their environment and natural resources. For instance, high rates of population growth, urbanization, and a widespread incidence of poverty are common, although all major indicators of human development have demonstrated improvements in recent years. South Asia is also home to a significant but decreasing array of terrestrial and marine biodiversity. For example, the Hindu Kush Himalayan belt is home to some 25 000 major plant species, comprising 10 per cent of the world's flora. In addition, Sri Lanka, India and other countries within the region are amongst the most biologically diverse countries in the world. India contains extensive savannah and forest habitats, including many endemic species of international importance, which exemplify the biological diversity of the South Asian region. South Asia is also home to approximately 14 per cent of the world's remaining mangrove habitat and has the highest percentage of threatened wetlands, 82 of which are in Bangladesh. The region has attained significance due to enormity of resources and biodiversity vis-à-vis developmental activities in the region.

Map of South Asia



The Rio Declaration on Environment and Development and Agenda 21 emphasised the need to develop endogenous capacity in the legal and institutional areas, which is critical for sustainable development. In this past decade, countries in South Asia have taken remarkable steps towards developing sustainable legal institutional frameworks for improved environmental management. The most successful measures taken have strengthened the synergy and coordination among various institutions for promoting a coherent and holistic approach to the management of the environment.

The legal system, and particularly the judiciary, has been a crucial partner in this process. An increasing awareness of the importance of the legal and institutional system, with regards to management within the last decade, has been a first step. There has been a continuing drive towards consolidation of the institutional structure, both conceptually and functionally, from the management of sectoral uses of the environment to the management and protection of environment in its own right. Opportunities to strengthen national and regional environmental policies and legislation that effectively integrate global, regional and national environmental priorities and concerns have been taken up. Consequently, many countries in this region have developed and incorporated contemporary approaches to environmental management.

2. ENVIRONMENTAL GOVERNANCE

Almost all the developing countries in the Asia-Pacific region have made considerable progress during the past two decades towards the fortification of the legal and institutional structures for environmental management, natural resource conservation and sustainable use. This has also incorporated a growing regard for the integration of environmental considerations in development decision making. Significant as these developments are, there remains many difficult challenges to be overcome if these legal and institutional arrangements are to function effectively. There is little doubt that building upon the gains of the past in the institutional field and promoting more effective compliance and enforcement of existing regulations will be the major focus of countries in the region in the coming years. The institutional developments that have taken place in the region demonstrate some of the major impediments that countries face in transforming these gains into an effective and efficient vehicle for advancing the goals of sustainable development. Conversely, these developments also outline some possible responses to such challenges, which if implemented with efficacy could allow recent gains to be consolidated and form the foundation for future achievements.

In the preliminary lead up to the Rio Conference and for several years thereafter, there was a multitude of legislative and institution building activities in the region. This resulted in the creation of Ministries of Environment and their executing arms and the enactment of a new generation of legislation now simply known as environmental laws. Consequently, almost every country in the South Asia region now has a Ministry or Agency empowered by law to implement a wide range of activities for the protection of the environment, conservation and sustainable use of natural resources. Central to the

responsibilities of such agencies is an underlying concern to promote the integration of environmental considerations in development decision making.

However, in light of the centuries old administrative culture founded on the unchallenged authority of “line- Ministries”, the attempted implementation of the over-arching and cross-sectoral environmental legislation and institutions *within* the existing legislative and institutional framework, created a number of difficult challenges. Initially, the Environment Ministries were viewed with apprehension and were suspected of usurping the traditionally unquestioned functions of the line ministries and agencies with statutory functions. This atmosphere of distrust of the new legislative regime made interaction and partnership, which is the essence of effective environmental management, almost impossible. This in turn led to the proliferation of environmental cells in various Ministries and agencies, including National Planning Commissions, which although was not a bad development, it reinforced the lack of co-ordination and leadership that is essential to hold together a disparate system of environmental institutions with varying capabilities and jurisdictions. These problems were further exacerbated by legislative deficiencies. Ambiguous demarcation and overlapping powers and functions, a lack of specificity, dispersed competencies and procedural difficulties were but a few of the inherent defects in this new system. These problems were compounded by management and resource deficiencies, typified by the absence of horizontal and vertical consultation, a lack of delegation and decentralisation, inadequate financial, human and material resources and a lack of information and training.

Examples abound in almost every country in the region, where responsibility for environmental oversight is dispersed among a varying number of national institutions resulting in the weak implementation of policies, plans and laws, the under-investment in environmental improvement and lack of opportunities for local level participation. In Sri Lanka, some four or five ministries co-ordinate with one another for environmental decision making, including the ministries of Environment, Energy and Industry. Thus further complications are created by the clashing jurisdictions between the central government agencies and provincial agencies. In federal systems of government such as India these challenges and complexities are exacerbated by the constitutional separation of legislative and executive powers.

3. ENVIRONMENTAL INSTITUTIONS

Cabinet-level environmental agencies are now established in all South Asian countries, but in the absence of a clear direction, these bodies remain generally weak. The principal regulatory vehicle relied upon by these agencies has been the application of environmental impact assessments to review large development projects. Unfortunately this process has been poorly implemented and even subject to considerable corruption in several countries, which has undermined any potential success. Efforts to control industrial pollution through rigid permitting schemes—tied often to unrealistic emissions and discharge standards—have also had disappointing results. The over-emphasis of donors in supporting these fragile government environmental bodies has been to the

detriment of other potentially more influential institutions. Ministries of central governments deserve much greater attention. Outside the executive branch, legislative bodies are of growing importance as sources of innovation and action to address environmental issues of social concern, but have received very little support with respect to their involvement in environmental matters. Furthermore, as stated by the activist Supreme Court of India, the judicial branch has the potential to play quite a significant role in shaping environmental policy. However, it, too has received relatively little assistance in building its understanding of environmental issues and exploring options for positive action. At the same time, there is a strong trend toward decentralisation and devolution within the region. Essentially this means that an entirely new group of government agencies—at state, city, and local levels—will require environmental management skills.

The establishment of Environment Ministries in many countries in Asia in the last decade, has been a laudable achievement. Ministries have emerged in countries across the region including **Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka**, where they have the capacity to formulate environmental policies as well as overseeing the work of other ministries relating to the environment.

Example Box 1: Environment Ministries in South Asia

In the **Maldives**, the Ministry of Population and Environment has the responsibility of formulating rules and regulations regarding the environment.

The *Pakistan, Environmental Protection Act 1997* established the **Pakistan** Environment Protection Council, which consisted of the Prime Minister and all Ministers in charge of the subject of the environment. In addition the Council was composed of at least twenty 'non-officials' including representatives from commerce and industry, medical and legal professions, trade unions and NGOs and the technical/scientific community. The **Pakistan** Environmental Protection Agency (PEPA) was also established under the framework legislation and was created for the primary purpose of administering and implementing its provisions, rules and regulations. The Pakistan Environment Protection Council has the power to direct government to prepare, promote and implement projects for the protection, conservation, rehabilitation and improvement of the environment, as well as the prevention and control of pollution and the sustainable development of resources. These directives can be instituted either at the Council's initiative or by public request.

In **Sri Lanka**, the *National Environmental Act* (No. 47 of 1980 as amended by No. 56 of 1989) established both a Central Environmental Authority and Environmental Council. The Central Environmental Authority is a corporate authority with executive functions within the field of environmental management. The Authority is empowered to control the administration and implementation of the governing framework legislation.

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The Environment Ministries established in many South Asian countries including India, Sri Lanka and Pakistan, are responsible for implementing the frameworks for environmental laws and for formulating environmental policies. In addition, this far-reaching scope of responsibility extends to overseeing the work of other ministries, departments and agencies relating to the environment. In the Maldives, for example, the Ministry of Environment is responsible for formulating rules and regulations regarding the environment in areas that do not have a designated government authority to carry out such functions.

Environmental agencies have been set up at the provincial level to assist in the implementation of national strategies and to improve the assessment and monitoring of resource use. They also help coordinate different sectoral agencies in addition to local authorities. Municipalities and local councils provide assistance in the execution of national environmental policies, as well as by initiating their own resource protection measures. Many local and provincial governments have formulated their own Local Agenda with 21 strategies for environmental management, which is often supported by the State. On a similar note provincial governments in Pakistan have begun preparing environmental strategies to complement the national one.

Many institutions have incorporated environmental concerns into their economic decision-making process through their Five-Year Plans. Often there are specific environmental sub-sections within a planning ministry. These provide environmental inputs into the National Plan following organised consultations with working groups from other sectoral ministries, including the environment ministry, as well as experts.

Example Box 2: Public Planning in South Asia

A National Environment Committee was established in 1989 in **Bhutan**, as part of the Planning Commission under the Royal Command of His Majesty the King. The Environment Secretariat was de-linked from the Planning Commission and promoted to an independent organisation functioning as the National Environment Commission (NEC) in 1992. The NEC is a high-level, cross-sectoral body composed of Ministers and officials from various sectors and has the responsibility of creating legislation, regulation and ensuring that the Royal Government's obligations under global environmental conventions are satisfied.

India has well evolved institutes at central, state, district and local levels and has established a National Environmental Council headed by the Prime Minister to control the direction of environmental matters. The higher echelons of the Council hierarchy represent a think tank for the creation and development of appropriate plans and strategies. Recently in 2003, a National Forest Commission has also been established to control forestry matters under the Chairmanship of a retired Supreme Court Judge. The Pimpri Chinchwad Municipal Corporation, a city near Mumbai, established an institutional structure to effectively involve citizens in a participatory way in the planning process of the city. This initiative was instituted with assistance from the International

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Council of Local Environmental Initiatives (ICLEI). A media campaign was launched to increase public awareness and meetings were arranged to discuss development issues. A stakeholder group was established, consisting of government, academics, media and NGOs to review the inputs from the far-reaching community consultations, and to discuss issues of waste management and the concerns to improve slum areas.

In the **Maldives** in 1998, the environment was given an elevated status being combined with the then Ministry of Planning and Development to form the Ministry of Planning and the Environment. The premise for this move was based on the rationale that environmental considerations needed to be completely and efficiently integrated into development planning with the country. In 1998, environmental administration was transferred to the Ministry of Home Affairs, Housing and the Environment, which is responsible for developing all aspects of environmental policy and enforcement of legislation. It now administers and co-ordinates with other agencies and implements programs to increase public awareness.

In **Nepal**, for example, the National Planning Commission (NPC) must assess and approve all public environmental policies, programs and projects before they go into effect. As the NPC also plays a role in co-coordinating inter-sectoral activities, monitoring environment-related actions and providing a budget, this integrated role as overseer is very important. In both, **Nepal** and **India**, the development planning process now includes broad consultation between all levels of government. The Eighth Five-Year Plan in **Nepal** supported the creation of a high-level Environment Protection Council and advisory body with the Prime Minister as chair, to formulate policies, give directives and establish inter-ministerial coordination and monitoring related to environmental management.

The range of functions entrusted to Environment Ministries includes the creation and implementation of policy, the promotion of environmental considerations into development decision-making and the monitoring of the environment. The Environment Ministry provides technical advice on environmental issues, formulates environmental policy inputs, implements programs on environmental protection and enforces the laws and regulations for pollution control and resource management. The Minister usually reports directly to the parliament on the state of the environment. The Environment Minister also oversees the actions of the executive agency such as a Department of Environment (Bangladesh) or a statutory organisation (Sri Lanka) and monitors the activities of the other institutions and sectors that impact on the natural environment. These diverse functions are all effected within an overarching premise of promoting awareness of environmental matters.

These departments or agencies are typically responsible for standards-setting and Environmental Impact Assessment (EIA). In addition, these bodies have the crucial function of coordinating and controlling environment pollution through the issuing of licenses and desist orders, carrying out environmental inspections, monitoring verification

and data collection and analysis as well as a public complaints and dispute settlement schemes. By keeping the natural environment under their constant review, these institutions provide a forum for public participation, which serves as a catalyst for promoting environmental education, training and research and is a vital for the dispersal of information. Often, they are also charged with the implementation of international environmental agreements, which further exemplifies the critical role of these agencies in the environmental sphere.

The lack of specificity in the powers, functions and duties of these national environmental institutions and in some instances overlapping jurisdictions, have been a major source of conflict between them, resulting in constant institutional conflicts and the consequent weakening overall of environmental management systems. Thus particular inherent defects undermine the achievements and potential effect that these bodies can have for environmental protection and awareness issues.

Though conceived as an apex institution to integrate environment and development, these bodies have in practice been largely inactive and in several countries. Many of these agencies have not met at all or meet very infrequently, thereby negating the very purpose for which they have been established by law. Perhaps the reasons for not activating these consultative agencies lies in the size and constitution of these bodies, financial and other constraints as well as the use of the alternative and more informal consultative mechanisms. Despite a measure of regional cooperation on transboundary water allocation and water quality issues these nevertheless remain a problematic area in the South.

4. CONSTITUTIONS AND THE ENVIRONMENT

After the Stockholm Conference many countries of the world incorporated provisions relating to the environment to safeguard the natural resources and the pristine environment. South Asian countries in particular were in the forefront to amend their constitutions to facilitate the environment protection and its conservation in the region.

The Constitution of India is perhaps the first of its kind to provide for the protection and safeguard of the environment through the Directive Principles and the Fundamental Duties. Sri Lankan Environmental Management Policy originates from the country's supreme law, i.e. the Constitution. The 1978 Constitution recognises that the State shall protect, preserve and improve the environment for the benefit of the community (Article 24(14)), as principles of State policy. The Constitution also recognises that it is the duty of every individual in Sri Lanka "to protect nature and conserve its riches" (Article 28 (f)). Similar to other nations of the region, Bangladesh has also responded to the global call for the protection and conservation of her natural environment and ecology. The Constitution of Bangladesh asserts that it should be a fundamental responsibility of the State to attain, through planned economic strategies, a constant increase of productive forces and a steady improvement in the material and cultural standard of living of the

people (Article-15). Nepal's new Constitution of the Kingdom of Nepal, 1990, which arose following the period of political realignment in Nepal, imposes a duty upon the State to incorporate environmental matters into its policy making and implementation process.

Example Box 3: Constitution of Sri Lanka

Chapter VI, Article 28

The exercise and enjoyment of rights and freedoms is inseparable from the performance of duties and obligations, and accordingly it is the duty of every person in Sri Lanka -

(a) - (c) ...

(d) to preserve and protect public property and to combat misuse and waste of public property;

(e) ...

(f) to protect nature and conserve its riches...

5. ENVIRONMENTAL LEGISLATION

In this region, governmental responses to the problems of environmental pollution took the form of legislative enactment to deal with the causes of environmental impacts, particularly industrial effluents and nuisance. Thus, in addition to new sectoral legislation to fill the more apparent gaps in national frameworks, comprehensive anti-pollution laws were enacted. Important examples are the *Water (Prevention & Control of Pollution) Act 1974*; the *Water (Prevention & Control of Pollution) Act, 1981*; the *1977 Pollution Control Ordinance of Bangladesh*; and the *1980 Central Environmental Authority Act of Sri Lanka*. Despite the apparent diversity of emphasis enunciated in these legislative creations, the primary focus remained on pollution control.

Framework environmental laws are enacted to canvass the entire spectrum of cross-sectoral environmental issues. Recently this has incorporated an "umbrella" approach, a legislative technique for environmental management that establishes the basic legal principles without any attempt at codification. It normally entails the declaration of environmental objectives and policies, the establishment of the necessary and relevant environmental institutions, and the definition of the common procedural principles for environmental decision-making applicable to all sectors. In this latter respect, the legislation often covers such cross-sectoral issues as environmental impact assessment, environmental quality criteria and public participation in decision-making and implementation. **Sri Lanka's Central Environment Authority Act** of 1980, and *The Environmental Protection Act, 1986 of India* are demonstrative of the broad range of areas that such framework legislation attempts to cover. Most recently, **Bangladesh's Environment Conservation Act, 1995** has come into force within the same time frame as **Pakistan's Environmental Protection Act, 1997** and the *Environmental Protection Act, 1997 of Nepal*.

Resource conservation legislation in the region incorporates a wide range of environmental management concerns, including water resources protection and conservation, forest laws, marine resources management, land use management, preservation of natural habitats and conservation of heritage. Most countries in the region have enacted laws specific to these issues and introduced innovations to make their enforcement more effective. However, existing defects in legislation make the administration of conflicting demands on resources difficult to manage. In the countries of South Asia, the management of forests and forest resources has been given considerable priority.

Example Box 4: Forest Management in South Asia

In India, under the provisions of the *Forest (Conservation) Act, 1980* prior permission of the Central Government is essential for the diversion of forest land for non-forest purposes. Linked to this are the provisions in the *1986 Environment (Protection) Act*, which restrict the establishment of any new wood based unit, expansion and modernisation of such units, renewal of licenses for such units and construction of any infrastructure related to the setting up of new, as well as existing, wood based units. In **Nepal**, the government is encouraging user groups and village communities to participate in forest management and it has implemented a mandatory requirement that industries setting up in forest areas or using forest products must commission a detailed environmental impact assessment. **Sri Lanka** has set up national parks, nature reserves and sanctuaries to prevent the destruction of forest areas.

Environmental quality and anti-pollution regulations remain the most widely utilised legislative technique for pollution control, though several new approaches are evident in contemporary State practice. These laws have a wide ranging scope, as they typically canvass issues related to air quality, water, marine pollution, solid waste disposal and toxic materials management. Furthermore, this legislation establishes quality criteria, defines pollutants, sets permissible limits and regulates the suitability and effectiveness of compliance and enforcement methods. One of the most widely utilised techniques for environmental control is the system of authorisation (by permit, certification, licence) administered by government institutions.

In light of the fact that the substance of the framework legislation is less detailed than the former anti-pollution laws or the comprehensive environmental code options, the implementation of its principles inevitably requires further enabling legislation. The basic legislation can remain intact while the implementing frameworks are reformulated in response to changes in socio-economic and ecological factors. Similar provisions authorising specified government agencies to issue environmental quality criteria, standards and norms to control air, water and waste pollution exist in the legislation of **Bangladesh, India, and Sri Lanka**.

Legislation can also be an instrument for instituting novel approaches to dispute avoidance and settlement and promoting public participation at all levels in environmental decision-making and implementation. Such participation can be secured through the establishment of appropriate local level dispute mediation, conciliation and settlement institutions and the definition of "citizen rights" to enforce legislation. This latter aspect may become an important safeguard and increase government accountability, particularly where public agencies are remiss in their duties or have violated the law.

The effective implementation of environmental legislation presupposes the existence of appropriate institutional arrangements and processes. The sectoral approach to environmental management has had the effect of diffusing power and responsibility in diverse government departments (and in certain cases in local authorities) without any mechanisms for coordination. Jurisdictional overlaps and conflicts have inevitably arisen, thereby inhibiting not only the effective implementation of sustainable development policies, but also law enforcement. The major practical problems result from the difficulties in establishing an effective system of control and mechanisms to enforce the law.

6. ENFORCEMENT OF ENVIRONMENTAL LEGISLATION

Effective enforcement of environmental legislation is contingent upon the availability of adequate staff and financial resources, the administrative and political will of the enforcement agencies and the level of awareness of environmental laws. It is common, however, to find situations where responsibility for enforcement of laws is divided amongst a number of government agencies that pursue conflicting interests, thereby delaying or forestalling the implementation of these laws. In response, for enforcement to be effective, developmental planning processes have to be closely coordinated, with powers ideally vested in one apex agency.

Judicial activism and public participation have, in recent years, enhanced enforcement efforts of governments in implementing environmental laws. The courts are not only allowing the public to file public interest litigation for violation of environmental rights, but are also giving directives to the government to take corrective steps to rectify environmental damage. The imposition of fines and penalties on defaulting industries and closure of polluting units are examples of measures that have been frequently imposed by the courts.

The courts have also stressed the preeminence of the "polluter pays" and precautionary "prevention is better than a cure" principles as critical safeguards for sustainable utilisation of natural resources and for environmental balance. Judicial decisions in **Sri Lanka, India, Bangladesh** and **Pakistan** regarding environmental assessments for development projects have provided a much needed impetus for the enforcement of EIA legislation. It is also significant that in most cases the courts have accepted the principle

of *locus standi* as a requirement in the promotion of public participation in the judicial process for environmental issues.

Each country has an environmental legislative framework to approach the resolution of the national environmental problems specific to the country. The International agreements are focused on atmosphere, hazardous substances, marine environment, terrestrial resources, nature conservation and transboundary pollution. The key principles followed in the international agreements include Sustainable Development, Intergovernmental Equity, Common but Differentiated Responsibilities, Prior Informed Consent, the Precautionary Principle, the Polluter Pays Principle, and the concept of Permanent Sovereignty over National Resources.

7. ENVIRONMENTAL IMPACT ASSESSMENT

Economic development in developing countries has focused on immediate economic gains and, as such, environmental protection has not been prioritised. This primarily occurs because the economic losses from environmental degradation often manifest only long after the economic benefits of development have been realised. The past failure of development planning processes to take adequate account of the detrimental impacts of economic development activities, led to the advent of *environmental impact assessment (EIA)* processes. EIA was first employed by industrialised countries in the early 1970s. Since that time, most countries have adopted EIA processes to examine the social and environmental consequences of projects prior to their execution. The purpose of these processes is to provide information to decision makers and the public about the environmental implications of proposed actions before decisions are made.

Provision for EIA is made either in the national framework legislation or in subsidiary legislation. **Nepal** has attempted to harmonise sectoral legislation by formulating national EIA guidelines that identify the agencies responsible for reviewing the assessment report. Other countries in the region that have made EIA mandatory include **India, Sri Lanka, Bhutan, Maldives and Nepal**. In addition, such legislative sanction for EIA has the advantage of introducing greater objectivity in the decision making process. In the context of sustainable development, mandatory EIA also ensures the participation of stakeholders and the public in the EIA process, which brings cross-sectoral ideas and views into perspective and thereby enlightens the decision making process.

The need to integrate environmental considerations into national socio-economic planning is now widely recognised across the South Asia region. The EIA process has become the most common institutional mechanism for achieving such integration. EIA has become a crucial tool in guiding policy choices and has helped to create an environmental awareness amongst agencies involved in project implementation. The system of EIA has the capacity to minimise potential environmental damage or even prevent the occurrence of such problems at the preliminary stage of project formulation.

For many countries in the region an Initial Environmental Examination (IEE) or Environmental Impact Statement (EIS) has been made mandatory through the national framework legislation or the enactment of subsidiary legislation. **Nepal** has formulated EIA guidelines that involve the review of the Planning Commission, Environment Ministry as well as the agency implementing the project. **India** and **Sri Lanka** have both instituted a mandatory system of EIA for specified development projects.

Example Box 5: Environmental Impact Assessment

The *Environmental Protection Act 1986*, in **India** has made Environmental Impact Assessments (EIA) mandatory for 29 categories of development activities, which has been facilitated by the creation of expert groups in the sectoral agencies to ensure a broad range of sectoral inputs to the process. These committees meet regularly to review and discuss proposals. Nepal harmonised their EIA legislation into National EIA Guidelines, which clearly name the National Planning Commission, the Environment Division and the relevant line ministries as the agencies responsible for reviewing the EIS.

The **Sri Lankan** Ministry of Environment has held that adequate and rigorous consideration of alternatives is central to any Environmental Impact Assessment process, which is only facilitated by the availability of sufficient information to permit a reasonable choice of alternatives to be made. At the conclusion of this wide-ranging and objective process, decision-makers are better equipped to design and implement an "environmentally friendlier" activity. In **Sri Lanka**, the EIA process has been designed to promote inter-ministerial and inter-sectoral coordination where sectoral ministerial representatives, as well as the private sector, formulate and review EIA activities, regulations and policies.

In addition to the critical importance of public participation in the EIA process the need to ensure consultation and active partnership among interested governmental and parastatal institutions is also imperative. Whether operating at the national or local level, all of these bodies have relevant expertise and practical experience to contribute to the EIA process. EIA has helped to ensure that the wide range of national, provincial/state, local authorities, scientific and technical sectors have all been given an opportunity to comment on proposed activities, thereby avoiding costly mistakes and facilitating inter-sectoral co-operation. The heart of the EIA is in the analysis of alternatives. This system aims to seek out the most appropriate project option in light of diverse considerations from both an environmental and socio-economic perspective.

The critical issues for EIA development in the South Asia region are consistency in application, which can only be obtained through centralised management, decentralised implementation and access to independent expertise. The EIA process must continue to focus on greater public participation in the process and improved access to information in order to make any such public involvement meaningful. Although incredible progress has been made in the development of an EIA legislative network in the countries of the

region, the actual implementation of these provisions nevertheless remains problematic. In order to prevent circumvention of the crucial premise of the legislation, EIA procedures must not be regarded merely as obstructions to the goals of development.

8. ROLE OF THE JUDICIARY

The present judicial systems in India, Pakistan, Sri Lanka and Bangladesh represent an evolution from the traditional institutions established during the colonial period. The conventional role of the judiciary, being that of dispute resolution (civil jurisdiction) and the trial and punishment of those charged and convicted of crimes (criminal jurisdiction), has evolved over a considerable period of time. The basic elements of a modern system of civil and criminal justice have been in operation in much of the sub-continent for more than a century and in Nepal at least since 1951, when the Interim Constitution was promulgated.

The Judiciary plays a crucial role in promoting goals of sustainable development. Judicial institutions serve as agencies for interpreting legislation relating to environmental issues, integrating emerging principles of law within the holistic paradigms of sustainable development, providing a coherent and comprehensive strategy for handling diverse sectoral laws into a cross-sectoral approach and ensuring effective implementation of legislation. This extensive scope of influence has been extended in recent years where the judiciary now safeguards an individual's fundamental rights to a satisfactory environment. The rule of law becomes particularly important, as regulations and procedures, which govern human activity, serve to limit conflicts arising from competing claims (social, economic and ecological) on scarce resources whilst also ensuring sustainable development. Thus crucial to the role of the judiciary is the need to strike a balance between the competing demands of industry and individuals within an overarching need to preserve a sustainable environment.

Connections and linkages between different forms of activity and their environmental consequences are subject to different interpretations and reflect the inherent complexity of these issues. Therefore the judiciary is called upon to resolve such issues without compromising the fundamental goals and rights of civil society. The structure of judicial institutions in different countries in South Asia has not been satisfactorily modified to provide for the requirements necessary to achieving sustainable development. In many countries the Supreme Courts have taken the lead in interpreting laws and giving directions, many of which have had a far-reaching impact on environmental management. The Supreme Court in India, for example, in recognising the role of environmental protection for the achievement of sustainable development and growth, has been establishing mechanisms for the institutionalisation of judicial direction in environmental matters. The Court has adopted and set procedures that become the guiding law for the subordinate courts in the country. The most important innovation has been the Public Interest Litigation that enables individuals and organisations to file a writ petition with the objective of protecting environmental resources and benefiting the affected people. The Supreme Court of India has also established specialised High Court benches known

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as “Green Benches” to deal specifically with environmental management issues. Similarly, in Pakistan the superior courts exercise jurisdiction conferred under Articles 184(3) and 199 of the Constitution. Nepal’s 1997 Environmental Protection Act continues with this trend of judicial regulation by providing for the designation of a Prescribed Authority to administer the filing of environmental cases. However, appropriate rules for designating such an authority have not yet been formulated and environmental cases continue to be brought before subordinate courts.

An active judiciary has the potential to ingrain the rights of people to enjoy a certain level of environmental protection and to seek judicial intervention where these are violated. The judiciary may also act as a check on government policies that disrupt fragile ecological balances and generate awareness and consciousness amongst policy makers through court verdicts and orders. However, there is a need for specialist environment courts that can facilitate more consistent and expeditious environmental decision-making. These courts would reduce the number of cases brought before the Supreme Courts and High Courts and, as a single combined jurisdiction would be less expensive than a network of separate tribunals, administrative costs would also be limited.

In **Bangladesh, India, Sri Lanka** and **Pakistan** the Supreme Courts have broadly interpreted the "fundamental right to life" element contained in each of their constitutions. This approach entrenches the rights of the public to a healthy and protected environment into a solid legal foundation. The interpretation of constitutional rights was broadened in Bangladesh in the 1995 Supreme Court decision of *Dr. Mohiuddin Farooque v. Secretary, Ministry of Communication, Government of the Peoples' Republic of Bangladesh*. This case involved a petition against various Ministries and other authorities for failing to fulfil their statutory duties to mitigate air and noise pollution caused by motor vehicles in the city of Dhaka. The substance of the petition was that although the Constitution of Bangladesh contained no specific right to a safe and healthy environment, this right was part of the explicit "right to life" enshrined in the Constitution. The Court agreed with this argument and, as such, the rights to a protected environment are implicitly recognised as being inherent to the right to life. This interpretation was supported by constitutional prohibitions on actions detrimental to life, body or property. Similarly, in Pakistan the courts have broadly interpreted the 'right to life', stating that persons must not only be able to sustain life, but also to enjoy it, which necessarily incorporates one's right to a healthy and sustainable environment.

Courts have applied the public trust doctrine in regard to the management of natural resources and the environment, and in some states have given consideration to the concept of inter-generational and intra-generational equity. In this respect the administration of environmental issues and litigious matters is approached with firm consideration for maintaining the environment for future generations. In the 1988 Supreme Court of **India** decision of *Rural Litigation and Entitlement Kendra v. State of U.P.*, the Court ordered a cease to unauthorised and illegal mining in the Dhera Dun District, which was adversely affecting the ecology of the region. The Court specifically

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remarked that the area was a gift of nature to mankind and a bequest of the past generations to the future.

The responsibility and liability of the industry has been emphasised by the judicial support for the polluter pays principle. This principle was specifically addressed in India with the 1996 Supreme Court decision *Indian Council for Enviro-Legal Action v. Union of India*, where an action was brought to stop and in an effort to remedy the pollution caused by several chemical industrial plants in Bichhri village, Udaipur District, Rajasthan. The Court noted the finding in the *Oleum Gas Leak Case II* under which an enterprise that is engaged in a hazardous or inherently dangerous activity which results in harm to anyone, is strictly and absolutely liable to compensate all those who are affected by the accident. This rule deviated from the exceptions of strict liability set forth in the definitive case of *Rylands v. Fletcher* to accommodate the particular conditions in India. The Court also strongly endorsed the polluter pays principle, under which the financial costs of preventing or redressing damage lie entirely with those who are responsible for the pollution. This principle also played a role in another 1996 Supreme Court of India decision, *Vellore Citizens Welfare Forum v. Union of India*. In this instance the Court found that although the Respondent leather industry was a major foreign exchange earner for India and employment provider, this did not authorise the destruction of the ecology, environmental degradation or the creation of health hazards as a necessary incident of the industry. The Court ordered the Central Government to establish an authority to deal with the situation created by the tanneries and other polluting industries in the State of Tamil Nadu. This authority was to implement the precautionary and polluter pays principles and identify the losses to the ecology, environment and to individuals and families who had suffered because of the pollution. Upon determination of such losses the authority was to assess compensation by reference to the costs necessary to reverse the environmental damage and compensate those who had suffered.

Thus the emergence of a clear judicial concern for the integration of environmental concerns in the sphere of development and decision-making has been apparent in many recent cases. The 1988 Supreme Court of **India** decision, *M.C. Mehta v. Union of India and others*, provides an example of the advancement of the concept of sustainable development. Here the Court observed that while it was conscious that its decision to prevent tanneries, which were polluting the River Ganga, from operating until they installed primary effluent treatment plants, could bring unemployment, the decision to defend and improve the environment for present and future generations had become an imperative goal. The precautionary principle was applied in **Pakistan** in the 1992 Human Rights case of the Supreme Court, *Ms. Shehla Zia and others v. WAPDA*. The Court advocated the precautionary principle for the legal system, including both the judiciary and the various regulatory agencies, when responding to scientific uncertainties in the evidence before them. It was emphasised that a policy of sustainable development should be adopted to strike a balance between economic progress and prosperity and to minimise possible hazards.

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Great advances have also been made in the region in relation to access to justice. This has been largely facilitated by providing wider standing for aggrieved parties to seek redress and the expansion of substantive and procedural matters related to public interest litigation. The judiciary has extended the eligibility for public interest standing so that weaker sections of society are not denied access to environmental justice, particularly in respect of a subject matter of great public concern. The 1996 Supreme Court of **Bangladesh** (Appellate Division - Civil) decision in *Dr. Mohiuddin Farooque v. Bangladesh, Represented by the Secretary, Ministry of Irrigation, Water Resources & Flood Control*, extended the interpretation of "any person aggrieved" in the Constitution of Bangladesh to include not just individually affected persons, but also to the public in general, as a collective and consolidated personality. In this case, the petitioner, the Secretary General of the Bangladesh Environmental Lawyers Association, had filed a petition on behalf of a group of people in the district of Tangail whose life, property, livelihood, vocation and environmental security were seriously threatened by the imposition of a flood control plain. The Court concluded that the petitioner should be given *locus standi* to maintain the writ position, as the cause espoused by the Association *bona fide*, both in respect of fundamental rights and constitutional remedies, was a cause of an indeterminate number of people in respect of a subject matter of great public concern.

The public's right to access information was emphasised in **India** in the case of *Bombay Environment Action Group, Shaym H.K. Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board*, a 1986 decision in the High Court of Judicature, Bombay. In this case the Court upheld the right to information and the rights of recognised social action groups to obtain such information. This decision was founded on the rationale that the disclosure of information in regard to the functioning of the Government and the right to know, flows from the right of free speech and expression guaranteed under the Constitution. The Court also determined that "people's participation in the movement for the protection of the environment cannot be over-emphasised." Thus to stimulate public participation people need education, information and the right to express their concerns. The Petitioner, M.C. Mehta in the 1992 Supreme Court of India decision, *M.C. Mehta v. Union of India and Others*, asked the Supreme Court to issue a direction to cinema halls, radio stations and schools and colleges to spread information relating to the environment. The Petitioner made this application on the grounds that the Indian Constitution required every citizen to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. To fulfil these environmental obligations, the Petitioner argued that people need to be better educated about the environment. The Court agreed and noted that it was the Government's obligation to keep citizens informed about such matters, and hence issued the requested directions.

9. SOUTH ASIA COOPERATIVE ENVIRONMENT PROGRAM

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The South Asia Co-operative Environment Program (SACEP) is an inter-governmental organisation established in 1982 by the Governments of South Asia to promote and support the protection, management and enhancement of the environment in the region.

The Secretariat consists of the Director General and professional, administrative and supporting staff. The Director General is appointed in rotation from the member states in alphabetical order for a period of three years. The preeminent function of the Secretariat is to assist the Governing Council, the Consultative Committee, National Focal Points and Subject Area Focal Points in the discharge of their duties and responsibilities. It is based in Colombo and the Sri Lankan Government provides financial support for its existence.

The SACEP is also acting as the Secretariat for implementing the South Asian Seas Program, which was designated in 1983 as the ninth UNEP's Regional Seas Program. Bangladesh, India, Maldives, Pakistan and Sri Lanka are the countries participating in this program and have each ratified the Action Plan in 1995 for the protection and management of the coastal and marine resources in the region.

SACEP currently receives three types of financial assistance for its activities:

- Annual country contributions from the member countries on a agreed scale of assessment
- The hosting and support facilities provided from the Government of Sri Lanka as the host country of the Secretariat
- Bilateral - NORAD, SIDA, & the Netherlands Government

Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, are the eight participatory countries that have ratified the Articles of Association of SACEP. All member countries of SACEP belong to the developing world and five have been classified as amongst the least developed. Most of these nations share similar environmental problems stemming from poverty and its consequences on natural resources. According to the World Bank, during the past decade South Asia has been the second fastest economically growing region in the world. Consequently, South Asian efforts at increased production have imposed a mounting pressure on natural resources and the environment. Significant natural resource concerns in South Asia include the depletion of water quality and quantity, the reduction of forests and coastal resources and soil degradation resulting from nutrient depletion and salinisation.

The primary objective of SACEP is to promote and support the protection, management and enhancement of the South Asian environment. To achieve this aim there is a great emphasis on an approach that incorporates an individual, collective and co-operative level of involvement from all participatory countries. This action takes place within the context of encouraging the judicious use of the resources of the environment with a view to

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alleviating poverty, reducing socio-economic disparities and improving the quality of life of the people

The functions of SACEP are to promote co-operative activities that would be beneficial to member countries in priority areas of mutual interest. In addition SACEP provides a forum to facilitate exchange of knowledge and expertise and provide local resources for implementation of priority activities while mobilising maximum constructive and complementary support from donor countries and agencies.

The Governing Council is responsible for determining the policies and programs of SACEP and it oversees these activities by meeting regularly to review the ongoing programs and to endorse new recommendations put forward by the Secretariat. It consists of one representative from each of the member states, who will be of ministerial rank. Since becoming a legal entity in 1982, SACEP has held eight GC Meetings and the following table indicates the important initiatives and decisions taken at these meetings. See table on pp.40-43.

The Consultative Committee comprises the representatives of the diplomatic missions in Colombo and the Secretary of Ministry of Forestry and Environment of Sri Lanka. It is responsible for facilitating the implementation of policies, strategies and programs approved by the SACEPs Governing Council. The Consultative Committee meets regularly to provide guidance to the Secretariat in its activities and at the time of May 2001, 79 Consultative Committee Meetings had been held. Presently the Indian High Commission in Sri Lanka is the Chair of the Committee.

Each Member State has designated a National Focal Point to facilitate the work of the Secretariat and to function as the main communication link between the Secretariat and the respective country. National Focal Points are expected to implement and monitor national programs in co-operation with the Secretariat.

The Subject Area Focal Points are expected to co-operate with the Secretariat in project identification, formulation, implementation and monitoring. The country that is responsible for a particular subject area designates a centre of excellence in that subject and appoints a liaison officer. The member countries were assigned as the focal points for the following subject areas at the 7th GC Meeting of SACEP in 1998:

Bangladesh: Management of Freshwater Resources

India: Conservation of Biodiversity, Energy and Environment; Environment Legislation, Education & Training; Waste Management

Maldives: Management of Coral Island Ecosystems; Sustainable Tourism Development

Nepal: Participatory Forestry Management,

Pakistan: Air Pollution, Desertification, Science & Technology for Sustainable Development

Sri Lanka: Sustainable Agriculture & Land Use; Sustainable Human Settlement

Development

Since its inception in 1982, SACEP has initiated a number of projects, which aim to build upon and improve national capacity to manage environmental issues. The overall focus of SACEP's activities includes capacity building and institutional strengthening; conservation and sustainable use of biodiversity; ecosystem conservation and management; environmental information and assessment; and education and awareness raising. SACEP's members include Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, and Sri Lanka.

The formulation of the Regional Seas Program was a major achievement under the aegis of SACEP and it is one of the few major transboundary environmental programs of South Asia. Under this program a South Asian Seas Action Plan was also prepared in addition to national and regional overviews and action plans. The implementation activities relate to integrated coastal zone management; development of national and regional oil and chemical contingency plans; and the protection of the marine environment from the impacts of land-based activities.

Another major program undertaken by SACEP has been the improvement of the legal and institutional frameworks in the countries of the sub-region, which has been facilitated by technical assistance from UNEP Regional Office for Asia and the Pacific. Under this program, national workshops were organised in Bangladesh and Nepal covering environmental law from both national and international convention implementation perspectives. In the Maldives, support was given for a National Planning Meeting to develop National Environmental Legislation. In Sri Lanka, activities were carried out in development of regulations; preparation of a model statute; establishment of environmental standards; preparation of the state of environment report; training programs; and an environmental awareness program for children. SACEP launched the Private and Public Cooperation Initiative to promote cooperation between governments and the private sector. With the support of UNEP and NORAD under this initiative, a Regional Seminar on Cooperation for the Promotion of Environmentally Friendly Business Practices is being convened.

10. SOUTH ASIAN ASSOCIATION FOR REGIONAL COOPERATION

The South Asian Association for Regional Cooperation (SAARC) was established in 1983 with its headquarters in Katmandu. It includes the countries of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SAARC has a particular focus on economic cooperation although it also covers many aspects of regional cooperation (including environment). SAARC has steadily grown and, as a result of recent coordination initiatives between the two programs (SAARC and SACEP), its environmental activities are complementary to those of SACEP. SAARC has established technical committees in many fields. The Committee on Environment was given the status of a Technical Committee in 1992, the year in which a special session of this

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Committee was held in Pakistan to prepare modalities and programs of action. The implementation of the recommendations of the Regional Study on Greenhouse Effects has also been mandated to this Committee.

Countries of the sub-region are also participating in four transboundary efforts being promoted by the World Bank in Asia and the Pacific. URBAIR and the Two-Stroke Vehicle Engine Initiative address the problem of the rapid degradation of air by pollution in South Asia's largest cities. The Bay of Bengal Environment Program funded by GEF and jointly implemented with FAO addresses fisheries research, environmental emergencies, large marine ecosystems and coastal zone management in and around the bay. Both South and East Asian countries are involved in this program. The South Asia Development Initiative seeks to improve regional cooperation in the most impoverished parts of South Asia (Bangladesh, Bhutan, Nepal and eastern India) particularly in the areas of water resource management, energy development and trade and transport and commerce. A program for the preservation of Cultural Heritage in South Asia is being implemented in Bangladesh, India and Nepal to promote active involvement and financial support of the public, NGO, and private sectors to rehabilitate and protect national heritage sites.

The Third SAARC Summit held in Katmandu in the year 1987 decided to commission a study entitled "Causes and Consequences of Natural Disasters and the Protection and Preservation of the Environment". National Studies were undertaken and subsequently consolidated into a Regional Study, which was approved by the Sixth SAARC Summit in Colombo, 1991. The recommendations of the above Regional Study were considered by the Committee on Environment (held in February 1992), which identified the need for immediate action facilitated by measures for strengthening the environment management infrastructure; programs on environmentally sound land and water use planning; a research and action program on mountain development in the Himalayan Region; a coastal zone management program; a SAARC forestry and watershed program; programs on energy and environment; pollution control and hazardous waste management programs; a SAARC co-operative program for biodiversity management; programs for public participation in resource management; information exchange on low cost and environmentally sound habitat technologies; and the establishment of a SAARC relief and assistance mechanism for disaster and regional cooperation on the development of modern disaster warning systems. SAARC also presented a common position paper to the Fourth World Conference on Natural Disaster Reduction.

The Fourth SAARC Summit held in Islamabad in 1988 concluded that a joint study be undertaken on "Greenhouse Effect and its Impact on the Region". National Studies prepared by member states were consolidated into a regional study, which was approved by the Seventh SAARC Summit. A SAARC Environment Ministers Conference was held in New Delhi in April 1992 to evolve a joint position on the issues related to the UN Conference on Environment and Development (UNCED). A draft common SAARC position on Climate Change issues on the eve of the 1998 Buenos Aires meeting on Climate Change was adopted at the Meeting. The common SAARC position highlighted

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the need for determination of equitable emission entitlements as well as the transfer of new and additional financial resources and environmentally sound technologies on concessional terms to developing countries. It expressed concern at the attempt of some Annex-I Parties (Industrialized Countries) to link ratification of the Kyoto Protocol to the introduction of new commitments for non-Annex-I parties, which will only delay the Protocol coming into force.

The Heads of State or Government expressed their deep satisfaction at the positive outcome of the Environment Ministers' Conference held in Male' in October 1997, and called for the effective and early implementation of the SAARC Environment Action Plan. In this context they welcomed the offer of Maldives to prepare a feasibility study on the establishment of a Coastal Zone Management Centre. The Heads of State or Government also committed their governments to prepare National Environment Action Plans and State of the Environment Reports before the end of 1998

SAARC Environment Ministers, who met in Colombo from 30 October to 1 November 1998 for their fourth annual Conference, adopted a common environment program for the region as a follow up on the SAARC Action Plan on the Environment. Chandrika Bandaranaike Kumaratunga, President of Sri Lanka and current Chairperson of SAARC, inaugurated the Fourth SAARC Environment Ministers' Conference. In her inaugural address, President Kumaratunga highlighted the environmental dimensions of development that would guide the governments in the region along a sustainable path to economic growth. She underscored the fact that SAARC region, which is home for nearly one fifth of the world population, was confronted with increasing levels of poverty, ill health, illiteracy, social instability and continued environmental degradation.

The SAARC Environment Ministers agreed to direct their focus to a single theme in each of their future meetings. They also agreed that Bio-Diversity should be the theme for the year 1999. The Government of India will host a Meeting on the trans-boundary movement of hazardous wastes and dumping of such wastes in the region by other countries. This Meeting would examine the implications of the effect of the Basel Convention for the SAARC countries and would also explore the possibility of harmonising policies and procedures with regard to hazardous wastes.

The Committee on Environment was designated as the Technical Committee on Environment (TC04) commenced functioning on 1st January 1993. TC04 has been instrumental in identifying measures for immediate action within the recommendations and decided on a number of modalities for their implementation. These include: improving climate monitoring capability through networking arrangement and through SAARC Meteorological Research Centre (SMRC); developing climate change and sea-level rise scenario through country specific studies and sharing of information data in this respect; making available to member states expertise on climate research and monitoring Greenhouse Gas emissions; identification of training and research institutions and ongoing programs; exchange of information and data; exchange of experience on strategies for developing, mitigating and adaptive responses to climate change.

TC04 also covers topics such as: Approaches to Environmental Legislation, Regulations and Standards in SAARC countries; Rehabilitation of Degraded Lands; a Training Course on Wetlands Assessment and Management; a Workshop on Alternate/Renewable Energy and Workshop of SAARC National Experts on Climate Change. The urgent need to establish a networking approach through identified nodal points/institutions has also been stressed.

11. REGIONAL AGREEMENTS

In the last several years, the South Asia region has taken steps towards establishing regional standards or norms for environmental protection through treaties, conventions and agreements.

Agreement on Establishing the SAARC Food Security Reserve (SFSR)

During the Third SAARC Summit (Katmandu, 1987), an Agreement on establishing the SAARC Food Security Reserve was signed. The Agreement, which came into force on 12 August 1988, provided for a reserve of foodgrains for meeting emergencies in member countries. The size of the reserve at present stands at 241,580 tonnes.

The SAARC Food Security Reserve Board comprises representatives from each member country and meets annually. The primary function of the Board is to undertake a periodic review and assessment of the food situation and prospects in the region including factors such as production, consumption, trade, prices, quality and stocks of foodgrains.

Agreement on SAARC Preferential Trading Arrangement (SAPTA)

The Ministers of Member States signed the Agreement on SAPTA on 11th April 1993, during the Seventh SAARC Summit. The initiative towards establishing SAPTA was taken during the Sixth SAARC Summit in Colombo in December 1991. This Agreement is an umbrella framework of rules providing for the step-by-step liberalisation of intra-regional trade. It envisages periodic rounds of trade negotiations for exchange of trade concessions on tariff, para-tariff and non-tariff measures.

SAPTA contains provisions giving Special and Favourable Treatment to the Least Developed Countries (LDCs) in the SAARC region. Additional measures in favour of LDCs are incorporated in Annex-I of the Agreement. Provisions for safeguard action and balance of payments measures are also incorporated in the Agreement to protect the interests of Member States during critical economic circumstances.

The Agreement on Preferential Trading Arrangement (SAPTA) signed in Dhaka on 11th April 1993 has accelerated the process of trade and economic cooperation in the region.

Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

The declaration recognises that there is a great possibility for increased air pollution and consequential phenomena due to the concentration of pollutant gases, acid rain or acid deposition. This declaration also implicitly recognises the impacts of such environmental problems upon on the health of humans and other living organisms in all our countries due to these man made and natural causes. In light of the potential for increases in transboundary air pollution as a corollary of air pollution in each country, the declaration states that countries shall continue the process in stages with mutual consultation to draw up and implement national and regional action plans and protocols based on a comprehensive understanding of transboundary air pollution issues. It declares that in pursuit of the above, institutional structures at the national level and countries themselves shall use the good offices of regional, international bilateral and multilateral agencies in this endeavour.

12. IMPLEMENTATION OF GLOBAL CONVENTIONS

Over the last decade countries in the South Asia region have increasingly become signatories to international environmental agreements. Participation in these international agreements has also carried with it the obligation to institute adequate national measures for their implementation. Current developments demonstrate an increasing use of institutional and legislative mechanisms for this purpose. Recent environmental accords including the Montreal Protocol on Ozone Depleting Substances, the Biological Diversity and Climate Change Conventions, The Basel Convention, CITES and Convention on Migratory Species, impact upon a wide range of national interests and involve the participation of several national and sub-national administrative bodies.

Legislation has served as an effective instrument for implementing the obligations in a co-ordinated and cohesive way. To allow for the flexibility necessary for creating such co-ordinated administrative regimes, new environmental legislation usually specifies the principal concepts, obligations, rights and duties in regard to each Convention and leaves the detailed institutional arrangements to be specified in regulations. Many countries in the region have become parties to many of the international environmental instruments of global significance, but implementation of these conventions into domestic legislation has not been encouraging thus far. However, despite this initial reluctance this trend has slowly been changing.

At the national level, there is still a need for better scientific assessment of the ecological linkages between the conventions, identification of programs that have multiple benefits and enhanced public awareness raising for the conventions. Only then will the impetus of implementation be stirred.

13. CONCLUSION

South Asia today stands at a crossroad. A decade after Rio, it is still ridden with poverty and natural resources degradation. On the other hand, immense latent potential exists within the member countries. There is a broad consensus on the thematic priorities of poverty eradication, managing population growth, conserving natural resources and building macro-economic stability. However the challenge is for more action and accountability at various levels.

On the social front are the unique diversity of traditional values, arts, crafts and cultural practices, besides modern industrial products, services and a pool of contemporary brainpower. On the environment front the sub-region is endowed with approximately 15% of the known biological wealth of the world. Finally on the economic front, besides being the second fastest growing region in the world, the sub-region also has the largest consumer base. The political will for cooperation supported by a robust operational mechanism can transform the sub-region into a strong and sustainable entity within the global community.

SOUTH ASIA ENVIRONMENTAL FACT SHEET

COMPARATIVE TABLE							
ITEMS	BANGLADESH	BHUTAN	INDIA	MALDIVES	NEPAL	PAKISTAN	SRI LANKA
Constitutional Status on Environmental Protection	Protection of monuments and heritage, right to protection from actions detrimental to life	Does not have a constitution.	Duty of the state and citizens to protect environment. After 73 rd and 74 th Amendment L S G s given executive powers on Environmental issues.	No direct reference to environment.	Duty of the state to protect environment, wildlife, forest and vegetation.	Environmental pollution and ecology brought in the concurrent legislative list in 1993.	Duty of the State and every person. After 1987, Amendment Provincial govt. & executive power to protect environment, nature and its riches.
Major Environmental Laws	Environment Conservation Act, 1995; Forest Act, 1927; Agriculture & Sanitary Improvement Act, 1920; Embankment and Drainage Act; and about 180 other laws having bearing on environment.	Environment Assessment Act – 2000; Forest & National Conservation Act, '95; and Mines Act 1997 address environmental issues	Environment Protection Act, 1986; Pollution Control laws and a plethora of approx. 200 environment-related enactments.	Law on Protection and Preservation of Env't. '93. Law on Fisheries '87. Law on Coral Mining '78, EIA guidelines and several related laws in operation.	Environment Protection Act, 1997 and about 25 other environment-related laws	Pakistan EPA 1997 and a web of other environment-related enactments.	National Environment Act '80; NEPA and Forest Conservation Act. Coast Conservation Act also in existence.

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ITEMS	BANGLADESH	BHUTAN	INDIA	MALDIVES	NEPAL	PAKISTAN	SRI LANKA
Institutions Directly Responsible for implementation.	Ministry of Environment and Forest (MOEF)-created in 1989, Sectoral ministries/ departments	National Environmental Commission	Ministry of Environment and Forest (MOEF)-created in 1980, Sectoral ministries & Pollution Control Boards (both at State and Centre levels), State Department of Environment	Ministry of Planning Environment; National Commission for the Protection of the Env't and Ministries such as Planning, Human Resources and Env't. Fisheries etc. are responsible for implementation.	Ministry of Population and Environment; Environment. Protection Council; National planning Commission; sectoral ministries eg. Forest, Industries etc.	Ministry of Environment; Apex body-Central Environment Protection Authority. Local authorities oversee the local matters.	Ministry of Environment, Central Environmental Authority
Environmental Tribunals			Acts provide for Tribunals and Appellate Authority. The forest yet to start.			The EPA provides for Environment Tribunals which are to have exclusive jurisdiction to try serious violations.	

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ITEMS	BANGLADESH	BHUTAN	INDIA	MALDIVES	NEPAL	PAKISTAN	SRI LANKA
Environmental Policies, Strategies and action Plans	National Environment Policy adopted in '92. Forestry Master Plan in '93 and National Conservation Strategy '92 & Env'tal Management Action Plan prepared in '96.	Environment policies include Paro Resolution on Environment and Sustainable Development, Bhutan's Sustainable Development Strategy, Framework Guidelines for EIA developed in '92.	No Comprehensive Environment Policies or Action Plan brought out so far but there are sectoral policies on pollution, land use, agriculture, forest, industrial etc. National Conservation Strategy on Environment and Development, 1992	No policy or action plan has been brought out so far but as a member of the Alliance of Small Island States (AOSIS), is working to address ocean level rise.	Forestry Master Plan, 1988. National Conservation Strategy, 1988 in operation. National Env'tal Policy Action Plan prepared in 1992.	National Conservation Strategy of Pakistan, Five Year Plans incorporate principles of sustainability	National Conservation Strategy adopted in '88 & National Env'tal Action Plan adopted in '91 National Policy on Industry and Env't issued in '96. National Forest policy adopted in 1996 Coastal Zone Mgmt Plan '90 – under revision.

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Judiciary	The SC exercises writ jurisdiction. Locus standi widened: right to healthy environment is declared a Fundamental right but the Constitution bars the courts to pass stay orders stalling development projects.		The SC and HCs have been instrumental in developing PIL, providing effective remedies & developing environmental jurisprudence. Right to healthy, ecologically balanced environment declared as a Fundamental Right.	Role not very significant.	Exercises writ jurisdiction. Locus standi widened to deal with PIL's.	The SC and HCs exercise writ juris. Locus standi widened to deal with PIL and suo moto actions. Right to life expanded to protect people from envtal hazards; Right to clean and unpolluted water a FRt.	The SC and Court of Appeals exercise writ jurisdiction. Locus standi widened to hear PILs.
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STATUS OF MAJOR GLOBAL ENVIRONMENT CONVENTIONS IN SAARC REGION

Country Status – Ratification
 (* = Accession)

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Country	CBD	Ramsar	UNCCD	UNFCCC	Kyoto Protocol	Vienna Convention/ Montreal Protocol	Basel Convention	CITES	CMS (came into force)
Bangladesh	3/05/94	21/09/92	26/01/96	15/04/94		1990* /1990*	1/04/93*	20/11/81	
Bhutan	25/08/95			25/08/95					
India	18/02/94	01/02/82	17/12/96	1/11/93		1991* /1992*	24/06/92	20/07/76	1982
Maldives	9/11/92			9/11/92	30/12/98*	1988* /1989	28/04/92*		
Nepal	23/11/93	17/04/88	15/10/96	2/05/94		1994* /1994*	15/10/96*	18/06/75*	
Pakistan	26/07/94	23/11/76	24/02/97	1/06/94		1992* /1992*	26/07/94*	20/04/76*	1/12/87
Sri Lanka	23/03/94	15/10/90	09/12/98	23/11/93		1989* /1989*	28/08/92*	4/05/79*	1/09/90

CHAPTER IV

COUNTRY PROFILE

1. GEOGRAPHY

Location: Southern Asia, bordering the Arabian Sea and the Bay of Bengal, between Burma and Pakistan

Geographic coordinates: 20 00 N, 77 00 E

Area:

- Total area: 3,287,590 sq km
- Land area: 2,973,190 sq km

Land boundaries:

- Total: 14,103 km
- Border countries: Bangladesh 4,053 km, Bhutan 605 km, Burma 1,463 km, China 3,380 km, Nepal 1,690 km, Pakistan 2,912 km
- Coastline: 7,000 km
- Maritime claims:
 - Contiguous: 24 nm
 - Continental shelf: 200 nm or to the edge of the continental margin.
 - Exclusive economic zone: 200 nm
 - Territorial sea: 12 nm

Climate: Varies from tropical monsoon in south to temperate in north.

Terrain: Upland plain (Deccan Plateau) in south, flat to rolling plain along the Ganges, deserts in west, Himalayas in north.

- Lowest point: Indian Ocean 0 m
- Highest point: Kanchenjunga 8,598 m

Natural Resources: coal (fourth-largest reserves in the world), iron ore, manganese, mica, bauxite, titanium ore, chromite, natural gas, diamonds, petroleum, limestone plus numerous others.

Land use:

- Arable land: 55%
- Permanent crops: 1%
- Meadows and pastures: 4%
- Forest and woodland: 23%
- Other: 17%
- Irrigated land: 430,390 sq km (1989)

2. ENVIRONMENTAL ISSUES

According to the Strategy, Environmental problems in India can be classified into two broad categories:

- (a) those arising as negative effect of the very process of development; and
- (b) those arising from general conditions of poverty.

The first category is related to the pressure imposed by economically advanced groups who demand rapid economic development, inflicting great strain on natural resources.

The second category refers to the impact on the physical condition and quality of our natural resources as a result of poverty and inadequate availability, for a large section of our population, of the means to acquire basic human needs such as food, shelter and employment.

Current issues:

- Deforestation, soil erosion, overgrazing, desertification, air pollution from industrial effluents and vehicle emissions, water pollution from raw sewage and runoff of agricultural pesticides, distributed water is not potable, strain of huge and rapidly growing population on natural resources; natural hazards such as droughts, flash floods, severe thunderstorms and earthquakes.

International Agreements:

- Antarctic Treaty, Biodiversity, Climate Change, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber, Wetlands; signed, but not ratified - Antarctic-Environmental Protocol, Desertification.

3. LEGAL SYSTEM

Based on English Common Law system; limited judicial review of legislative acts; accepts compulsory ICJ jurisdiction, with reservations.

4. ECONOMY

Economic overview:

- India's economy is a mixture of traditional village farming, modern agriculture, handicrafts, a wide range of modern industries, and a multitude of support services.
- Faster economic growth in the 1980s permitted a significant increase in real per capita private consumption.
- A large share of the population, perhaps as much as 40%, remains too poor to afford an adequate diet.
- Production, trade, and investment reforms since 1991 have provided new opportunities for Indian businessmen and an estimated 200 million plus middle class consumers.
- 25 Indian states and several union territories, which are playing a more active role in determining economic policy, are further complicating the economic climate.

5. INDUSTRIES

Textiles, chemicals, food processing, steel, transport equipment, cement, mining, petroleum, machinery wood products, electric, electronic and several others.

6. LEGAL FRAMEWORK

In recognition of the need for environmental protection, varied regulatory and awareness raising measures have been taken in the past twenty years. These include:

Constitution of India (Article 21, 48A, 51A, 32, 226); Water (Prevention and Control of Pollution) Act 1974; Water (Prevention and Control of Pollution) Cess Act 1977; Air (Prevention and Control of Pollution) Act 1981; Indian Forest Act 1972; National Environment Tribunal Act 1995; National Environment Appellate Authority Act 1997; Wildlife (Protection) Act 1972 and Amendments; Forest (Conservation) Act 1980; Environment (Protection) Act 1986; Public Liability Insurance Act 1991; Forty Second Amendment 1976, The Constitution (73rd Amendment) Act 1992; Constitution (74th Amendment) Act 1992.

7. CONCLUSION

India has witnessed the global phenomenon of environmental degradation, suffering both the deterioration of its natural resources and the cruel dilemmas inherent in trying to arrest this deterioration. The past four decades of development, based on the utilization of natural resources with the aid of science and technology has been essentially carried out with internal resources, and aimed at improving the infrastructure of irrigation, power, transport, communications and energy as well as education and welfare programs for disadvantaged sections of the society.

The need for concerted effort towards environmental protection and management culminated in the United Nations Conference on Human Environment at Stockholm in 1972. During this Conference, the then Prime Minister, Indira Gandhi had not only underlined the basic problems of India but also that of the developing world related to environment, human population and poverty. In her address to the Stockholm Conference she stated:

“We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large number of people. Are not poverty and need the greatest polluters? For instance, unless we are in position to provide employment and purchasing power for the daily necessities of the tribal people and those who live in or around our jungles, we cannot prevent them from combing the forest for food and livelihood; from poaching and from despoiling the vegetation. When they themselves feel deprived, how can we urge the preservation of animals? How we can speak to those who live in villages and slums about keeping the oceans, the rivers and the air clean when their own lives are contaminated at the sources.”

The statement by the Prime Minister reflects India's position on the environment and development issues. These issues have, of late, become a matter of debate between the developed and the developing countries. Although being responsible for great environmental degradation, the developed world is shifting the onus of environmental protection to developing countries, imposing restrictions which have the potential for severe economic repercussion in developing countries.

CHAPTER V

OVERVIEW OF CONSTITUTIONAL, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

A. CONSTITUTION

Key Issues: No specific provisions for right to clean environment as a Fundamental Right

Key Provisions: Constitution of Government of India (Articles 21, 32, 48 A, 51A (g), and article 226) relate to the Environment.

Key Institutions: Supreme Court of India; High Courts; District Courts; Authorities; Tribunals.

1. INTRODUCTION

The Constitution of India is perhaps the first of its kind to provide protection for the environment through specifically entrenched measures: the 'Directive Principles' and the 'Fundamental Duties'. Furthermore there are several laws under the Union List, State List and the Concurrent Lists that make specific provisions for protection of the environment. Although there were several provisions which dealt with environmental problems and concerns existing before the first conference on environment in Stockholm 1972, all the specific sectoral laws were enacted thereafter.

2. CONSTITUTIONAL PROVISIONS

Constitution (52nd Amend.) Act, 1985

Article 19 Protection of certain rights regarding freedom of speech etc.

(I) All citizens shall have the right:

(a) to freedom of speech and expression;

Article 21 Protection of life and personal liberty.

No person shall be deprived of his life or personal liberty except according to procedure established by law.

Article 32 Remedies for enforcement of rights conferred by this Part.

(1) The right to move the Supreme Court by appropriate proceedings for the enforcement of the rights conferred by this Part is guaranteed.

(2) The Supreme Court shall have power to issue directions or orders or writs, including writs in the nature of habeas corpus, mandamus, prohibition, quo warranto and certiorari, whichever may be appropriate, for the enforcement of any of the rights conferred by this Part.

(3) Without prejudice to the powers conferred on the Supreme Court by clauses (1) and (2), Parliament may by law empower any other court to exercise within the local limits of its jurisdiction all or any of the powers exercisable by the Supreme Court under clause (2).

(4) The right guaranteed by this article shall not be suspended except as otherwise provided for by this Constitution.

Article 47 Duty of the State to raise the level of nutrition and the standard of living and to improve public health. The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purpose of intoxicating drinks and of drugs which are injurious to health.

Article 142 Enforcement of decrees and orders of Supreme Court and orders as to discovery, etc.

The Supreme Court in the exercise of its jurisdiction may pass such a decree or make such an order as is necessary for doing complete justice in any cause or matter pending before it, and any decree so passed or order so made shall be enforceable throughout the territory of India in such manner as may be prescribed by or under any law made by Parliament and, until provision in that behalf is so made, in such manner as the President may by order prescribe. (2) Subject to the provisions of any law made in this behalf by Parliament, the Supreme Court shall, as respects the whole of the territory of India, have all and every power to make any order for the purpose of securing the attendance of any person, the discovery or production of any documents, or the investigation or punishment of any contempt of itself.

Article 226 Power of High Courts to issue certain writs.

(1) Notwithstanding anything in article 32, every High Court shall have power, throughout the territories in relation to which it exercises jurisdiction, to issue to any person or authority, including in appropriate cases, any Government, within those territories directions, orders or writs, including writs in the nature of habeas corpus, mandamus, prohibition, quo warranto and warranto and certiorari, or any of them, for the enforcement of any of the rights conferred by Part III and for any other purpose.

(2) The power conferred by clause (1) to issue directions, orders or writs to any Government, authority or person may also be exercised by any High Court exercising

jurisdiction in relation to the territories within which the cause of action, wholly or in part, arises for the exercise of such power, notwithstanding that the seat of such Government or authority or the residence of such person is not within those territories.

(3) Where any party against whom an interim order, whether by way of injunction or stay or in any other manner, is made on, or in any proceedings relating to, a petition under clause (1), without - (a) furnishing to such party copies of such petition and all documents in support of the plea for such interim order; and (b) giving such party an opportunity of being heard, makes an application to the High Court for the vacation of such order and furnishes a copy of such application to the party in whose favour such order has been made or the counsel of such party, the High Court shall dispose of the application within a period of two weeks from the date on which it is received or from the date on which the copy of such application is so furnished, whichever is later, or where the High Court is closed on the last day of that period, before the expiry of the next day afterwards on which the High Court is open; and if the application is not so disposed of, the interim order shall, on the expiry of that period, or, as the case may be, the expiry of the said next day, stand vacated.

(4) The power conferred on a High Court by this article shall not be in derogation of the power conferred on the Supreme Court by clause (2) of article 32. Appendix- Part A

Article 253 empowers Parliament to enact laws ratifying India's international obligations. The article states:

Notwithstanding anything in the foregoing provision of the chapter, Parliament has power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference association or other body.

Parliament has used its power under Article 253 to enact the Air (Prevention and Control of Pollution) Act 1981 and the Environment (Protection) Act 1986. The preamble of both laws states that they were enacted to implement the decisions reached at the United Nations Conference on the Human Environment held at Stockholm in 1972. At the Conference, members of the United Nations agreed to work towards preserving the world's natural resources and called on each country to carry out this goal.

3. THE FORTY SECOND AMENDMENT TO THE CONSTITUTION

The adoption of the Stockholm Declaration on the Human Environment 1972 has provided the necessary impetus to all nation states to evolve a viable plan of action for the preservation and improvement of the global environment. Initially, the Constitution of India had no direct provision for protection of environment. In response to the Stockholm Conference and a growing awareness of the environmental crises, in 1976 the Government of India incorporated a direct provision for protection of the environment.

Overview of Constitutional, Legislative and Institutional Framework

The 42nd Amendment, a new directive principle of state policy illustrated a new commitment to environment:

The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

The same amendment created Article 51(A)g, a fundamental duty of the citizen:

It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife.

These two provisions make it clear that the protection of environment is not only the obligation of the state but also the fundamental duty of each and every citizen of India. These constitutional directions complied with government's obligation under the Stockholm Declaration and paved the way for the enactment of laws protecting the environment.

The Constitution (Forty Second Amendment) Act, 1976 embodied a landmark development in the field of environmental law. It granted the Centre new power to enact laws and transferred to the Concurrent List matters originally dealt with under State Legislatures. Part IX of the Constitution; "Relation between the Union and the States", contains the Seventh Schedule which dictates that Parliament may make laws with respect to matters contained in the Union List (e.g. Defence, Foreign Affairs, Citizenship, Railways, National Highways, Shipping and Navigation of National Waterways, Banking, Insurance, Inter-state Trade and Commerce, Census, Union Public Service, etc) and the States may make laws with respect to matters contained in the State List (e.g. Public Order, Public Health and Sanitation, Agriculture, Water, Land, Fisheries etc). Both jurisdictions may make laws with respect to matters in the Concurrent List, however Parliamentary laws are paramount. Hence the effect of transferring laws to the Concurrent List meant that the Parliament could enact paramount legislation with respect to matters that were previously the sole jurisdiction of the States. The Centre was granted the power to make laws for forests, wildlife and population control.

There are other ways that the Parliament can usurp the States powers. Article 250 empowers the Parliament to legislate with respect to any matter in the State List in a proclaimed emergency. Article 249 of the Constitution also empowers the Union government to legislate with respect to a matter in the State List in the national interest, and the Council of State (Upper House of the Union Parliament) has declared by resolution, supported by not less than two thirds of the members present and voting, that it is in the national interest. Also article 252 empowers the Parliament to legislate for the States on any matter with respect to which it has no power, (except as provided in Articles 249 and 250), if the Legislatures of two or more States pass a resolution to the effect that is desirable for it to do so.

By virtue of the power in the field of environment, under Article 252(2) of the Constitution, Parliament enacted the Water (Prevention and Control of Pollution) Act, 1974.

4. THE 73RD AND 74TH CONSTITUTIONAL AMENDMENT ACTS 1992

The Constitution of India, via the 73rd and 74th Constitutional Amendment Act 1992, incorporated a decentralized approach to planning through a system of Panchayati Raj and Nagar Palika (local self-governments of urban cities/ towns) institutions. With the enactment of the Constitution Amendment Act (1992), Panchayati Raj Institutions (PRIs) have been revitalized and a process of democratic decentralization ushered in:

The Constitution (73rd Amendment) Act 1992

- Provides for constitution of local rural bodies.
- Provides for the assigning of functions, which include soil conservation, water management, watershed development, social and farm forestry, drinking water management etc.

The Constitution (74th Amendment) Act 1992

Subsequent to the 73rd Constitutional Amendment Act 1992, State Governments enacted enabling legislation providing for the establishment of elected bodies at the village, intermediate and district levels, with adequate representation from weaker sections and women. Almost all the States have constituted Panchayati Raj bodies.

- Provides for constitution of local urban bodies.
- Assigns them functions of protecting the environment and promoting ecological effect.

Furthermore the State Governments are required to endow the Panchayats with the power and authority necessary to function as institutions of self-government with the responsibility of preparing and implementing plans for economic development and social justice. Correspondingly, the legislation granted appropriate resources.

In accordance with the Constitution 74th Amendment Act, local urban bodies/municipalities prepare plans for the development of urban areas. The municipalities are the focal institutions for the provision of urban infrastructure and delivery of services. The success of such activities is dependent on the States endowing commensurate functional and financial powers and responsibilities.

While the local urban bodies have a share in the revenue of the States, they would also have to be permitted to levy their own taxes/cesses at the local level. This could include professional tax, property tax, entertainment tax and motor vehicle taxes etc. In addition,

they could levy user charges and licence fees, wherever feasible. Some of the municipalities in cities may also raise resources from the market by issue of bonds.

Compliant with Article 243 (G) of the 73rd Constitutional Amendment Act, the Panchayati Raj Institutions will prepare plans for economic development and social justice. The core function of the PRIs is planning at the local level with the use of 'District Planning Committees'. The District Planning Committees provide the umbrella for the preparation of integrated district development plans. However, certain broad principles must be laid down for assigning a role to each of the three-tiers; the actual devolution may be based on the rule that what can be done at a lower level should be done at that level, and not a higher level. In addition the Gramsabha would list priorities, assisting in the selection of beneficiaries for various programs and schemes.

The goal of this system is that the aspirations of the people be articulated. Appropriately, the planning process would begin from below (bottoms up approach) with the preparation of village plans, which would be incorporated into the intermediate level plans and finally merged into a district plan.

5. ARTICLE 21 OF THE CONSTITUTION

Article 21 of the Constitution of India provides for 'right to life' and 'personal liberty'. However the scope of this Article envisages right to an environment free of smoke and pollution and a better 'quality' of life. Judicial review of the matter has shown that, the right to life and liberty extends to right to clean environment. The article states:

“No person shall be deprived of his life or personal liberty except according to procedure established by law.”

The objective of Article 21 is to prevent encroachment upon right to life by the Executive save in accordance with law, and in conformity with the provisions thereof. The Public Interest Petitions, founded on Article 21, have been ruled to extend to many diverse aspects of 'life and personal liberty', including: children in jail being entitled to special treatment, health hazards due to pollution, beggars' interest in housing, health hazards from harmful drugs, right of expedient trial, handcuffing of prisoners, delay in execution of death sentence, immediate medical aid to injured persons, starvation deaths, the right to information, right to open trial, inhuman conditions.

The acceptance of Public Interest Litigation by the Supreme Court of India illustrates the influence of the judiciary in the protection of the environment. Social action litigation or Public Interests Litigation has come of age in India and the higher judiciary is doing a yeoman service in enforcing the socio-economic and environmental rights of the Indian populace in the face of executive apathy and indifference.

Overview of Constitutional, Legislative and Institutional Framework

This approach has led the Supreme Court to adopt, apply and evolve a range of Principles to guide the development of environmental jurisprudence. Notable amongst the fundamental norms recognized by the court are:

- (1) Every person enjoys the right to a wholesome environment, which is implied from the right to life guaranteed under Article 21 of the Constitution of India;
- (2) Enforcement agencies are under an obligation to strictly enforce environmental laws;
- (3) Government agencies may not plead non-availability of funds, inadequacy of staff or other insufficiencies to justify the non-performance of their obligations under environmental laws;
- (4) The 'polluter pays principle' which is a part of the basic environmental law of the land requires that a polluter bear the remedial or clean up cost as well as the amount payable to compensate the victims of pollution;
- (5) The 'precautionary principle' requires government authorities to anticipate, prevent and attack the causes of environmental pollution. This principle also imposes the onus of proof on the developer or industrialist to show that his or her action is environmentally benign;
- (6) Government development agencies charged with decision making ought to give due regard to ecological factors including; the environmental; policy of the Central and State Government; the sustainable development and utilization of natural resources; the obligation of the present generation to preserve natural resources and pass on to future generations an environment as intact as the one we inherited from the previous generation
- (7) Stringent action ought to be taken against contumacious defaulters and person who carry on industrial or development activity for profit without regard to environmental laws;
- (8) The power conferred under an environmental statute may be exercised only to advance environmental protection and not for a purpose that would defeat the object of the laws;
- (9) The state is the trustee of all natural resource, which are by nature meant for public use and enforcement. The public at large is the beneficiary of the sea-shore, running water, air, forests and ecologically fragile land. These resources cannot be converted into private ownership.

6. CONCLUSION

The Constitution of India has in recent years undergone significant changes. The eagerness to alter the constitution in the wake of the Stockholm Conference has seen India become one of the first countries to specifically embody environmentally protective sections within its fundamental law. The amendments of recent years have seen the development of a decentralized approach to planning through a system of Panchayati Raj and Nagar Palika institutions (local self-governments of urban cities/ towns). This was achieved under the 73rd and 74th Amendments which allowed the establishment of elected bodies at the village, intermediate and district levels, with adequate representation from weaker sections of society and women. The establishment of such bodies by a majority of States reflects the success of such amendments.

Another significant amendment was the 42nd Amendment. The two provisions created by this amendment made it clear that the protection of environment is not only the obligation of the state but also the fundamental duty of each and every citizen of India.

In addition to the amendments, the practical operation of the constitution has also been altered by the activism of the Indian judiciary. This is particularly evident in the modern interpretation of Article 21. As discussed this has led to a new judicial stance and the development of a set principles applied by the judiciary in environmental matters, these are discussed further in Chapter IV.

Above all the section on the constitution illustrates the willingness of India to enshrine environmental protection within its most fundamental law, and from environmental perspective thus strengthen the constitution. However this strengthening can only be assessed by its implementation. Clearly the judiciary has taken it upon itself to wield the power of constitutional interpretation in favour of the environment, however the success of statutes must also be examined. This is done so in the following section.

B. LEGISLATION

Key Issues: Multiplicity of Legislation; Overlapping Provisions; Non- Compliance; Enforcement; Faulty Structure/Scheme of Legislation; Drafting Legislation; Lack of Provisions for Implementation; Inbuilt Enforcement Mechanism

Key Legislation: Constitution of India (Article 21,48A, 51A, 32, 226) The Water (Prevention and Control of Pollution) Act 1974; The Water (Prevention and Control of Pollution) Cess Act 1977; The Air (Prevention and Control of Pollution) Act 1981; The Indian Forest Act 1972; The National Environment Tribunal Act 1995; The Wildlife (Protection) Act 1972 and Amendments; The Forest (Conservation) Act 1980; The Environment (Protection) Act 1986; The Public Liability Insurance Act 1991; Forty Second Amendment 1976 The Constitution (73rd Amendment) Act 1992; Constitution

(74th Amendment) Act 1992.

Key Institutions: Ministry of Environment and Forests; Central Pollution Control Board, State Pollution Control Boards; State Department of Environment; Botanical Survey of India; Zoological Survey of India; Ministry of Agriculture; Ministry of Water Resources; Ministry of Surface Transport; Ministry of Industry; Ministry of Health; Ministry of Agriculture; Ministry of Non-Conventional Energy Sources; Ministry of Commerce; Ministry of Urban Development; Planning Commission; Supreme Court; High Courts; District Courts; Nyaya Panchayat, Panchayat Adalat, Gram Kachheri.

1. INTRODUCTION

India has developed a comprehensive framework of environmental legislation and regulations for the protection and the conservation of the environment. These include landmark enactments such as the Environment (Protection) Act 1986 and statutes relating to air, water, wildlife and forests. However, due to poor implementation, the targets set for environmental protection have not been achieved. One of the reasons for the poor implementation is a lack of knowledge and skill of application in the lawmakers, law enforcers and industry managers. To remedy this the Government of India has taken initiatives to strengthen the legal capacity of lawmakers, law enforcers, industry managers, law teachers etc. Strengthening the ability of these groups to draft, implement, enforce and teach laws will consequently strengthen voluntary compliance, as well as the capacity for enforcement.

This Chapter lists all the relevant legislation enacted relating to the environment and discusses in detail certain more fundamental Acts. Reference is made to the scope, functions, bodies established by and enforcement of these Acts. Legislation is also discussed in later chapters that deal with the topics of water, atmosphere, chemical and wastes, forestry, biodiversity, wildlife and eco-tourism.

2. LEGISLATIVE HISTORY

Legislation on water pollution control dates back to Shore Nuisance (Bombay, Colaba) Act 1853, which authorised the Collector of Land Revenue in Bombay, to order removal of any nuisance that was below the high water mark in Bombay harbour. The Orient Gas Company Act 1857 s15, provided for the administering of fines to the Company and a right of compensation to anyone whose water was fouled by the Company. Later the Indian Penal Code 1860 under section 268, 269, 277, 278 and 290 fines could be administered to any person who fouled the water of any public spring or reservoir, and for other negligent acts involving poisonous substances. The Indian Easement Act 1882 protected riparian owners against unreasonable pollution by upstream users. The Indian Fisheries Act 1897, the Indian Port Act 1908, the Indian Forest Act 1927 and the Merchant Shipping Act 1958 also contain provisions prohibiting the pollution of rivers and other water bodies. The Criminal Procedure Code under section 133 empowers the

Collector to order stoppage of activities resulting in nuisance to the public. It may be noted however, that the above-cited laws deal with water pollution incidentally, prevention and control of water pollution not being their main objective. Also noise, air and visual pollution can be controlled under the Motor Vehicles Act 1939 (amended 1989). Several States have their own laws for regulating pollution.

3. ENVIRONMENTAL ACTS AND AMENDMENTS

General

The Environment (Protection) Act 1986.

The Public Liability Insurance Act 1991 and Amendment 1992.

The National Environment Tribunal Act 1995.

The Ancient Monuments and Archaeological Sites and Remains Act 1958.

The National Environment Appellate Authority Act 1997.

Forests and Wildlife

The Indian Forest Act 1927 and Amendment 1984.

The Forest (Conservation) Act 1980, 1981.

The Wildlife (Protection) Act 1980, 1981.

The Insecticide Act 1968.

Land Use

The Urban Land (Ceiling and Regulation) Act 1976.

The Model Regional and Town Planning and Development Law 1985.

Provision in State Acts on Town and Country Planning.

The Industries (Development and Regulation) Act and Amendment 1957, 1987.

The Mines and Minerals (Regulation and Development) Act and Amendment 1957, 1984.

The Coal Mines (Conservation and Development) Amendment Act 1985.

Water

The Water (Prevention and Control of Pollution) Act, Rules and Amendment, 1977, 1978, 1982.

The Coastal Regulation Zone Notification 1991.

The Oil Fields (Regulation and Development) Act 1984.

The Merchant Shipping Act, 1970.

The River Boards Act 1965.

The Indian Fisheries Act 1897.

Air

The Air (Prevention and Control of Pollution) Act 1981; Rules and Amendment, 1982, 1983, 1987.

The Factories Act 1948 and Amendment 1987.

The Motor Vehicles (Amendment) Act 1986.

The Indian Boiler Act 1923.

4. THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974

The Water (Prevention and Control of Pollution) Act 1974 (6 of 1974) is one of the major laws relating to the environment. Its main objects are:

- (a) to provide for the prevention and control of water pollution;
- (b) to provide for the maintaining or restoring of wholesomeness of water;
- (c) to provide for the establishment of Boards for the prevention and control of water pollution;
- (d) to provide for conferring powers on such Boards and Assigning functions to such Boards; and
- (e) to provide for matters connected with the above.

The Water Pollution Act was taken as relating to a subject not within the competence of Parliament (except as provided in article 249 and 250 of the Constitution). The Act has been enacted in pursuant to resolutions passed by certain States under Article 252(1) of the Constitution. The Act applies in the first instance to all the Union Territories and to the following States whose Legislatures have passed the requisite resolution: Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradeash, Rasasthan, Tripura and West Bengal.

Central and State Pollution Control Boards

Via sections 3 and 4 the Act provides for the creation of the Central Pollution Control Board and State Pollution Control Boards. Sections 13-15 authorise the establishment of Joint Boards. The main function of the Central Board, under section 16(1) of the Act, is to “promote cleanliness of streams and wells in the States”. Section 16(2) provides for certain functions in the nature of advice, planning, co-ordination, publication, education and programs for preventing, controlling and abating water pollution.

The State Boards (s17) are expected not only to plan comprehensive programs for the prevention and control of water pollution in the State but also to inspect sewage or trade effluents, and works and plants for their treatment to lay down standards for such effluents and for the quality of receiving waters, and to make orders for waste disposal and similar related activities.

Directions by Boards

s18 of the Water Pollution Act confers power to give “directions” on:

- (a) the Central Government (which can give directions to the Central Board);
- (b) the Central Board (which can give directions to the State Boards);
- (c) the State Government (which can give directions to the State Board).

In case of conflict between directions given by the Central Board and the State Government, that matter shall be referred to the Central Government for decision. If the State Board does not comply with the Central Board's directions, the Central Government can order the former to perform the functions of the latter for a specified period.

Control of Pollution of water

Apart from the general powers of the State Boards (s17), a State Board has statutory powers to obtain information (s20), to take samples of effluents and have them analysed (ss21-22) and to enter and inspect premises and vessels (s23). Violation is punishable under s40.

Prohibition against pollution

Section 24 prohibits every person from knowingly doing certain acts which cause water pollution. Most important is the prohibition against causing or permitting the entry into any stream or well or sewer (directly or by land) of:

- any poisonous matter;
- any noxious matter;
- any polluting matter as per standards laid down by the State Board;
- any other matter tending to impede the proper flow of water of a stream "in a manner leading or likely to lead to a substantial aggravation of pollution due to other causes or its consequences".

Violation is punishable under section 43 (New outlets and new discharges).

Section 25 prohibits the following acts, if committed without the previous consent of the State Board:

- (a) establishment of any industry etc. or any treatment and disposal system likely to lead to discharge of sewage;
- (b) bringing into use any new or altered outlet for discharge of sewage; or
- (c) beginning to make any new discharge or sewage.

Violation is punishable under s44.

Section 27 lays down the circumstances in which consent may be granted. Orders refusing consent are, under s28, can be appealed to the prescribed appellate authority. They can also be reviewed by the State Government under s29.

Power to carry out works

Where consent of the Board is subject to the condition of execution of works and the person to whom such conditional consent is given fails to execute the works, the State Board can execute the works at his/her cost, (s30).

Accidents and emergencies

Where owing to any accident etc. there is a resulting discharge of poisonous, noxious or polluting matter, s31 imposes on the person concerned an obligation to inform the State Board. Failure to disclose is punishable under s45A, which is the residuary penal provision.

s32 empowers the State Board to take emergency measures in case of such an accident. Violation is offence under s41.

Restraint order

In case of apprehended pollution of water of any stream or well, s33 enables the State Board to apply to the Court for a restraint order. Violation of the restraint order becomes punishable under s44. Moreover the Court may authorize the Board to undertake the removal and disposal of the pollutant.

Power of a Board to give directions

Under s33A of the Water Pollution Act (subject to directions of the Central Government), a Board can, in the exercise of its powers and execution of its functions under the Act, issue directions. Breach of such direction is punishable under s41.

Penalties

Sections 41 to 50 of the Water Pollution Act deal with penalties and procedure and are of considerable practical importance.

5. THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981

The Air Pollution Act represents the ratification of an international initiative, giving rise to important constitutional implications. The Act was passed to implement the decisions made at the United Nations Conference on the Human Environment held in Stockholm in June 1972, to which India was a participant. The preamble to the Air Pollution Act contains a formal recital of that fact and adds that such decisions were made “to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution”. The preamble further records that “it is considered necessary to implement the discussion aforesaid in so far as [it relates] to the preservation of the quality of air and control of air pollution”.

The fact that the Air Pollution Act has been passed to implement the decisions made at the above Conference gives rise to the important constitutional revelation that the legislative power of Parliament consequentially expands in its dimension by virtue of such decisions. Parliament acquires competence to make a law necessary to implement the decision, regardless of the current position regarding competence to make laws on the subject matter of the decision, with reference to the scheme of distribution of legislative powers between the Union and the State under the provisions of the Constitution.

Territorial extent of the Act

Unlike the Water Pollution Act, 1974, the Air Pollution Act extends to the whole of India. Jurisdiction over all India became possible because of the fact that the Act was avowedly passed to implement the decision taken at the Stockholm Conference.

Scheme of the Act

Chapter 1, headed “Preliminary”, deals with the short title, extent and commencement of the Act, and definitions, in ss 1 and 2 respectively. The most important definitions are those of the expressions “air pollution”, “emission”, “industrial plant” and “occupier”. Chapter 2 deals with Central and State Boards for the Prevention and Control of Air Pollution, their composition, terms and conditions of service of members, and their qualifications and delegation of powers (ss 3-15). The powers and functions of the Boards themselves are dealt with in Chapter 3 (ss 16-18).

The essentially operative element of the Air Pollution Act begins with Chapter 4 (ss 19-3A). That Chapter is concerned with declaration of “air pollution control areas” (s 19), emissions from automobiles (s 20), restrictions on the operation of industrial plants in air pollution control areas (ss 21,22 and 22A) and several incidental matters, including ancillary powers (ss 23-27). It also provides for the establishment and recognition of “State Air Laboratories” and Analysts for the purposes of the Act (ss 29-31). An important provision contained in s 31 gives a right of appeal to any person aggrieved by an order approved by the State Board. Much more important is the provision contained in s 31A, inserted by the amending Act 47 1987, which provides that a “Board” which means a Central Board or a State Board, as defined in section 2(g) can give written directions to any person, officer or authority in the exercise of its powers and performance of its functions under the Act. This section includes the power to issue certain drastic directions, such as the closure, prohibition or regulation of any industry, operation or proceeds, or the stoppage or regulation of supply of electricity, water or “any other service”. It should be noted that under section 39 (as amended in 1987) whoever contravenes any of the provisions of the Act or any order or direction issued under the Act for which no penalty has been elsewhere provided in the Act, shall be punishable with imprisonment up to 3 months or fine up to 10,000 rupees or both. The general provision as to offences by companies (s 40) applies to contravention of a direction issued

under s 33A and is punishable by virtue of s 39, as it applies to any other offence under the Act committed by a company.

Chapter 5 of the Air Pollution Act (ss 32 to 36) deals with financial matters, such as funds, accounts and audit. Chapter 6 (ss 37 to 46) is titled “Penalties and Procedure” however it also contains a section which purports to exclude the jurisdiction of courts to issue injunctions in certain cases (s 46). Incidentally, this Chapter has been extensively amended by the amending Act of 1987. Chapter 7 of the Air Pollution Act (ss 47 to 54), titled “Miscellaneous”, contains important provisions relating to suppression or dissolution of State Boards (ss 47 to 49). It also contains a provision (s 52) giving the Air Pollution Act an overriding effect over all other laws except the Atomic Energy Act 1962. The latter Act remains the governing law in relation to radioactive pollution. As regards rule-making power, ss 53 and 54 give the power to Central Government and State Governments respectively. Noticeably the power of the Central Government is confined to specified matters, while the power of the State Government is much wider, encompassing not only the matters enumerated in s 54(2) but also the ability to make rules “to carry out the purposes of this Act” as provided in s 54(1).

6. THE ENVIRONMENT (PROTECTION) ACT 1986

The Environment (Protection) Act 1986 (Central Act 29 of 1986) which came into force on 19th November 1986, is the most comprehensive Act on the Indian statute book relating to the environment, not only because of its very wide definition of “environment”, but also because of the sweeping coverage of its substantive provisions, particularly Chapter 2, dealing with general powers of the Central Government (ss 3 to 6) and the stringent provisions regarding penalties for various offences (s 15 to 17). The declared objective of the Act, as enunciated in the long title, is to “provide for the protection and improvement of the environment and for matters connected therewith”. The Act does not repeal any of the earlier laws regarding pollution of the environment and allied matters. Nor does it make a specific mention of the various Boards or other Authorities constituted under other laws. Rather, it envisages the creation (if necessary) of fresh Authorities.

The Environment (Protection) Act 1986 extends over 26 sections. Section 1 gives the short title, extent and commencement of the Act; s 2 contains the definitions almost all of which are of significant practical importance. The basic definitions are of the expressions “environment”, “environmental pollution”, “handling” and “hazardous substance”. These expressions are important because they occur frequently in the substantive provisions of the Act, or because they represent the nuclear concepts underlying the Act.

Several important powers have been conferred on the Central Government by ss 3 to 6, which constitute Chapter 2 of the Act. Demonstrably, s 3 confers on the Central Government power to take measures for protecting the environment and improving its quality. This power is without prejudice to the power given by s 3(3), to the Central Government to constitute appropriate authorities for the purpose of exercising and

performing the powers of the Central Government. Section 5 of the Act gives a far-reaching power to the Central Government “in the exercise of its powers and performance of its functions under this Act” to issue written directions to any person, officer or authority. This power, although it is declared to be subject to the provisions of the Act, can be exercised “notwithstanding anything contained in any other law”. The power to issue “directions” under section 5 can itself be delegated, by a gazette order of the Central Government, to the authority or authorities constituted by the Central Government under section 3(3).

In addition there is the power granted to the Central Government under s 6, to make rules on any of the matters referred to in s 3. This power is supplemented by section 25 of the Act, which grants power to the Central Government to make rules on specified matters. All rules are, however, to be laid before the Parliament, as required by s 26.

7. THE NATIONAL ENVIRONMENT TRIBUNAL ACT 1995

The Tribunal established by the Act has the power to adjudicate matters such as compensation for death of, or injury to a person, damage to property or the environment or any other matter specified in the schedule. The payment of compensation is based on principle of no-fault liability. The workmen have been excluded from the ambit of the Act. The Act also envisages that if death, injury or damage caused by an accident cannot be attributed to any individual activity but is the combined or resultant effect of several such activities, operation and processes, the Tribunal may apportion the liability for compensation amongst those responsible for such activities, operations and processes on an equitable basis.

The Tribunal is to be established with benches in each State and Union Territory, or in groups of States/Union Territories in phased manner. The first phase, in addition to the principal bench at Delhi, proposes to establish benches in Bombay, Calcutta and Madras. The Tribunal will consist of a Chairperson, Vice-Chairperson, Judicial and Technical Members. Its benches may exercise the powers of the tribunal. A bench shall consist of a Judicial Member and a Technical Member.

The Tribunal shall not be bound by the procedure laid down in the Code of Civil Procedure but shall be guided by the principles of natural justice. The Tribunal shall have power to regulate its own procedure and will also enjoy the powers vested in civil courts when trying suits in respect of summoning and enforcement of attendance of any person, taking evidence on oath and affidavits, or exercising powers requiring the discovery and producing of documents including the requisition of any public record or document.

Access to the Tribunals will be available to the aggrieved persons/entities and representative bodies in environmental matters via an application. On receipt of such an application, the Tribunal may, if satisfied after inquiry, admit the application for adjudication. If the Tribunal is not satisfied it may summarily reject the applications

providing reasons. The Tribunal also has *suo moto* power to dispense justice to victims of an accident.

The Tribunal will entertain claims of compensation for damage entered within 5 years of the occurrence of the damage. No other civil court shall have jurisdiction to entertain any claim or action which can be entertained, tried or dealt with by the Tribunal. No application fees shall be charged for matters brought before the tribunal if the applicant's income is below the prescribed limit or if the application is a representative body. Appeals from the Tribunal will lie to the Supreme Court.

The Tribunal is empowered to make interim orders to provide injunctive relief to the victims by way of injunction or stay orders. The interim orders shall be made subject to these conditions:

Copies of the application, and all documents supporting the plea for an interim order are furnished to the party against whom the application is being made or proposed to be made; and

Opportunity is given to the respondent party to be heard in the matter.

(However these conditions could be dispensed within exceptional circumstances.)

Non-compliance with the directions or orders of the Tribunal is punishable by imprisonment of up to 3 years or by fine which may extend to Rs.10 lakhs, or both. Orders however, will only be passed after the accused is given an opportunity to show cause. This legislation is the first of its kind in the world for providing relief, compensation and restitution to victims of accidents while handling hazardous substances, and for environmental damages.

8. THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY ACT, 1997

The Act seeks to fulfil an urgently felt need for some mechanism for effective and expeditious disposal of appeals from the decisions of competent authorities under the Environment (Protection) Act 1986 who grant environmental clearances to development projects. In light of recent interventions of the Supreme Court in public interest litigations involving environmental issues, it was considered necessary to set up an independent body for the quick redressing of public grievances. Consequently, an Ordinance was promulgated providing for the establishment of a National Environment Appellate Authority to deal with appeals against the grant of environmental clearance to projects.

The Act provides for the establishment of a National Environment Appellate Authority to hear appeals regarding the restriction of areas in which industries, operations or processes or classes of industries, operations or processes may not be carried out, or are

only permitted to be carried out subject to certain conditions. These restrictions and conditions are the safeguards set up under the Environment (Protection) Act 1986.

The following classes of people have the right to appeal:

- i. any person who is likely to be affected by the grant of environmental clearance;
- ii. any person who owns or has control over the project with respect to which an application has been submitted for environmental clearance;
- iii. any association of persons (whether incorporated or not) likely to be affected by such order and functioning in the field of the environment;
- iv. the Central Government regardless of whether the State or Central Government has granted the clearance or;
- v. any local authority within the neighbourhood where the project is proposed.

The Tribunal shall not be bound by the procedure laid down in the Code of Civil Procedure but shall be guided by the principles of natural justice. The Tribunal has power to regulate its own procedure and also enjoys the powers vested in civil courts when trying suits in respect of summoning and enforcement of attendance of any person, taking evidence on oath and affidavits, or exercising powers requiring the discovery and producing of documents including the requisition of any public record or document. The Authority may take into consideration matters connected with or incidental to, the clearance grant.

9. CONCLUSION

Recent years have witnessed a growth in Indian legislation relating to the environment with the effect that the country now possesses what could be termed a comprehensive legislative framework. Legislation has been enacted in the areas of water, air, land use, forests and wildlife (as discussed in later chapters) and in keeping with other countries in the region India has enacted “umbrella” legislation: the Environment (Protection) Act 1986. This act has an overarching role in the framework and is India’s most comprehensive piece of environmental legislation. Many of the Acts discussed in this and later chapters were enacted following the Stockholm Convention.

India’s legislative framework has also created two judicial bodies, the National Environment Tribunal and the National Environment Appellate Authority. Both these bodies are unique and have been granted special powers and jurisdiction to deal with environmental problems.

Despite having taken such steps India has not witnessed the outcomes expected from its legislative framework. Due to poor implementation and enforcement of India’s environmental laws many goals have not been realised. In order to obtain an effective legislative framework India needs to strengthen its law making mechanisms and enforcers as well as the capacity for enforcement. The cohesiveness and effectiveness of institutions

Overview of Constitutional, Legislative and Institutional Framework

and bodies established under legislation should also be accordingly strengthened. These matters arise in the following section.

C. INSTITUTIONAL FRAMEWORK

Key Issues: Environmental capacity building; environmental database; environmental information; environmental education; technical man power.

Key Institutions:

Ministry of Environment and Forests (MoEF); Central Pollution Control Board (CPCB); State Department of Environment; State Pollution Control Board; National Environment Engineering Research Institute; Ministry of Water Resources; National Institute of Oceanography; Ministry of Non-Conventional Energy Sources (MNES); Tata Energy Research Institute; Ministry of Agriculture; Indian Council of Agricultural Research (ICAR); Ministry of Petroleum; Department of Ocean Development, Planning; Commission; National Council of Education Research and Training (NCERT); Ministry of Human Resource Development; Ministry of Urban Development and Poverty Alleviation; Ministry of Rural Development.

1. INTRODUCTION

Environmental protection and the conservation of natural resources emerged as key national priority in India in the wake of the 1972 Stockholm Conference on Human Environment. Between the Stockholm Conference and the Rio Earth Summit, India has been able to develop a stable organisational structure for environmental protection. Legislation, policies and programs evolved during the same period, geared towards protection of the environment. Despite these achievements, there has been for some time, a need to clearly establish our priorities regarding the environment and forest sectors and design a plan of action for sustainable management of India's environment. This need has arisen subsequent to the national consensus to integrate environmental considerations into development programs. Sustainable development, which has evolved as the goal of human welfare in the aftermath of the 1992 United Nations Conference on Environment and Development, is rooted in country-specific programs of action for channelling investment resources into ecologically compatible projects and programs.

2. CHRONOLOGY OF ENVIRONMENTAL PROTECTION IN INDIA

The Government has aimed to integrate the objectives of policy documents as well as take cognisance of long term developmental perspectives related to industrialisation, power generation, transportation, mining, agriculture, irrigation and other economic activities. We are addressing parallel concerns relating to public health and industrial safety, taking into account various enforcement institutions, e.g. pollution control boards, transport authorities, dock safety, mines, explosives, factory inspectorates, etc. While a relatively comprehensive set of environmental laws is already in place, the shortcomings relate to enforcement for which, the central and state government agencies need to be suitably strengthened. Further steps are being taken to strengthen the Central and State Pollution Control Boards by augmenting their resources. Appropriate steps are also

required for enhancing the availability of judicial remedies at the district and block levels in the administration of environmental laws.

Committee on Human Environment (Pitamber Pant Committee)	Set up in 1970 under the Chairmanship of Shri Pitamber Pant (Member Planning Commission) to prepare a country paper.
Conference on Human Environment (Stockholm Conference)	Held in June 1972 for the protection of Human Environment.
National Committee on Environmental Planning And Coordination (DST)	Established in February 1972 for planning and co-ordination between/amongst various Ministries.
Division of Environment (DST)	The NCEPC was converted into a Environmental Division of DST
Tiwari Committee	The Committee was established in February 1980 for the purpose of recommending legislative and administrative machinery for the protection of environment.
Department of Environment and Forests	On the recommendation of Tiwari Committee the Department of Environment was established in 1980.
Ministry of Environment and Forests	The Department of Environment established in 1980 was converted into the Ministry on 1-11-1985.
National Environmental Council	Headed by the Prime Minister of India, created on 14 th September 1993. A think-tank on the environmental policy and planning matters of national concern.

3. MINISTRY OF ENVIRONMENT and FORESTS

The Ministry's main activities include conservation and survey of flora, fauna, forests and wildlife as well as the prevention and control of pollution and regeneration of degraded areas. Protection of the environment also involves research related to these topics.

Mandate of the Ministry

- Environment and Ecology, including environment in coastal waters, mangroves and coral reefs but excluding marine environment on the high seas.
- Botanical Survey of India and Botanical Gardens.
- Zoological Survey of India.
- National Museum of Natural History (NMNH).
- The Water (Prevention and Control of Pollution) Cess Act 1977.
- The Air (Prevention and Control of Pollution) Act 1981.
- The Indian Forest Act 1972.
- The National Environment Tribunal Act 1995.
- The Wildlife (Protection) Act 1972.
- The Forest (Conservation) Act 1980.

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- The Environment (Protection) Act 1986.
- The Public Liability Insurance Act 1991
- Biosphere Reserve Program
- National forest Policy and Forestry Development, including Social Forestry.
- Forest Policy and all matters relating to forests and forest administration in so far as the Andaman and Nicobar Islands are concerned.
- Indian Forest Services.
- Wildlife preservation and protection of wild birds and animals.
- Central Zoo Authority.
- Fundamental research, including coordination thereof on higher education in forestry.
- Padmaja Naidu Himalayan Zoological Park.
- National Assistance to Forestry Development Schemes.
- Central Ganga Authority.
- The National Environment Appellate Authority Act 1997.
- Indian Plywood Industries Research and Training Institute, Bangalore.
- Forest Survey of India, Dehradun.
- National Forestation and Eco-Development Board.
- Desert and Desertification.

4. REGIONAL OFFICERS OF THE MINISTRY

The Government of India has set up five Regional Offices of the Ministry of Environment and Forests at Bangalore, Bhopal, Bhubaneswar, Lucknow and Shillong, with a headquarters unit at New Delhi. The Secretariat of the Department made the changes in April 1986 to deal with forest conservation matters. These offices were re-organized in May 1988 into six Regional Offices as follows:

1. Shilong for the North Eastern Region
2. Calcutta for the Eastern Region
3. Chandigarh for the North Region.
4. Bangalore for the South Region.
5. Lucknow for the Central Region.
6. Bhopal for the Western Region.

The area of operation of these Regional Offices was substantially enlarged to assume care of not only forestry functions, but also environmental management and pollution control functions.

5. OTHER RELATED MINISTRIES/DEPARTMENTS

Ministry	Task/Area
Ministry of Surface Transport	Vehicular Pollution.
Ministry of Commerce	Trade and Environment.

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Ministry of Agriculture	Conservation of wildlife and biodiversity, prevention and control of desertification, conservation and regeneration of watersheds, conservation and management of land and soil, prevention and control of floods, protection of irrigation command areas, conservation and regeneration of forests, prevention and control of pollution, recycling of resources, conservation and management of energy.
Ministry of Water Resources	Prevention and control of floods, conservation and regeneration of coral reefs and coastal regions, protection of irrigation command areas, monitoring of water quality.
Ministry of Rural Development	Conservation and management of land and soil, prevention and control of drought, conservation and regeneration of forests, prevention and control of pollution.
Ministry of Power	Prevention and control of pollution, recycling of resources, conservation and management of energy, and the use of alternative sources of power.
Ministry of Petroleum	Protection of mining and oil extraction areas, recycling of resources, prevention and control of pollution, conservation and management.
Department of Ocean Development	Department of Ocean Development, conservation and regeneration of coral reefs and coastal regions, conservation and regeneration of island resources.
Ministry of Urban Development	Prevention and control of pollution, conservation and management of energy, Conservation and regeneration of island resources Conservation and regeneration of mountain resources
Planning Commission	Natural resource conservation through 'Five-Year Plans'.
Non Conventional Energy Sources	Use of alternative sources of power, prevention and control of pollution, recycling of resources, conservation and management of energy.
Ministry of Human Resource Development	Education including environmental, protection from occupational health hazards.

6. CONCLUSION

The institutional structure within India has developed markedly between the Stockholm Conference and Rio Declaration. India has developed a stable organisational structure for environmental protection and legislation, policies and programs have been established. The Ministry of Environment and Forests is the main institution however others have

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been established. The Central and State Pollution Control Boards, established under the Water Act are further examples.

However, similar to the legislative framework of India the institutional structure has inherent weaknesses. Despite its stability, shortcomings are evident in the structure's capacity for enforcement. Consequently the central and state government agencies need to be strengthened. Other evident weaknesses are that the State and Central Pollution Control Boards require strengthening, as do the judicial remedies available at district and block levels.

Essentially environmental management needs to be prioritised and a holistic, cohesive approach needs to be adopted across all the related ministries/ departments. In order to achieve this cohesiveness environmental matters need to be integrated into national development programs.

CHAPTER VI

JUDICIARY AND THE ENVIRONMENT

Key Issues: Pendency of cases, technical and scientific nature of cases; cumbersome procedures; dissemination of judgments; training of judges and advocates; execution and compliance of court orders; education and awareness.

Key Institutions: Supreme Courts; High Courts; District Courts; tribunals; authorities; agencies; District and Village Panchayat etc.

1. INTRODUCTION

The main sources of law in India are the Constitution, statutes (legislation), customary law and case law. Statutes are enacted by Parliament, State Legislatures and Union Territory Legislatures. Additionally there is a vast body of laws known as subordinate legislation in the form of rules, regulations and by-laws made by Central/State governments and local authorities like municipal corporations, municipalities, gram panchayats and other local bodies. This subordinate legislation is made under the authority conferred or delegated either by Parliament or State or Union Territory Legislatures. Judicial decisions of superior courts like Supreme Court and High Courts are also important sources of law. Decisions of the Supreme Court are binding on all courts within the territory of India. As India is land of diversity, local customs and conventions that do not contravene statute, are to a limited extent, also recognized and taken into account by courts administering justice in certain spheres.

Whenever a problem of ecology is brought before the court, the court is bound to bear in mind Article 48A of the Constitution and Article 51A (g). When the court is called upon to give effect to the Directive Principles and the Fundamental Duty, the Court may not simply dismiss the issues by suggesting that priorities are a matter of policy and hence solely a matter for the policy making authority. As a minimum requirement the court must examine whether appropriate considerations are borne in mind and irrelevancies excluded. In appropriate cases, the court may go further, but how much further will depend on the circumstances of the case. The court may always give necessary directions. Similarly, the Andhra Pradesh High Court has interpreted Article 48A as imposing 'an obligation' on the government, including courts, to protect the environment. The development of Public Interest Litigation and the growth of judicial activism have allowed the judicial to play a major role in India's environmental management.

2. THE JUDICIARY

One of the unique features of the Indian Constitution is that notwithstanding the adoption of a federal system and the existence of Central Acts and State Acts in their respective spheres, it has generally provided for a single integrated system of courts to administer both Union and State laws. At the apex of the entire judicial system exists Supreme Court of India with a High Court of each state or group of states, under the High Courts, there exists a hierarchy of subordinate courts. There is separation of judiciary from executive. Panchayat courts also function in some states under various names such as Nyaya Panchayat, Panchayat Adalat and Gram Kachheri to decide civil and criminal disputes of petty and local nature. Different state laws provide for different jurisdiction of courts.

Each state is divided into judicial districts presided over by a District and Sessions Judge, who embodies the principal civil court of original jurisdiction and is able to try all offences including those punishable with death. He is the highest judicial authority in a district. Below him, exist courts of civil jurisdiction, known in different states as munsifs, presided over by Sub-Judges, Civil Judges and the like. Similarly the matters arising under criminal jurisdiction are presided over by a Chief Judicial Magistrate.

Recent years have seen the role of the Indian judiciary in relation to the environment expand significantly. The judiciary has taken on an affirmative, activist role. Using the environmental provisions of the Constitution and through liberal interpretation of the Article 21 the judiciary has expanded its traditional role and harnessed its power to achieve environmental goals. Public Interest Litigation has been instrumental to the judiciary's evolution. Ultimately the courts have developed a series of rights and principles in relation to environmental issues, discussed late in this chapter.

3. PUBLIC INTEREST LITIGATION

In India Public Interest Litigation (PIL) was conceived and evolved by the Supreme Court of India as a Judicial response to the constitutional mandate for securing social justice and as a means of harnessing the judicial system to create a just and humane society. The Court chose to break away from the traditional straightjacket judicial procedures and practices of administering justice. As the judiciary became more responsive to the needs of the time, it had to redefine the existing concepts of law; broaden the horizon of substantive and procedural laws; create new rights; develop new strategies for extending the arms of justice to all sections of society; and give effect to an 'affirmative' judicial relief system. Far from being a static collection of rules, the legal system became a dynamic and self-evolving process in the hands of a progressive judiciary committed to ushering in a new and just social order. PIL, or 'Social Action Litigation' arose as a result of such conscientiousness and commitment of the Indian judiciary to social and constitutional goals.

Courts have applied the 'public trust doctrine' in regard to the management of natural resources and the environment, and in some states have given consideration to the concept of inter-generational and intra-generational equity. In the 1988 Supreme Court decision of *Rural Litigation and Entitlement Kendra v. State of U.P.*, the Court ordered that unauthorised and illegal mining in the Dhera Dun District, which was adversely affecting the ecology of the region, be stopped. The Court specifically remarked that the area was a gift of nature to mankind and a bequest of the past generations to the future.

Underlying many recent cases is a clear judicial concern for the integration of environment and development in decision-making. The 1988 Supreme Court of India decision in *M.C. Mehta v. Union of India and others*, provides an example of the advancement of the concept of sustainable development. Here the Court observed that while it was conscious that its decision to prevent tanneries, which were polluting the River Ganga from operating until they installed primary effluent treatment plants, could bring unemployment, the decision to defend and improve the environment for present and future generations became the paramount goal.

4. JUDICIAL ACTIVISM

The Indian Constitution is amongst few in the world that contain specific provisions on environmental protection. The Directive Principles of the State Policy and the Fundamental Duties chapter explicitly enunciate the national commitment to protect and improve the environment. Judicial interpretation has strengthened this constitutional mandate. This approach has led the Supreme Court to adopt, apply, and evolve a range of Principles to guide the development of environmental jurisprudence. Notable amongst the fundamental norms recognized by the court are: (See list on page 54)

5. RIGHTS AND PRINCIPLES ADOPTED, APPLIED AND EVOLVED BY THE INDIAN COURTS WHILE ADJUDICATING ON ENVIRONMENTAL MATTERS

i) Right to a Wholesome Environment

The United Nations Declaration on Human Environment 1972 Stockholm, recognised both aspects of the environment, the natural and the man-made. Moreover it affirmed that the protection of the environment is essential to mans well-being and to the enjoyment of basic human rights i.e. right to life itself. The right to have living atmosphere congenial to human existence is a right to life. In India, The Supreme Court fortified and expanded the fundamental right enshrined in Part III of the Constitution. In the process, the boundaries of the fundamental right to life and personal liberty guaranteed in Article 21 of Indian Constitution of India were expanded to include environmental protection.

ii) Doctrine of Locus Standi

The doctrine of *locus standi*, applicable in traditional private law litigation has been considered liberalized by the Indian courts in Private Interest Litigation. The traditional concept of standing is based on the doctrine of the aggrieved person. The courts have accepted a new approach by allowing any member of the public to seek judicial redress for a legal wrong caused to a person or to a determinate class of persons who by reason of poverty, helplessness or disability or socially disadvantaged position is unable to approach the court directly. This modification of traditional *locus standi* could be termed as 'representative standing' as the representative of another person or group of person. The concept of representative standing refutes the traditional assumption that only a petition motivated by self-interest will present a case. The Supreme Court and the High Courts of India have exercised jurisdiction and passed orders preventing ecological damage. This has been achieved by superior courts entertaining writ petitions by way of public interest litigation. Public interest litigation is in the nature of a class action brought about by filing a writ petition with a view to protect ecology, prevent pollution and bring benefit to the victim by having the court award damages in appropriate cases. The orthodox rule that the petitioner must have a personal interest in order to have a *locus standi* to file a writ petition has been eliminated. Individual environmentalists, non-Governmental organisations and others have been filing writ petitions relating to different types of polluting industries as well as for the enforcement and implementation of the provisions of the environmental Acts.

iii) Doctrine of Parens Patriae

The Bhopal gas leak disaster, the passing of the Bhopal Gas Disaster (Processing of claims) Act 1985, the unsuccessful attempt of the Union Government to try the case in an American court and the subsequent settlement deal between the Union Carbide Corporation and the Union Government are common knowledge today. Hence it is enough to say that Supreme Court applied the doctrine of parens patriae to hold valid the Bhopal Gas Disaster (Processing of Claims) Act of 1985, which took away the rights of the individual victims to claim compensation independently and vested them in the Union Government.

The concept of parens patriae literally means 'parent of the country' and refers traditionally to the role of the state as a sovereign and guardian of a person under a legal disability. It is known both in India and abroad. The doctrine has its roots in the common law concept of the royal prerogative. The royal prerogative included the right or responsibility to take case of persons who were legally unable to take proper care of themselves.

iv) Precautionary Principle

A basic shift in the approach to environmental protection occurred initially between 1972 and 1982. Earlier the concept was based on the 'assimilative capacity' rule taken from

Principle 61 of the Stockholm Declaration of the United Nations Conference on Human Environment of 1972. The said principle assumed that science could provide policy makers with the information and means necessary to avoid encroaching upon the capacity of the environment to assimilate impacts. It also presumed that relevant technical expertise being available, when environmental harm was predicted, there would be sufficient time to act in order to avoid such harm. In the 11th principle of the UN General Assembly Resolution on World Charter for Nature 1982, the emphasis shifted to the 'Precautionary Principle' and this was reiterated in the Rio Declaration of 1992 via Principle 15.

The principle of precaution involves the anticipation of environmental harm and taking measures to avoid it or to employ the least environmentally harmful activity. It is based on scientific uncertainty. Environmental protection should not only aim at protecting health, property and economic interest but also at protecting the environment for its own sake. Precautionary duties must not only be triggered by the suspicion of concrete danger but also by concern or risk potential.

For example in *Vellore Citizens Welfare Forum v. Union of India* the Supreme Court noted that although the respondent leather industry was a major foreign exchange earner for India and provided employment, it did not mean that it had the right to destroy the ecology, degrade the environment or create health hazards. The tanneries were prevented from discharging untreated effluent into agricultural fields, waterways, open lands and waterways. Sustainable development, and in particular the polluter pays principles and the precautionary principle, have hence become a part of customary international law.

v) **Polluter Pays Principle**

The 'Polluter Pays Principle' was promoted by the Organization for Economic Co-operation and Development during the 1970's when there was great public interest in environmental issues. During this time there were demands on Government and other institutions to introduce policies and mechanisms for the protection of the environment and the public from the threats posed by pollution in a modern industrialized society.

The polluter pays principle means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process and such the polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology. In *Vellore Citizens Welfare Forum v. Union of India* mentioned above, the Court ordered the Central Government to establish an authority to deal with the situation created by the tanneries and other polluting industries in the State of Tamil Nadu. This authority was to implement the precautionary principle and the polluter pays principle and identify the loss to the ecology/ environment, and the loss to individuals and families who had suffered because of the pollution, and compensate those who have suffered from the pollution. The Collector/District Magistrates shall collect and disburse this money. If a polluter refuses to pay

compensation, his industry will be closed, and the compensation recovered as arrears of land revenue. If an industry sets up the necessary pollution control devices now, it is still liable to pay for the past pollution it has generated.

vi) **Doctrine of Public Trust**

The ancient Roman Empire developed a legal theory known as the 'Doctrine of the Public Trust'. It was founded on the ideas that Government held certain common properties such as rivers, seashore, forests and the air in trusteeship for the free and unimpeded use of the general public. The public trust doctrine primarily rests on the principle that certain resources like air, sea, waters and the forests have such a great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership. The said resources being a gift of nature, they should be made freely available to everyone irrespective of the status in life. The doctrine enjoins upon the Government to protect the resources for the enjoyment of the general public rather than to permit their use for private ownership or commercial purposes. Courts have applied the public trust doctrine in regard to the management of natural resources and the environment, and in some states have given consideration to the concept of inter-generational and intra-generational equity. In the previously mentioned *Rural Litigation and Entitlement Kendera v. State of U.P.*, the Court ordered that unauthorised and illegal mining in the Dhera Dun District, which was adversely affecting the ecology of the region, be stopped. Specifically articulating the doctrine of public trust the Court remarked that the area was a gift of nature to mankind and a bequest of the past generations to the future.

vii) **Intergenerational Equity**

Intergenerational equity entails the right of each generation of human beings to benefit from the cultural and natural inheritance from past generation as well as the obligation to preserve such heritage for future generations. The Supreme Court in *Ganesh Wood Products case* recognized the obligation of the present generation to preserve natural resources for the next and future generations. The present generation has no right to impose upon the safety and well being of the next generation or the generations to come thereafter. Similarly, in the *CRZ Notification Case* the Court observed that environmental statutes were enacted to ensure a good quality of life for unborn generations since it is they who must bear the brunt of ecological degradation

viii) **Public Liability**

The responsibility and liability of the industry has been emphasised by the judiciary's support of the polluter pays principle. This principle was specifically addressed in India with the 1996 Supreme Court decision *Indian Council for Enviro-Legal Action v. Union of India*, where an action was brought to stop and remedy the pollution caused by several chemical industrial plants in Bichhri village, Udaipur District, Rajasthan. The Court noted the finding in the *Oleum Gas Leak Case II* under which an enterprise that is engaged in a hazardous or inherently dangerous activity which results in harm to anyone,

is strictly and absolutely liable to compensate all those who are affected by the accident. This rule strayed from the exceptions of strict liability set forth in *Rylands v. Fletcher* to better suit the particular conditions in India. The Court strongly endorsed the polluter pays principle, under which the financial costs of preventing or remedying damage lie with those who cause the pollution. This principle also played a role in another 1996 Supreme Court of India decision, *Vellore Citizens Welfare Forum v. Union of India*.

ix) Right to Information

The public's right to know has been emphasized in India, in *Bombay Environment Action Group, Shaym H.K. Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board*, a 1986 decision in the High Court of Judicature, Bombay. In this case, the Court upheld the right to information and the rights of recognized social action groups to obtain such information, stating that the disclosure of information relating to the functioning of Government and the right to know flows from the right of free speech and expression guaranteed under the Constitution. The Court also said "people's participation in the movement for the protection of the environment cannot be over-emphasised."

To stimulate public participation, people need education. The Petitioner, M.C. Mehta in *M.C. Mehta v. Union of India and Others*, asked the Supreme Court to issue direction to cinema halls, radio stations and schools and colleges to spread information relating to the environment. The Petitioner made this application on the grounds that the Indian Constitution required every citizen to protect and improve the natural environment, including forests, lakes, rivers and wildlife, and to have compassion for living creatures. To fulfil these obligations to the environment, the Petitioner argued that people need to be better educated about the environment. The Court agreed and noted that it was the Government's obligation to keep citizens informed about such matters, and hence issued the requested directions.

6. CONCLUSION

One of the most enthusiastic responses to the environmental issues India currently faces has come from its judiciary. Rather than fulfilling the traditional slow moving, reactive role of a judicial system, India's judiciary has harnessed the advent of 'public interest litigation' and transformed into an affirmative, proactive judicial relief system.

By interpreting Article 21 of the constitution to guarantee a right to a clean environment the Indian judiciary has provided itself with a vehicle for major reforms in judicial interpretation. The judiciary has also developed a series of rights and principles that are applied when dealing with environmental matters. By relaxing the rules of standing this has opened the judicial system to all sections of society, other principles have seen the environment take precedence over industry and the state. These principles and rights are clearly outlined in the above chapter and the use of case law throughout illustrates the reality of the recent judicial activism.

CHAPTER VII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: WATER

Key Issues: Trade effluents; ground water contamination; wastewater treatment; cleaning of rivers; water quality management; human health.

Policy Framework: National Conservation Strategy and Statement on Environment and Development 1992, Policy Statement on the Abatement of Pollution 1992.

Key Legislation: Water (Prevention and Control of Pollution) Act 1974; Water quality standard; BIS standards; EPA standards and Central Pollution Control Board (CPCB) standards; Effluent standard; Drinking water quality standard; CPHEEO (Environment Hygiene Committee) standards; WHO standards; BIS standards; Result of water monitoring; CPCB Guidelines for water quality control; Environment Protection Act 1986; Water (Prevention and Control of Pollution) Cess Act 1977.

Key Institutions: Ministry of Environment and Forests (MoEF); National River Conservation Directorate and National Lake Conservation Directorate; CPCB; State Pollution Control Board(s); Ministry of Water Resources; Ministry of Agriculture; Ministry of Industry; Ministry of Urban Development and Poverty Alleviation; Central Public Health and Environmental Engineering Organisation; Ministry of Health; Bureau of Indian Standard;

1. INTRODUCTION

It is estimated that 75 to 80% of water pollution is caused by domestic sewage. The remaining is industrial waste, which is more toxic. The major industries causing water pollution include: distilleries, sugar, textile, electroplating, pesticides, pharmaceuticals, pulp and paper mills, tanneries, dyes and dye intermediates, petro-chemicals, steel plants etc. Non-point pollution such as fertilizer and pesticide run-offs in rural areas are also emerging as a major cause of concern. Only 60% of a chemical fertilizer is actually utilised by the soil and the balance is leached into soil polluting the ground water. Excess phosphate run-off is leading to eutrophication in lakes and water bodies.

This chapter identifies the various sources of water pollution and the associated adverse effects. Relevant studies are cited and the various plans/schemes developed to combat the problem are discussed. The relevant legislation and regulations are discussed within the context of an overall legal framework along with the boards and bodies necessary for effective implementation of the various laws.

2. WATER POLLUTION

Rivers and Lakes

The CPCB has carried out detailed basin and sub-basin inventories of pollution load through a network of 480 stations covering 14 major, 12 medium, 9 minor river basins, 16 other small rivers, 35 lakes and 25 ground water sites. The water quality is monitored for 25 parameters. The criteria parameters include dissolved oxygen (DO), biochemical oxygen demand (BOD) and total coliform. The analysis results of the monitoring data show that in most of the major rivers, total pollution is rising due to the discharge of untreated/partially treated sewage and industrial effluents from the towns situated on the river banks. Water quality assessment has been completed for the Ganga, Yamuna, Cavery, Godavari, Krishna, Subarnarekha, Brahmani, Baitarni, Narmada rivers. Other grossly polluted river stretches have been identified. Based on monitoring studies conducted by CPCB, the results obtained have indicated that BOD, DO and faecal coliforms in some of the river stretches were found to have reached critical levels.

Coastal Pollution

India has a 6000 km long coastline. Land based and offshore activities continue to pose threat to coastal areas. A number of chemical, petro-chemical and other industries in the coastal areas have resulted in significant discharge of industrial effluent into coastal water bodies. Illustratively, heavy metals such as lead and cadmium have been found in the Thane creek of Bombay's coast. Furthermore the Cochin region of Kerala coast has been found affected by petroleum hydrocarbons.

Ground Water Pollution

Due to improper drainage and lack of proper disposal facilities, industries and local bodies use large areas of land as mode of disposal of wastewater. Small-scale industries located in clusters or industrial estates, not having proper disposal facilities thus cause ground water pollution. Several incidents of ground water contamination due to industrial clusters are reported, often due to electroplating units, tanneries, dyeing and printing units etc.

3. STEPS TAKEN/PROPOSED FOR PREVENTION AND CONTROL OF WATER POLLUTION

National River Action Plan

Industries located on the banks of rivers and/or discharging waste water through drains into rivers, are required to set up pollution control facilities to meet the discharge standards formulated for many industrial sectors. The Central Pollution Control Board

has identified 24 areas in the country as critically polluted. These are: Bhadravati (Karnataka), Chembur (Maharashtra), Digboi (Assam), Govindgarh (Punjab), Greater Cochin (Kerala), Kala-Amb (Himachal Pradesh), Parwanoo (Himachal Pradesh), Korba (Madhya Pradesh), Manali (Tamil nadu), North Arcot (Tamil Nadu), Pali (Rajasthan), Talcher (Orissa), Vapi (Gujarat), Visakhapatnam (Andhra Pradesh), Dhanbad (Bihar), Durgapur (West Bengal), Howrah (West Bengal), Jodhpur (Rajasthan), Nagda –Ratlam (Madhya Pradesh), Najafgarh Drain (Delhi), Patancheru Bollaram (Andhra Pradesh), Singrauli (Uttar Pradesh), Ankelshwar (Gujarat), Tarapur (Maharashtra). Out of the 24 areas surveyed for pollution status, action plans in respect of 22 areas have been prepared which are at various stages of implementation.

The Ganga Action Plan was formulated and launched primarily to prevent degradation of river water quality by interception, diversion and treatment of domestic sewage and prevention of toxic and industrial chemical wastes from identified grossly polluting industrial units entering into the river. The National River Action Plan (NRAP) has been conceived as a larger plan to carry out pollution abatement works in all the polluted river stretches. About 44 proposed towns are to be covered under the NRAP for pollution abatement. The states covered under NRAP are; Andhra Pradesh, Himachal Pradesh, Karnataka, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.

Industrial Pollution Control

I. Installation of pollution control equipment among the industries located on the banks of rivers/lakes:

Industries located on banks of rivers and or discharging waste water through drains into river, have been persuaded to set up requisite pollution control facilities to meet the discharge standards.

II. Critically Polluted Areas:

The Central Pollution Control Board in consultation with State Pollution Control Boards has identified 24 areas in the country as critically polluted areas. These are: Bhadravati (Karnataka), Chembur (Maharashtra), Digboi (Assam), Govindgarh (Punjab), Greater Cochin (Kerala), Kala-Amb (Himachal Pradesh), Parwanoo (Himachal Pradesh), Korba (Madhya Pradesh), Manali (Tamil Nadu), North Arcot (Tamil Nadu), Pali (Rajasthan), Talcher (Orissa), Vapi (Gujarat), Visakhapatnam (Andhra Pradesh), Dhanbad (Bihar), Durgapur (West Bengal), Howrah (West Bengal), Jodhpur (Rajasthan), Nagda –Ratlam (Madhya Pradesh), Najafgarh Drain (Delhi), Patancheru Bollaram (Andhra Pradesh), Singrauli (Uttar Pradesh), Ankelshwar (Gujarat), Tarapur (Maharashtra)

Out of the 24 areas surveyed for pollution status, action plans in respect of 22 areas have been prepared, which are at various stages of implementation. The

Action Plans for Ankeleshwar (Gujarat) and Tarapur (Maharashtra) are being prepared.

III. Common Effluent Treatment Plants:

A scheme establishing Common Effluent Treatment Plants (CETPs) in clusters of small-scale industries has been undertaken under a World Bank Scheme on Industrial Pollution Control. Under this scheme, a subsidy of 25% of the total cost of the project from the Central Government and 25% subsidy from the State Government was provided. 30% was met through the financial institutions as a loan at reduced rate of interest and the 20% balance was met by contributions of the members of the CETPs. Small-scale industries discharging wastewater have been encouraged to subscribe to CETPs. So far, 89 CETPs have been constructed. The details of CETPs sanctioned are given in the following table:

Table: STATUS OF CETPs

Sl. No.	State	GOI Subsidy disbursed so far (Rs.in lakhs)	No.of CETPs
1.	Andhra Pradesh	132.00	3
2	Delhi	2300.00	15
3	Gujarat	735.42	7
4	Himachal Pradesh	12.60	4
5	Haryana	11.89	1
6	Karnataka	98.84	3
7	Madhya Pradesh	96.00	3
8	Maharashtra	267.435	9
9	Punjab	19.95	4
10	Rajasthan	100.00	2
11	Tamil nadu	1934.08	36
12	Uttar Pradesh	95.75	2
	TOTAL	5803.89	89

IV. Coastal Pollution:

For prevention and control of coastal pollution steps taken include;

1. Effluent treatment facility is provided in major polluting industries located in coastal areas;
2. Show cause notices have been issued against non-complying units by the regulatory agencies;
3. Coastal zone management plans have been evolved and are being implemented as per Coastal Regulation Zone (CRZ).

V. Ground Water Pollution:

1. Ground water quality in critically polluted areas is monitored;

2. Industries discharging wastewater on land are being monitored to comply with the prescribed standards;
3. The Central Ground Water Board has been delegated necessary powers under the Environment (Protection) Act 1986.

VI. Assistance for Abatement of Pollution:

The Ministry provides funds to the State Pollution Control Boards for equipment and specific studies to be completed within a certain time frame to meet the objectives of the Policy Statement for Abatement of Pollution.

The Ministry of Environment and Forests, through the Central Pollution Control Board started monitoring the industries with respect to compliance with the prescribed standards as of August 1997. Of a total of 2139 industries identified in August 1997 as being grossly polluting industries discharging their effluents into rivers and lakes, 129 industries were complying with the prescribed standards after issue of directions and 494 units were closed. Legal action has been taken for closure in respect of 966 industries and extension of time has been sought in respect of 499 units.

The Policy Statement for Abatement of Pollution 1992 which was launched in by the Ministry of Environment and Forests seeks to:

- prevent pollution at its source;
- encourage, develop and apply the best available practicable technical solutions;
- ensure that the polluter pays for the pollution and control arrangements;
- focus protection on heavily polluted areas and river stretches.

4. LEGAL FRAMEWORK

The constitutional provisions are implemented through environmental protection. There are more than 200 statutes having bearing on environmental matters in India. The pollution control acts administered by the Ministry of Environment and Forests are:

1. The Water (Prevention and Control of Pollution) Act 1974;
2. The Water (Prevention and Control of Pollution) Cess Act 1977;
3. The Air (Prevention and Control of Pollution) Act 1981;
4. The Environment (Protection) Act 1986 (EPA);
5. The Public Liability Insurance Act 1991;
6. National Environmental Tribunal Act 1998.

5. LAWS AND RELEVANT REGULATIONS

- a) The Water (Prevention and Control of Pollution) Act 1974 and amendments up to 1990.
An Act to provide for the prevention and control of water pollution and maintaining or restoring quality of water, and for establishment of Boards for the prevention and control of water pollution at the central and state levels: Pollution Control Boards.
- b) The Water (Prevention and Control of Pollution) Rules 1975 under s 63 of the Water (Prevention and Control of Pollution) Act these rules have been framed to define the terms and conditions for the functioning of the Central Pollution Control Board and State Pollution Control Boards.
- c) The Water (Prevention and Control of Pollution) Cess Act 1977 and Amendment Act 1991 and 2003 provides for the levy and collection of cess on water consumed by industries and local authorities.
- d) The Water (Prevention and Control of Pollution) Cess Rules 1978. Under s 17 of The Water (Prevention and Control of Pollution) Cess Act these rules have been framed to define the standards for water metering devices, their locations, conditions for rebate on cess, powers of inspections of industrial installations and the rates of cess for various categories of uses of water, etc.
- e) The Indian Fisheries Act 1987 involves the management, protection and conservation of fisheries.
- f) The Damodar Valley Corporation (Prevention of Pollution of Water) Act 1948 prevents water pollution in Damodar River.
- g) The River Boards Act 1956.
- h) The Merchant Shipping (Amendment) Act 1970, relates to oil spills, discharge of wastes into coastal waters and on high seas and the Coast Guard.
- i) The Bureau of Indian Standards has specified water Quality Standards for the receiving environment. Discharge standards for specific industries have been specified under the Environment (Protection) Act 1986.

The Water (Prevention and Control of Pollution) Act 1974

This Act is one of the most important laws relating to the environment especially relating to the environment. It is discussed in detail on pages 57 to 59, under “Overview of Constitutional, Legislative and Institutional Framework”, part “B. Legislation.”

The Water (Prevention and Control of Pollution) Cess Act 1977

The Water (Prevention and Control of Pollution) Cess Act 1977 came into effect on April 1, 1978. The Act provides for “the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974.”

Schedule I of the Act enlists categories of industries for the purpose of levying cess. As per the Act, any amendment to the Schedule I should fulfil the requirement of section 16(2) which states that every such notification shall be laid before each House of Parliament, if it is sitting, as soon as may be after the issue of the notification, and if it is not sitting, within seven days of its re-assembly. The Central Government shall seek the approval of Parliament to notification by a resolution, moved within a period of fifteen days beginning with the day on which the notification is so laid before the House of the people, and if Parliament makes any modification the notification shall thereafter have effect only in such modified form or be of no effect, as the case may be, but without prejudice to the validity of anything previously done there under.

The Government twice amended Schedule I in the year 1992 and 1993. Under the 1992 amendment, two entries were made, first to category 10 of Schedule I, which reads after amendment as “Textile industry (including cotton synthetic and semi- synthetic fibres manufactured from these fibres)” instead of “Textile industry”. Secondly to category 15, which now reads: “Processing of animal or vegetable products industry (including processing of milk, meat, hides and skins, all agricultural products and their wastes)” instead of “Processing of animal or vegetable products industry”. This amendment to Schedule I was notified in Gazette Notification No, 14(E) dated 2.1.1992. The second amendment in to Schedule I, created two new entries. First to category 14 which reads after amendment as “Power (thermal, diesel) and hydel generating industry” instead of “Power (thermal, diesel) generating industry”. A second entry of the words “Engineering industry” was made separately as new category. This amendment to Schedule I was notified in Gazette Notification No, 377(E) dated 16.4.1993.

6. IMPLEMENTATION MACHINERY

For implementation of the pollution control enactments, 25 State Pollution Control Boards and 6 Pollution Control Committees in Union Territories were established under the Water (Prevention and Control of Pollution) Act 1974. The Central Pollution Control Board was also created by that Act. The Central Pollution Control Board was initiated by the Central Government and the respective State Governments initiated State Pollution Control Boards (SPCBs) and Pollution Control Committees. The main functions of the Central Pollution Control Board are to advise the Central Government, coordinate the activities of SPCBs, and to provide technical assistance and guidance etc. The Government has delegated powers under s 5 of EPA to the CPCB and to the State Governments that allow the regulatory agencies to take appropriate steps for prevention

and control of pollution in respect of those areas which were not covered under the Water and Air Acts.

7. CONCLUSION

A rigorous study by the Central Pollution Control Board into Sri Lanka's river, lakes, coastline and ground water has revealed that pollution has reached a critical level in 24 areas. The analysis results of the monitoring data show that in most of the major rivers, total pollution is rising, the study of the coast and ground water also revealed disturbing levels of pollution. In answer to these problems both legislative and institutional steps have been taken.

The National River action Plan has adopted pollution abatement schemes in 22 of the critical areas and about 44 towns are proposed to be covered in the near future. The major acts relating to water pollution are the Water (Prevention and Control of Pollution) Act 1974 and the Water (Protection and Control of Pollution) Cess Act 1977. Under the Water (Prevention and Control of Pollution) Act twenty-five State Pollution Control Boards and six Pollution Control Committees in Union Territories have been established. However, this legislative solution despite having the support of implementing agencies has struggled with enforcement and as earlier determined the SPCBs require augmentation of their resources to be truly effective. Ultimately as the CPCB study revealed in most cases water pollution levels are still rising.

CHAPTER VIII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: ATMOSPHERE

Key Issues: Vehicular pollution; industrial pollution; indoor pollution; forest fires; human health; fuel quality.

Policy Framework: National Conservation Strategy and Statement on Environment and Development 1992, Policy Statement on the Abatement of Pollution 1992; National Environment Action Plan 1993; Forest Policy 1988; Auto Fuel Policy.

Key Legislation: Air (Prevention and Control of Pollution) Act 1981; Ambient air standards; Motor Vehicle Act 1989; Environment Protection Act 1986.

Key Institutions: Ministry of Environment and Forests; Central Pollution Control Board; State Pollution Control Board; National Environment Engineering Research Institute (NEERI); Ministry of Health; Ministry of Transport; Ministry of Petroleum and Natural Gas; Ministry of Coal and Mines; Ministry of Power; Authorities constituted under the EPA Act.

1. INTRODUCTION

The following discussion aims to demonstrate that air quality in India has become a severe environmental problem. The chapter firstly identifies the problem and discusses its various sources and contributing factors, citing relevant studies. The discussion then turns to the solutions being implemented. Various pollution control mechanisms are in place, drawing their power from overarching legislation such as the Environment Protection Act 1986 and the Air Act 1981. The role of institutions such as the Pollution Control Boards is also described.

2. AIR POLLUTION

The ambient air quality in the urban areas of the country has deteriorated to alarming levels. According to World Health Organisation (WHO) statistics, Delhi is listed as the fourth most polluted megacity in the world, while a total of six of the largest cities in the country have severe air pollution problems. In these cities the annual average concentration of SPM exceeds the average WHO standards by at least three times. In Delhi, Calcutta and Kanpur the annual average values of SPM are 5 times greater than the

WHO standards. According to the monitored data, more than 90% of the stations are found to have SPM levels in excess of 75g/m³, the mid point of the recommended WHO standard. On the other hand SO_x and NO_x are reported to be generally low compared to the standards. Based on long term monitoring of data, the CPCB has identified 24 places across the country (primarily industrial and compounded with vehicular/fugitive sources) as problem areas. Air quality in various urban centers across the country is classified according to the level of gaseous and particulate matter in low, medium, high and critical categories. A study by the World Bank has found that there does not appear to be a correlation between the population and the level of air pollution in the cities. Many of the medium size cities have as severe a problem as the mega cities.

A National ambient air quality network comprising of 290 stations covering 90 towns/cities distributed over 24 states and 4 Union Territories has been established. The pollutants monitored are sulphur dioxide, nitrogen dioxide and particulate matters other than meteorological parameters. The main sources of air pollution include the following: Vehicular, Industrial, Domestic and others.

3. VEHICULAR POLLUTION

Vehicular pollution is due to the following:

- a) Increase in population use of vehicles, particularly personalised vehicles;
- b) Most in-use vehicles are of old engine design (pre-1990) and are high emitters of pollutants;
- c) High emissions of carbon monoxide and hydrocarbons from 2 and 3-wheelers, consisting of 2-stroke engines;
- d) Inadequate road and traffic network unable to meet the needs of the increasing population;

There is significant increase in vehicular population in the cities.

Vehicular population (in lakhs)

City	31.3.1975	31.3.1985	31.3.96	31.12.98
Delhi	2.35	8.41	26.29	31.67
Mumbai	2.21	4.41	7.23	-
Bangalore	0.89	2.78	9.00	-
Calcutta	1.26	3.11	5.60	-
Madras	0.48	1.66	8.11	-
Ahmedabad	0.57	1.77	5.71	-

The CPCB has estimated vehicular 'pollution load' in 12 major cities in 1987, 1994 and in 1996 which is given in the following table:

Pollution load from vehicles

S.No	City	Vehicular Pollution Load (Tonnes per day)			
		1987	1994	1996	1999
1	Delhi	871.92	1046.30	1229.01	1825.00
2	Mumbai	548.80	659.57	785.41	-
3	Bangalore	253.72	304.47	382.71	-
4	Calcutta	244.77	293.71	302.33	-
5	Ahmedabad	243.94	292.73	349.42	-
6	Pune	212.76	255.31	314.93	-
7	Chennai	188.54	226.25	268.28	-
8	Hyderabad	169.03	202.84	208.07	-
9	Jaipur	74.98	88.99	106.315	-
10	Kanpur	71.99	86.17	101.84	-
11	Lucknow	69.58	83.49	95.09	-
12	Nagpur	47.80	57.39	66.03	-

Vehicular pollution contributes a major portion of air pollution in the cities. In Delhi, vehicular pollution comprises 64% of the total air pollution as per the estimate carried out by CPCB.

Findings from Survey of vehicular pollution

- Pollution load in Delhi almost equals the combined pollution load of Mumbai, Calcutta and Madras.
- Emissions of carbon monoxide (64%) and hydrocarbons (22%) are the highest in all cities, followed by oxides of nitrogen (12%). Emissions of sulphur dioxide are negligible.
- The major contributors to carbon monoxide and hydrocarbons are the 2-wheelers and 3 wheelers which are mostly powered by the 2-stroke engines.
- The major contributors of oxides of nitrogen are the diesel driven trucks and buses.

4. INDUSTRIAL AIR POLLUTION

Air polluting industries include: thermal power plants, iron and steel plants, smelters, foundries, stone crushers, cement, refineries, lime kilns chemicals and petro-chemical plants.

'Non-Point' Sources and other Activities:

Burning of low-grade fuel in urban areas for various purposes causes air pollution. In addition tyres, rubber, plastic, garbage etc when burnt cause pollution. Such activities emit toxic pollutants that are quite harmful.

Air Quality Assessment:

A national ambient air quality network comprising of 290 stations covering 90 towns/cities distributed over 24 states and 4 Union Territories has been set up. The pollutants monitored are sulphur dioxide, nitrogen dioxide and suspended particulate matters in industrial and residential areas of major cities.

5. POLLUTION CONTROL

The Government is implementing a plan of action for introduction of unleaded petrol, catalytic converter fitted vehicles, low sulphur diesel for cleaner diesel vehicles and tighter emission norms for vehicles at the manufacturing stage.

(i) Program for introduction of unleaded petrol and catalytic converter fitted vehicles:

The Ministry of Petroleum and Natural Gas (MOP and NG), in a first attempt to reduce lead from petrol, introduced low-lead petrol of 0.15 grams per litre in the 4 metro cities of Delhi, Mumbai, Calcutta and Madras effective from June 1994.

In addition, to reduce growing air pollution in the metro cities, on 1st of April 1995 the MOP and NG, introduced unleaded petrol (petrol with a lead content of less than 0.013 grams per litre) in the 4 metro cities (Delhi, Calcutta, Mumbai and Chennai) for 4-wheeler petrol vehicles fitted with catalytic converters. The second phase of the program, began on the 1st December 1998, when unleaded petrol was introduced in all capitals of States/Union Territories and other major cities. Unleaded petrol was supplied throughout the country as of the 1st of April 2000 in the 3rd phase. The program of introduction of unleaded petrol is described in the following Table:

Phase- I	1.4.1995	Metro cities of Delhi, Mumbai, Calcutta and Madras
Phase-II	1.6.1998	All other capitals of States/UTs and other major cities.
Phase-III	1.4.2000	Entire country.

(ii) Program for introduction of low-sulphur diesel in the country in a phased manner has been indicated in the following Table:

Phase- I	1.4.1996	0.5% sulphur sold in Delhi, Mumbai, Calcutta and Madras and the Taj Trapezium.
Phase-II	1.9.1996	0.25% sulphur in the Taj Trapezium.
Phase-III	1.10.1999	0.25% sulphur in the diesel sold in the entire country.

(iii) The program for introduction of tighter emission norms for new vehicles has been indicated in the following Table:

Phase-I	1990	Emission norms for vehicles introduced for the first time.
Phase-II	1.4.1996	Tighter emission norms introduced throughout the country.
Phase-III	1.4.2000	Stricter emission norms introduced.
Phase-IV	-	0.05% sulphur in diesel and MoP and NG asked to introduce low sulphur diesel

Following the introduction of Euro II emission standards in Delhi, India has enforced Euro II standards in at least six more cities – Mumbai, Chennai, Calcutta, Hyderabad, Ahmedabad and Bangalore. The Euro II standards are mandatory for new light commercial and non-commercial vehicles in these cities from January 1, 2001. Euro II standards may also be introduced in Lucknow and Pune on the same date, although a final decision has not been made. Heavy vehicles, such as city transport buses, have already been told to use Compressed Natural Gas (CNG). The Indian government had originally envisaged a national deadline of 2005 for the introduction of the Euro II standards. However, a Supreme Court ruling over air pollution in Delhi forced the government to introduce the standards in the capital. The government has now implemented the early phase-in of Euro II in response to pressure from the environment ministry and environmentalists. The Society of Indian Automobile Manufacturers has accepted the introduction of the tighter emission standards to the other cities.

(iv) Enforcement:

An effective enforcement, implementation, inspection and maintenance program for vehicles is necessary as is an effective road network, mass transport and traffic management system.

(v) Fuel Upgrades:

The MoEF has declared (2.4.1996) the major parameters which need to be improved by the oil refineries. The Ministry's of Petroleum and Natural Gas have begun a program for improvement of fuel quality (petrol and diesel) and for upgrading oil refineries to meet the prescribed specifications.

6. INDUSTRIAL AIR POLLUTION CONTROL

I. Emission Standards:

Emission standards relating to all the major air polluting categories of industries have been evolved. The important categories include: Power Plant, Cement, Industry, Metallurgical, Petroleum and Refineries. Comprehensive Industry Documents (COINDS) for various industries describing manufacturing process, production capacity, available

pollution control technology and emission standards have also been published by the CPCB.

II. Ambient Air Quality Standards:

Ambient Air Quality Standards have been prescribed.

III. Fuel Quality:

The coal companies are required to wash their coal (ash content not exceeding 34%) before dispatching it to the power plants located at a distance beyond 1000 km from the coalmines. The notification issued thus makes it mandatory for thermal power plants to use coal not having an ash content of more than 34%. Coal washing significantly reduces the ash content and to some extent, sulphur contents of coal. Time bound action programs have been evolved for ensuring pollution control in the air polluting industries.

The problem of increasing pollution in the metropolitan cities has been highlighted in recent years. Vehicular pollution is the primary cause for the deteriorating air quality. The issues need to be tackled by many departments. The Ministry of Surface Transport administers the Motor Vehicles Act under which emission standards are dictated. While emission standards, have been notified, to be effective there needs to be simultaneous upgrade in technology and corresponding fuel quality. In this respect, close inter-Ministerial coordination must be maintained. Commensurate effort for road planning and traffic management is required. In the long run, the key difference will emerge from the degree of success with which personal transport can be supplemented with public transport including mass rapid transport systems.

The Ministry of Surface Transport plays a coordinating role with the concerned ministries and its associated bodies/organisations. These include the Ministry of Road Transport and Highways (MoRT&H), the Ministry of Petroleum and Natural Gas, the Ministry of Heavy Industries and Public Enterprises for upgrading automobile technology, improvement in fuel quality, expansion of urban public transport systems and promotion of integrated traffic management, which recognise that vehicular emissions are the main cause for deterioration of urban ambient air quality.

7. INSTITUTIONS

The Central Pollution Control Board (CPCB) was established in 1974 under provisions of the Water (Prevention and Control of Pollution) Act 1974. Subsequently as the Indian environmental legislation evolved, its role expanded to cover the areas of air pollution, hazardous and hospital waste management etc. The main functions of CPCBs are set out in The Water Act 1974 and The Air Act 1981. They are to:

- (1) Promote cleanliness of streams and wells in different areas of the States through prevention, control and abatement of water pollution, and

- (2) Improve the quality of air and to prevent, control or abate air pollution in the country. One of the specific programs being carried out at present is air quality monitoring at the National Ambient air Quality Monitoring Stations conducted by SPCB with assistance from the CPCB.

7. LEGISLATION

The Constitution of India:

- a) India is the first country, which has made provisions for the protection and improvement of environment in its Constitution. In the 42nd amendment to the Constitution in 1976, provisions to this effect were incorporated in the Constitution. Article 48-A directs the State to make efforts for protection and improvement of the environment and for safeguarding the forest and wild life of the country. Article 51A states that every citizen of India has a fundamental duty to protect the environment

The Government of India:

- b) The Environment (Protection) Act 1986. An Act to provide for the protection and improvement of environment.
- c) Environment (Protection) Rules 1986. Under section 6, and 25 of the Environment (Protection) Act, these rules have been formulated to: stipulate standards for emission or discharge of environmental pollutants, lay down procedure to give directions to potentially polluting agencies, prohibit or restrict setting-up or carrying on of industries/activities in certain areas or handling of hazardous substances, specify procedure of taking samples and submission of reports and submission of environmental audit reports.

In co-ordination with the Ministry of Environment and Forests, the Ministry of Road Transport and Highways has stated the following:

- Vide GSR 779(E) dated 29th August, 2000 extended the more stringent three emission standards known as Bharat State II akin to Euro-II emission standards for registration of motor cars and four wheeler passenger Vehicles with Gross Vehicle Weight (GVW) equal or less than 3500 kg. These new standards are effective in Kolkata and Chennai from 1-7-2001. These norms are already effective in NCT of Delhi and Mumbai (including Greater Mumbai) as of 1-4-2000 and 1-1-2001 respectively.
- Vide GSR 286(E) dated 24th April, 2001 notified *inter-alia* Mass Emission Standards for vehicles with GVW exceeding 3500 kg. This is also effective in NCT of Delhi from 24-10-2001. Vide S.O. 731(E) dated 31st July, 2001, states that these standards extend to Mumbai (including Greater Mumbai), Kolkata and Chennai and are effective from 31-3-2001.

- Vide GSR 284(E) dated 24th April, 2001, notified Mass Emission Standards for Liquefied Petroleum Gas (LPG) driven vehicles and is effective from 24th May, 2001.
- Vide GSR 853(E) dated 19th November, 2001 notified Mass Emission Standards for Compressed Natural Gas (CNG) driven vehicles to be effective from 19th May, 2002. This notification also includes *inter alia* safety and procedural requirements for type approval of CNG and LPG operated vehicles, role of test agency, responsibility of vehicle/kit manufacture/kit supplier, responsibility of owner/users and statutory requirements of registration of vehicles. The notification No. GSR 99(E) dated 9th February 2000 specifying Mass Emission Standards for Compressed Natural Gas (CNG) driven vehicles ceased to be valid six months after the new notification comes into force.

Environment Pollution (Prevention and Control) Authority (EPCA) for the National Capital Region has submitted its XI and XII Progress Reports. These reports prominently include the steps taken, and monitoring made by the authority on various measures for control of vehicular pollution. During this period the Authority submitted special reports on Clean Fuels and Standards Recommendations as directed by the Supreme Court. As a result of the rigorous monitoring by the Authority, from 1-4-2001, 87 Compressed Natural Gas (CNG) stations have been commissioned and about 53 302 vehicles including 3727 buses are running on CNG mode in Delhi. In Mumbai, 24 CNG outlets are in operation with about 26 296 vehicles, running on CNG mode.

The Ministry is involved in the Auto Fuel Policy, recommended by the Expert Committee established by the Ministry of Petroleum and Natural Gas on 13th September 2001. This Policy is for the entire country, including major cities and has devised a road map for its emission norms as recommended by the Inter-Ministerial Task Force to the Ministry of Petroleum and Natural Gas. The Ministry is also involved in an on-going work on ethanol blending of gasoline and use of bio-fuels in transportation.

Air (Prevention and Control of Pollution) Act 1981

The Air (Prevention and Control of Pollution) Act 1981 relates to the control of air pollution and mainly deals with pollution from industry. Section 21(1) of the Air Act states that no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area. Section 22 states that no person operating any industrial plant, in any air pollution control area shall discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down by the State Board under clause (g) of sub-section (1) of s 17. The intent of s 22 may be the same as that of s 24 of Water Act, to cover sporadic emissions. Any industrial plant becomes relevant to the scope of the Air Act consent procedure, if it is located in any air pollution control area declared by the State Government under s 19. A related provision exists in Water Act, s 19, whereby the Act may be restricted in application to only certain areas of the State. In fact by judiciously using the two sections

of the Acts, the State Boards could have initially focused on significant sources of pollution. Subject to manpower availability and need, application of the Acts could have been extended to cover other areas over a period of time. However, due to various reasons, in several States, the entire State is declared as Air pollution control area and no area of the State is taken out of the application of the Water Act.

Section 2(k) states that “industrial plant” means any plant used for any industrial or trade purposes and emitting any air pollutant into the atmosphere. “Air pollutant” is defined in s 2(a) as meaning any solid, liquid or gaseous substance including noise, present in the atmosphere in such concentration as may be, to tend to be injurious to human beings or other living creatures or plants or property or environment. Therefore, if an industrial unit emits substances at such levels resulting in concentrations injurious to human beings etc, it will qualify to be an industrial plant for the purposes of ss 21 and 22 of the Air Act. The Boards at various points have pleaded for deletion of these definitions of air pollution because of difficulties in quantifying easily determinable or demonstrable injury to human beings etc. An industrial unit even if located in an air pollution control area, as per the Act, need not necessarily be an industrial plant for the purpose of s 21. This means that if the Boards could identify such units in an air pollution control area based on accepted criteria, then those units can be considered as not relevant to s 21 of Air Act and would be valid under the Act.

Determining certain types/categories of industries as not relevant to Water and Air Acts for the purpose of consent coverage is not against the spirit or even letter of the Acts.

8. OTHER ACTS

The Indian Explosives Act 1908 and the Indian Boiler Act 1923 are primarily applicable to all industrial installations with boiler facilities except defence services, steamships/vessels, railways, and hospitals whose boiler capacity is less than 91 litres. The Act defines the powers of the Chief Inspector of Boilers, prohibits use of unregistered or uncertified boilers and lays down procedure of registration of new/existing boilers and relocation and renewals of existing boilers. The Act also establishes the Central Boilers Board, Chief Inspector of Boilers (state government) and the State Departments of Boilers or Department of Factories and Boilers.

9. CONCLUSION

In India air pollution is a particularly abundant problem. As previously stated Delhi is listed as the fourth most polluted megacity in the world its levels reaching 5 times the WHO standards, while a total of six of the largest cities in the country have severe air pollution problems also grossly breaching WHO standards. The problems have been identified in two areas: vehicular pollution and industrial pollution. In response to vehicular pollution the Government is implementing a plan of action for introduction of

unleaded petrol, catalytic converter fitted vehicles, low sulphur diesel for cleaner diesel vehicles and tighter emission norms for vehicles at the manufacturing stage. In relation to industrial pollution a scheme establishing emission standards relating to all the major air polluting categories of industries has been evolved. However the above chapter clearly notes that an effective enforcement, implementation, inspection and maintenance program is still needed.

Recognising the problem of air pollution India has also introduced specific legislation and the C/SPCBs play a role in enforcement. The Air Act regulates emission standards however it mainly applies to industry and largely neglects the problem of vehicular pollution. Also the operation of the Act is criticised for simply regulating entire states in a blanket fashion rather than concentrating its limited resources on specific areas where they are most needed then expanding to other areas as the need arises.

CHAPTER IX

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: CHEMICALS AND WASTES

Key Issues: Hazardous waste management; air pollution; water pollution; soil contamination; safety and health; emergency plans, public liability and compensation; enforcement and compliance; education and awareness; social audit of industry.

Policy Framework: National Forest Policy 1988; Policy Statement on the Abatement of Pollution 1992; National Conservation Strategy and Policy Statement on the Environment and Development, National Environmental Action Plan 1993.

Key Legislation: Environment Protection Act 1986 and rules there under Water (Prevention and Control of Pollution) Act 1974; Effluent Standards; The Constitution (Seventy-Fourth Amendment) Act 1992; Chemicals Management and Handling Rules, Hazardous Waste Management and Handling Rules, Plastic Waste Management and Handling Rules, Solid Waste Management; Manual on Municipal Solid Waste Management; Bio-Medical Waste Management and Handling Rules 1999.

Key Institutions: Ministry of Urban Development and Poverty Alleviation; Central Public Health and Environment Engineering Organization; National Environmental Engineering Research Institute; Urban Local bodies; Ministry of Environment and Forest; Central Pollution Control board (CPCB); State Pollution Control Board; State Departments of Environment; State Departments of urban development; Ministry of Industries; Ministry of Mines; Ministry of Power etc.; Ministry of Health; Ministry of Urban Development and Poverty Alleviation; Ministry of Agriculture.

1. INTRODUCTION

Urban India, as per the 1991 census constitutes about 26% of the country's population. Unregulated growth of urban areas, particularly over the last two decades, without infrastructure services and proper collection, transportation, treatment and disposal of solid wastes has led to increased pollution and health hazards. Indian urban municipal solid waste is a heterogeneous mixture of paper plastic, cloth metal, glass, organic matter etc. generated from households, commercial establishments and markets. Sample surveys have been conducted to quantify the production of urban solid wastes particularly in larger cities. It has been found that per capita increase in the quantity of waste generated is directly proportionate to the growth of the population.

The role of the Basel Convention has been instrumental to India's confrontation of its waste problem. Other international agreements have also been entered into by India, who has developed a regulatory framework in an attempt to rectify the problem. India's implementation of legislation, regulations and rules has been central to the resolution of the problems caused by chemicals and wastes.

2. COMPOSITION OF WASTES

Reliable estimates of the quantity of solid wastes generated in various towns are not readily available. A study on Delivery and Financing of Urban Services (1989) by Operations Research Group indicates average per capita solid waste generated is about 350-400gm. However, based on the trade and commercial activities in the towns, the per capita waste quantity may be more as in the case of Bombay, where it is between 400-425gm. Again, within a city, per capita waste generation could also be different from area to area. Per capita waste generated within the New Delhi Municipal Committee area is between 800-1000gm/day whereas waste generated in the Municipal Corporation of Delhi area is only about 300gm. As per TERI projections up to 2047, per capita generation of municipal solid wastes will increase from an average 490gm per day in 1997 to 945gm per day in 2047.

3. COLLECTION, STORAGE AND TRANSPORT

Storage at the source of waste generation is the first essential step towards appropriate waste management. In old residential areas, storage of wastes is a serious problem as builders and contractors and the people in general deposit construction wastes just outside their houses/shops/streets along major roads often obstructing the traffic.

In most cities and towns the existing fleet of vehicles for transporting wastes from their storage to disposal site is not enough to cope with the pressures. In many areas, waste handling is done manually. The present system of collection and transportation of wastes is a potential health hazard for the workers as all type of wastes including hospital infectious wastes, etc., are disposed of in common bins or on the streets.

Several States have comprehensive Municipal Acts which deal with environmental pollution caused by municipal solid wastes. Besides these, civic authorities in some states are governed by local authorities. Due to weak financial health of the local bodies, most of the state governments have been extending financial assistance to these bodies, both for capital assets and maintenance varying from 10 to 30 %.

Presently, in small and medium towns, waste management is under a separate department headed by the Health Officer/Sanitary Inspector. Often the tasks of food sample testing, sanitation, street cleaning and immunisation are entrusted to the same department. However infra-structural facilities like transport vehicles are limited.

Various Central governmental agencies like the Ministry of Urban Affairs and Employment, the Ministry of Environment and Forests (MoEF), the Central Pollution Control board (CPCB), and the Ministry of Non Conventional Energy Sources (MNCES), have taken several steps in terms of providing financial incentives, issuing regulatory guidelines etc. to create a suitable environment for the complete rejuvenation of the waste management system of the country.

4. MEDICAL WASTES

Though wastes from hospitals and nursing homes are required to be collected and treated separately, in most cities and towns such wastes continue to form a part of municipal solid waste. The safe disposal of such waste has become a matter of serious concern in India. In 1997 there were about 14 250 hospitals and 34 900 dispensaries with over 98 lakh hospital beds in India. According to preliminary estimates, average bio-medical waste generation per day, per bed in urban areas alone is 1-1.5kg. Though some of the larger hospitals have incinerators, a substantial portion of the medical wastes is disposed of along with domestic wastes.

The Ministry of Environment and Forests has recently notified the Bio-medical Wastes (Handling and Management) Rules 1998 to regulate the disposal of bio-medical waste, including human anatomical waste, blood and body fluids, medicines and glassware, solid, liquid and biotechnology waste and animal waste. All persons handling such waste will be required to obtain permission from the appropriate authorities. Segregation of bio-medical wastes at their source has been made mandatory. These rules make the generator of bio-medical waste liable to segregate, pack, store transport, treat and dispose the bio medical wastes in an environmentally sound manner.

An Action Plan drawn up by MoEF for management of biomedical wastes envisages:

- Implementation of guidelines for treatment and disposal of biomedical wastes.
- Setting up of common facility for treatment, disposal and incineration of bio-medical wastes in metropolitan towns by 31-12-2000.

5. INDUSTRIAL SOLID WASTES

Out of about 120 million tonnes of solid waste generated in India, 65% is constituted of calcareous and siliceous by-products having potential for use as building materials. While blast furnace slag could be used as an admixture to ordinary portland cement, other products such as fly ash, could be utilised in manufacture of bricks and concrete.

In India, the fly ash production per annum has increased from two million tonnes (1947) to more than 60 million tonnes (1995-96). It has been estimated that by 2000 AD, 100 million tonnes of ash will be generated by coal-based thermal power plants. The disposal of fly ash in wet form not only requires huge area but also causes environmental problems

related to air and water pollution. MoEF has issued a Notification to encourage gainful utilisation of fly ash.

6. PLASTICS WASTES

The demand for plastics in India is expected to exceed 4 million tonnes by year 2001-2. It is expected that corresponding increase in waste generation would vary between 1 to 2 million tonnes every year. The National Plastics Wastes Management Task Force established by MoEF will release a strategy and action program for management of plastic wastes in the country.

The Ministry of Environment and Forests has brought out a notification for banning recycled plastics carry bags used for storing and packaging foodstuffs. CPCB has conducted the 'Life Cycle Study of Plastic Wastes in Major Cities' to examine the status of plastic waste generation and its after-use applications. The study has recommended the following:

- a) Collection and reprocessing of the used plastics for recycled products should be well organised and a buy-back system should be encouraged. There is also a need for registration of such activities.
- b) Protection of health of workers engaged in bag packing should be emphasised.
- c) Reprocessing/recycling should be done in designated places with environmentally sound technologies.
- d) Uncollected/non-recyclable plastic should be treated/disposed safely (eg by incineration, excluding PVC waste).
- e) Recycled products should be codified based on their quality for specific uses.

Research work on biodegradable plastics is presently being carried out in India at the Indian Institute of Chemical Technology, Hyderabad.

An Action Plan drawn-up by Ministry of Environment and Forests for management of plastic wastes envisages the following;

- Banning use of recycled plastic carry bags for unpacked food items.
- Participation of industry for collection and transportation of used bags for recycling.
- Preparation of status report on plastic waste management with special reference to Delhi.
- Notification brought out by various States/Union Territories on plastic littering to be examined.
- Coordination with other concerned departments to place restriction on the use of plastic carry bags.

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- Coordination with other concerned departments to phase out plastic carry bag/cups/plates in services offered by Railways, Ports Departmental canteens, Hotels and Forests departments.
- Setting up of a Solid wastes Management and Waste Water Treatment Cell in the Ministry of Environment and Forests,
- Supreme Court Directions under various Public Interest Litigation to be followed up.
- Examination of issues of banning import of plastic scrap through various Ports to be examined.
- Finalisation of setting up of Indian Centre for Plastics in the Environment (ICPE).
- Industry to provide logistic support for collection/recycling of PET bottles and other hard plastic containers.
- Organising a viable network of manufacturers for organised collection, storage and recycling of plastics wastes.
- Research and development on biodegradable plastics.
- Promoting awareness on minimisation and reuse of plastics and dustbin culture.
- Providing fire safety equipment around dump sites.

7. URBAN SOLID WASTES

The Asim-Burman Committee appointed by the Supreme Court has drawn up a very comprehensive Action Plan to take care of various aspects of municipal solid wastes. The Action Plan takes care of almost all the steps right from the generation of municipal wastes; its collection, transport, segregation, and utilisation to final disposal. The Action Plan is to be discussed in four workshops to be held by early 1999, it would then be given a final shape for implementation all over the country.

The priority areas which emerge for immediate action are stated:

- Intensive public awareness campaigns (with the involvement of NGOs etc.).
- Provisions of infrastructure facilities for segregation of wastes and recycling.
- Resource recovery from wastes.
- Private initiatives in the collection, transportation and disposal of waste.
- Strengthening of institutional and regulatory mechanisms of the municipal bodies.
- Monitoring collection, transportation and disposal practices adopted by Municipal Corporations and Municipalities.
- Public participation in waste segregation at doorstep; and collection tie-up with local authorities in metropolitan cities.

- Initiation of Demonstration Project on Urban Solid Wastes in 1-2 States by 31-3-99.
- Minimal National Requirements on Solid Wastes to be notified by CPCB.
- Chemicals occupy an important place in the effort to meet the social and economic goals of the community. However, many chemicals are toxic, highly reactive, explosive or flammable, or have a combination of these characteristics and represent a potential risk to human, animal and plant life and the environment in general. Extreme care is necessary while handling such chemicals at all stages of manufacture, processing, transportation or use.

8. HAZARDOUS WASTES

Another important issues is the handling of hazardous substances in industry and transportation, and the dangers posed by chemical accidents to human life and the environment. The Ministry is conscious that questions of safety and health pertain to a wide gamut of authorities, as do most other environmental issues, for example vehicular pollution. The Bhopal gas incident had brought the country alive to the dangers posed by the handling of hazardous substances. The problem is compounded because large numbers of unregulated industries handling hazardous chemicals exist in heavily populated areas. The Ministry of Environment and Forests is looking at this area with a view to consolidating and enhancing the effectiveness of rules and regulations.

With rapid growth of population and industrialisation during the last two decades, there has been a tremendous increase in the generation of domestic, urban as well as industrial wastes. Though a major part of the wastes generated are of non-hazardous type, substantial quantities of hazardous wastes are also generated. In spite of the several steps taken for management of wastes generated by various sources, only a small proportion of solid wastes are properly utilised and disposed of, with the result that some of these wastes cause environmental degradation and health risks in one way or another. The Hazardous Wastes (Management and Handling) Rules (HW Rules) were notified by the Ministry of Environment and Forests in July 1989 under the Environment (Protection) Act 1986. These Rules provide for regulating the generation, collection, storage, transport, treatment, disposal and import of hazardous wastes. 18 categories of hazardous wastes (to which the Rules apply) have been identified and listed in the Schedule annexed to these Rules. One of the important stipulations made under the Rules is that the import of hazardous wastes from any other country to India is not permitted for dumping and disposal. However, import of such wastes is allowed for processing or reuse as raw material, after examination of the merits of each case by the competent authorities.

Under Rule 11 of the Hazardous Wastes Rules 1989, the exporting country or the exporter is required to communicate details about the proposed transboundary movement

of hazardous wastes to the Central Government. The importer is also required to provide details regarding the wastes to the concerned State Pollution Control Boards. After examining the details provided by the importer/exporter, suitable instructions are issued by the concerned authorities and the Port Authorities are advised accordingly.

India is a party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The Ministry of Environment and Forests has been designated as the Competent Authority. The Convention seeks to promote the reduction in the generation of waste and calls for the international cooperation in development of cleaner technologies. 47 categories of wastes (other than nuclear wastes) have been included in the Convention.

9. THE BASEL CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL WAS SIGNED IN 1992

The 3rd meeting of the Conference of the Parties to the Basel Convention, held in September 1995 adopted the decision to amend Article 4(a) of the Convention banning all transboundary movement of hazardous wastes from EC and OECD countries to non-OECD countries for final disposal (i.e. for dumping) with immediate effect, and to phase out such movements of wastes destined for recycling and recovery by December 31st 1997. This ban would only be applicable to those wastes that are characterised as hazardous under the Convention. The task of hazard characterisation and evolution of lists for Basel wastes and non-Basel wastes has been entrusted to the Technical Working Group of the Basel Convention.

Developing countries have become major recipients of hazardous wastes generated in the industrially advanced countries. Due to the stringent legislations and regulations and the prohibitive costs of treatment and disposal of such wastes in developed countries, producers of such wastes and their agents find it cheaper to ship hazardous wastes to developing countries. The Ministry of Environment and Forests have been receiving communications seeking permission to import hazardous wastes. These include metal containing wastes (ferrous and non-ferrous), waste oil, oil sludge, etc. Such wastes are processed in accordance with the requirements under the Hazardous Wastes (Management and Handling) Rules 1989 and the Basel Convention. A Committee has been constituted for the same purpose.

The wastes from other countries are exported in large quantities, and are received in bulk shipments. Such shipments enter through our ports and the Ports and Customs Authorities have a major role in checking and granting permission for entry of these shipments. Such wastes can only be allowed if these are being imported for processing, reuse and recovery for use as raw materials in our industry in accordance with the Hazardous Wastes Rules 1989. The hazardous wastes are included in the restricted lists of imports requiring a

licence, which is granted subject to the recommendation under the HW Rules. Intimations are required to be given by the exporter/importer in respect of the proposed transboundary movement of the hazardous wastes. Under the Hazardous Wastes Rules 1989 complete information on the exporter, importer, source of the waste, type of waste and its constituents, method of disposal, safety data sheet etc, are required to be furnished by both the exporter as well as importer in Form 6 of the Rules. According to the Basel Convention, the exporter should seek a prior consent in writing from the importing country's Competent Authority (Ministry of Environment and Forests) before the commencement of the shipment. A movement document should accompany the consignment.

Due to indiscriminate imports and exports from non-signatories to the Basel Convention, huge quantities of hazardous wastes may reach Indian ports. In order to arrest this phenomena, waste category No. 1, cyanide waste and waste category No. 4, mercury and arsenic bearing wastes as per the Hazardous Wastes Rules 1989, have been prohibited from exports and imports from December 26 1996.

The legal instruments for management of hazardous wastes are the Hazardous Waste (Management and Handling) Rules 1989 (as amended in 2000), the Biomedical Waste (Management and Handling) Rules 1998 and the Batteries (Management and Handling) Rules 2001. Major responsibility for implementing these Rules is with the State Pollution Control Boards (SPCBs) /Pollution Control Committees (PCCs) and to some extent with the state Departments of Environment. The status of implementation of the HW Rules was monitored during the year. A questionnaire was circulated to all SPCBs/PCCs to determine the extent of implementation of the Biomedical Waste Rules. Responses received are currently being studied. As recommended by the Steering Committee on Biomedical Wastes comprehensive guidelines are being prepared to facilitate effective implementation of the Biomedical Waste Rules. A comprehensive set of rules entitled "Batteries (Management and Handling) Rules 2001" was notified by the Ministry in May 2001. These rules have been notified to regulate the collection, channelling and recycling as well as import of used lead acid batteries. These rules stipulate that used lead acid batteries can be auctioned/sold only to recyclers registered with the Ministry on the basis of their possessing environmentally sound facilities for recycling/recovery.

As per the Hazardous Wastes (M&H) Rules 1989 and 2000, all hazardous wastes are required to be treated and disposed of in the manner prescribed by the Act. In the absence of common disposal facilities, permission has been granted to hazardous waste generating units in the small scale sector, for storing their wastes temporarily in a secure, lined pit/facility within their premises. As a demonstration project, the Ministry of Environment and Forests has supported the setting up of a common Transport, Storage and Disposal Facility (TSDF) at Trans Thane Creek (TTC) Maharashtra. The facility is soon expected to be operational. A common TSDF in Ranga eddy District of Andhra Pradesh is being set up under private sector initiative with financial assistance from Australia and the State Government of Andhra Pradesh. Phase-I of the facility has been commissioned. The Ministry will provide financial support for Phase-II of this facility.

The scheme for “Registration of Recyclers/Re-processors of Wastes as Actual Users having Environmentally Sound Management Facilities” initiated in 1999, continued during the year and five meetings of the Registration Committee were held. A total of 232 proposals were considered in these meetings. Registration was granted to 119 units, applications of 44 units were rejected and 69 cases deferred. At present, 192 units have been registered with the Ministry, out of which 70 are used waste oil re-processors, 50 are lead scrap processing units while the remaining are non-ferrous waste metal processing units. The list of registered recyclers/re-processors is posted on the web-site of the Ministry and is updated regularly. Rigorous monitoring of the registered units has been undertaken to ensure that all the conditions included in the Registration Letter are complied with by the units. The Regional Offices of the Ministry have been entrusted with the monitoring work.

The Regional Centre of the Basel Convention for SAARC countries has begun preliminary operations during the year. The Centre is supported under the Canada-India Institutional Strengthening Project. A meeting of experts on hazardous waste management from India, Nepal, Sri Lanka, Bangladesh and Maldives was held in New Delhi during October 2001 to finalise a ‘Needs Assessment’ of these countries in order to plan the activities of the Centre during the next five years.

10. OTHER INTERNATIONAL CONVENTIONS/PROTOCOLS

Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

This convention was adopted at the Conference of Plenipotentiaries at Rotterdam in 1998. Steps have been taken to obtain the approval of competent authorities to sign and ratify the Convention.

Stockholm Convention on Persistent Organic Pollutants (POPs)

India adopted the Stockholm Convention on POPs on 23rd May 2001. The Convention seeks to eliminate production, use, import and export of 12 POPs wherever technoeconomically feasible and, in the interim period, restrict the production and use of these chemicals. Steps have been taken to obtain approval of the competent authority to sign the Convention.

Regulation of Ozone Depleting Substances

India’s per capita consumption of ozone depleting substances such as chloro-fluoro carbons (CFCs), is at present less than 3 grams and did not exceed 20gms between 1995-97 when 300gms were permitted under the protocol. India is self sufficient in production of CFCs. India commonly produces and uses seven of the 20 substances controlled under the Montreal Protocol, (London 1990) these are CFC-11, CFC-12, CFC-113, Halon 1211,

Halon 1301, CCl₄ and methyl chloroform. These ozone-depleting substances are used in refrigeration and air conditioning, fire fighting, electronics, foams and aerosol industries. A detailed India Country Program for the phase out of Ozone Depleting Substances (ODS) was prepared in 1993 in accordance with the national industrial development strategy. The Program was devised without undue burden to the consumers and the industry, and for accessing the Protocol's Financial Mechanism in accordance with the requirements stipulated in the Report of the Second Meeting of the Parties to the Montreal Protocol in London (June 1990).

The main objectives of the Country Program are:

- Minimize economic dislocation - The process should not lead to closure of units, loss of productive capacity or major capital expenditure for modifying facilities (such as equipment for production, transport and storage) which could become obsolete. In determining economic feasibility energy efficiency and machine characteristics have been considered.
- Maximize indigenous production - Transfer of technology and local production of substitutes and equipment has been encouraged.
- Preference to one time replacement - This has been preferred unless there is another more cost-effective alternative. Information will be required on the availability and assessment of substitutes.
- Decentralised management - Development of arrangement to facilitate feedback for smooth implementation, including awareness building as well as training and consumer protection. A survey has been conducted for efficient implementation of ODS phase out particularly in the small scale and informal sector.
- Development of standards and certification system – New standards (including those for safety) are needed for production and distribution operations.
- Minimize obsolescence – Existing technology would be kept running as long as possible by recycling and using drop-in substitutes, while new technologies are phased in as they become available. This will minimize the cost of obsolescence.

Institutional Framework to Implement the Montreal Protocol in India

The Government of India has entrusted work relating to ozone layer protection and implementation of the Montreal Protocol to the Ministry of Environment and Forests (MOEF) and it is the coordinating agency. The MOEF has set up a national unit called 'Ozone Cell' to co-ordinate and render necessary services to implement the Protocol and its Ozone Depleting Substances (ODS) phase out program in India. The MOEF has also established a Steering Committee, supported by three Standing Committees, which is

responsible for the implementation of the Montreal Protocol provisions, review of various policies and implementation options, project approval and project monitoring etc. The Ozone Cell functions as Secretariat for all these Committees.

Role of Ministry of Environment and Forests

Ministry of Environment and Forests is the designated National Authority for the implementation of the Protocol and the Country Program. This includes notification of related regulations, issues relating to International Cooperation, scrutiny of data relating to production, import, export and consumption and reporting to the Montreal Protocol Secretariat. The Ministry will also coordinate with various other Ministries responsible for implementation.

11. REGULATORY FRAMEWORK

Public health and sanitation are state subjects. Collection and disposal of wastes in the urban areas is entrusted to the local municipal body. Municipal laws lay down detailed inventories of obligatory and discretionary duties. Due to the direct bearing of sanitation on the health of the people, it has been listed as an obligatory duty and therefore the municipal authorities are required to take adequate measures for collection and disposal of municipal wastes.

Several States have comprehensive Municipal Acts, which deal with environmental pollution caused by municipal solid wastes. Some of the Municipal Acts relating to solid waste management are the Uttar Pradesh Municipal Corporation Act 1959 (ss 114, 115, 385 and 440); the Calcutta Municipal Corporation Act 1980; the Karnataka Municipal Corporation Act 1976 (ss 58, 255, 256, 258 and 261); and the Bombay Municipal Corporation Act 1988. Additionally, local civic authorities in states like Punjab, Bihar, Tamil Nadu and West Bengal are governed by statutes passed in 1911, 1922, 1920 and 1932 respectively, which deal with collection and carting away of wastes. However developments taking place in modern urban living conditions are not reflected in these laws.

Improvement in Existing Regulations

In relation to Municipal solid waste management, not only are the existing laws not being enforced but the existing provisions governing the corporations and municipalities are inadequate. Some of the provisions that have been incorporated in the Municipal Solid Waste (Handling and Management) Rules 2000 among existing laws are as follows:

- (i) Duty of occupiers of the premises for the storage of solid wastes at source of generation: It should be incumbent on the occupiers of all premises to keep receptacles of a size adequate for the storage of all types of solid wastes including food wastes, dust, ashes, refuse, rubbish etc generated at the said premises.

- (ii) Duty of occupier to segregate recyclable non-bio-degradable wastes at source: It should be incumbent on the occupier of any premises to segregate the recyclable waste generated at the said premises and keep them in a separate receptacle.
- (iii) Duty of Societies/Associations/Management to provide community bins: It should be incumbent on all the Co-operative Societies/Associations/Management of the residential/commercial complexes, institutional buildings, markets etc. to provide community bins of the appropriate size not exceeding 100 litre capacity for the temporary storage of wastes stored at premises including households, shops, establishments, offices etc, in their personal domestic, trade, institutional bin etc, for its primary collection by the municipal authorities.
- (iv) Receptacles to be kept in good conditions: Such receptacles should at all times be kept in good condition and shall be provided in such number and places as may be considered adequate and appropriate to contain the wastes produced by the households/shops/ establishments supposed to be served by the community bin.
- (v) Duty of occupiers to deposit solid wastes in the community bins: It should be incumbent on the occupiers of all the premises for whom community bins have been provided to cause all domestic waste, trade waste, institutional waste, dust, ashes, refuse, rubbish etc to be deposited from their respective premises in the community bins.
- (vi) Duty of Local Body to provide Community Waste Storage Facility in the city: It should be incumbent on all the Municipal Corporations/Class I municipalities in the State to make adequate provision for bulk Community Waste Storage Facilities (temporary waste storage depots) in the city and maintain them hygienically.
- (vii) Duty of occupier of households/shops/establishment to handover the recyclable material/non-bio-degradable waste to the waste pickers/waste purchasers/recyclers etc: It should be incumbent on the households/shops/establishments to hand over the recyclable waste/Non-bio-degradable waste to the rag-pickers/waste purchaser/recyclers as may be convenient. Such waste shall not be disposed of along with the organic waste or mixed with other municipal waste.
- (ix) Duty of ULBs to collect waste from community bins and to deposit it at Community Waste Storage Facility: It should be incumbent for ULBs to remove all the solid wastes deposited in community bins on a daily basis and deposit it at the Bulk Community Waste Storage sites identified in the city.
- (x) Duty of all ULBs to clean all the public streets and open public spaces, slums etc: It should be incumbent on all ULBs to arrange for cleaning of all the public streets, open public spaces and slums on all the days of the year including Sundays and public holidays, subject however to adherence to the provisions of the Labour Laws governing the employees of ULBs.
- (xi) Prohibition against littering the street and deposit of solid wastes: No person should litter public streets or public places or throw away litter on any public street, public place, land belonging to the local body or any unoccupied land or on

the bank of water-course any solid wastes except in the receptacles provided for the purpose.

- (xii) Prohibition against deposition of building rubbish: No person should deposit any building rubbish in or along any street, public place or land except in conformity with the conditions of prior permission from the municipal corporation/municipality.
- (xiii) Prohibition against flow of filthy matters on public places etc: No owner or occupier of any building or land, should allow any filthy matter to flow, soak or be thrown from the land, this includes anything that is, or that may become a nuisance to any person or injurious to the health of any person.
- (xiv) Punishment for littering on streets and depositing or throwing any solid waste in contravention of the provision of law: Whosoever litters the street/public places or deposits or throws or causes or permits to be deposited or thrown any solid waste or construction debris at any place in contravention of the provision of law shall be punished by fine as may be prescribed under the rules framed by the State Government from time to time by the officer authorised by the Municipal Commissioner not below the rank of sanitary inspector. The amount of the fine imposed shall be recoverable as arrears of property taxes.

The Environment (Protection) Act 1986 emphasises the need for laying down procedures and safeguards for handling hazardous substances and preventing accidents. Four sets of Rules have also been notified under the Environment (Protection) Act, 1986:

Ozone Depleting Substances (ODS), Regulation and Control Rules 2000

The rules provide the legal basis for India to meet its obligations under the Montreal Protocol, although the country has already implemented various measures to phase out ozone depleting substances. The rules prohibit the manufacture of chlorofluorocarbons (CFCs) from January 1, 2003 and the use of halons after January 1 next year. Specified therapeutic uses are exempted from the ban. The use of some ozone depleting substances, such as carbon tetrachloride and methyl chloroform, is allowed till January 1 2010. Methyl bromide can be used until 2015. Similarly, the use of HCFCs, a substitute for CFCs, is permitted up to 2040. All producers, importers, exporters, stockists and sellers of ozone depleting substances are required to be registered with the government. Organisations funded through the Montreal Protocol for projects to switch to non-ODS processes, must inform the government of project completion dates. The rules also ban trading in ODS with countries that are not signatories to the Protocol. The notification was issued under the Environment (Protection) Act 1986. Breach of the rules can result in a jail sentence.

Manufacture Storage and Import of Hazardous Chemicals, Rules 1989 (as amended in 1994 and 2000, notified via Gazette, 1996)

This set of rules provide a statutory back-up for establishing a Crises Group in districts and states that contain Major Accident Hazard Installations (MAH) and for providing information to the public. The Rules define the Major Accident Hazard Installations, which include industrial activity, transport and isolated storage at sites handling hazardous chemicals in quantities specified. In accordance with the Rules, the Government of India is to constitute a Central Crises Group for the management of chemical accidents and set up an alert system within 30 days of the notification. The Chief Secretaries of all States are to constitute Standing State Crisis Groups to plan and respond to chemical accidents in the State notifying such actions via gazette within 45 days. The District Collector shall not only constitute a District Crisis Group (DCG) but will also establish Local Crisis Groups (LCGs) for every industrial pocket in the district within 60 days. The Central Crisis Group (CCG) will be the apex body in the country for dealing with and providing expert guidance for planning and handling of major chemical accidents. The CCG shall continuously monitor the post-accident situation and suggest measures for prevention of reoccurrences.

Ozone Depleting Substances (Regulation and Control) Rules 2000:

In accordance with the National Strategy for ODS phase out, the Ministry of Environment and Forests has notified Rules covering various aspects of production, sale, consumption, export and import of ODS. These Rules prohibit the use of CFCs in the manufacture of various products beyond 1-1-2003 except in metered dose inhalers and for other medical purposes. Similarly, use of halons is prohibited after 1-1-2001 except for serving an essential use. Other ODS such as carbon tetrachloride and methyl chloroform and CFC for metered dose inhalers can be used up until 1-1-2010. Further the use of methyl bromide has been allowed up until 1-1-2015. Since HCFCs are used as interim substitute to replace CFCs, these are permitted for use up until 1-1-2040.

The Rules also provide for compulsory registration of ODS products, manufacturers of ODS based products, importers, exporters, stockists and sellers of ODS. The same provision is applicable to manufacturers, importers and exporters of compressors. These groups are also required to maintain records and file periodic reports for monitoring production and use of ODS. Enterprises which have received financial assistance from Multilateral Fund for switchover to non-ODS technology have to register the date of completion of their project and declare that the equipment used for ODS has been destroyed. Creation of new capacity or expansion of existing capacity of manufacturing facilities of ODS and ODS based equipment has been prohibited. Purchasers of ODS, who manufacturing products containing ODS, are required to declare the purpose for which ODS is purchased. Authority has been granted to issue licences for all imports and exports of ODS and products containing ODS.

Batteries (Management and Handling) Rules 2001

The Rules make it mandatory for consumers to return used batteries and make manufacturers/ assemblers/re-conditioners/importers responsible for collection of

batteries and ensuring their onward transport to recyclers. Recyclers must be registered with Ministry of Environment and Forests based inter-alia on their possessing environmentally sound technology for processing lead acid batteries. As a result, occurrences such as backyard smelting of lead acid batteries with attendant lead emissions to the atmosphere, discharge of acid into open ground sewers and loss of lead due to poor recovery (30-40%) would be reduced substantially. Manufacturers etc are required to set up collection centres for collection of used batteries.

Hazardous Chemicals (Classification, Packaging and Labelling) Rules 2002

The Indian government has notified the country's first-ever comprehensive regulatory requirements on the safe transport of hazardous chemicals. The Rules, to be known as the Hazardous Chemicals (Classification, Packaging and Labelling) Rules 2002 set out labelling and packaging requirements for the transport of chemicals. The proposed rules will require suppliers of hazardous chemicals to package their despatched goods in such a manner that they do not cause accidents or harm. Each consignment must be labelled with the name of the substance, the amount being transported, potential dangers, precautions required and the identity of the manufacturer, consignor and consignee. The rules also require that the consignment carry the name and phone number of at least one chemical expert who can be contacted in an emergency. The Rules place hazardous chemicals in three categories: extremely toxic, highly toxic and toxic.

Implementation of Bio-medical Wastes (Management and Handling) Rules 1998

Complete and safe disposal of bio-medical wastes is considered necessary in light of mushrooming growth of hospitals and nursing homes in and around our metropolitan areas. According to preliminary estimates, average bio-medical waste generation per day per bed in urban areas in the country is 1-1.5kg. An estimated 30 and 40 tonnes of medical waste is generated every day. Though some of the larger hospitals have incinerators, a substantial portion of the medical wastes is disposed of along with domestic wastes.

MoEF has recently notified the Bio-medical Wastes (Management and Handling) Rules 1998 to regulate the disposal of bio-medical waste, including human anatomical waste, blood and body fluids, medicines and glassware, soiled, liquid and biotechnology waste, and animal waste. All occupiers generating bio-medical waste are required to obtain authorisation under the Rules. The agency responsible for implementation of these rules is to be constituted by the concerned State Government/Union Territory. Scientific guidelines for various methods of disposal of hospital wastes such as incineration, autoclaving and microwave techniques have been released by the Central Pollution Control Board. However, the situation at ground level regarding implementation of the Rules and actual disposal of biomedical wastes is dismal. So far, only 13 States/Union Territories have set up authorities. Greater coordination within the State agencies and with Central, State and Union Territory Governments, is vital for achieving proper management of bio-medical wastes.

12. CONCLUSION

Poor management and handling of chemicals and wastes coupled with the rapid increase in population growth has left India with a dangerously unhealthy waste problem. India's waste comes from a variety of sources and has been grouped into five categories: medical waste; solid waste; plastic waste; urban solid waste; and hazardous waste. The composition of each of different types of waste has also been defined.

India's response to the chemical and waste problems it faces can be focused in two broad areas. The first being the steps India has taken in the way of international agreements. The Basel Convention represented major step forward in India's waste problem. Essentially after becoming a signatory India has been able to effectively address and reduce the amount of hazardous wastes generated in industrially advanced countries being dumped in India. Certain categories of wastes have now been banned from import.

The second method employed by India to abate these problems is the domestic regulatory framework. Both broad and specific pieces of legislation have been enacted to regulate waste matters, the most important of which are suitably addressed in the above. However as with many of the laws operating in India, there are enforcement problems that have led to fruitless outcomes. In relation to municipal solid waste management, not only are the existing laws not being enforced but the existing provisions governing the corporations and municipalities are inadequate. Much of India's legislation has been directed at a urban district level with an onus placed on municipal councils to manage waste and attempt to reduce its generation at the source, many municipalities have enacted laws of this nature. However developments taking place in modern urban living conditions remain largely unreflected in these laws.

CHAPTER X

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: FORESTRY

Key Issues: Key Issues: Forest Depletion; Forest Management; Wildlife Management; Livelihood of Local Peoples; Re-generation of Forests; Eco-development; Environment Education; Public Participation; Enforcement and Compliance.

Policy Framework: National Forest Policy 1988; National Conservation Strategy 1992; National Environment Action Plan 1993; National Strategy for the Protection and Conservation of Biodiversity.

Key Legislation: The Indian Forest Act 1972; The Wildlife (Protection) Act 1972; The Forest (Conservation) Act 1980; The Environment (Protection) Act 1986.

Key Institutions: Ministry of Environment and Forests; State Department of Environment; Botanical Survey of India; Zoological Survey of India; Ministry of Agriculture, Wildlife Institute of India.

1. INTRODUCTION

Indiscriminate and massive diversion of forestland for non-forest purposes had been occurring since independence and as a result, approximately 43 lakhs hectares of forestland has been chopped down during the period 1950 to 1980 without any regards to environmental consideration. Such environmental degradation went on despite the existence of the Indian Forest Act 1972 and Central Government guidelines issued in 1978, which were largely ignored by State Governments. Climactically in 1980 the Forest Act was introduced to address the problem of deforestation and diversion of forestland for non-forest purposes. Much of this chapter describes the role of this Act, its importance and its procedures. However more recent action has been taken following the revelation that deforestation was still widespread despite the role of the Forest Act 1980. In 1988 the National Forest Policy was developed with new objectives for conserving Indian forestland.

2. FOREST (CONSERVATION) ACT 1980

In order to enforce greater control on preservation of forests, the Constitution was amended in 1977 to bring 'forest' to the Concurrent List from the State List. In 1978 the Central Government issued guidelines to all States, suggesting that all proposals involving diversion of forestland above 10 hectares should be referred to the Central Government for prior concurrence. The State Government paid scant regard to these and

the diversion of forestland continued unabated. Ultimately in 1980, the Forest (Conservation) Act was enacted with the purpose of conserving the forest and for purposes incidental and ancillary thereto. As a result the rate of diversion has come down to less than 25,000 ha per year post 1980, from an astounding 1.5 lakhs ha per annum during the period from 1950 to 1980.

The Act requires all State Governments to obtain approval of the Central Government before diverting forestland for non-forest purposes. Non-forest purposes are defined as breaking up or clearing of any forestland for cultivation of tea, coffee, rubber, palm, oil-bearing, horticultural crops or medicinal plants and any purpose other than re-forestation. However, the guidelines also dictate that no approval is required for cultivation of fruit bearing, oil bearing and medicinal plants if they are indigenous and part of an overall afforestation program. Clear felling of natural forest for re-afforestation also requires approval of the Central Government under this Act. Assigning of forestland in way of lease or otherwise to private person or to any authority/corporation/agency/organization not managed or controlled by Government also requires prior approval of the Central Government. In addition, the Act provides for the constitution of a Forest Advisory Committee for advising Central Government on proposals received for prior approval from various State Governments. The Act is only regulatory in nature and not prohibitive.

State Governments seeking prior approval of the Central Government are required to send a formal proposal in a prescribed format. In cases where the forest area involved is 5 hectares or less, the proposals are submitted directly to the Regional Chief Conservator of Forest (Central), who is deemed competent to make a final decision (except in mining and regulation of enforcement matters). Proposals involving 5-20ha of forestland are also submitted to the concerned Regional Office, where they are processed in consultation with the State Advisory Group comprised of members from various Departments of the State (i.e. Forest, revenue, finance concerned user Department). Such proposals, once processed are sent to the Ministry for final decision. All proposals involving more than 20ha of forestland are submitted directly to the Ministry at Delhi. These are processed and placed before an Advisory Committee responsible for making recommendations. After obtaining the recommendations of the Advisory Committee, the Ministry may make a final decision on the proposal. To ensure expedient handling of proposals, specific time limits have been laid down in the guidelines.

3. PROCEDURE OF ACCORDING APPROVAL UNDER THE ACT

Approval under the Forest (Conservation) Act 1980 may be granted in two stages. In the first stage, the State Government is informed that the proposal has been agreed to in principle but the State Government/user agency is required to transfer sufficient funds as well as equivalent non-forestland to the Forest Department for compensatory afforestation. On receipt of a compliance report in respect of above condition from the State Government, formal approval is accorded by the Central Government.

4. IMPORTANT CONDITIONS OF CLEARANCE

One of the important conditions stipulated by the Central Government when approving a proposal is providing for compensatory afforestation. Normally compensatory afforestation is stipulated over equivalent non-forestland. However, in the event of an unavailability of non-forestland, it can be raised over twice the degraded forestland on submission of a certificate of the Chief Secretary in this regard. In respect of all Central Sector projects and certain small development projects, compensatory afforestation can be raised over twice the degraded forests land without insisting on certification of the Chief Secretary. In respect of all medium and major irrigation projects, in addition to compensatory afforestation, a condition of catchments area treatment is stipulated. In mining cases, compensatory afforestation is not insisted on broken-up areas or under ground mining areas. In opencast mining cases, compensatory afforestation is required to be done in lieu of unbroken area and also reclamation of the entire lease area. For all cases involving violation of the Forest (Conservation) Act 1980, penal compensatory afforestation over degraded forestland (normally twice the extent) is stipulated.

5. NATIONAL FOREST POLICY 1988

In 1927 Great Britain passed the Indian Forestry Act and took complete control of all forests apart from those in areas that were under the jurisdiction of the princely states. From then onwards the management of forests became the responsibility of the Government. After independence, the Government of India continued this responsibility and passed the Forest Act along with a Policy in 1952. At the time of the policy's inception, 22 per cent of India was forested and one of the goals of the policy was to increase this to 33 per cent. Despite this the rapid decline in the forest area continued. As a result the Forest (Conservation) Act 1980 was passed to counter the rapid destruction of the forests. According to the Forest (Conservation) Act, the prior approval of the Central Government is required for any change to the use of forestland by any one, including government agencies. The definition of non-forest purposes included development projects, transportation projects and cash crops such as tea, coffee, spices, rubber, medicinal plants and horticultural plants. Liability of public officials is also provided for in the Act.

According to a report by the forest survey in 1987, 1.5 million hectares of forestland was still being lost each year and 12,000 million tonnes of soil was being lost to erosion each year. Consequently, in 1988 a revised policy came into existence. The revised policy defines nine basic objectives of forest management.

- Maintenance of environmental stability through preservation and, when necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forest of the country;

- Conserving the natural heritage of the country by preserving the remaining natural forests containing a vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country;
- Checking soil erosion and denudation in catchment areas of rivers, lakes and reservoirs in the interest of soil and water conservation, for mitigating floods and draughts and for the retardation of silting of reservoirs;
- Checking on extension of sand dunes in the desert areas of Rajasthan and along the coastal tracts;
- Increasing substantially the forest/tree cover in the country, through massive afforestation and social forestry programs especially on all denounced, degraded and unproductive lands;
- Meeting the requirements of fuel wood, fodder, minor forest produce and small timber of the rural and tribal populations;
- Increasing the productivity of forest to meet essential national needs;
- Encouraging efficient utilization of forest produce and maximizing substitution of wood;
- Creating a massive people's movement with involvement of women, for achieving these objectives and to minimise pressure on existing forests.

The objectives clearly indicate a regulatory direction in the management of forest. The National Forest Policy 1988 is currently under revision by the Ministry of Environment and Forests.

6. THE INDIAN FOREST ACT 1927

The law regarding the administration of forests in India was codified for the first time in 1865 when the Indian Forest Act 1865 was placed on the Statute Book. This Act was replicated by Indian Forest Act 1878 and was amended by the Indian Forest Amendment Acts of 1890, 1901, 1918 and 1919. The Indian Forest Act 1927 was intended to consolidate the law relating to forests in India. It repealed the then existing enactments on the subject and has been amended from time to time.

Since the respective State Governments administer the forests, the States are implementing the Act. In fact under this Act all the powers are vested in the State Government and there is no mention of Central Government for the purpose of any authority except for levy of duty. The Indian Forests Act, therefore, has been amended and adopted by different States and given different names for example the Kerala Forest

Act 1961, the Mysore Forest Act 1963, the Orissa Forest Act 1972, the Rajasthan Forest Act 1953 etc.

The Indian Forest Act has defined the word 'forests' and its categories, 'forest produce', 'timber', 'tree' etc. The Act provides for the constitution of 'reserve forests', their procedure and legal status. Similar powers are provided for village forests and protected forests. Various activities are prohibited in the reserved forest and protected forests under this Act and procedure and penalties for contravening these activities have been stipulated under the Act.

The Act also provides powers and penalties for regulating transit of forest produce and duty on timber and minor forest produce, collection of drift and stranded timber, trespass by cattle etc. The Forest Officers under this Act are empowered to for search and seize of property, implements, tools and vehicles involved in any forests offence. The Forest Officer is also empowered to arrest any person involved in any volition of the Indian Forest Act and to compound certain offences and release them on bond.

The Act, in essence, provides for protection of the Government forests and its produce from being encroached upon and from illicit removal of any forest produce from the forests. Apart from the legislation for general protection of forests, a number of States have enacted laws for forestry related activities. Some of these are for nationalisation of trade in minor forest produce. Some others are meant for the regulation of trees in private lands, regulation of saw mills, felling, extraction and processing of sandalwood, regulation of sale depots etc.

An amendment to the Indian Forest Act 1927 became necessary, firstly to consolidate various acts/amendments and secondly for the purpose of incorporating important aspects of the latest forest policy. Therefore, this Act is being amended with a view to making the provisions of the Act more effective and consonant with the National Forest Policy of 1988.

The objective of this Act is to check indiscriminate de-reservation and diversion of forestland for non-forest purposes. The State Governments are required to submit proposals for formal declaration of reserved forests as de-reserved, and for diversion of forestland for non-forest purposes to the Ministry of Environment and Forests for approval. The Act provides for constitution of an Advisory Committee by the Central Government. The Advisory Committee set up under the Act takes up the proposals involving diversion of more than 10 hectares of forestland. The Ministry has also framed guidelines to ensure expeditious clearance of diversion proposals submitted by the State Government and Project Authorities. The Act was amended in 1988 to incorporate stricter penal provisions.

7. CONCLUSION

The essential progression in the preservation of forestland in India was made in 1977 when the Central Government moved 'forests' from the State List to the Concurrent List. This granted Central Government jurisdiction to make laws over forests. In 1978 the Central Government made guidelines on forests aimed at rectifying the massive deforestation witnessed between 1959 and 1980. The poor response to these from State Governments (they were largely ignored) led to the enactment of the Forest Conservation Act 1980. However this Act too had weaknesses such as the exclusion of certain types of trees from protection and the fact that it was regulatory and not prohibitive. These weaknesses were indisputably revealed in 1987 when a report by the Forest Survey indicated that, 1.5 million hectares of forestland was still being lost each year and 12,000 million tones of soil was being lost to erosion each year. Consequently, in 1988 a revised policy came into existence, the National Forest Policy. Following this the Indian Forest Act 1927 was amended to be brought in line with the National Forest Policy.

CHAPTER XI

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: BIODIVERSITY

Key Issues: Loss of Biodiversity; Depletion of Forest Cover; Protection of Endangered Species; Environment Education; Capacity Building; Enforcement and Compliance; Ecosystem Development; Peoples Participation.

Policy Framework: National Conservation Strategy 1992; National Forest Policy 1988; Biodiversity Protection and Conservation Strategy; National Wildlife Conservation Strategy 2002.

Key Legislation: Forest Conservation Act 1980; Wildlife Protection Act 1972 (amended 1991); Environment Action Plan 1993; Wildlife Action Plan 1983; Agricultural and Processed Food Products Export Development Authority Act 1985/1986; Agricultural Produce (Grading and Marking) Act 1937; Cardamom Act 1965; Coconut Development Board Act 1979; Customs Act 1962; Destructive Insects and Pests Act 1914; Environment Protection Act 1986; Fisheries Act 1897; Forest Act 1927; Forest (Conservation) Act 1980; Import and Export (Control) Act 1947; New seed Development Policy 1988; Wildlife (Protection) Act 1972 and Wildlife (Protection) Amendment Act 1991; National Biodiversity Act 2002.

Key Institutions: Ministry of Environment and Forest; Botanical Survey of India, Calcutta; Zoological Survey of India, Calcutta; Forest Survey of India, Dehradun; Wildlife Institute of India, Dehradun; National Museum of Natural History, New Delhi; □Indian Council of Agricultural Research (ICAR); National Bureau of Plant Genetic Resources, Delhi; National Bureau of Animal Genetic Resources, Karnal; National Bureau of Fish Genetic Resources, Allahabad; National Dairy Research Institute, Karnal; Central Rice Research Institute, Calcutta; Department of Agriculture and Cooperation; M.S. Swaminathan Research Foundation, Chennai.

1. INTRODUCTION

India is one of the twelve mega biodiversity centres in the world, representing two of the major realms and three basic biomasses of the world. The country is divided into ten biogeographical regions: Tran-Himalayan, Himalayan, Indian Desert, Semi Arid, Western Ghats Decean Peninsula, Gangetic Plans, North East India, Islands and Coasts. The diversity of the country's biological resource is yet to be fully surveyed. Approximately 65 percent of the total geographical area has been surveyed thus far. Based on this, over

47 000 species of plants and 81,000 species of animals have been recovered. This list is being constantly upgraded, specifically in respect of invertebrate animals.

Despite possessing a myriad of legislation touching on issues of biodiversity, listed in the latter part of this chapter, India has failed to address the problem of loss of biodiversity until relevantly recent years. The first major steps came with the Forest (Conservation) Act 1980 and the associated National Forest Policy 1988. The Policy (also discussed along with the Forest (Conservation) Act 1980, in the previous chapter) introduced vital mechanisms such as Environment Impact Assessments. The adoption of the International Convention on Biological Diversity in 1992 was another vital step in addressing India's loss of biodiversity. Upon the recommendation of this Convention India also developed its National Strategy which highlighted the significant gaps in the existing legislation and recommended changes. The following discussion also highlights the role of another recent development for conserving India's biodiversity, namely the Wildlife Protection Strategy 2002.

2. THE INTERNATIONAL CONVENTION ON BIOLOGICAL DIVERSITY

The adoption of International Convention on Biological Diversity (CBD) was an important and historic milestone, which took place at the United Nations Conference on Environment and Development in Rio in 1992. India became a party to the CBD, which entered into force in December 1993. The convention recognises the importance of biological diversity for the evolution maintenance of life support systems and seeks to secure conservation and sustainable use of biological diversity for the benefit of present and future generations. The CBD has a very wide scope with reference to the various legal issues concerning biological diversity.

2. FOREST PRINCIPLES

India's policies and programs in the realm of forestry, particularly the development during the last fifteen years have been largely in consonance with the Non-Legally Binding Forest Principle adopted during the UNCED. India has actively participated in the deliberation of the Intergovernmental Panel on Forests (IPF), established by the Commission on Sustainable Development (CSD).

Enactment of the Forest (Conservation) Act 1980 was a landmark occurrence in the area of forest conservation whereby India changed its approach and treated forests as environmental and social resources rather than as revenue or commercial resources and imposed restrictions on the use of forestland for non-forest purposes. The strictest controls have been placed on the diversion of forestland to other uses and in the rare cases when this is permitted for developmental purposes, compensatory afforestation is a prior requirement. India's National Forest Policy of 1988 formulated four years before the Earth Summit embodies many of the issues which have been repeatedly emphasised in the Rio forest principles.

3. THE NATIONAL FOREST POLICY 1988

The National Forest Policy 1988 stresses the importance of forests for maintaining environmental stability and ecological balance and for meeting the subsistent needs of the rural and tribal people for fuel wood, fodder and small timber. In National Forest Policy of 1988, the basic objectives were nearly the same as those of the 1894 and 1952 resolutions. It states:

“The principal aim of forest policy must be to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principle aim”

The basic objectives embodied in the National Forest Policy are listed in the previous chapter on “Forests”, under the heading: “National Forest Policy 1988”.

4. ROLE OF INDIGENOUS AND TRIBAL PEOPLE

The Forest Principles highlight that the National Forest Policy should recognize and duly support the identity, culture and the rights of indigenous people, their communities and other communities and forest dwellers. It further states that:

“Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities and achieve and maintain cultural identity and social organization, as well as adequate levels of livelihood and well-being, through, inter-alia, those land tenure arrangements which serve as incentives for the sustainable management of forests”.

India is a signatory to the ILO Convention concerning Indigenous and Tribal people, which has a similar provision:

“The right of ownership and possession of the people concerned over the lands which they traditionally occupy shall be recognized. In addition, measures shall be taken in appropriate cases to safeguard the right of the people concerned to use land not exclusively occupied by them, but to which they have traditionally had access for their sustenance and traditional activities. Particular attention shall be paid to the situation of nomadic people and shifting cultivators in this respect.”

Long before the above two instruments were created, India’s National Forest Policy (NFP) resolution contained a similar provision, which stated:

“The holders of customary rights and concessions in forest area should be motivated to identify themselves with the protection and development of forests from which they derive benefit...[and]... the life of other tribal groups living

within and near forest land revolves around forests. The right and concessions enjoyed by them should be fully protected. Their domestic requirement of fuel wood, fodder, minor forest produce and construction timber should be the first charge on forest produce.”

5. ENVIRONMENT IMPACT ASSESSMENT

The National Forest Policy states that “National Policy should ensure that Environment Impact Assessments (EIA) should be carried out where actions are likely to have significant adverse impacts on important forest resources, and where such actions are subject to a decision of a competent national authority.” The Forest (Conservation) Act 1980 initiated a process by which Indian Forest were treated as an environmental and social resource. The strictest controls have been placed for development purposes where compensatory afforestation is a prior requirement. The National Forest Policy of 1988 had a similar provision for diversion for forest for non-forest purposes. It states:

“Diversion of forestland for any non-forest purpose should be subject to the most careful examination by specialists from the standpoint of social and environmental cost and benefits. Construction of dams and reservoirs, mining and industrial development and expansion of agriculture should be consistent with the needs for conservation of trees and forests. Projects which involve such diversion should at least provide in their investment budget, funds for regeneration/compensatory afforestation”.

Similar direction has been mentioned in the Notification on Environment Impact Assessment of Development Projects issued by the Ministry of Environment and Forest, dated 27th January 1994 (as amended on 4th May, 1994).

6. WILDLIFE CONSERVATION STRATEGY 2002

- Wildlife and forests shall be declared priority a sector at the national level for which funds should be earmarked.
- Law enforcement agencies must ensure that those engaged in poaching, illicit trade in wildlife and wildlife products, destruction of their habitat, and such other illegal activities are given quick and deterring punishment.
- We should fully tap the potential in wildlife tourism and at the same time take care that it does not have adverse impact on wildlife and Protected Areas. The revenue earned from increased tourism should be used entirely to augment available resources for conservation.
- Protecting interests of the poor and tribal people living around protected areas should be handled with sensitivity and with maximum participation of the affected people. They should have access to minor forest produce in the forests outside of national parks and sanctuaries. Employment and means generation for these

people is crucial for maintaining symbiosis between the forests, wildlife and the people. People should be encouraged to take up afforestation and conservation in new areas.

- While strengthening protective measures against traditional threats to wildlife, we should also respond to newer threats such as toxic chemicals and pesticides.
- There should be greater governmental as well as societal recognition and support for the many non-governmental organisations engaged in wildlife conservation. Mainstream media should better highlight their activities as examples of governmental initiatives that have worked.
- Creatively produced Television Programs on wildlife and ecology are widely appreciated by young and old as seen from the popularity of dedicated T.V. channels like, Discovery, National Geographic and Animal Planet. It is proposed that Prasar Bharati and our private channels along with agencies like WWF for Nature should collaborate and increase original Indian content in different languages on our television.
- No diversion of forestland for non-forest purposes from critical and ecologically fragile wildlife habitat shall be allowed.
- Lands falling within 10 km of the boundaries of National Parks and Sanctuaries should be notified as eco-fragile zones under section 3(v) of the Environment (Protection) Act and Rule 5 sub-rule 5(viii) and (x) of the Environment (Protection) Rules.
- Removal of encroachments and illegal activities from within forestlands and Protected Areas.
- No commercial monoculture to replace natural forests.
- The settlement of rights in National Parks and Sanctuaries should not be used to exclude or reduce the areas that are crucial and integral part of the wildlife habitat.
- More than 2000 vacant posts in the frontline staff of Protected Areas shall be filled immediately and provided basic infrastructure for efficient discharge of duties. The ban on the creation and filling up of posts should be lifted on lines with the Police Department. Innovative initiatives such as redeployment of surplus employees in other departments, hiring local people on a voluntary or honorarium basis and raising donations from business houses and other members of the public in return for a greater role for them in implementing programs need to be explored.
- Every protected area should be managed by forest officers trained in wildlife management.
- Mitigation measures for human-animal conflict and mechanisms for crop insurance as well as expeditious disbursements of ex-gratia payments should be instituted by States.

- A Forest Commission should be established to look into restructuring, reform and strengthening of the entire forestry arrangement and affiliated institutions in the country.
- A working group shall be constituted to monitor implementation of the Wildlife Action Plan.
- Most importantly let us all resolve that we should end the relative neglect of wildlife conservation in recent years. To begin with, the Board should meet more often. Wildlife conservation is too important a task to be treated lightly or ritualistically.

7. NATIONAL STRATEGY

The Convention on Biological Diversity recommends that countries develop a national strategy, plan or program for the conservation and sustainable use of biological diversity or adopt for this purpose existing strategies, plans or programs. The Government, prior to the Rio Earth Summit, had formulated a “National Conservation Strategy and Policy Statement on Environment and Development 1992”. The government aiming to possess a specific strategy, with the association of Indian Institute of Public Administration (IIPA), analysed the central Acts and highlighted significant gaps. There are about 24 central acts on the use and extraction of certain natural resources. These provide some regulatory mechanism for wild biological diversity but domesticated diversity is not adequately addressed. The Government has created two pieces of legislation for giving effect to the obligations under international agreements.

1. Biological Diversity legislation,
2. Plant variety protection and Farmers Right legislation.

These two statutes have operational linkage as required under Trade Regulated Intellectual Property Rights (TRIPS).

8. EXISTING LAWS ON BIODIVERSITY

The important central Acts bearing upon biological diversity with main features are as follows.

1. Agricultural and Processed Food Products Export Development Authority Act 1985/1986

- i) Promotion and regulation of export of agricultural products specified in schedules includes medicinal plants.

2. Agricultural Produce (Grading and Marking) Act 1937

- i) Fixing grade designation to indicate quality of any specified agricultural produce (s 3(a, b)).
- ii) Prohibition or restriction on trade in working marked/graded produce (s 3(g)).
- iii) Extension of such revisions to any other article (including non-agricultural articles) (s 6).

3. Cardamom Act 1965

Contains provisions similar to the Rubber Act (see below). Provision for prohibiting/restricting export/import of cardamom (s 2.1) applicable to *Elettaria cardamom maton*, but extendable to any plant notified by Cardamom Board (s 3).

4. Coconut Development Board Act 1979

Provision as in Rubber Act, Tea act, Cardamom Act etc.

5. Customs Act 1962

- i) Regulation and prohibition of import and export of specified articles (s 2.1).
- ii) Regulation of import/export specifically for:
 - a) The protection of human, animal or plant life or health (s 11(t)).
 - b) The conservation of exhaustible natural resources (s 11(m)).
- iii) Regulation of transportation and storage of notified items (s 11(j, k, l)).

6. Destructive Insects and Pests Act 1914

- i) Prohibition or regulation of import of any “articles” which may cause infection to any plant (s 3(1)).
- ii) Prohibition or regulation of movement, between states within India, of articles likely to cause infection to any plant (s 4A).

7. Environment Protection Act 1986

- i) General measures to protect environmental (s 3(i)).
- ii) Restriction of industrial and other processes/activities in specified areas (3(2)(v)).
- iii) Prevention and control of hazardous substances, including their manufacture, use release, and movement (s 3(2)).

8. Fisheries Act 1897

- i) Prohibiting on use of explosives for fishing (s 5).
- ii) Prohibition on use of poisons for fishing (s 5).

- iii) Regulation of fishing in private waters, with consent of owners/right holders (s 2(2), (3)).
- iv) Prohibition of all fishing in specified waters for maximum 2 years (s 6(4)).

9. Forest Act 1927

- i) Setting up and managing reserved forests (Chapter II).
- ii) Setting up and managing village forests (Chapter III).
- iii) Setting up and managing protected forests (Chapter IV).
- iv) Protection of non-government forests and lands (Chapter V).
- v) Control of movement of forest produce (Chapter VII).
- vi) Control of grazing or trespass by cattle in forestland (Chapter IX).

10. Forest (Conservation) Act 1980

- i) Prohibiting or regulating non-forest use of forestlands (s 2).

11. Import and Export (Control) Act 1947

- i) Prohibition or restriction on imports and exports of specified items (s 3).
- ii) Regulations on transportation of specified items (s 4(e)).
- iv) Establishment of an Authority for developing and controlling marine products (s 4, 9)
- v) Developing and regulating of-shore and deep-sea fishing standards for export; regulating exports (9(2a,c,f))
- vi) Prohibition/restriction on export and import of marine products.

12. Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act 1980

- i) Regulation of fishing vessels (s 3).
- ii) Permits only to be granted within definition of public interest, and for scientific research, experiment etc (ss 5(3), 8).

13. National Dairy Development board Act 1987

- i) Establishment of a Board which promotes dairy development and other agriculture based industries (ss 4, 16(1a)).
- ii) Financing and facilitating animal husbandry, agriculture, high yielding cattle (including import of semen), import/export of milch animals and bulls and general enhancement of cattle wealth (s 16(1))

14. National Oilseeds and Vegetable oils Development Board 1983

- i) Special focus on providing farmers, especially small farmers, benefits from development of oilseeds industry (s 9(2a))
- ii) Assistance for production and development of breeder's seeds, foundation seeds, and certified seeds of high quality, and for imposed methods of cultivation.

15. New seed Development Policy 1988

16. Prevention of Cruelty to Animals Act 1960

- i) Restriction on cruel treatment of animals including use, transportation, and trade (chapter III and Rules under s 38).
- ii) Restrictions on use of animals for purposes of experimentation and performances (chapter IV and V).

17. Rubber (Production and Marketing) Act 1947

- i) Establishment of Indian Rubber Board, with function of developing and encouraging improved rubber cultivation and marketing, as well as advising and import/export (s B (1), (2)).
- ii) Restriction on right of rubber planters' licence (s 17).

18. Seeds Act 1966

- i) Regulation on quality of seeds from notified food crops, cotton, and fodder to be sold for agriculture purposes (ss 5, 6).
- ii) Restoration on export/import of notified seeds (s 12).
- iii) Exemption to person's selling or delivering, on their own premises, seeds grown by them (s 24).

19. Spices Board Act 1986

Again containing similar provisions to those of the Rubber Act. This Act however relates to spices, specifically restricted to export and import development and regulation.

20. Tea Act 1953

Imposes restrictions on export of tea seeds (s 17). Applicable to one species: *Camelia sinensis*, and presumably to all its varieties.

21. Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act 1976

- a) Establishment of sovereign rights over waters and seabed within the continental shelf and the Exclusive Economic Zone (EEZ) (200 nautical miles from nearest appropriate point on Indian territory) (s 3(1), 5(1), 6(2) and 7(4)).
- b) Sovereign right to explore, exploit, conserve and manage resources of continental shelf and EEZ (ss 6(3) and 7(4)).
- c) Notification of any area within this zone for purposes for protection of resources and conservation of marine environment (ss 6(5) and 7(6)).

22. Tobacco Board Act 1975

23. Wildlife (Protection) Act 1972 and Wildlife (Protection) Amendment Act 1991

- i) Restriction or prohibition on hunting of animals (Chapter III).
- ii) Protection of specified plants (Chapter IIIA).
- iii) Establishing and managing sanctuaries and national parks (Chapter IV).
- iv) Establishing of a zoo authority and exercising control of zoos and captive breeding programs (Chapter IVA).
- v) Control of trade and commerce in wild animals, animal articles and trophies (Chapter V and Chapter VA).

24. National Biodiversity Act 2002

This statute provides for establishing the National Biodiversity Authority, State Biodiversity Boards and Biodiversity Management Committees at the national, state and block/village level respectively to ensure that the objectives of the legislation are achieved. The basic concern is to protect the biological resources of India against use by foreign individuals, institutions and companies without sharing the benefits arising out of such uses within the country. The legislation provides powers to the government to frame rules on matters related to conservation of biodiversity and access to biological resources. It protects the right of traditional users and local people, to the use of biological resources. It recognises agreements after a due process of examination as provided in the legislation.

Function of Authorities:

1) National Biodiversity Authority

The National Authority shall grant approvals for conducting activities referred to in para17, "Prohibition of certain activities without prior informed consent". It shall advise the Central Government on:

- (i) matters relating to the conservation of biological diversity, sustainable use of its components and equitable sharing of benefits arising out of the utilisation of biological resources;

- (ii) the manner in which the National Biodiversity Fund may be utilised;
- (iii) the heritage sites to be notified and also measures for the management of such heritage sites;
- (iv) implementation of the legislation generally and such other functions as may be prescribed.

2) State Biodiversity Boards

The state boards shall advise the National Authority and will implement the guidelines as framed by the National Authority for the benefit sharing between conservers of biological resources, creators and holders of knowledge and information relating to use of biological resources and users of such resources and knowledge when such use is made for commercial purposes within India. The State Boards will assist local bodies to set up biodiversity management committees in their respective blocks/villages.

3) Biodiversity Management Committees in local bodies.

The bodies in each village or block will attempt to promote the conservation, chronicling and sustainable use of the biodiversity of the area. This may include conservation of community assets in relation to biodiversity, preservation of habitats, conservation of common property resources and on farms conservation of agro-biodiversity. Agro-biodiversity includes diversity of domesticated crops, land races, folk varieties and cultivators of biological species, domesticated stocks/breeds of animals, strings of fish and micro-organisms.

4) Indigenous People and Community Rights

The Rio Declaration states that:

“Indigenous People and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interest and enable their effective participation in the achievement of sustainable development”.

The basic aim of this paragraph is provided in our constitution, which states:

“It shall be the duty of every citizen of India to value, cherish and preserve the rich heritage of our composite culture.”

This community right is also recognised in the provision of the Panchayats (Extension to Scheduled Areas) Act 1996. The Act states that “a state statute on the Panchayat that may be made, shall be in consonance with the customary law,

social and religious practices and traditional management practices of community resources.”

25. Environmental Legislation and Standards

Rio Declaration provides that:

“states shall enact effective environmental standard management objectives and priorities should reflect the environmental and developmental content to which they apply....”

The government is in the process of enacting two effective pieces of environmental legislation:

Biodiversity and Plant Breeders Variety and Farmers Right Legislation in connection with the Convention on Biological Diversity and Trade related Intellectual Property Rights (TRIPS).

The basic thrust of the scheme is to promote: environmental accountability at point of source, the adoption of low waste technology and the minimisation of raw material consumption. These provisions were incorporated before the Rio instrument was held, illustrating our approach and awareness.

26. The Plant Variety Protection and Farmers Rights Legislation

The Ministry of Agriculture prepared the Plant Variety Protection and Farmers Right Legislation in April 1997 as required under Convention on Biological Diversity and Trade related Intellectual Property Rights. In substance, it totally undermined the concept of farmer’s rights as it has evolved in the FAO Commission on Plant Genetic Resources, the International Undertaking on Plant Genetic Resource, the Global Plan of Action and above all the Convention on Biological Diversity. The proposed legislation should be centred on farmer’s rights, which recognize that farmers are conservers, breeders and consumers of seed. The proposed legislation recognizes the farmer as a breeder but curtails the farmer’s right to sell the seeds of protected varieties.

Both the proposed pieces of legislation are inclined towards Trans-national Corporations rather than the community. As both statutes are yet to be enacted, necessary incorporation can be made to protect the community right and provision for penal action for the infringement of the Act stipulated.

9. CONCLUSION

As with most sectoral environmental issues within India the area of biodiversity is regulated by a comprehensive legislative and institutional framework. However in this area a combination of principles, policies, plans and strategies appear to be constitute the main thrust of environmental conservation. These include the National Forest Policy, the forest principles, the Wildlife Conservation Strategy 2002 and the National Strategy,

which are all aimed at preserving and protecting India's biodiversity. The role of the International Convention on Biological Diversity has also played an important role in India's development.

One area of particular interest is the apparent acknowledgement of the rights and responsibilities of indigenous people in the management of biodiversity.

CHAPTER XII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: WILDLIFE

Key Issues: Loss of Wildlife; Park Management; Forest Degradation; Illegal Poaching; Human-Animal Conflict; Livelihood for Local Peoples; Local Peoples' dependency on Forests.

Policy Framework: National Conservation Strategy 1992; National Conservation Action Plan 1993; Forest Policy 1988; National Strategy for Protection and Conservation of Biodiversity; National Wildlife Action Plan 2002; National Forest Policy of 1952; National Policy for Wildlife Conservation in 1970.

Key Legislation: The Environment (Protection) Act 1986; National Wildlife Action Plan (NWAP) 1983; Wildlife (Protection) Act 1972.

Key Institutions: Indian Board for Wildlife; Wildlife Institute of India; Project Tiger; Project Elephant.

1. INTRODUCTION

India's wildlife is under threat from trade in animal products, interface from humans and the straining or degradation of natural resources, forest and wetlands. This chapter centres on the gradual development of legislative and institutional solutions to the threats posed to India's wildlife. Strategies and plans such as the National Wildlife Action Plan have been undertaken and the role of institutions such as the Wildlife Institute of India (WII) have expanded to provide protection under initiatives such as the National Policy for Wildlife Conservation.

India's most important development thus far: the 'Protected Areas', are described along with the key statutes such as the Wildlife (Protection) Act 1972. However it is suggested that there are inherent weakness to both the 'Protected Areas' scheme and the related legislation. The latter part of this chapter includes suggested changes to both of these crucial tools of conservation.

2. PROBLEMS AND CONSTRAINTS

Wildlife conservation is not merely conservation of large mammals and birds but is basically the conservation of biological diversity as a whole. With an upsurge in international demand for various wildlife products, it is not surprising that commercial poaching and ingenious smuggling methods have come into play. A burgeoning human

and livestock population exert ever-increasing pressures on forest and wildlife areas and resources, leading to habitat degradation and depletion of species. Closer interface between wildlife and people has given rise to various conflicts, which have resulted in loss of life and property of local people. This has further alienated them and has underscored the need for integrated management of the entire ecosystem, instead of confining the efforts to isolated PAs.

Natural areas continue to be modified and converted due to exigencies of development. Perhaps, the greatest pressure has been on the forest areas outside the PA system. Habitats have been degraded, forest contiguity lost and migratory corridors disrupted. The tiger population has steadily declined since 1989, with greater losses occurring outside the tiger reserves and PA network. Although the rhino population has increased, the number of populations has declined to only the few last strongholds. Poaching for tusks and habitat fragmentation is severely affecting the genetics and population dynamics of the elephant. Increasing disturbance to the marine and coastal environments threatens the survival of species like the sea turtles. Drainage and degradation of wetlands has affected the population of migratory and resident waterfowl like the Siberian and Sarus Cranes.

The deteriorating financial condition of many States has also adversely affected effective and timely execution of wildlife and PA conservation projects. States find it difficult to allocate adequate resources in their budgets for this purpose. Funds provided by the Government of India are also not released to the field implementing agencies in time and are at times diverted for other uses. This, coupled with the general ban on the creation and filling up of posts in most States has proved to be a handicap in sustaining conservation efforts in the long run.

3. CORRECTIVE MEASURES TAKEN

The National Wildlife Action Plan (NWAP) was launched in 1983, and continues to guide wildlife conservation programs and projects to this day. It identified the following 10 major objectives:

- Establishment of a representative network of protected areas.
- Management of protected areas and habitat restoration.
- Wildlife protection in multiple use areas.
- Rehabilitation of endangered and threatened species.
- Captive breeding programs.
- Wildlife education and interpretation.
- Research and monitoring.
- Make use of domestic legislation and international conventions.
- National conservation strategy.
- Collaboration with voluntary bodies.

Priority projects are outlined under each, and responsibility assigned to achieve the objective within certain time frames.

4. WILDLIFE CONSERVATION

The National Forest Policy of 1952 for the first time emphasised the need for protecting wildlife and setting up national parks and sanctuaries in the country. This also coincided with the formation of the Indian Board for Wildlife (IBWL) in 1952 to advise the Government on various aspects of wildlife and nature conservation. Wildlife Advisory Boards complement this at the State level, which are statutory bodies. The IBWL articulated a National Policy for Wildlife Conservation in 1970, which led to major initiatives being taken in the 70s and 80s. The report covered various aspects like the need for a national legislation, minimum proportion of Protected Areas (PAs), management guidelines, training and research, etc.

5. WILDLIFE RESEARCH AND TRAINING

The Wildlife Institute of India (WII) was established in 1982 at Dehra Dun to provide training and education in addition to research and consultancy services in wildlife and biodiversity conservation. The institute offers diploma and certificate courses in wildlife management; a two year M.Sc. program in wildlife science; and several specialised courses and workshops in subjects such as eco-development planning, preparation of management plans, wildlife health, law enforcement and others.

6. PROTECTED AREAS AND IN SITU CONSERVATION

The establishment of a network of Protected Areas (PA) is the single most important step for the conservation of biodiversity in India. There are now 504 Sanctuaries and 89 national parks covering 4.89% of the country's geographic area. These deal with areas including all major ecosystems found in our country.

Major field conservation projects have been launched, like Project Tiger in 1973 for conservation of the tiger, followed by a Crocodile Rehabilitation Project in 1975 and Project Elephant in 1991-92. Starting with 9 tiger reserves covering 16,339 sq km, Project Tiger now covers 23 tiger reserves covering 33,126 sq km. From a low of 1827 tigers in 1969, their population has reached a high of 4334 in 1989. Project Tiger was hailed internationally as one of the most successful field conservation projects conducted. Similarly, the Crocodile Rehabilitation Project has been a significant success story. All 3 species of crocodiles were brought back practically from the brink of extinction and restored to their natural habitats through a massive captive breeding and rearing effort. Other conservation projects have achieved comparable success for example the population of the Asiatic Lion increased from a low of 177 in 1968 to 304 in 1995. A Project Turtle is also being launched for conservation of various components of the marine ecosystem.

The proposed establishment of the second home for the Asiatic Lion in Palpur Kuno in Madhya Pradesh is a noteworthy venture in safeguarding the last remnant world

population of the animal, presently at Gir National Park. This needs careful monitoring and supervision because of its conservation and international significance.

7. ECO-DEVELOPMENT

Preservation of wildlife is not possible without the assistance of local people and therefore a strategy for involving them in wildlife conservation was adopted in 1983. The IBWL recommended this through the introduction of a special project for eco-development in and around National Parks and Sanctuaries. This strategy recognises human demands on forests and assists in creating alternative sources of livelihood and appropriate changes in lifestyles to reduce the pressure on forests.

8. EX-SITU CONSERVATION

Currently in India, there are about 275 zoos, deer parks, safari parks and aquaria etc keeping animals. It was found that the management of many of these institutions was not explicitly conservation oriented and they were not guided by any definite and uniform policy of management. Therefore, the Central Zoo Authority was created for streamlining the Ex-situ conservation of mega-fauna found in the wild.

9. PROTECTION AGAINST ILLICIT TRADE

The Ministry has set up a directorate with four regional centres located in Delhi, Mumbai, Calcutta and Chennai to check the illegal trade in wild animals and wildlife products. Four Regional Deputy Directors act as the Management Authorities under the Convention for International Trade in Endangered Species (CITES).

10. IMPROVEMENTS IN PA NETWORK

The recommendations of the Biogeography Report of the Wildlife Institute of India (WII) on planning the PA network will be speedily implemented. The major identified gaps will be brought under the PA network to cover all representative samples of our natural heritage. At the same time, efforts will be made to establish habitat linkages between major PAs through forest corridors, wherever it is still possible. Simultaneously, some of the existing PAs may have to be reviewed. The latter exercise shall be carried out at the national level by a high-level task force. The task force shall also review and rationalise PA boundaries wherever the potential exists for resolving interface conflicts. Some of the recommendations include:

i) Change in methods of funding for wildlife conservation

The Central Government's role in effectively pursuing various plans and programs for wildlife and PA conservation with the States will have to be greatly strengthened. A radical restructuring of the funding procedures and mechanisms is required so that funds

from centrally sponsored schemes could flow directly to PA managers and other major wildlife project implementers.

ii) Rationalising staffing and infrastructure

The existing ban on creation of posts and purchase of vehicles, which is in force in the Government of India and most of the States, will have to be liberalised in respect of crucial wildlife areas. Ideally, a minimum of 6 FGs are required for every 10 sq km of PA for round the clock patrolling, this is markedly different from the 1 or even less patrolling at present. The field staff will also have to be provided with the necessary equipment and wherewithal for effective functioning. Consequently, the resources to implement this plan will also have to be generated by the Central and State Governments.

iii) Developmental activities in rural areas near PAs

Finding creative and innovative solutions to the human-wildlife interface conflicts around PAs continues to be a major thrust area. The utility of the eco-development strategy in dealing with such problems is well established and will be extended to many more PAs in the coming years. One agency responsible for the task of conserving biodiversity, which is already in place and suitably skilled, is the forest department of various State Governments. For the conservation efforts to be focussed and channelled effectively, it will be necessary that the efforts of all the agencies involved in some way or another in biodiversity conservation are ultimately made synergistic through the agency of the various forest departments.

11. LEGISLATION

The Wildlife (Protection) Act 1972 provided a uniform legislative framework in the country for declaration of National Parks and Sanctuaries, protection of species, regulation of hunting and trade and prosecution of offenders (except for the State of Jammu and Kashmir, where similar legislation known as the J&K Wildlife (Protection) Act 1978 is applicable). Whereas the Wildlife (Protection) Act 1972 has been suitably amended during 1982, 1986 and 1991 including the schedules, similar amendments are required in the J&K Wildlife (Protection) Act 1978. In 1991, this Act was amended to address the current scenario more effectively. One particularly important feature of the amendment was to enhance the conservation status of the Protected Areas (PAs), especially the Sanctuaries.

Wildlife Protection Act 1972

The Wildlife Protection Act 1972 was passed on request from the states. The Act provides for the protection of wild animals and birds and for matters connected therewith and incidental thereto. It is a comprehensive statute relating to forest management that consolidates pre-existing laws. The Act makes it possible to constitute a Wildlife Board with powers of regulations in every state. The Centre and State Governments have been granted powers for the purpose of protecting, propagating or developing wildlife and its

environment. The regulation extends to selling or transferring wild animals or dealing in wild animals, animal articles and trophies. The Act *inter-alia* envisages the appointment of a Director of Wildlife Preservation by the Central Government and of a Chief Wildlife Warden by the State Governments and the constitution of a Wildlife Advisory Board. The Act also provides for the notification for Sanctuaries, National Parks, Game Reserves and Closed Area by the state governments.

International Conventions

India is a signatory to several major international conventions, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The other international conventions of which India is a member include the Convention on Migratory Species (CMS); International Whaling Convention (IWC) and the World Heritage Convention (WHC). In addition, India entered into a bilateral treaty with Russia in 1984 for the protection of migratory birds. A Memorandum of Understanding (MoU) was also entered into during 1995 with ten countries for taking conservation measures for the endangered Siberian Crane. India has also taken the lead in the formation of the Global Tiger Forum and currently hosts its interim Secretariat. An Indo-China Protocol on tiger conservation and a MoU on trans-boundary bio-diversity conservation with Nepal have also been concluded. India has ratified the Convention on Biological Diversity. Wildlife import and export policy regulations have also been introduced.

12. LEGISLATIVE CHANGES

There is currently a proposal to amend the Wildlife Act to include two additional PA categories, “Community Reserves” and “Conservation Reserves”. The community reserves will enable community and private lands to be brought under voluntary wildlife protection status. Conservation reserves will be PAs of a lesser status than Sanctuaries and would not impose major restrictions on resource usage. Their creation is suggested primarily to safeguard corridor and buffer forests. Other changes are also envisaged to make the Act more effective.

It is proposed that in largely forested districts, the forest officers be given the responsibility of co-ordinating implementation of the rural development and social welfare programs to harmonise conservation and developmental efforts. In order to channel funds from central government to the protected areas, autonomous bodies be created. The protected area management in charge will be the Chief Executive Office of PADA.

11. CONCLUSION

India’s unique wildlife is threatened by a variety of activities. Industry and the ever increasing interface between humans and animals has resulted in the degradation or annihilation of natural habitats. India’s wildlife is also under threat from poachers and

smugglers. The deteriorating financial mobility of state governments has also seen the resources available to wildlife protection adversely affected.

Recognising the need to protect the dwindling numbers of India's unique animals the National Wildlife Action Plan (NWAP) was launched in 1983. This Plan entailed wildlife protection, education and training, breeding programs most significantly the establishment of 'Protected Areas'. The establishment of a network of Protected Areas (PA) is the single most important step for the conservation of biodiversity of any country or region. There are now 504 Sanctuaries and 89 national parks covering 4.89% of the country's geographic area. The PA network has come under criticism however and as noted in the above discussion three major areas have been outlined for improvement.

Legislative responses are also operating and India has several obligations to fulfil under its international agreements. The above chapter however has also pointed out shortcomings in these legislative measures. Ultimately it can be concluded that while India presently has an established and reasonably successful framework of programs, plans and legislation, without sector wide changes to the current framework effective wildlife protection cannot be achieved. However this conclusion cannot be assessed without noting the previously mentioned lack of resources available to the wildlife sector.

CHAPTER XIII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: ECO-TOURISM

Key Issues: Wildlife and Park Management; Loss of Biodiversity; Forests Degradation; Environment Education; Livelihood of Local Peoples.

Key Legislation: National Tourism Guidelines; Forest Conservation Act 1980; Wildlife (Protection) Act 1972 and Amendments; Forest (Conservation) Act 1980.

Key Institutions: Ministry of Tourism; Ministry of Environment and Forests.

1. INTRODUCTION

Tourism has emerged as an instrument for employment generation, poverty alleviation and sustainable human development. During 1996-97 direct employment in the tourism sector was estimated to be 9.1 million and total employment due to tourism was 21.1 million. It also promotes national integration and international understanding and gives support to local handicrafts and cultural activities. Tourism in India has grown substantially over the last three decades. India's share in the world tourist market at the end of the Eighth Plan was 0.39%. Foreign exchange earnings from tourism during 1996-97 stood at Rs. 11,264 crore. Hence, tourism has become one of the largest foreign exchange earners of the country.

Domestic tourism plays a vital role in achieving the national objectives of promoting social and cultural cohesion and national integration. Its contribution employment rates is very high. With the increase in income levels and emergence of a powerful middle class, the potential for domestic tourism has grown substantially during the last few years. About 156 million domestic tourists made trips outside their places of residence and stayed in paid accommodation establishments during 1997.

In order to further accelerate the development of tourism in the country, the thrust during the Ninth Five Year Plan is on:

- a) development of infrastructure;
- b) product development and diversification including development of mega tourism resorts;
- c) development of trekking, winter sports, wildlife and beach resorts;
- d) exploring new source markets in regions and countries having cultural affinity;
- e) environmental protection and cultural preservation of national heritage projects;
- f) launching of national image building and marketing plans in key markets;
- g) providing inexpensive accommodation in different tourist centres;

- h) improving service efficiency in public sector corporation;
 - i) streamlining of facilitation procedures at airports;
 - j) human resource development;
 - k) monitoring and evaluation;
 - l) strengthening of organization;
 - m) creating awareness and public participation, and
 - n) facilitating private sector participation in development of infrastructure etc.
- Since, most of the delivery systems are with the State Governments the infrastructure projects in such cases are implemented through them.

Tourism is highly sensitive to environmental quality, but it also creates its own pollution. On the one hand, the tourist industry has, or should have a strong incentive for environmental management of the resources of the area that it utilises because if these resources are degraded, the demand for the area as a tourist site will similarly be degraded. Another impact of tourism is created by the tourist him/herself. The tourist is attracted to a beautiful place but has no incentive in ensuring that it is maintained clean and unspoiled for those coming later. The net effect of tourism that is unmindful to the environment is;

- a. that the local population is adversely affected;
- (ii) that the tourist industry itself will not survive.

In general, the negative effects of tourism on the environment arise from:

- i) the high infrastructure requirements of the industry;
- ii) the increase in aesthetic and forms of pollution that follow especially when industry is concentrated rather than dispersed; and
- iii) the tendency to promote tourism without taking account of the carrying capacity of the area, in terms of the supply and demand for infrastructure, the resource availability and use patterns and the absorptive capacity and waste discharges.

The effective balance of the above positives and negatives of tourism is the essence of this chapter and the solution appears to lie in the management of the industry being geared towards conservation. Consequently the Ministry of Tourism has released eco-tourism guidelines.

2. TRENDS IN TOURISM

Tourism in India is relatively underdeveloped, given the size of the country and its potential. India's share in the \$324 billion world tourism market is still quite insignificant, the percentage share having risen from 0.23% in 1975 to only 0.4% in 1992. However, tourism is a growing industry in India and indications are that the present trend of growth will continue. There are a number of reasons why this is happening, among the more important are:

- a) increased ease and facilities of international travel to, and domestic travel within India;
- b) desire of tourists to visit new places;
- c) the active role being played by the National Government to attract foreign tourist through a number of measure such as brochures, folders and posters, the Annual Diary and the production of films on various destinations;
- d) active role of travel agents and international airlines; and
- e) large income levels to satisfy demand.

Eco-tourism is defined as a form of environmentally and culturally responsible travel to an area where tourism benefits the local people. While it can be argued that the cultural and ecological impact of tourism on “unspoiled” areas of the world is exploitative and damaging, it can also be argued that eco-tourism in its ideal form, can greatly benefit areas where beautiful waterfalls, rain-forests, deserts, coastlines and other scenic vistas are pristine. Local companies, stores, and restaurants can advertise their services, special crafts, and precious resources to the world and draw people who will appreciate being surrounded by beauty and nature. The local people can establish tourist activities that serve to educate visitors about the fragile or endangered beauty of certain areas such as the Great Barrier Reef and the Daintree Rainforests, without harming their ecosystems. As visitors are introduced to and learn more about these wonders of the world, they often take an interest in their preservation. More and more national parks and protected areas are now putting a percentage of the money made from of tourism towards preserving the land in its natural state.

There are further cultural and economic benefits as well. A visitor’s exposure to the different peoples and lifestyles of the world can help increase cultural awareness and cultural appreciation. Economically speaking, many of the areas that would be perfect for the eco-tourism industry are in rural parts of the world. The local populations in the rainforest often live in farming communities and do not have the same economic prosperity as more industrialised areas. Eco-tourism can offer local people a means of making money using the unpolluted beauty of the places they live as an alternative to making money by destroying the places they live by building up industry. Eco-tourism can help people and the environment to thrive together.

3. ENVIRONMENT IN TOURISM MANAGEMENT

It is clearly evident that tourism and the environment are closely related, in that unless tourism maintains the environmental quality of a location, in the long run it will lose its appeal to tourist and hence lose its value in that respect. One of the observations that can be made about tourism in India is that the importance of an unspoiled environment for tourism has not been sufficiently appreciated. So far the emphasis has been on maximizing the number of tourist arrivals without regard to the receiving capacity of the destination. This will in turn militate against the interests of the industry and the local people of the destination whose interests in general have little impact on tourist planning.

Careful planning is thus required:

- i) in the interests of the locals who feel the negative impacts of tourism most acutely and who, if neglected, may become hostile to the industry itself;
- ii) in the interest of the 'consumer' who will cease to find a place attractive if its basic attraction: 'the unspoiled environment' is not conserved; and
- iii) in the interest of the ecological integrity of the place, given the uncertainties relating to the type and extent of damage that the tourist industry may inflict upon it.

To ensure that environmental considerations are reflected in tourism planning and management, it is necessary to:

- (a) Avoid saturation of tourist traffic to a particular destination as this pressures infrastructure, food and other consumer prices, stresses the environment and the lives of the local inhabitants. It is absolutely necessary therefore, to determine the carrying capacity of the area in terms of the elements mentioned earlier.
- (b) Ensure that planning and design of tourist facilities takes account of, and blends into the natural setting without causing any disruption to the ecosystems. For example, in coastal tourism, the need to ensure that coastal zoning limits are observed in the construction of hotels, resorts and other facilities, as these zone limits have an underlying ecological basis.
- (c) Ensure that environmental quality is maintained and improved upon. The elements of such environmental quality are air and water quality, noise levels, garbage disposal systems, congestion by people and vehicles, and the aesthetics of the built up area. To achieve this, it is necessary that planning for tourism development is integrated with the general land use planning for the region to ensure that resources are used optimally. This will also avoid future conflicts over resources from various sectors.

The four main components of an EIA process: determining scope, baseline study, information on the impacting project and the impacting linkages, enable a meaningful prediction of environmental impacts. The most important element of environmental studies is to have baseline information in place from which changes resulting from the project may be predicted.

4. ECOTOURISM GUIDELINES FROM THE MINISTRY OF TOURISM

The guidelines are governed by a Tourism Management Plan, the key elements of which are the protection of natural resources and a positive involvement of local communities, along with an optimum number of environmentally conscious visitors. The principles of management are scientific planning, effective control and continuous monitoring, development of physical infrastructure, zoning and a management plan for public use of natural sites. The management plan should establish standards for resort development, style and location of structures, waste disposal, treatment of sewage, control of litter and

use of public spaces and fragile areas. The operational guidelines rely on sensitisation of all the role players and are based on a self-regulated environmental code.

5. CONCLUSION

Tourism is a development option which, as seen, provides jobs, generates income, and contributes to foreign exchange earnings, but which also makes demands on land, capital, human and environmental resources. Therefore, just as is the case in other development choices, the decision to develop tourism in a particular site should be based on a balance of socio-economic parameters and scientific inputs from environmental studies. This requires an analysis to be carried out to assess the potential for socio-economic benefits and costs of the tourist project on the one hand and an environmental impact analysis to assess the type, extent and nature of environmental resources that may be affected or at risk on the other. The decision to develop the site for tourism should then be based on a judicious consideration of the results of such an integrated analysis.

While India's share in the \$324 billion international tourism market stands at only 0.4%, the industry is growing. Furthermore the direct employment in the tourism sector is estimated to be 9.1 million and total employment due to tourism was 21.1 million. However without the integration of strict conservation mechanisms into environmental plans and management, the expansion of the industry will bring with it an escalation in environmental destruction.

CHAPTER XIV

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: STATUTORY TOOLS

Key Issues: Implementation; Public Participation; Education and Awareness.

Key Legislation: Environment Protection Act 1986; Coastal Regulation Zone (CRZ) notification 1991; Audit Statement 1994; EIA Notification on Project Development; Guidelines for Environmental Impact Assessment of River Valley Projects ; Environmental Management of Mining Operations; Siting Guidelines for Industries; Environmental Guidelines for Thermal Power Plants; Environmental Guidelines for Rail/Road/Highway projects; Environmental Guidelines for Airport Projects; Environmental Guidelines for Ports and Harbour Projects; Environmental Guidelines for Communication Projects; Guidelines for Environmental Impact Assessment of New Towns; Water (Prevention and Control of Pollution) Act 1974; Water (Prevention and Control of Pollution) Cess Act 1977; Air (Prevention and Control of Pollution) Act 1981.

Key Institutions: Ministry of Environment and Forests; Ministry of Finance; Finance Commission; Bureau of Indian Costs and Pricing; National Institute of Planning and Finance Policy.

1. INTRODUCTION

The role of statutory tools is to provide the relevant government authorities with enough information to make decisions that embody the correct balance between development and the environment. Statutory tools also enable the government to devise strategies, plans and guidelines as well as develop methods such as market or economic incentives obliging industries to undertake certain environmental practices. Another major role of statutory tools is to inform and educate the public as to the ecological benefits and detriments of certain developments, products, and industries.

The balance between development and the environment is addressed through the Environment Impact Assessment (EIA) methodology presently in force in India. This takes into consideration the need for development and the imperative of protecting the environment. The EIA reports cover the impact of development projects on ambient air and water quality, land degradation and ecology. For furthering transparency in the project appraisal process, significantly, public hearing has been made mandatory for critically polluting activities. In recognition of the importance of public education, relevant project documents and EIA reports are made available to the public at designated

places and through newspaper inserts. Suggestions made by the public are incorporated in the project design wherever possible.

Standards have been established for pollution control. Standards are essentially used to evaluate risks and costs, and enable the authorities to define what needs protection and how this protection can be provided. Several standards have been drafted by the Ministry of Environment and Forest under the Environment Protection Act 1986.

Other statutory tools that apply to industries are discussed such as permitting, licensing and Green Rating schemes. Permitting and licensing achieve environmental goals by obliging companies to adhere to environmentally friendly requirements before they are granted permission to engage in an industry. Permitting and licensing arrangements exist under the Air Act and the Water Act and are implemented by the State and Central Pollution Control Boards. Green Ratings consist of a rating that is assigned to an industry reflecting its environmental practices and indicating whether or not it is seen as an environmentally friendly industry. A similar scheme exists for product labelling and acts to inform the public as to the environmental impact of different products and aims to raise consumer awareness and promote environmentally sound products.

The focus of this chapter is a discussion of how these various tools work and what they aim to achieve. The discussion at times turns to how they will be strengthened.

2. ENVIRONMENT IMPACT ASSESSMENT

The need to integrate environmental and developmental decision making processes has been recognized as contributing to economically efficient, socially equitable and responsible environmental management. EIA is an analytical tool for assessing development programs which have an adverse effect on environmental or on human health.

In India, EIA evolved in the late seventies when the Planning Commission requested the then Department of Science and Technology and subsequently Department of Environment to examine river valley projects for their environmental impact. Thereafter the Ministry of Finance, Department of Expenditure made it obligatory for the Public Investment Board to adequately deal with environmental aspects and cost of such measures for all developmental activities. The *Environmental Protection Act 1986* has made EIA mandatory.

For assisting the project proponent, the Ministry developed the following guidelines focussing on the special requirements of different sectors:

- Guidelines for Environmental Impact Assessment of River Valley Projects.
- Environmental Management of Mining Operations.
- Siting Guidelines for Industries.
- Environmental Guidelines for Thermal Power Plants.

- Environmental Guidelines for Rail/Road/Highway projects.
- Environmental Guidelines for Airport Projects.
- Environmental Guidelines for Ports and Harbour Projects.
- Environmental Guidelines for Communication Projects.
- Guidelines for Environmental Impact Assessment of New Towns.

A significant notification by the Ministry of Environment and Forests in 1994 makes it statutory for an EIA study to be conducted for almost all developmental activities, small and large, which must be evaluated and assessed by an impact assessment agency (Ministry of Environment and Forests) which may consult an Expert Committee, if deemed necessary.

The salient provisions of the notification were:

- Environmental Impact Assessment was limited to 30 activities;
- Only the Central Government was empowered to appraise the projects;
- Two stage clearance was provided for site specific projects;
- Public hearing to be held only if required; and
- A time limit was fixed for making decisions on the proposals for environment clearance.

Following the notification, the Ministry constituted five Expert Committees to cover Industry, Mining, River Valley, Thermal Power and Infrastructure (Ports and Harbours, Highways, Airports) and miscellaneous projects. These Committees consider cases from a technical angle and in many cases site visits are made for appreciation of ground realities. The recommendations of the Expert Committees are then processed by the Impact Assessment Division of the Ministry and final decisions are made regarding environment clearance. As per the notification, no developmental activity can be taken up unless the conditions stipulated under the respective environmental and forestry clearance have been complied with.

Since the issue of notification the Expert Committees have appraised more than a thousand projects and have given their recommendations. While appraising these projects it was noted that the appraisals of individual projects do not sum up the total impact of projects in a given area. In view of the same a need was felt to undertake carrying capacity studies which would provide information on supportive and assimilative capacities of the area and provide to planners and appraising agencies the requisite information to evaluate a project from an overall perspective. Carrying capacity studies were initiated in the following areas: Doon Valley, National Capital Region, Damodar River Basin, Tapti Estuary and Greater Cochin. These studies are expected to provide basic environmental information for these areas so that development strategies incorporating principles of sustainable development can be devised.

Having achieved substantial progress in terms of EIA and based on its experience, the Ministry further streamlined and strengthened impact assessment procedures in April 1997 by making public hearing for all activities listed in the notification mandatory. In

order to assess the acceptability of projects and to avoid court proceedings it was considered desirable to take the views of all those who had a stake in an area where the project was being established. Another significant step has been that of empowering State Governments to appraise certain types of thermal power plants without reference to the Central Government.

In an attempt to orient it towards preserving ecologically fragile areas and the coastal environment from unregulated and environmentally damaging activities, a series of major notifications under provisions of the Environment Protection Act were issued. The Coastal Regulation Zone (CRZ) notification of February 1991 provides the basis for placing coastal areas into 4 categories: CRZ-I, II, III and IV, and regulating the permissible activities in the different zones.

In July 1997, significant changes were made in the CRZ Notification, which permitted State Governments to make decisions on proposals falling within CRZ II irrespective of cost. Various powers have also been delegated to the Ministry of Surface Transport relating to expansion, and modernisation of existing ports and harbours. In addition, harvesting of ground water for drinking purposes from the zone 50 metres to 200 meters from High Tide Line has been permitted. As part of the Government's ongoing process of rationalising the CRZ notification, Expert Committees have been constituted where extreme hardships are being caused to local populations residing in coastal areas. Furthermore, in November 1998 the Ministry established Coastal Zone authorities both at the Centre as well as Coastal State/ Union Territory level, to take measures for protecting and improving the quality of the coastal environment.

The notifications on Doon Valley, Dahanu Taluka, Aravalli region, Murud-Jangira and Numalgarh focus on the specific problems of these eco-fragile regions and regulate various developmental activities within these specific areas. The Ministry has also issued a draft notification regulating activities in Pachmarhi, Madhya Pradesh. These notifications have played a particularly significant role in reducing deterioration to the sensitive eco-systems of the regions.

Emphasis now is on enforcement and performance evaluation of the assets created. This objective is being achieved through monitoring of the conditions stipulated while according environmental clearances. The regional offices of the Ministry located at Bangalore, Bhubaneswar, Bhopal, Chandigarh, Lucknow and Shillong have officials periodically visiting the project sites, monitoring them and ensuring that the conditions are implemented.

The following have also been constituted:

- National Environment Appellate Authority to consider appeals against environmental clearances granted by the Central and State Governments.
- Dahanu Taluka Environmental Protection Authority for the protection of ecologically fragile areas of Dahanu Taluka, Maharashtra.

- Aquaculture Authority to deal with the situation created by the shrimp culture industry in the coastal States and Union Territories.
- The Central Ground Water Authority for the purpose of regulating and controlling Ground Water Management and development.

3. ENVIRONMENTAL AUDIT

An environmental audit in the form of an environmental statement has been made mandatory for the polluting industrial units seeking consent either under the Water (Prevention and Control of Pollution Act) 1974 or the Air (Prevention and Control of Pollution) Act 1991 or both, and authorization under the Hazardous Wastes (Managing and Handling) Rules 1989 for submission to the concerned State Pollution Control Boards for the financial year ending 31st March on or before the 30th day of September every year with effect from 1993. Implementation of this scheme is expected to promote not only smooth monitoring of industrial activities but also adoption of low waste technology and minimisation of consumption of resources.

The Department of Company Affairs has been requested to include a provision in their proposed amendment of the Company's Act 1956. Accordingly, the Department of Company Affairs has included a new clause in the proposed amendment of the Company's Act. Under this clause the companies will be required to attach with every balance sheet of the company, a report by its Board of Directors regarding measures taken for environment protection.

Potential Use of Environmental Audit Statement

If the information provided in the Environmental Audit Statement is correct and valid, the Environmental Audit Statement would be a potential useful tool to both the Government and the industry. This would have the following benefits:

For Government authorities:

- Provide appropriate information to enable reformulation of Government's policies and programs to make them more proactive towards prevention and control of pollution, including waste minimization;
- Provide information for building up national, regional and sectoral databases;
- Enable the development of policies and schemes to promote conservation of resources, waste utilisation and reduction of the overall amount of industrial pollution discharged into the environment;
- Identification of industry sectors requiring structural and technological changes thus promoting industrial competitiveness both nationally and internationally.

For Industries:

- Provide technical guidance in identifying the potential of waste minimisation, evolving waste minimisation measures and implementing these measures;
- Provide national and international comparisons with similar or more advanced industries, and identify the necessary steps for placing Indian industries in line with international standards;
- Provide measures to reduce the cost of production and thus enhance its profitability.

Analysis, evaluation and assessment of environmental audit statements

In order to utilise environmental audits as a management tool for both Government and Industry, it is necessary to analyse, evaluate and assess the information given in the environmental audit statements with respect to environmental performance of the industries. This is required to be carried out through identified institutions. The scope of the work under the proposed activity should include:

- Procurement of environmental audit statements from the concerned State Pollution Control Boards;
- State-wise and sector-wise compilation of environmental audit statements;
- Accurate data entry and validation as per the requirements of the software “Paryavaran”;
- Modification/upgrading of the existing software for analysis purpose;
- Preparation of recommended production, pollution coefficient and resource consumption guidelines for the selected industrial sectors;
- Publication of reports on sectoral environmental performance of the industries and dissemination of the information to the concerned units;
- Interaction with the concerned industry associations for follow-up of implementation of the recommendations/guidelines emerging out of the continual analysis of the statements;
- The information regarding emissions from the units could be used for PRTR (Pollution Release and Transfer Register).

Environmental Management Systems

As previously suggested, an environmental audit in the form of environmental statement has been made mandatory for certain polluting industrial units. Recently, Environmental Management Systems (EMS) has emerged as the latest field of specialisation in providing a systematic approach for effective environmental management. On the lines of the ISO 9000 series of quality standards, the ISO 14000 series has also been put in place. These standards do not establish any absolute requirements for environmental performance, however all of them do require that the system be designed to measure improvement in environmental performance. The thrust is to have a preventive rather than curative

mechanism in place. Currently, a number of companies are applying for EMS certification.

4. STANDARDS

Over the last two decades, there has been considerable development in pollution control activities at the regional, national and global levels. The scope of such activities entails reduction of wastes and conservation of natural resources. The mode of controlling pollution, in particular the setting of standards, raises several debatable issues for regulatory authorities. The debate is centred on the perspectives of different people or groups of people, who hold different views on the extent of pollution control necessary and the concomitant cost. More often than not, this debate brings to the fore the obvious question: who is bearing the risk and who is to bear the cost?

It is becoming increasingly evident that the aspects of prevention and control of environmental pollution involve a number of complex issues. These issues are set in a social system which must be analysed within a framework in order to appreciate all intrinsic and extrinsic factors that might alter human health and other targets.

When considering protection of the environment through pollution control and abatement, the following matters are important:

- i) Determination of acceptable risk. Although it is very difficult to determine what is acceptable, it can be reasonably assessed with appropriate research effort. However, ultimately, actual fixation of the threshold level of risk is a subjective decision.
- ii) Determination of population/objects to be protected.
- iii) Choice of control technology. It requires both formulation of a strategy and selection of appropriate control techniques.
- iv) Economic considerations, which strike a balance between cost and benefits.
- v) Legislation for setting standards, which considers the existing national legal framework and identifies necessary legal strategies.

These considerations call for technical, social, financial, legal and administrative examination of the solutions to be adopted, in order to determine and study links between environmental problems and their solution in relation to society.

The Ministry recently laid-down industry specific, as well as general effluent and emission standards for different categories of industries under the Environment (Protection) Act 1986. Thus far the Ministry has set up environmental standards for almost all categories of polluting industries. The standards for certain categories are being reviewed. During the 'year two' Expert Committee, meetings were held to review the standards for soda-ash, brick kilns, coke oven plants, DG sets etc.

Under s12 and 13 of the Environment (Protection) Act 1986 the Ministry recognises environmental laboratories and the Government analysts working in the laboratories to carry out the functions entrusted to them under the Act. While powers for recognising environmental laboratories of the Government and autonomous organizations have been delegated to the Central Pollution Control Board, laboratories in the Private Sector are recognised by the Ministry. The Ministry also participates in the joint inspection of environmental laboratories with CPCB, State Pollution Control Board and Pollution Control Committees. During the 'year two', joint inspections were organised and applications of 11 laboratories were scrutinised. So far Ministry has recognised 14 private laboratories under the Environment (Protection) Act 1986. All the recognised laboratories have to participate in the annual Analytical Quality Control (AQC) exercise being conducted by the CPCB. Dummy samples are sent to the recognised laboratories and the analysis reports of the laboratory are compared with the standard result, any variations are reported to the concerned laboratory for improvements.

The Environmental (Protection) Act 1986 (s 3) empowers the Central Government to lay down environmental standards for the quality of the environment in its various aspects, standards of emission or discharge of environmental pollutants from whatever source, procedures and safeguards for the prevention of accidents which may cause environmental pollution and procedures and safeguards for the handling of hazardous substances. The setting of environment standards is the mandate of Ministry of Environment and Forests. The enforcement agencies are the Central and State Pollution Control Boards

5. PERMITTING, LICENCING/CONSENT MECHANISM

Industries continue to be made subject to compulsory licensing for several reasons, which include environment issues and hazardous processes adopted by them. Consent to the industries is issued by the SPCBs under the Water (Prevention and Control of Pollution) Act 1974 and the Air (Prevention and Control of Pollution) Act 1981(as discussed in Chapter VII, Atmosphere).

Water Act (Prevention and Control of Pollution) 1974

Sections 25 and 26 of the Water Act deal with consent liability of new and old outlets and discharges. Sub-sections 25(1) and 25(4) are particularly relevant eg:

25(1): Subject to the provisions of this section, no person shall, without the previous consent of the State Board:

- a) establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or any extension or addition these to, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land (such discharge being hereafter in this section referred to as discharge of sewage); or
- b) bring into use any new or altered outlets for the discharge of sewage; or

- c) begin to make any new discharge of sewage

Air Act (Prevention and Control of Pollution) 1981

Section 21(1) of the Air Act states that no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area. Section 22 states that no person operating any industrial plant, in any air pollution control area shall discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down by the State Board under clause (g) of sub-section (1) of s 17.

Section 2(k) states that industrial plant means any plant used for any industrial or trade purposes and emitting any air pollutant into the atmosphere. Air pollutant is defined in section 2(a) as meaning any solid, liquid or gaseous substance including noise present in the atmosphere in such concentration as may be to tend to be injurious to human beings or other living creatures or plants or properly or environment. Therefore, it is only an industrial unit emits substances at such levels resulting in concentrations which may be injurious to human beings etc., it will qualify to be an industrial plant for the purposes of section 21 and 22 of the Air Act.

Zoning Atlas for Siting of Industries

In order to delineate the areas that are suitable for industrial siting and categorise different areas based on their environmental future, a project for preparation of a district-zoning atlas has been undertaken by the Central Pollution Control Board in collaboration with the State Pollution Control Boards. Various other agencies including the National Atlas and Thematic Mapping Organization (NATMO) and the National Remote Sensing Agency (NRSA) are also involved in this project.

The zoning atlas for siting of industries zones uses easy-to-read maps to classify the environment in a district and present the pollution receiving potential of various sites/zones in the district as well as any possible alternate sites for industries. The industrial zones are identified based on the sensitivity and the pollution receiving potential of the district. During pilot studies conducted in 1995, 19 districts across 14 States were covered. These studies have been extended to more districts in different states under the Environmental Management Capacity Building of the World Bank. The atlases prepared in the first phase have been validated with the concerned Government Departments/Agencies and are now being published for public use. Training programs to educate the user of the atlases in agencies like industrial departments and pollution control boards are being conducted.

As a continuation of zoning atlas studies, industrial estate planning studies are being undertaken at micro-level (1: 50,000 and lower) in an attempt to finally come up with probable sites for industrial estates. The preparation of maps on environmentally

sensitive zones such as National Parks, Reserved Forests and Protected Forests is also being completed.

6. ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental Management System (EMS, mentioned earlier) has been developed as the latest specialised, systematic approach to effective environmental management. On the lines of the ISO 9 000 series of quality standards, the ISO 14 000 series for environment has been installed. ISO 14 001 pertaining to EMS has already been registered as an international standard. The British Standard BS 7740 for EMS was published in January 1994.

These standards do not establish any absolute requirements for environmental performance. However, all of them do require that the system be designed to measure improvement in environmental performance. The thrust is to have preventive rather than curative mechanism in place. Currently, more than 500 companies in India have already obtained certification and others are in the process of obtaining it. Many of them have realised the benefits at the implementation stage itself. It is predicted that there will soon be a surge in the number of companies opting for EMS certification.

The challenge of managing corporate change to move forward simultaneously in economic development and environment protection is immense. But we do not have to start from scratch. Business has proved its ability to manage fundamental changes in planning and action during the “quality revolution” which influenced virtually every business and industry all over the world. Already companies are gearing up to project ‘one’s own image’ as that of an environmentally responsible enterprise. Many organizations have undertaken environmental reviews or audits to assess their environmental performance. On their own, however, reviews and audits cannot provide an assurance that environmental performance not only meets but will continue to meet policy requirements. To be effective, all such efforts need to be conducted within a structured management system integrated with overall activity management. Just like ISO 9000 series certification on quality, companies can seek EMS certification against the EMS standard (ISO 14001).

7. GREEN RATING

Green rating is a comparatively new tool for Prevention and Control of Pollution. Indonesia is probably the first country to have Green-rating completed for an industry sector with the assistance of World Bank. Under the scheme, the industries are given a kind of Logo (a Golden, Green, or Yellow dot) recognising the environmental performance of an industry. The recognition can play an effective role in environment protection as well serving as a marketing tool.

The Green-rating as envisaged will serve as an indicator for an industry’s environmental performance at the facility level and will also act as an image builder for the industry. It

will become an effective tool for providing information to stakeholders about the environmental performance of the industry. The rating will inculcate the culture of competition among the industries for better environmental performance and thereby facilitate information sharing and transparency, providing greater participation.

The Key Objectives of Green Rating Project

- To monitor the environmental performance of Indian companies and create an incentive for improving this performance over time through a transparent rating system.
- To raise the importance of environmental management within the company to the level of top management, including the CEO.
- To make the managers of the company aware of what is expected of them in terms of good environmental management, which goes beyond the rules and norms set by the government, so that companies begin to take a proactive role on this front.

Publicity Tool

- Green Rating serves as a means to recognize good environmental performance, as well as improvements in performance of the unit. It creates positive incentives for corporations to rise beyond compliance.

Feedback Mechanism

- Green Rating helps corporations benchmark their performance against competitors/international standards, and hence, work towards continual improvements. It facilitates the dissemination of best practices across industry.
- By simplifying and condensing environmental risk into a single indicator, Green Rating helps stakeholders understand environmental risk issues better. It enables them to incorporate environmental risk criteria in their decision-making processes.

Green Rating Facilitate Corporations to:

- Share its environmental achievements/improvements with an external audience;
- Know where its production units stand vis-a-vis domestic and international benchmarks;
- Track a unit's performance over a period of time;
- Compare environmental performance across units; and
- Identify its key areas of weakness revealed by an independent and objective assessor.

In order to meet any of these objectives, the corporation gives consent to get its unit(s) Green Rated.

8. ECO-MARK SCHEME

The Government has instituted a scheme for labelling of Environment Friendly Products (EFP), with a view to provide accreditation and labelling for household and other consumer products. Labelled products should meet certain environmental criteria along with quality requirements of the Indian Standards Institutes. Companies producing goods, which meet these performance and environmental criteria are authorised to label the products as environmentally friendly with the recognised symbol, a mark (like the ISI mark) of EFP or a symbol or logo called an Eco-Mark. Any product which is made, used or disposed of in a way that significantly reduces the harm it would otherwise cause the environment, could be considered as an EFP. To date, the Ministry has issued 18 notifications on different products criteria.

This is a social scheme to help consumers to contribute their conscientiousness in the protection of the environment. If Eco-marked goods come to enjoy an increased market share through positive choices made by consumers, there would be an incentive for more companies to change their process and/or products to meet the criteria.

Objectives

The Objectives of the scheme are:

- To provide an incentive for manufacturers and importers to reduce the adverse environmental impact of products.
- To reward genuine initiatives by companies to reduce the adverse environmental impact of products.
- To assist consumers to become responsible in their daily lives by providing information that enables them to take account of environmental factors in their purchase decisions.
- To encourage citizens to purchase products which have less harmful environmental impacts.
- Ultimately, to improve the quality of the environment and to encourage the sustainable management of resources.

To achieve sustainability it must make sense to the business, and must therefore provide some benefit. The sustainable corporation must provide materials and products that satisfy consumer needs and are also valued for their contribution to the quality of life and protection of the environment. The following conclusions are drawn:

- It is a promising tool of economic instruments.
- The environmental label would be an important element in future environmental policy.
- It is based on the co-operation and self-commitment of the industry.
- The Environment Friendly Scheme would definitely help to reduce pollution in certain areas.

9. MARKET BASED INSTRUMENTS

The use of market-based instruments (MBIs) to address environmental problems has been endorsed by the international environmental community at the Rio declaration, and also by the Indian government in its Policy Statement for Abatement of Pollution. MBIs comprise a wide range of instruments including traditional pollution taxes and traceable permits, coupled with modern instruments such as input taxes, product charges and differential tax rates. The common element among all MBIs is that they work through the market and later the behaviour of economic agents (such as firms and households) by changing the nature of incentives/disincentives these agents face.

Broadly speaking, MBIs comprise three groups of instruments: (i) price-based instruments; (ii) quantity-based instruments, and (iii) all other categories. Price-based instruments make the generators of pollution (firms or individuals) internalise the costs of pollution by increasing the cost of 'using' environmental resources, such as air and water. Quantity-based instruments, on the other hand restrict, a priori, the quantity of pollution that can take place. The last (residual) group of MBIs comprises instruments such as fees for exceeding discharge standards and performance bonds.

The two MBIs that have received the most attention are emission/effluent charges (also known as pollution charges), and tradeable/marketable pollution permits. Pollution charges are levied on polluters based on the quantity and/or quality of pollutants discharged by them into the environment. Under tradable permits the pollution control agency determines a target level of environmental quality, and determines the total amount of emissions that can be discharged without jeopardising the target. The agency then allots, sells or auctions the rights to discharge pollution, in the form of permits. Subsequently, these rights can be bought and sold, subject to an overall ceiling of allowable discharges.

Of the several policy instruments available MBIs are, in theoretical terms, the most cost-effective means of achieving a given target of pollution abatement. A number of simulation studies have demonstrated the cost-effectiveness of MBIs over traditional regulatory approaches (also known as command and control, or CAC). It is primarily for this reason that economists have advocated use of MBIs for three decades. The main factor driving this result is that the costs of reducing a units pollution outputs are not the same across firms. Thus, if firms can reduce pollution by different amounts, while collectively achieving the same overall reduction determined by the agency, then costs can be reduced. MBIs have thus established a benchmark for how a cost-effective industrial pollution abatement regime should work.

A review of the current regulatory and fiscal regime for industrial pollution abatement in India reveals that there is considerable scope for improvement. To begin with, there are several deficiencies in the laws for pollution abatement in India, both in the way they are framed, and in their implementation. With respect to the former, the laws mandate

uniform effluent/emissions standards for discharges from individual sources, and do not take into account differences in abatement cost across firms. Further, the standards, particularly for water pollution, are mostly specified in terms of concentration and not in terms of the pollution load. Therefore, they do not necessarily affect the quantum of pollution being discharged.

10. ECONOMIC INSTRUMENTS

Economic instruments provide economic incentives for operating in a more environmentally acceptable way. The economic instruments include the following:

- R&D subsidies;
- Subsidies on clean alternatives;
- Pollution charges – A levy per unit of emission;
- Product/input charges – A levy on polluting products or inputs;
- Tradable permits – A polluter who pollutes less (or more) than his current permit can sell (or buy) surplus permits to (or from) other firms;
- Deposit – Refund;
- Water cess;
- Fiscal incentives.

Water Cess

The Water (Prevention and Control of Pollution) Cess Act 1977 empowers the State Boards to levy a cess on local authorities supplying water to consumers, and on consumption of water by persons carrying on certain activities. The cess has been introduced mainly to augment the resources of the Central and State Boards. However, the Act also provides for a 25 per cent rebate on the cess payable if the person or local authority concerned installs a treatment plant for sewage or trade effluent, hence the cess is potentially an important instrument for inducing abatement. However, thus far cess rates levied on water consumption are very low.

Under the 1992 amendment, the rebate in cess allowed to any person or local authority was proposed to be reduced from the original 70 per cent. It was also intended that a person or local authority would not be entitled to the rebate if they consumed water in excess of the prescribed quantity, or the provisions of s 25 of the Water (Prevention and Control of Pollution) Act 1974 or the standards laid down by the Central Government under the Environment (Protection) Act 1986 were not complied with.

The earlier provision providing for a rebate of 70% to a person or local authority upon installation of an effluent treatment plant was being misused. Industries would claim the rebate upon installation of an effluent treatment plant even if it was operating below prescribed standards. With a view to encourage greater economical use of water and better pollution control, the provisions granting a 70% rebate were revised to 25% provided that the Industry or local authority meets the water consumption standards where proscribed and also the effluent quality standards as laid down by the State Board or as set by the Central Government under the Environment (Protection) Act. Prima facie this may appear as a reduction in rebate from 70% to 25%. However, it should be emphasised that under the new provisions, by complying with the standards the industry

pays the lesser of the two rates. Furthermore by complying with the water consumption standards the industry will be consuming less water, hence the overall increase in the cess amount payable will be compensated by the economy in water consumption. Moreover, in terms of revenue and saving an important natural resource, the benefit accrued by the country will help achieve sustainable development.

To ease the economic burden on installation of pollution control equipment/systems, the Government has provided rebate on customs and excise duty for specific pollution control equipment/systems. 100 per cent depreciation has been provided to selected pollution control equipment/systems under the Income Tax Act and an exemption from income tax on amounts contributed for programs of conservation is also granted. These amounts are deductible from the taxable income.

Cess as economic instrument

The policy enforcement regime lays down a specific quantitative restriction to which all polluters must conform. Those who fail to comply are punished accordingly. This kind of regulation uniformly restricts the set of choices available to polluters, regardless of differences in either their preferences or their opportunity costs of compliance. It is therefore a somewhat blunt and inefficient instrument for achieving specified ambient standards. The same ambient standards could in principle be achieved through a system of economic incentives which internalise the externalities of pollution. With all polluters internalising their opportunity costs at the margin, given standards could be achieved at a lower social cost than the command and control system. More generally, society could also equalize benefits and costs at the margin and arrive at a socially optimal combination of pollution and economic or other activities, which are in themselves desirable but have the undesired effect of causing pollution. The high cess rates and rebate shall work as deterrent and incentive to the water consuming industries and local authorities.

Other economic incentives

To encourage the shifting of industries from overcrowded cities and to reduce pollution, the capital gains arising from transfer of buildings or lands used for industrial purposes may be exempt from tax. Since 1983-84 this exemption has been extended to capital gains arising from transfer of machinery and plants.

An Environmental Relief Fund was created by the Public Liability Insurance Act 1981 to provide relief to any person affected by handling any hazardous substance. Soft loans at reduced rate of interest are provided to encourage installation of pollution control devices and systems.

11. CONCLUSION

Apart from institutions and various bodies, statutes also establish tools and mechanisms for executing their objectives. India has developed the use of EIA, standards,

Environmental Audits, licensing/ permitting, Environment Management Systems, Echo-Mark Schemes, Green-Ratings, market based instruments and financial instruments as tools to address environmental issues. Licensing, permitting and standards are widely used throughout industry however in modern times the use of EIA has received the most attention. Being mandatory for many activities the process has been praised for balancing environmental and developmental needs. Additionally the mandatory provisions for public input have been praised. Public participation gives further insight into the impact of development projects and hence provides a better evaluation of alternatives. Furthermore projects entailing public participation are more likely to be implemented successfully. Similarly tools such as the Echo-Mark Scheme have been commended for educating the public and allowing them to contribute to environmental preservation. Other tools such as market and finance based tools achieve their goals by inducing industries into certain practices by providing marketed oriented or financial incentives.

One of the major downfalls of many statutory tools is that they are perceived as a massive burden to the industries they affect. This in turn has the effect of inspiring their circumvention. Hence in order for tools such as licensing and EIA to be effective those being affected must be made to understand the long term benefits of the tools rather than perceiving them as mere restrictions, obstructive to the goals of development. This matter has often hindered the effective implementation of statutory tools, especially in the case of EIAs.

CHAPTER XV

MULTILATERAL ENVIRONMENT AGREEMENTS AND THEIR IMPLEMENTATION

Key Issues: Implementation of MEAs; Technology Transfer; Inbuilt Funding Mechanism; Synergy with other agreements; Informed Negotiations; Education and Awareness; Enforcement and Compliance.

Domestic Legislative Measures: Wildlife (Protection) Act 1972; Forest (Conservation) Act 1980; Environment (Protection) Act 1986; National Forest Policy as amended in 1988; National Conservation Strategy and Policy Statement for Environment and Sustainable Development 1992; National Agricultural Policy; National Land Use Policy; National Fisheries Policy; National Biodiversity Policy; National Wildlife Action Plan; Environmental Action Plan 1993.

Key Institutions: Ministry of Environment and Forests; Ministry of External Affairs; Botanical Survey of India; Zoological Survey of India; Ministry of Agriculture; Ministry of Water Resources; Ministry of Surface Transport; Ministry of Industry; Ministry of Health; Ministry of Agriculture; Ministry of Non-Conventional Energy Sources; Ministry of Commerce; Ministry of Urban Development; Planning Commission.

1. INTRODUCTION

India has been a proactive partner in the development and negotiations of various International Conventions, Treaties and Protocols. India is member of almost every important environment convention. Some of the major conventions are discussed below with reference to India's progress in ratifying and implementing their various requirements. An exhaustive list of multilateral treaties to which India is a party is included at the end of the chapter.

2. THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA WAS SIGNED IN 1976

India is one of the 12 mega biodiversity centres in the world, representing two of the major realms and three basic biomes of the world. The country is divided into 10 biogeographical regions: Trans-Himalayan, Himalayan, Indian Desert, Semi-Arid, Western Ghats, Deccan Peninsula, Gangetic Plains, North-East India, Islands and Coasts.

Multilateral Environment Agreements and their Implementation

The diversity of the Country's biological resources is yet to be fully discovered. Approximately 65 per cent of the total geographical area has been surveyed thus far. Based on this, over 47 000 species of plants and 81 000 animal species of have been recorded. This list is being constantly upgraded, especially in respect of lower plants and invertebrate animals.

Conservation and sustainable use of biological resources based on the local knowledge systems and practices is ingrained in the Indian ethos and way of life. Formal policies and programs for conservation and sustainable utilisation of biodiversity resources date back several decades. The concept of environmental protection is enshrined in the Indian Constitution in Article 48(a) and 51(g). Major central acts relevant to biodiversity are:

- Wildlife (Protection) Act 1972.
- Forest (Conservation) Act 1980.
- Environment (Protection) Act 1986.

The various central acts are supported by a number of state laws and statutes concerning forests and other natural resources. Policies and strategies directly relevant to biodiversity include:

- National Forest Policy as amended in 1988.
- National Conservation Strategy and Policy Statement for Environment and Sustainable Development.
- National Agricultural Policy.
- National Land Use Policy.
- National Fisheries Policy (under preparation).
- National Biodiversity Policy (under preparation).
- National Wildlife Action Plan.
- Environmental Action Plan 1993.

A program captioned "eco-development" with the World Bank's assistance, for situ conservation of biological diversity involving local communities has been initiated in recent years. The concept of eco-development integrates the ecological and economic parameters for sustained conservation of eco-systems by involving the community.

3. THE UN CONVENTION ON THE LAW OF THE SEA WAS SIGNED IN 1995

India's coastline including major indentations and the shores of islands is about 7 500 km long. About 55 per cent has beaches, which include spits, barriers and sandy stretches. Rocky, overhanging cliffs and protruding shorelines including deltas constitute the rest of the coastline. The Indian coastline is relatively stable. There are two groups of islands, the Arabian Sea Islands (Lakshadweep and Minicoy) and the Bay of Bengal Islands (Andaman and Nicobar), which differ significantly in origin and physical characteristics.

The maritime zones of the country are demarcated under the Maritime Zones Act 1976 as 12 nautical miles of territorial seas, 24 nautical miles of contiguous zone and 200 nautical

Multilateral Environment Agreements and their Implementation

miles of Exclusive Economic Zone (EEZ). Nine States and two Union Territories are located along the Indian coastline and the EEZ of 2.02 million sq km lies adjacent to them. India's population as per the census conducted in 1991 stood at 846 million. The nine coastal States and two Union Territories and the islands account for 419 million, which is 49.5 per cent of the population of the country. However, not all the districts of the coastal States are situated on the coast. The population of coastal areas is 154 million, which is 18.2 per cent of the total population of the country.

The western EEZ of India and also Andaman and Nicobar waters are being used as international tanker routes. It has been estimated that nearly 3500 tankers ply this area carrying about 470 million tonnes of oil per year. A National Contingency Plan to deal with oil spill disasters has suitably been prepared. Infrastructure to deal with the oil spills is also being augmented. India has ratified Marpol 73/78 and adopted the provisions in the Merchant Shipping Act.

India ratified the UN Convention on the Law of the Sea in June 1996. The Government of India has rules and regulations for dealing with various activities in the coastal zone, which covers the inter-tidal area and the land area of 500 metres from the high tide line. A coastal zone management plan indicating various zones has been prepared by the States of the country so that the rules and regulations as defined in the relevant notification can be dealt with appropriately within these zones. The government also has proposed to extend these rules to the ocean.

The Government has initiated the following steps, inter alia, for sustainable development of both the island groups:

- Setting up of the Andaman and Nicobar Integrated Development Corporation to undertake developmental activities in an integrated manner ensuring the sustainability of all economic activities and avoiding conflicts.
- Under the Environment Protection Act 1986, rules have been prescribed to prohibit environmentally destructive activities including mining of corals in the coral reef areas. Several developments along the coastlines of the islands have been regulated.
- An apex body namely, the Island Development Authority has been functioning under the Chairmanship of the Prime Minister of India to ensure performance of various developmental activities within the framework of sustainable development.
- Research and development activities are being promoted to develop eco-friendly technologies like cage culture with indigenous species for islands.
- Promotion of research of bait fish in Lakshadweep to sustain the tuna fishery.

Keeping in view the need for sustainability in fisheries development and environment protection considerations, India's approach to coastal fisheries has been oriented towards mitigating the adverse effects of such activities on the environment as well as the users. Steps towards achieving sustainable development, inter alia, include enforcement of

regulatory measures to control fishing activities in the inland and marine water areas, implementation of Coastal Regulation Zones (CRZ), enforcement of Marine Fishing Regulation Act (MFRA) and strengthening infrastructure for monitoring marine pollution.

4. THE CONVENTION ON BIOLOGICAL DIVERSITY

Pursuant to the ratification of the Convention by India in February 1994, several steps have been initiated to meet the commitments under the Convention and also to bring the legislative, administrative and policy regime regarding biological diversity in line with the Articles of the Convention.

A National Action Plan on Biological Diversity is currently being finalised. While consolidating the ongoing efforts of the conservation and sustainable use of biological diversity, the draft Action Plan aims at establishing a policy and program regime which brings the national action on various aspects of the subject, including capacity building and bio-safety measures, in tune with the Articles of the Convention.

India believes that national action regarding conservation and sustainable use of biodiversity and equitable sharing of benefits arising out of the utilisation of genetic resources, demands appropriate actions on the part of international community. Some key issues in this regard are as follows:

- i) Development of suitable enabling environments by the other parties, particularly the developed country parties, to ensure benefits to countries of origin. These benefits should not only include measures like royalty payments or monetary compensation, but should also ensure the location of research and technologies in the countries of origin in accordance with the provisions of the Convention.
- ii) Development of an internationally recognised regime for recognising the property rights, both intellectual and physical of the local communities. Development of such a regime may take time. Pending which, all patent applications should be required to disclose: (a) the source and origin of the genetic material used; (b) knowledge and practices of the use of the said genetic resources by the local communities and identification of such communities; and (c) a declaration that laws, practices or guidelines for the use of such material and knowledge systems in the country of origin have been followed.
- iii) Capacities of countries rich in biodiversity should be built to enable them to undertake bio-prospecting and products development from genetic resources.
- iv) Introduction of transgenic, alien species should only be undergone with requisite safeguards.

Bio-safety:

- The Convention on Biological Diversity (CBD) obliges Parties to ensure safety in the development, handling and use of GMOs (referred to as living modified organisms (LMOs) in the Convention). Sub-paragraph (g) of Article 8 and paragraph 3 of Article 19 deal with the subject of safety in matters relating to LMOs. Paragraph 3 of Article 19 obliged parties to consider the need for a protocol in the field of safe transfer, handling and use of LMOs to ensure safety in biotechnology.
- A protocol on bio-safety, specifically focussing on transboundary movement of LMOs, under the aegis of the CBD was finally adopted on 29th January 2000 in Montreal, Canada.
- India's position on some of the more contentious issues on which there has been no consensus include:
 1. Scope of the protocol: India's view has been that the AIA should extend to LMOs used for food, feed and processing (commodities).
 2. Trade Related Articles: there should be harmonization of trade and bio-safety considerations.
- A three member Indian delegation participated in the fifth meeting of the conference of Parties to the CBD held in Nairobi, Kenya from 15-26th May 2000. The meeting included a two-day high-level segment, which focused on the Cartagena Protocol on Bio-safety. 67 countries signed the Bio-safety protocol on 24th May 2000. Although India did not sign the protocol, the Minister of State made a statement outlining India's commitment to the cause of the environment.

Access to genetic resources and benefit sharing:

India has emphasised that while access to genetic resources and realisation of benefits is subject to national legislation through PIC and MAT, national action is not sufficient to ensure realisation of benefits to the country of origin or provider country. The responsibility must also be shared by the user country, responsible for creating a confident enabling environment through legislative and other measures that complies with the PIC stipulations, and ultimately ensures equitable sharing of benefits as visualised in the Convention.

CBD and IPRs:

Although, the TRIPs and the CBD are intrinsically linked with one another, they represent two significantly separate multilateral approaches to the utilisation of living resources.

“While **TRIPs** seeks to promote and foster technological innovation by ensuring the certainty of intellectual property protection and of world markets for at least some

biotechnological inventions, its provisions are silent on how this protection can achieve the objective of sustainable development, especially in developing countries.”

“The **CBD** seeks to facilitate access to living resources, while focusing on conservation and sustainable use, as well as the equitable sharing of benefits of such use. In its effort to create a stake for developing countries in conservation and sustainable use, as well as the equitable sharing of benefits of such use, the CBD emphasises the need to share the benefits which includes the need to share in the development and transfer of technology.”

- India has had a consistent view regarding mutual supportiveness of the Trade Related Intellectual Property Rights agreement (TRIPs) and the CBD. National legislation in the country of origin/provider country alone, for regulating access to genetic resources would not be adequate in securing benefits in terms of the CBD. Particularly in cases where genetic material is utilised in another country for developing products and processes on which patent protection is obtained. A need has thus been identified to call for enabling provisions in patent laws and other IPR systems to facilitate implementation of such access regulations.
- It is necessary that the intellectual property protection seeker should disclose the country of origin, the prevalent usage of the resource at the source point and the available knowledge about the usage in the patent application along with a declaration that the access regulations of the country of origin have been followed while using the resource. This information should be open to public scrutiny after the application is filed to enable the countries of origin to examine, comment and oppose if need be. Article 29 of the TRIPs agreement, which deals with ‘conditions on Patent Applications’, should therefore be suitably amended to incorporate mandatory disclosure of the information about the country of origin.

India’s Status of Implementation of Convention Commitments

1. A National Policy and Macro-level Action Strategy for conservation and sustainable use of Biodiversity have been prepared.
2. Global Environment Facility (GEF) funds have been accessed for formulating the detailed micro-level action plans through the NBSAP project.
3. An All India Coordinated Project has been launched for establishing prioritised Centres for Research in an attempt towards building capacity in taxonomy. To encourage excellence a National Award on Taxonomy has also been instituted.
4. India’s First National report to the CBD was prepared and submitted to the CBD Secretariat. Steps are being undertaken to further strengthen the existing measures for in-situ and ex-situ conservation of biodiversity.

5. Legislation on biodiversity has been prepared and introduced in Parliament. The legislation primarily addresses the issues relating to regulation of access to the country's genetic resources and associated knowledge by foreign individuals, institutions or companies and equitable sharing of benefits arising from the use of these resources and knowledge to the country and the people.

5. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The United Nations Framework Convention on Climate Change (UN-FCCC) was ratified by India on November 1st 1993.

India actively participated in the INC and was on the Bureau of AGBM. India also served as Vice-Chairman of IPCC Sub Group-A "Energy and Industry" of Working Group-II and was elected as Vice-Chairman of the Intergovernmental Panel on Climate Change in 1997.

India has always opposed 'wait and see' policy advocated by many developed countries. India feels that if developed countries prolong their commitments to reduce emissions, they will use up the limited carbon emissions budgets available to humanity in the future. India also feels that if developed countries use up the 'environmental space' then the same will not be available to developing nations when needed for their own growth.

The Convention establishes the balance of responsibilities of the Parties and dictates that the developed countries have to take a lead in reducing their Green House Gas (GHG) emissions. India has underlined that the first and overriding priority of developing countries was social and economic development and poverty eradication. To that end, it is felt that all the three integrated principles including eradication of poverty, avoiding risks to food production and sustainable development are deeply embedded in the Convention. As a result the origin and sources of global warming and climate change do not lie in the developing part of the world.

Although India is not required to adopt a National GHG reduction target, it has launched national programs for promoting sustainable development including enhancement of energy and production efficiency, clean fuels, renewable energy technologies, afforestation and wasteland development.

India participated in the 12th Session of the SBSTA held in Bonn, Germany from 12-16 June, 2000. The main Agenda items for discussion included Implementation of Articles 4.8 and 4.9 of the Convention, matters relating to Article 3.14 of the Kyoto protocol, procedures and mechanisms relating to compliance under the Kyoto Protocol, methodological issues including, land-use, land-use change and forestry (LULUCF), good practice guidance and uncertainty management in national greenhouse gas inventories etc and development and transfer of technology.

India's Status of Implementation of Convention Commitments

1. In accordance with the provisions of UN-FCCC, India is not required to adopt a national GHG or CO₂ reduction target. It should also be underlined that India's past and present contributions to global CO₂ emissions are not significant.
2. The current gross CO₂ emissions per-capita in India is only 0.2 T/yr, against the world average of 1.2 T/yr i.e. India's per capita CO₂ emissions are only 1/6th of the world average.
3. The Convention provides that developing countries shall make their initial communication within three years of the entry into force of the Convention or alternately when financial resources become available. India has initiated the necessary steps for drawing up its national communication in accordance with the Convention, with financial assistance from the Global Environment Facility (GEF). India expects to submit its initial national communication sometime in 2002.
4. In India, Carbon (C) emission from forestry is offset by C sequestration leading to no net C emission. There have been some apprehensions that India could be the sixth largest producer of carbon dioxide emissions however many Indian studies have unequivocally refuted such apprehensions. According to data available from some studies, the annual net emissions of all GHGs in India as percentage of global emissions is of the order of 0.013%, which insignificant when compared to a number of developed and developing countries.
5. Several 'policy declarations' and Acts of Parliament contribute to the minimization of GHG emissions in India. India's approach towards implementation of the Framework Convention and associated environmental matters is covered within policy declarations, namely the National Conservation Strategy and Policy Statement on Environment and Development (1992) and the Policy Statement on Abatement of Pollution (1992). In addition, the Forest (Conservation) Act 1980 and various other enactments such as the Air Pollution (prevention and control) Act 1981, (amended in 1987) and the Motor Vehicles Act 1939, (amended in 1988) contribute significantly towards minimising the causes of climate change. The Environment (Protection) Act 1986 contains sufficiently stringent measures to regulate environmental protection and also empowers the Government to formulate further statutory rules for fulfilling various requirements. Furthermore, Environmental Impact Assessment has been made mandatory for various development activities and there also exists the Coastal Regulation Zone Notification (1991) for management of coastal zones.
6. The Indian facilities available for Global Change research include Indian Remote Sensing Satellites, two major research vessels, 3 rocket ranges, high altitude balloon facilities and major computer facilities. Other facilities such as laser Heterodyne, Mm-wave radiometer, UV-B monitoring, scanning spectro-radiometer, Lidar Ozonesondes, BAPMON and Methane monitoring systems are also available. Both

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Government and NGOs are involved in climate change research in India with the former supporting a variety of projects in the area of Global Change research.

7. Since 1991, the Government of India has embarked on a Macroeconomic stabilization program. Long overdue structural reforms in the foreign trade and payments regime, the tax system, industrial policy and in the financial sector have been undertaken, all of which are likely to have positive implications for GHG stabilisation.
8. Under the 'Enabling Activities' program of the GEF, India participated in the Asia Least Cost Greenhouse Gas Abatement Strategy (ALGAS) and prepared a country report on various issues relating to climate change.
9. Currently a study is underway in another Enabling Activity Project supported by the GEF titled: "Selected options for stabilising greenhouse gas emissions for sustainable development", which will examine sectors such as coal, renewable energy, power and forestry.
10. Research and systematic observations are encouraged and supported with a view to enhancing the database and the understanding of climate change related issues.

6. UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION AND DRAUGHT

India signed the convention on 17th June 1994 and ratified it on 17th December 1996, which came into effect on 17th March 1997.

India hosted the first Asian Regional Action Program (RAP) Conference in August 1996 at New Delhi, following which it participated in the Inter-ministerial Meeting held in Beijing during May 1997 and in the Expert Group meeting held in November 1998.

India has actively participated in the Intergovernmental Negotiation Committee on Desertification (INCD) and in the Conference of Parties held in 1997, 1998 and 1999.

In August 1999 a National Steering Committee (NSC) was constituted under the Ministry of Environment and Forests (MoEF) which is the National Focal Point (NFP) for all UNCCD activities. The National Report has been prepared on the basis of discussions held in the Working Groups constituted under the NSC, and was submitted to the UNCCD Secretariat in June 2000.

The MoEF has begun the detailed exercise of preparing the National Action Program (NAP).

India has also participated in the first Regional Action Program (RAP) for Asia, on Thematic Program Network (TPN). India is the 'nodal country', and MoEF the 'nodal point' for implementation of TPN-2 on 'Agro-forestry and Soil conservation'. This was

launched in March 2000 at New Delhi-Jodhpur with participation from 14 countries along with representatives from donor countries and agencies. The Central Arid Zone Research Institute (CAZRI) under the ICAR, is involved in programs on soil conservation and agro forestry in arid regions and is the 'focal institution' for TPN-2. In addition, 5 focal institutions have also been identified to deal with specific degradation problems such as wind erosion, waterlogging and salinisation, gullied and ravine land and mine spoils.

India also participated in TPN-1 for which China is the nodal point. Like in other Conventions, India contributes to the core budget of the CCD. An amount of US\$ 21,518 was contributed to the Core budget during 1999-2000. An amount of US\$ 26,218 is earmarked for the year 2000-2001.

7. MONTREAL PROTOCOL/VIENNA CONVENTION

India acceded to the Vienna Convention on 18th March 1991 and the Montreal Protocol on 17th September 1992. It is committed to meeting the obligations laid out in Articles 2 and 5 of the Montreal Protocol. India is taking every practical step to fulfil these commitments.

India was elected as the Chairperson of the Executive Committee of the Multilateral Fund of the Montreal Protocol at the 11th meeting of the Parties held on 3rd December 1999 in Beijing. India fully supports the Beijing Declaration which emphasises the commitments of the developed countries to replenishing the Multilateral Fund.

India has taken a stand that transfer of technology to developing countries as laid out in Article 10(a) should be on the fairest and most favoured terms. Conversely, developed countries have advocated the view that the technology in some cases can only be transferred under commercial terms in view of IPR and patent regime. As a result of this view, which is quite contrary to the understanding at the Earth Summit and the basic tenets of Agenda 21 in regard to technology transfer, technology for manufacture of HFC-134a, which is the main substitute for CFC, is not being transferred to Article-5 countries by the developed nations.

The use of chlorofluorocarbons (CFCs) in India:

India's per capita consumption of Ozone Depleting Substances is at present less than 3 grams and did not exceed 20 gms between 1995-97, this is encouraging given that the Protocol allows up to 300gms to be emitted. India is self sufficient in the production of chlorofluorocarbons (CFCs). India commonly produces and uses seven of the 20 substances controlled under the Montreal Protocol. These are CFC-11, CFC-12, CFC-113, Halon-1211, Halon-1301, Carbon tetrachloride and methyl chloroform.

The early use of these chemicals was in refrigerators and CFC-12, needed for servicing was imported. Since 1965, the refrigeration industry in India started developing. Other industries using CFCs such as foams and aerosols have only developed during the last 15

to 20 years. However with the availability of CFC-11 and 12 from indigenous production, the growth of industries consuming CFCs has increased very rapidly.

Use of ODS as solvents accounts for the majority of consumption, both in ODS as well as Ozone Depleting Potential (ODP) terms. Refrigeration, air-conditioning and foam are the next largest consumers, followed by aerosol. The consumption of ODS in fire extinguishers has considerably decreased over the years due to the voluntary switch over to non-ODS technology by some enterprises.

India's Status of Implementation of Montreal Protocol Commitments

In 1993 India prepared a detailed India Country Program (CP) to phase-out the use of ODS in accordance with its national industrial development strategy. The CP also ensured that the phase-out would be done without undue economic burden to consumers and industry, and provided India with the opportunity to access the Protocol's Financial Mechanism. At present an exercise is underway, in consultation with Confederation of Indian Industry (CII), to update the Country Program.

The main objectives of the Country Program have been to minimize economic detriment as a result of conversion to non-ODS technology, to maximize indigenous production, give preference to one time replacement, emphasize decentralised management and minimize obsolescence.

The Government of India has entrusted work relating to ozone layer protection and implementation of the Montreal Protocol to the Ministry of Environment and Forests, the coordinating Ministry in India for all matters relating to the Montreal Protocol. The MOEF has established the Ozone Cell as a national unit to administer and render necessary services to implement the Protocol and its ODS phase-out program.

The MOEF has also established an Empowered Steering Committee, which is supported by three Standing Committees, namely the Technology and Finance Standing Committee, Committee for Small Scale Industry and Monitoring and Evaluation Committee. The Empowered Steering Committee is responsible for the implementation of the Montreal Protocol provisions, review of various policy and implementation options, project approvals and project monitoring.

Current Situation: ODS Phase-out Progress in India

Updating of the India Country Program for phase-out of ODS as per the schedule in the Protocol was initiated in 1998 and completed in early 2000. All the producers, as of now, are contemplating a gradual closure scenario, and plan to follow an accelerated phase-down via a linear decline of production in each industry. The World Bank has prepared a phase-out project for the 4 major producers of CFCs in India. This project has been submitted to the Executive Committee of the Multilateral Fund for determination of the level of compensation to be paid to producers. Compensation in the area of US\$ 82

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million was contemplated for the gradual closure of CFC production in India. This project is under intense negotiations with the developed countries for an early settlement.

A total of 226 projects in the consumption sector have been approved and funded by the Multilateral Fund, of which 187 are ODS phase-out projects and 39 are support activities. Projects valued at US\$5 million for conversion and phase-out of ODS in the consumption sector were approved by the Executive Committee meeting of the Multilateral Fund.

Fiscal Measures

The National Ozone Unit (NOU), the Government body that is responsible for monitoring and implementation of the CP, recognised that without a policy framework, plant investment and non-investment projects would not be successful. Accordingly, it initiated an aggressive program to create the regulatory framework to reinforce the investment, training and other ODS phase-out measures.

The Government of India has decided to grant a full exemption from payment of Customs and Excise duties on capital goods required to implement ODS phase-out projects funded by the Multilateral Fund. The Government decided to extend the benefit of Customs and Excise duty exemptions to ODS phase-out projects which were eligible for funding under the Multilateral Fund, whether or not such enterprises actually sought assistance from the Fund. The benefit is available subject to the condition that enterprises illustrate a clear commitment to end the use of ODS in all future manufacturing operations after the projects were implemented. The benefit of the duty exemption has also been extended to enterprises that employ non-ODS technology. Indian financial institutions have agreed not to finance/re-finance the establishment or operation of any new enterprises producing or consuming ODS.

The Tariff Advisory Committee (TAC), a statutory body under the Insurance Act 1938, has decided to grant suitable discounts on fire insurance premiums if alternative agents are used to replace halons.

Regulatory Measures

- Trade in ODS with non-Parties has been banned.
- The import and export of all 'Annex A' and 'Annex B' ODS are subject to licensing requirement.
- The export of 'Annex A' and 'Annex B' ODS to non-Article 5 Parties has been banned.
- A draft notification prohibiting the establishment of new facilities for aerosol manufacturer, except for metered dose inhalers for medical purposes, was published in the Gazette of India in 1998.
- The Draft Ozone Depleting Substances (Regulations) Rules have been notified in the Gazette of India in 1998 for public comments. The Rules are currently in the process of finalisation and publication.

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- Proposed Ozone Depleting Substances (Regulation) Rules: In accordance with the National Strategy for ODS phase-out the Ministry of Environment and Forests has framed comprehensive draft rules, covering various aspects of production, sale, consumption, export and import of ODS.

Some of the important provisions of the proposed draft ODS Rules, are as follows:

ODS Producers

- Compulsory to register with MOEF:
- Restriction on production levels.
- Ban on creating new capacity or expansion of capacity for ODS production/consumption.
- Export restricted to countries who are signatories to Montreal Protocol
- Any quantity produced in excess of maximum allowable consumption to be for export purposes only.

Manufacturers of ODS based Products (ODS Users)

- Ban on capacity expansion or setting up new facility for production of ODS based equipment. New facility/expansion after 25-7-95 not eligible for funding from MPMF.
- Compulsory registration with designated authorities.
- Declaration, in prescribed format, to the seller at the time of purchase of ODS.

Sellers, Exporters, Importers, Stockist etc

- Exporters and importers need to register with designated authorities.
- No sales to persons/organizations that have not informed the Government of India about use of ODS based equipment.

General

- Compulsory registration for reclamation and destruction of ODS.
- All registration will be valid for specified periods, after which they are to be renewed with the same authority.
- Every person who produces, uses, imports, sells, stocks, reclaims, destroys ODS has to maintain records and file reports as specified.
- Every person who has received technical and/or financial assistance from any international agency or financial assistance from Government of India including duty concessions/exemptions, to maintain records and file reports as specified.

India's Proposed Phase-out dates for ODS in the Rules:

Name of Activity	Phase-out Date
Manufacture of aerosol products excluding Metered Dose Inhalers (MDI).	Jan 1, 2003
Manufacture of foam products (including domestic refrigerators).	Jan 1, 2003
Manufacture of mobile air-conditioners (MAC'S).	Jan 1, 2003

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Manufacture of other refrigeration and air-conditioning products.	Jan 1, 2003
Manufacture of products based on other ODS.	Jan 1, 2010
Manufacture of Metered Dose Inhalers (MDI).	Jan 1, 2010
Use of methyl bromide except Quarantine and pre-shipment.	Jan 1, 2015
Manufacture of products based on HCFC.	Jan 1, 2040

8. RAMSAR CONVENTION

- India acceded to the Ramsar Convention in 1982. India has been elected a member of the Standing Committee twice:
 - For 3 years in 1993; and
 - Along with Japan for the Asian region in the CoP meeting held in Costa Rica, 1999.
- Several initiatives were taken by India to promote conservation and diligent use of wetlands in the Asian Region.
- India contributed significantly in the technical meetings particularly in those held in Kuala Lumpur in 1994, Bogor in 1994 and Selangoar in 1995.
- India organised the meeting of Contracting Parties from the Asian region in March 1995, in which the Delhi Declaration highlighting 19 action points was adopted.
- India also played a significant role in the CoP meeting held in 1996 in Brisbane, Australia.
- India is considering hosting the 9th CoP meeting in 2005, in New Delhi, for which necessary action is being taken. Spain is hosting the 8th CoP meeting in the year 2002.

India's Status of Implementation of Ramsar Convention Commitments

1. India has designated 7 wetlands for inclusion in a "List of Wetlands of International Importance (Ramsar sites)". In February 2000, the MOEF identified 10 new wetlands, and has started the process of designating them as Ramsar Sites in consultation with the World Wide Fund for Nature, India (WWF-India).

Current Ramsar Sites	Proposed Ramsar Sites

<ul style="list-style-type: none"> - Chilka (Orissa) - Loktak (Manipur) - Wular (J&K) - Harike (Punjab) - Keoladeo National Park - Bharatpur (Rajasthan) - Sambhar (Rajasthan) 	<ul style="list-style-type: none"> - Dipor Beel (Assam) - Bhitarkanika (Orissa) - East Calcutta wetlands (WB) - Kabar Tal (Bihar) - Tso Morari (J&K) - Pong Dam (HP) - Point Calimere Sanctuary (TN) - Pulicat Lake (TN and AP) - Lali Sanctuary (AP) - Andaman and Nicobar Islands
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2. Three Indian sites, Chilka Lake, Loktak Lake and Keoladeo National Park have been included in the Montreux Record. The inclusion of a wetland in the Record acts to highlight the importance of the site and the need for taking conservation measures on priority basis. The respective State Governments are properly assessing these three sites.

3. The MoEF functions as the nodal agency for participation in international conservation agreements including the Ramsar Convention. It has both a National Program for conservation and management and a separate program for urban lakes under the National Lake Conservation Program (NLCP). The progress of some activities in relation to the Ramsar Convention are highlighted below:
 - 20 wetlands and 10 urban lakes have been identified for conservation and management.
 - Management action plans have been prepared for 18 wetlands (inclusive of designated 6 Ramsar sites), 15 mangroves and 4 coral reef areas and are currently at various stages of implementation.
 - India wishes to designate the remaining sites as Ramsar Sites.
 - Each of the 6 designated sites are being notified under the provisions of the EPA 1986. This will be finalised after information on their ecological status is received from the concerned State governments.
 - National Committee on Wetlands, Mangroves and Coral Reefs in its last meeting (December 1996) has recommended formulation of National Wetland Policy. The Indira Gandhi Institute for Development and Research (IGIDR), Bombay has prepared a draft which was presented to the National Committee (NATCOM).
 - Additional sites are being considered for designation under the Convention after detailed assessment.
 - An inventory of wetlands has been completed and the MoEF published a directory of wetlands in 1990. It was updated in 1993 in collaboration with the WWF.

9. LIST OF CONVENTIONS RATIFIED

1. Waste Management and Hazardous waste

- Basel Convention on Trans-boundary Movement of Hazardous Substances 1991-92.

2. International resources

- The Antarctic Treaty (Washington, 1959).
- United Nations Convention on the Law of the Sea (Montego Bay, 1982).
- International Tropical Timber Agreement (Geneva, 1983).

3. Global climate

- Vienna Convention on Ozone Depleting Substances.
- Montreal Protocol.
- Framework Convention on Climate Change.
- Kyoto Protocol 1992.

4. Marine pollution (conventions of the International Maritime Organisation, IMO)

- The International Convention for the Prevention of Pollution from Ships 1973.
- The International Convention on Civil Liability for Oil Pollution Damage 1969 (effective from June 19, 1975).
- Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969.
- The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (effective from October 16, 1978).
- Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971.
- IMP Protocol 1978 and the IMO 1973 Convention.
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (Effective from August 30, 1975) not ratified by India, since it considers this convention to be linked with the Basel Convention on Transboundary Movement of Hazardous Substances.

5. Wildlife

- Convention on Biologic Diversity.
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Washington D.C.
- The Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (The Ramsar Convention).
- Convention relative to the Preservation of Fauna and Flora in their Natural State, London 1936.
- International Convention for the Regulations of Whaling (Washington, 1946).
- International Plant Protection Convention (Rome, 1951).
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979).

- Convention on the Conservation of Antarctic Marine Living Resources (Canberra, 1980) 1992.

6. Environmental Planning

- The Rio Declaration on Environment and Development.
- Agenda 21.
- Convention to Combat Desertification 1992, 1994.

7. Other environmental fields

- Convention concerning the Protection of Workers Against Ionising Radiation (Geneva, 1960).
- Protection (of Industrial Workers) Against Hazards of Poisoning Arising from Benzene.
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Brussels, 1975).
- Convention on the Protection of World Cultural and Natural Heritage (Paris, 1972).

10. CONCLUSION

India has made a concerted effort and demonstrated commitment to the environment by ratifying several multilateral agreements; the exhaustive list is noted immediately above this paragraph. Although the general implementation of such treaties in the region has been poor, the trend is changing and India has clearly illustrated a desire to fulfil its obligations, at times even exceeding them. This has mainly been achieved through the use of legislation. Additionally the country has developed a number of specific bodies to monitor the progress of ratification.

Also evident in this chapter is the active role India has often played in negotiating and drafting various agreements. A recurring theme in India's strategy has been to place a heavy onus on developed countries to lead the way to environmental improvement and effectively assist developing countries.

Ultimately there is still a need for identification of programs that have multiple benefits and can exploit ecological linkages between agreements. Public awareness of the various conventions would also stir the impetus of implementation.

APPENDIX A

LIST OF ABBREVIATIONS

ACRONYM	MEANING
BOD	<i>Biochemical Oxygen Demand</i>
CBD	<i>Convention on Biodiversity</i>
CETP	<i>Common Effluent Treatment Plants</i>
CITES	<i>The Convention on International Trade in Endangered Species of Wild Fauna and Flora</i>
CPCB	<i>Central Pollution Control Boards</i>
DCG	<i>District Crisis Group</i>
DO	<i>Dissolved Oxygen</i>
EFP	<i>Environmentally Friendly Products</i>
EIA	<i>Environmental Impact Assessment</i>
EMS	<i>Environment Management System</i>
EPA	<i>Environment (Protection) Act 1986</i>
FG	
GHG	<i>Green House Gas</i>
GMO	<i>Genetically Modified Organisms</i>
HC	<i>High Court</i>
IBWL	<i>Indian Board for Wildlife</i>
ICTP	<i>International Conventions/Treaties/Protocol</i>
IOS	<i>International Organisation for Standardisation</i>
IPRs	<i>Intellectual Property Rights</i>
LCG	<i>Local Crisis Group</i>
LMO	<i>Living Modified Organisms</i>
MBI	<i>Market Based Instrument</i>
MEA	<i>Multilateral Environmental Agreements</i>
MOEF	<i>Ministry of Environment and Forests</i>
MoRT&H	

MoU	<i>Memorandum of Understanding</i>
NRAP	<i>National River Action Plan</i>
NWAP	<i>National Wildlife Action Plan</i>
ODS	<i>Ozone Depleting Substances</i>
PA	<i>Protected Areas</i>
PCC	<i>Pollution Control Committees</i>
PIL	<i>Public Interest Litigation</i>
POP	<i>Persistent Organic Pollutants</i>
PRI	<i>Panchayati Raj Institutions</i>
SC	<i>Supreme Court of India</i>
SPCB	<i>State Pollution Control Boards</i>
TRIPS	<i>Trade Regulated Intellectual Property Rights</i>
ULB	<i>Urban Local Bodies</i>
UN	<i>United Nations</i>
UNCCD	<i>United Nations Convention to Combat Desertification</i>
UNFCCC	<i>United Nations Framework Convention on Climate Change</i>
UT	<i>Union Territories</i>
WHO	<i>World Health Organisation</i>
WII	<i>Wildlife Institution of India</i>