

**ENVIRONMENTAL
LEGISLATION
AND
INSTITUTIONS
IN
PAKISTAN**

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

**SOUTH ASIA COOPERATION FOR
ENVIRONMENT PROGRAMME (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 acknowledged for their direction and encouragement in preparation of the project.

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CHAPTER I

EXECUTIVE SUMMARY

1. INTRODUCTION

The country of Pakistan is but one of the many world nations that has been confronted with growing environmental concerns. The diverse range of issues that affects Pakistan has meant that this nation must adapt its legislative, institutional and judicial frameworks to accommodate the increasingly problematic, and sometimes dire, environmental scenario.

The South Asia region is comprised of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Given that these countries share similar economic, social and cultural contexts, the environmental maladies that confront each are also of a similar nature. In particular one can identify the systemic issues confronting each of these areas within the South Asian region. High population growth has consequentially increased urbanisation, as those seeking to alleviate their poverty migrate to urban areas for employment and other opportunities. This concentration of population within urban centres exacerbates the strain on the environment and natural resources, which in turn causes additional environmental problems to arise. Furthermore South Asia is also home to a significant but decreasing array of terrestrial and marine biodiversity, which demonstrates the growing number of environmental challenges that must be addressed in this region.

2. ENVIRONMENTAL ISSUES AFFECTING PAKISTAN

Despite this general situation of environmental concern that confronts the South Asian region as a whole, Pakistan suffers from environmental problems that have more prevalence in this country than in others. It is necessary to explore these issues to gauge the effectiveness of any legislative, institutional and judicial responses and if more is warranted to address the issue of concern.

Of particular importance in Pakistan is the extraordinary growth of gaseous emissions in the nation. Although this problem is largely confined to urban centers and industrial areas due to large amounts of vehicular, domestic and industrial emissions, air quality has been severely degraded and atmospheric pollution in the nation is so high that Pakistan has one of the worlds worst levels of pollution. Of even greater concern is that the trend of atmospheric degradation is increasing and air quality standards are deteriorating rapidly. In an effort to curb this problem the Government of Pakistan and its subsidiary agencies and institutions have collaborated to control the discharge and emission of pollution. In particular, Pakistan has been developing National Environmental Quality Standards,

which are relevant to the levels of acceptable emissions from industrial, domestic and vehicular source in the nation. In addition, a number of ordinances have also been implemented, which fortifies the governmental control over air pollution and provides a basic regime for governing bodies and agencies to enforce these provisions cooperatively and effectively.

Another issue of great concern is the absence of any satisfactory waste disposal and management facilities in Pakistan, which is compounded in those areas with a higher density of human population. The systemic issues of poverty and urbanisation has only served to exacerbate the problems in the country, especially as the current institutional systems are not equipped to cope with the complex challenges of the urban sprawl. In Pakistan the present system of waste management is far from uniform and varies from purely manual street sweeping and scavenger systems to more mechanised and efficient apparatuses. The lack of funding and great disorganisation between local, municipal, regional, provincial and federal levels of government has meant that practically half of the amount of solid waste disposed of is not removed. Thus, a cycle of poor sanitation, increased insect numbers and the spread of disease to humans is created, which has the negative effects on other areas, such as increased pressure on the health system and polluted water ways. In the absence of sufficient awareness campaigns and alterative measures of domestic and industrial waste disposal such environmental and systemic problems will not abate.

It is now feared that Pakistan has the world's second highest rate of deforestation. This has led to the elimination of trees, flora, and fauna and has serious implications for the survival of many animal habitats and the conservation of Pakistan's otherwise rich biodiversity. As almost 70% of the population resides in rural areas a great many people directly and indirectly depend on natural resources for survival. Destruction of biodiversity means basic resources such as water, air and viable agriculture will be degraded and the consequences of this can be devastating. Furthermore, on an economic level the conservation of biodiversity is central to endeavours such as eco-tourism, where natural wildlife, habitats, eco-systems and resources are crucial to a successful tourism industry.

3. JUDICIAL, CONSTITUTIONAL AND INSTITUTIONAL RESPONSES TO ENVIRONMENTAL CONCERNS

In light of the fundamental need for conservation of biodiversity in Pakistan, there has been a move to implement provisions and strategies to facilitate the protection of this basic resource. The fact that Pakistan is a Party to the Convention on Biological Diversity demonstrates its commitment to achieving sustainable development and protection of natural resources in the region. In an effort to implement the aims of the Convention measures of protection, such as the creation of protected areas, sanctuaries and the imposition of penalties for breach of the legislative provisions, have provided a basic framework for conservation of biodiversity. Furthermore, Pakistan's commitment to biodiversity is manifest in the network of international protocols, conventions and treaties

that it has signed and ratified into domestic legislation. There are two pieces of legislation enacted by the Pakistani government that are intended to provide an overriding legislative framework for environmental issues: the Pakistan Environmental Protection Ordinance 1983 and the Pakistan Environmental Protection Act 1997. These Acts are complimented by the implementation of various other Rules and Ordinances that provide a framework for dealing with the many complex environmental issues that confront Pakistan as a nation.

To administer these laws, the Government of Pakistan has established an institutional framework. For example, Pakistan Environmental Protection Agencies (PEPAs) have been established in all four of the nation's provinces to promote the overriding objectives of conservation, sustainable development and improve the decision making process. This role is particularly important in the context of increased development and industrial activity, as there is a need for firm consideration of the appropriateness of any proposed activity.

At the federal level the Ministry of Environment is the main institution that deals with issues relevant to the environment. It has divisions dedicated to the environment, urban development and wildlife and is responsible for the coordination of its derivative institutions, such as the Pakistan Environmental Protection Council (PEPC) and the Environmental Protection Agency (EPA). The PEPC formulates environmental legislation and the EPA is the agency charged with planning and implementation duties.

In the realm of judicial administration and interpretation of environmental legislation there have also been some vital developments. There are emerging procedures for the avoidance or prevention of environmental disputes, which contrast with traditional and historically inadequate processes for dealing with issues of environment. Environmental Tribunals have been instrumental in this process, as they provide better access to redress and have the capacity to enforce the law and impose appropriate penalties on those who violate the legislative provisions. The superior judiciary, in particular the Supreme Court of Pakistan, has played a positive and constructive role in the development and enforcement of environmental laws and initiatives. Essentially, the right to enjoy a clean environment has been interpreted as inherent within the Constitution, which fortifies not only the fundamental need to protect the environment but expands the right of persons to seek legal redress for environmental wrongs.

4. CONCLUSION

In this respect it is clear that Pakistan has become more aware of the imperative nature of the environment for the people, the economy and the world. It has entrenched its commitments to this issue through legislation, institutions and its judiciary. Its role as a signatory to important environmental conventions is further testimony to that fact that issues of the environment are of growing concern in Pakistan. While these initial steps are welcome, more is needed to effectively implement the objectives contained within these conventions and domestic laws.

CHAPTER II

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



Key Environmental Issues

High Population Growth; Water Pollution, Air Pollution, Solid Waste Disposal, Hazardous Waste, Biodiversity Loss; Land Degradation; Soil Degradation; Forest Depletion; Natural Disasters; Coastal Pollution; Environment Education, Environment Capacity Building

Environmental Policies

National Conservation Strategy, 1993; Provincial Conservation Strategy, 1996;

Legislation Related to the Environment

Environment Protection Ordinance 1983, revised in 1997; Punjab Wildlife (Protection, Preservation, Conservation and Management) Ordinance (No. XXI), 1972, 1973; The Pakistan Agricultural Pesticides Act, 1972; The Greater Lahore Water Supply Sewerage and Drainage Ordinance 1967; The West Pakistan Land and Water Development Board (Authority for payment from Board Fund) Rules, 1966; Pakistan Regulation and Control of Loudspeakers and Sound Amplifiers Ordinance (11), 1965; Wildlife Conservation of Fisheries Rules (No. 4(107) SO (F and C), 1964; Wildlife Conservation and Wildlife Protection Rules, 1960; West Pakistan Wildlife Protection Ordinance, 1959; Wildlife Protection Ordinance (No. LVI) 1959; The West Pakistan Water and Power Development Act, 1958; The West Pakistan Water and Power Development Act, 1958 amended in 1958, 1964, 1967; The Punjab Wild Birds and Wild Animals Protection Act (No. XIII), 1955; the Water Supply and Drainage Forest Act, No. XVI), 1927; Wildbirds and Animals Protection Act, 1912; The Sind Ligation Act, 1879 amended in 1961, 1969; The Canal and Drainage Act (No. VIII) 1873 amended in 1952, 1965, 1968, and 1970.

Environmental Institutions

Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPAs; Environmental Tribunals; Pakistan Wildlife Management Boards; Ministry of Food and Agriculture; Forest Department; Water and Power Development Authority; Ministry of Health and Social Welfare; Ministry of Planning and Development; Ministry of Defense; Ministry of Petroleum and Natural Resources; Ministry of Production; Ministry of Science and Technology; Ministry of Water and Power; Pakistan Atomic Energy Commission; Pakistan Mineral Development corporation; Ministry of Food and Agriculture; National Council for Conservation of Wildlife

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

- Convention on Biological Diversity CBD
- Framework Convention on Climate Change FCCC
- Vienna Convention for the Protection of Ozone Layer
- Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES)
- Ramsar Convention: Convention on Wetlands of International Importance Especially as Waterfowl Habitats 1982
- United Nations Convention on the Law of the Sea
- International Convention for the Prevention of Pollution from ships
- Convention of Protection of Marine Life
- Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal
- Convention on Desertification
- Treaty Banning Nuclear Weapons Test in the Atmosphere in Outer Space and Under Water

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.

(i) 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.

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.

(ii) 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

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.

(iii) 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.

(iv) 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.

(v) 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

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

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.

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

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

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

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

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.

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.	

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.
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 env'tal hazards; Right to clean and unpolluted water a FRt.	The SC and Court of Appeals exercise writ jurisdiction. Locus standi widened to hear PILs.

STATUS OF MAJOR GLOBAL ENVIRONMENT CONVENTIONS IN SACEP REGION

Country Status – Ratification
 (* = Accession)

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. GEOGRAPHICAL

Location Southern Asia, bordering the Arabian Sea, between India on the east and Iran and Afghanistan on the west and China in the north

Geographic coordinates 30 00 N, 70 00 E

Map references Asia

Area

total: 803,940 sq km

land: 778,720 sq km

water: 25,220 sq km

Comparative Area - slightly less than twice the size of California

Land boundaries

total: 6,774 km

border countries: Afghanistan 2,430 km, China 523 km, India 2,912 km, Iran 909 km

Coastline - 1,046 km

Maritime claims

contiguous zone: 24 nm

continental shelf: 200 nm or to the edge of the continental margin

exclusive economic zone: 200 nm

territorial sea: 12 nm

Climate - mostly hot, dry desert; temperate in northwest; arctic in north

Terrain - flat Indus plain in east; mountains in north and northwest; Balochistan plateau in west

Elevation extremes

lowest point: Indian Ocean 0 m

highest point: K2 (Mt. Godwin-Austen) 8,611 m

Natural resources - land, extensive natural gas reserves, limited petroleum, poor quality coal, iron ore, copper, salt, and limestone.

Land use

arable land: 27%

permanent crops: 1%

permanent pastures: 6%

forests and woodland: 5%
other: 61% (1993 est.)

Irrigated land - 171,100 sq km (1993 est.)

Natural hazards - frequent earthquakes, occasionally severe especially in north and west; flooding along the Indus after heavy rains (July and August)

Geography - controls Khyber Pass and Bolan Pass, traditional invasion routes between Central Asia and the Indian Subcontinent

Population - 135,135,195 (July 1998 est.)

note: population figures based on 1981 national census results—1998 census results are pending

Population growth rate 2.2% (1998 est.)

Government type - federal republic

National capital - Islamabad

2. ENVIRONMENTAL ISSUES

- Water pollution from raw sewage;
- Industrial wastes;
- Agricultural runoff;
- Limited natural fresh water resources;
- Lack of access to portable water supplies for a majority of the population;
- Deforestation;
- Soil erosion;
- Desertification

Environment and International agreements

Pakistan is a party to conventions related to: Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Wetlands

Pakistan has signed, but not ratified: Marine Life Conservation

3. LEGAL SYSTEM

Pakistan's legal system has been derived from English common law and contains provisions to accommodate Pakistan's status as an Islamic state. It accepts compulsory ICJ jurisdiction, with reservations

Legislative branch - bicameral Parliament or Majlis-e-Shoora consists of the Senate (87 seats; members indirectly elected by provincial assemblies to serve six-year terms; one-third of the members up for election every two years) and the National Assembly (217 seats; 207 represent Muslims and 10 represent non-Muslims; members elected by popular vote to serve five-year terms).

Judicial branch - Supreme Court, judicial chiefs are appointed by the president; Federal Islamic (Shari'at) Court

Constitution - 10 April 1973, suspended 5 July 1977, restored with amendments 30 December 1985

4. ECONOMY

Pakistan continues to suffer through a damaging foreign exchange crisis. The crisis stems from years of loose fiscal policies that exacerbated inflation and allowed the public debt, money supply, and current account deficit to explode. In April 1997, the then Prime Minister Sharif, introduced a stimulus package of tax cuts intended to boost failing industrial output and spur export growth. At that time, the IMF endorsed the program, paving the way for a \$1.5 billion Enhanced Structural Adjustment Facility. Although the economy showed signs of improvement following the measures, Sharif has refused to implement the tough structural reforms necessary for sustained, longer-term growth. As a consequence, at the end of 1997, industrial production continued to flag, foreign exchange reserves continued to teeter around \$1 billion and borrowing to support the budget deficit already exceeded the amount allocated for the entire fiscal year.

In addition to this context of poor fiscal management, the Pakistan government must cope with long-standing economic vulnerabilities—inadequate infrastructure, low levels of literacy, and increasing sectarian, ethnic, and tribal violence.

Agriculture products - cotton, wheat, rice, sugarcane, fruits, vegetables, milk, beef, mutton, eggs

Exports

total value: \$8.2 billion (FY96/97)

commodities: cotton, textiles, clothing, rice, leather, carpets

partners: EU, US, Hong Kong, Japan

Imports

total value: \$11.4 billion (FY96/97)

commodities: petroleum, petroleum products, machinery, transportation equipment,

vegetable oils, animal fats, chemicals
partners: EU, Japan, US, China

5. ADMINISTRATIVE CONTROL

- (a) National council for conservation of wildlife in Pakistan.
- (b) Pakistan forest institute.
- (c) Zoological survey of Pakistan.
- (d) Pakistan environmental protection agency (pak-epa)

Federal Institutions:

- (a) Promotion of local government institutions
- (b) Planning and coordination;
- (c) Grants-in-aid; and
- (d) International aspects including liaison with community development and local government institutions in other countries.

6. CRITICAL ENVIRONMENTAL ISSUES

Environmental Issues

The fear of an imminent environmental crisis, which was previously restricted to the small-developed countries, has suddenly increased to be a problem of global dimensions. The extensive development and growth of many countries without regard for the corresponding environmental impacts is leading to resource depletion, pollution and degradation of ozone layer. These global issues have alarmed the international governments and organizations, which have attempted to address some of these environmental concerns. Due to the lack of economic resources and prevalent poverty in developing countries, these nations find it extremely difficult to strike a balance between raising the low standard of living of the people and protection of the environment. Efforts at a global level are needed to confront and deal with the environmental issues at hand.

Pakistan is situated in the South Asian peninsula with a population of 131 Million. It has very diverse topography and climatic zones, with 5 majors ethnic groups spread over the country. Government has recently started taking great interest in environmental affairs. A very high rate of population growth, poverty, illiteracy and ineffective enforcement of environmental legislation has contributed to the rapidly deteriorating environment situation in the country. Industrial and vehicular emission and lack of adequate waste disposal systems are causing air pollution. There is also a serious lack of infrastructure for

clean water supply, which has created pollution of water systems throughout the region. Furthermore, as there are practically no international level sewage treatment plants in Pakistan, the problem of pollution is exacerbated. The marine life is under great threat due to influx of industrial wastes and oil spills into water bodies, such as the Karachi harbour. Almost 40% of arable land is non-productive. Water logging and salinity are rapidly destroying the potential for cultivation and agricultural production of millions of hectares of land. There is an acute shortage of forests, which is exacerbated by the fact that the existing ones are being cut down to supply fuel-wood various animals. The cumulative effects of these various environmental problems have culminated in the extinction and threat of extinction of many bird and plant species.

Development Issues

- a. Involvement of the bureaucratic system to solve environmental problems, which lacks an imaginative and creative approach.
- b. Irrational pricing and cost recovery policies regarding water, electricity, gas and fertilizers, giving no incentive for efficient end-use.
- c. Prevalent protectionism for local industry.
- d. Weak enforcement of existing environmental legislation.
- e. Lack of funding and commitment for mass programs.
- f. Safe drinking water supplies and waste disposal/recycling are the major issues, which merit the attention of the government.

The Ministry of Environment, Local Government and Rural Development agencies are actively functioning to solve the country's environmental problems. The Pakistan Environmental Protection Act, 1997, has been implemented in an effort to fortify institutional protection for the environment. Environmental Protection Agencies (EPAs) have been set up in all of the four provinces. The Pakistan Environmental Protection Council (PEPC), which is headed by the Prime Minister, is actively engaged in countering the environmental problems. In a further demonstration of the growing commitment of Pakistan to environmental concerns, it became the 23rd country in the world to adopt a National Conservative Strategy (NCS), in March 1992. The NCS is a policy document on environmental conservation, containing the viewpoint of experts and individuals from all sectors of the socio-economic sphere.

7. PROBLEM CAUSES AND RESPONSES

Increase in Population

The total population of Pakistan on January 01, 1997 was estimated to be approximately 131 million. With the current high growth rate of 3% per annum, Pakistan's population would exceed 135 million by the end of this century. Pakistan's population growth rate has been increasing gradually since 1931 onwards, though there has been some decrease in this rate between 1972-1981. In light of the large and growing population, there is a corresponding level of high unemployment, which puts pressure on the provision of

public services such as electricity, water supply and sewerage. This pressure has the effect of creating unhygienic lifestyles for a large number of people, which ultimately has destructive consequences for the environment.

Hence there is an urgent need to curb the high population growth rate to enable the nation to evenly distribute its resources and infrastructure among the population. For this purpose the National Conservation Strategy (NCS) prepared by the Government of Pakistan proposed a project to integrate environment and population programs. This project consists of 3 components, which are:

- (1) Acceleration of conventional population welfare programs through the health system and NGOs;
- (2) Involvement of the resource sector extension agents in disseminating family planning goals;
- (3) Implementation of an extensive population program in fragile areas with high fertility rates.

8. LEGAL FRAMEWORK

Constitution of Pakistan, 1973; Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997; Environmental Quality Standards; Fisheries Act, 1997; Pakistan Environment Protection Ordinance 1983, revised in 1997; The West Pakistan Regulation and Control of Loudspeakers and Sound Amplifiers Ordinance (11), 1965; The Pakistan Agricultural Pesticides Act, 1972; Pesticide Rules; The Canal and Drainage Act (No. VIII) 1873 amended in 1952, 1965, 1968, 1970; The Sind Ligation Act, 1879 amended in 1961, 1969; The West Pakistan Water and Power Development Act, 1958 amended in 1958, 1964, 1967; The West Pakistan Land and Water Development Board (Authority for payment from Board Fund) Rules, 1966.

CHAPTER V

OVERVIEW OF CONSTITUTIONAL, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

A: CONSTITUTIONAL FRAMEWORK IN PAKISTAN

Key Issues: No Specific Provisions for the right to a clean environment as a Fundamental Right

Key Provisions: Constitution of Government of Pakistan (Articles 9,18, 199)

Key Institutions: Supreme Court of Pakistan; Provincial Courts; District Courts; Authorities; Tribunals

1. INTRODUCTION

As in the 1956 and 1962 Constitutions, the Constitution of Islamic Republic of Pakistan 1973 (including its preamble) does not specify any principle or policy objective that indicates the environmental rights and obligations of the State and its citizens. However, the environment is on the “Concurrent List” of the Constitution. This enables both the Federal and Provincial Governments to address environmental concerns through legislative enactments, Thus under Article 142, the Parliament (National Assembly and Senate) and the Provincial Assemblies are empowered to make environmental laws. This provides greater flexibility by enabling Parliament to legislate on matters of national importance and uniform or general applicability, and the Provincial Assemblies to legislate on matters of particular concern to their respective provinces.

2. CONSTITUTIONAL PROVISIONS

In the 1956 Constitution, subject matter relating to the environment, such as “forests”, the “protection of wild animals and birds”, the “prevention of cruelty to animals”, “fisheries and agriculture”, “water”, “public health and sanitation”, “industries”, “factories and boilers”, were all on the Provincial List. Thus the Provincial Legislature had exclusive power to make laws with respect to these subject matters. In the 1962 Constitution, “Fishing and fisheries outside territorial waters” and “Industries owned wholly or partly by the Central Government or by a corporation set up by the Centre” were placed on the list containing matters with respect to which the Legislature had exclusive power to make laws for.

The Constitution, in Part II, Article 9 states that no person shall be deprived of life or liberty, unless in accordance with law. The Constitution of Pakistan does not have any provisions relating to the environment. However, the Supreme Court of Pakistan has interpreted the provisions relating to the right to liberty and right life as implicitly involving the right to a protected environment. In coming to this conclusion the Supreme Court referred to the Rio principles and other environmental objectives contained within international laws.

Article 29 of the Constitution states that ~~the~~ provisions of this Chapter do not confer or impose legal rights or obligations, and are not enforceable in any court or tribunal". No question that is inconsistent with such provisions shall be raised in any court or tribunal in Pakistan without being prejudicial to the provisions of Article 199. The Supreme Court shall, if it considers that a question of public importance with reference to the enforcement of any of the Fundamental Rights conferred by Chapter I of Part II is involve have the power to make an order of the nature mentioned in the Article.

Pakistan's Draft NWFP Environmental Act 1996 provides for the rights of citizens to a healthy environment, the right of access to information concerning the environment, the right of participation in decisions that affect the environment, the right to an investigation of an alleged offence under the Act, the right of employees to protect against victimisation in cases where they file a report or complaint regarding contravention of the Act and the right to initiate legal action regarding failure to comply with the Act. Most cases pertaining to the environment have been decided on the basis of Article 9 of the Constitution which provides for the fundamental right to life. In the case of *Shehla Zia v. WAPDA* (PLD 1994 SC 693), the Supreme Court enlarged the scope of the right to life. The court held that life does not simply mean animal life or vegetative existence, but that the word ~~life~~" covers all facets and aspects of human existence. The court observed that life includes such amenities and facilities to which a person born in a free society is entitled. The Court concluded that the installation or construction of a grid station or transmission line in the vicinity of a populated area may expose the residents to the hazards of electro-magnetic fields and is therefore in violation of Article 9 of the Constitution.

B: LEGISLATIVE FRAMEWORK IN PAKISTAN

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 Pakistan, 1973; Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997; Environmental Quality Standards; Fisheries Act, 1997; The Pakistan Penal Code, 1860; The Canal Drainage Act, 1873; The Punjab Local Government Ordinance, 1979; The Motor Vehicles Ordinance, 1965; and The Motor Vehicles Rules, 1969; The Factories Act, 1934; The West Pakistan Fisheries Ordinance, 1961; The Forests Act, 1927; The Boilers Act, 1923; The Pakistan Petroleum (Exploration and Production) Rules 1986; The Antiquities Act, 1975; The West Pakistan Epidemic Diseases Act, 1959

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPAs; Environmental Tribunals; Pakistan Wildlife Management Boards

1. LEGISLATION

Prior to promulgation of the Pakistan Environmental Protection Ordinance (PEPO) of 1983 and the recent passage of Pakistan Environmental Protection Act (PEP-Act) 1997, Pakistan had some laws containing provisions for environmental protection. These laws dealt with land use, water quality, air quality, noise, toxic and hazardous substances, solid waste and effluents, marine and fisheries, forest conservation, mineral development, energy, public health, etc. They were not effective, as punishment for violations was mild and easy to circumvent. The laws included:

- The Pakistan Penal Code, 1860
- The Canal Drainage Act, 1873
- The Punjab Local Government Ordinance, 1979
- The Motor Vehicles Ordinance, 1965; and The Motor Vehicles Rules, 1969
- The Factories Act, 1934
- The West Pakistan Fisheries Ordinance, 1961
- The Forests Act, 1927
- The Boilers Act, 1923
- The Pakistan Petroleum (Exploration and Production) Rules 1986
- The Antiquities Act, 1975
- The West Pakistan Epidemic Diseases Act, 1959, etc.

The Pakistan Environmental Protection Ordinance (PEPO) was promulgated in 1983 and is regarded as the umbrella statutory tool, as it is broad and not very comprehensive. PEPO was supplemented by with the National Conservation Strategy which emerged out of 4 years of participatory process oriented approach of extensive consultations with various interest groups, general public and technical experts and was adopted in 1992. In response to the deficiencies inherent in PEPO the government of NWFP prepared a draft environmental Act, which emerged as a result of active public participation in a workshop on environmental legislation and the key recommendations of SPCS.

In addition to the development of PEPA in 1997 the Federal Government also promulgated the Environmental Protection Ordinance. This was indeed a reforming and consolidating law. The gaps, loopholes and inconsistencies of previous environmental statutes were addressed and resolved. The enforcement mechanism for the new ordinance was somewhat weak, particularly at the provincial level. This led to a review process that aimed to make the law more comprehensive and fully effective. The Government initiated a consultative process involving the relevant Government departments, the provincial Governments, NGO's and the private sector for the purpose of evolving consensus on a new draft law. Borrowing the provisions of the 1983 Ordinance, a draft was prepared and circulated for public commentary. Seminars and discussion were organised wherein there was much public participation, and finally a consensus was reached on the draft. Later, the caretaker Government of 1997 promulgated this draft through an ordinance called the Pakistan Environmental Protection Ordinance 1997, which came into force on February 11th, 1997. The ordinance was placed before the National Assembly and subsequently referred to the Standing Committee who approved it. It is now pending before Parliament.

The Environmental Ordinance is widely regarded as an umbrella statutory tool for addressing environmental matters. There is a great deal of alternative federal and provincial legislation already in existence, all of which relates to pollution control and the preservation of natural resources. Much of this legislation has been in circulation for many years but could be adapted for the purposes of regulating present day activities. The existing laws cover issues of land use, forests, wildlife, range land management, irrigation, sanitation, erosion, fisheries, minerals, groundwater, rivers and marine waters, noise and vehicular pollution. To protect areas of outstanding natural interest, national parks and nature reserves are being established in NWFP. Many statutes, laws and rules exist which allow considerable freedom of action under statutory law, if the need arises.

In light of the current fragmentation there obvious need to consolidate the various aspects of national resources and environmental protection under a common statute. Thus, PEPO 1983 was replaced with the Pakistan Environmental Protection Act (PEPA) 1997, which was more comprehensive and provided better guidelines for the protection and conservation of species, habitats and biodiversity and conservation of renewable and non-renewable resources. Unfortunately most of the rules and regulations established by PEPA are not in force, as the thrust of legislation is on motivation and awareness rather than enforcement, sanction and punishment. PEPA seeks to ensure that environmental considerations and concerns for sustainable development are incorporated into national

development plans and policies. This legislation was result of an extensive consultative process between the public and the legislative bodies.

Following this extensive consultative process the draft legislation, which was prepared in 1993, was circulated among a large number of individuals and groups including parliamentarians, federal and provincial government functionaries, Bar councils/associations, journalists and educational institutions. In addition, input from the Law commission, Law Ministers, Law Secretaries, Overseas Chamber of Commerce and Industry; Board of Investment; Export Promotion Bureau; Associations of Chemical, Textile, Engineering, Cement, Fertilizers; Pharmaceutical, Banks; D.F.I.s was also sought in relation to the proposed legislation. Provincial Environmental Protection Agencies also held consultative workshops in the provincial capitals, attended by eminent persons from different walks of life and by representatives of Environmentally active NGOs.

The opinions of these diverse sectors of people and agencies were received and carefully considered and the legislation was revised in the light of these inputs. Thus the proposed legislation is a unique product of a public participation process and has undergone, before enactment, perhaps the most extensive public consultative process in Pakistan.

2. PAKISTAN ENVIRONMENTAL PROTECTION ACT, 1997

The salient features of the Pakistan Environmental Protection Act, 1997 are:

Preamble

The Preamble of the PEP Act, 1997 provides for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development.

Definitions

The Act covers air, water, soil, marine and noise pollution (including motor vehicular pollution), handling of hazardous substances and conservation of bio-diversity.

Comprehensive definitions of “environment”, “adverse environmental effect”, “bio-diversity”, “project”, and the concept of “sustainable development have been included.

Protection Council

The Act is also responsible for the establishment of the Pakistan Environmental Protection Council, headed by the Prime Minister with the Chief Ministers of the Provinces as its members.

It has been clarified that the Pakistan Environmental Protection Council is to approve national environmental policies within the framework of a National Conservation Strategy, as may be approved by the Federal Government from time to time.

National Quality Standards

Discharges or emissions in excess of the National Quality Standards or other standards established by Pakistan Environmental Protection Agency, where ambient conditions so require, has been prohibited.

Pollution Charges

The Federal Government has been empowered to levy a pollution charge on persons not complying with the NEQS.

Environment screening

A two-stage environmental screening process has been introduced for proposed projects involving the filing of either, an Initial Environmental Examination, or for projects likely to cause adverse environmental effects. This also involves the instigation of an Environmental Impact Assessment inquiry.

The import of hazardous waste has been prohibited. Handling of hazardous substances has been prohibited except under licence. To ensure compliance with the NEQS, the Pakistan Environmental Protection Agency has been empowered to compel the installation of pollution control devices, or the use of such fuels or undergo such maintenance or testing as may be prescribed, in motor vehicles.

Environmental Protection Agencies to enforce Environmental Protection Order

The Pakistan Environmental Protection Agency and Provincial Environmental Protection Agencies have been empowered to issue an Environmental Protection Order (EPO) to deal with an actual or potential adverse environmental situation, which is in violation of the provisions of the Act.

Penalties

The Environmental Tribunal and the Environmental Magistrates have been empowered to award compensation for losses/damages. The Environmental Tribunal may also recover monetary benefits from the offenders. Persistent offenders can be subject to imprisonment.

Complaint by Aggrieved

An aggrieved person can file a complaint with the Environmental Tribunal after giving 30 days notice to the Federal Agency or the Provincial Agency concerned.

Environmental Tribunals and Courts

Environmental Tribunals have been constituted with the exclusive jurisdiction to try serious offences under the Act. The chairperson of the Environmental Tribunal shall be a person qualifying for appointment of a Judge of the High Court. Minor offences relating to pollution by motor vehicles, and violation of rules & regulations etc. are to be tried by the Environmental Magistrates

International Conventions

The Federal Government has been empowered to make rules for implementing important international environmental conventions, treaties and protocols to which Pakistan is a party.

Overview of the Pakistan Environmental Protection Act, 1997

The PEP Act, 97, *inter-alia*, has two main functions being the creation of institutions and regulation of activities. The institutions that it creates have, in general, covers much broader subject matters than the specific activities that PEPA regulates. PEPA, 97 is enforced through a combination of administrative measures, judicial sanctions and the active involvement of society.

Pollution Control and Abatement

Pollution is controlled through four main provisions.

- **Discharge or emission in excess of NEQS:** The primary anti-pollutant measure is contained in section 11, which prohibits the discharge or emission of any effluent waste, air pollutant or noise in an amount exceeding the National Quality Standards (to be prescribed in the rules and regulations) or ambient standards for air, water or land (set under paragraph 6(g)).
- **Motor vehicle emissions in excess of NEQS:** This provision (contained in section 15) applies to motor vehicles and prohibits noise or air pollutants in an amount exceeding the National Quality Standards or ambient standards for air, water or land (set under paragraph 6(9)). It is not possible to be charged under both section 11 and section 15 for the same offence. A motor vehicle emission should be charged under section 15.
- **Prohibition on import of hazardous waste:** This is a blanket prohibition (contained in section 13) on the importation of hazardous waste into Pakistan, its territorial waters, the exclusive economic zone or Pakistan's historic waters (as specified pursuant to section 7 of the Territorial Waters and Maritime Zones Act 1976).
- **Handling of hazardous substances:** Section 14 prohibits the generation, collection, transportation, treatment, disposal, storage or handling of hazardous waste except under a licence issued by the EPA or in accordance with the provisions of any domestic law or relevant international convention. This relates in particular to the Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, Basel, 1989.

Assessing Environmental Impacts

Section 12 provides that no person can commence construction or operation of a project, where such project falls within a prescribed category, unless in respect of that project:

- a) An Initial Environmental Examination (IEE) has been undertaken; or

Overview of Constitutional, Legislative and Institutional Framework

- b) Where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA), has been filed with the EPA and its approval has been obtained.

The rules and regulations will also specify the content of an IEE or EIA. In concept, an IEE is a preliminary document, as its full title suggests (initial environmental examination). Its purpose is to deal with those classes of projects where a full environmental impact assessment may not be warranted. Upon receipt of an IEE, the EPA must either give its approval to the project or require the submission of an EIA (section 12(2)(a)).

With an EIA, the EPA has the power:

- To approve the project (with or without conditions);
- To require that the EIA be resubmitted with modifications or
- To reject the project as being contrary to environmental objectives (section 12(2)(b)).

However, before the EPA can issue its approval, it must carry out the review of the EIA with public participation (section 12(3)). This provides an entry point for the public to make its point of view known. The public also has a right to inspect the registers of IEE's and EIA's, which will contain brief project particulars and a summary of decisions taken (section 12(7)).

For both EIA and IEE, the EPA must give its approval or otherwise within four months of receiving it, provided that it complies with the prescribed procedure. If the EPA fails to do so then the project will be deemed to have been approved to the extent that it does not contravene the Act or its rules and regulations (section 12(4)). This means for example, that an industrial unit that would produce emissions exceeding the limits set out in the National Environmental Quality Standards could not be taken to be approved under this provision. This four-month period may be extended by the Federal Government. It must also be noted that case law suggests that this power is placed in the hands of the Federal Government rather than the Federal Agency (although it may be delegated under section 26).

C: INSTITUTIONAL FRAMEWORK IN PAKISTAN

Key Issues: Environment Capacity Building; Environment Data Base; Environment Information; Environment Education; Technical man power;

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's; Environmental Tribunals; Pakistan Wildlife Management Boards

1. INTRODUCTION

The government institutions with designated responsibility for natural resource management are sectorally organised, in line with the general arrangements for administration and development between the Federation, provinces, and local bodies. Co-ordination mechanisms for economic planning and project approval are well established, especially for large infrastructure projects. But generally speaking the ministries and attached departments have limited capacities for the analysis of environmental impact, many of which are cross-sectoral, and line agencies are not oriented towards joint facilitation of local developments. Much more collaboration and coordinated extension is needed to promote the long-term rational use, administration and management of resources.

Land and revenue settlement and the demarcation of State, private, and common property, is the function of the district administration under the provincial boards of revenue, while forest departments oversee local rights to produce in forest lands. Revenue settlement and land consolidation have become dated, which has led to increased resort to private litigation. The growing number of household members who have local rights to forests has further increased the pressure upon forest resources.

2. LEGAL BASIS FOR INSTITUTIONS

In 1979/80 the promulgation of Local Government Ordinances in the four provinces of Pakistan established institutions and empowered them to prepare and implement schemes for prevention of pollution in air, water and land, and for this purpose allowed them to collect taxes from the citizens.

A growing consciousness of the need to enact a framework of environmental law to address environmental issues began to emerge after the UN Conference on the Human Environment held in Stockholm in 1972 and, as such, the Pakistan Environmental Protection Ordinance was promulgated in 1983. The thrust of this legislation is on motivation and awareness. It seeks to ensure that environmental considerations and concerns are incorporated into national development plans and policies. This ordinance among other things requires EIA to be undertaken for all major development projects. In addition, the Ordinance gives statutory cover for the establishment of Pakistan Environmental Protection Council (PEPC), Pakistan Environmental Protection Agency (Pak-EPA) and provincial EPA's, and makes provision for the formulation of National guidelines for pollution control. As a result, the National Environmental Quality Standards (NEQS) came into existence. These standards (NEQS) were approved by the PEPC and relate to municipal and industrial liquid effluents, industrial gaseous emissions

and motor vehicles exhaust and noise, and came into force for new industrial units on 1-7-1994 and for existing industrial units on 1-7-1996.

The PEPO, 1983 was supplemented with the development of National Conservation Strategy which emerged out of a four year participatory oriented approach, which relied upon extensive consultations with various interest groups, the general public and technical experts. The Cabinet of Pakistan Government adopted the NCS with its 14 core areas in 1992. The National Conservation Strategy of Pakistan was formulated with the following three main objectives, (I) conservation of natural resources (II) sustainable development and (III) improved efficiency in the use and management of resources. The NCS highlighted the need to review existing environmental legislation, including the 1983 Ordinance, in order to update, strengthen, rationalise and improve the enforcement of these laws.

The PEPO, 1983 was considered as being narrow in scope and having some deficiencies. This was especially apparent in that the Ordinance did not address many issues critical to the preservation of environment such as, providing guidelines for the protection and conservation of species, habitats and bio-diversity and the conservation of renewable and non-renewable resources. The PEPO 1983 was replaced with the promulgation of a more comprehensive PEPO, 1997, which was later enacted as an Act of Parliament of Pakistan and enforced with the name of Pakistan Environmental Protection Act, 1997.

Institutions created by PEPA, 1997

- Pakistan Environmental Protection Council (section 3): This is headed by the Prime Minister and includes relevant Federal and Provincial Ministers as well as up to 35 representatives from various sectors. Its role (section 4) is one of overview supervision and coordination and, amongst other things:
 - To approve the National Environmental Quality Standards (NEQS);
 - To approve comprehensive national environmental policies;
 - To provide guidelines for the protection and conservation of species, habitats and biodiversity in general and for the conservation of non-renewable resources; and
 - To ensure that sustainable development is fully incorporated.

It also has the power to direct any part of government to prepare, submit, promote or implement projects for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution and the sustainable development of resources. This power can be exercised either on the Council's own initiative or on the request of any person or organisation. As such, it is possible for a member of the public, an industrial concern or an NGO to seek a solution to an environmental problem through this route.

- The Pakistan Environmental Protection Agency (the "Federal EPA") (section 5): this is the central implementing agency for the Act. Its functions and powers are extensive (section 6) and cover all aspects of implementing the Act, including:

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- Administering and implementing the provisions of PEPA and its rules and regulations (paragraph 6(a));
- Preparation, revision and the establishment of the National Environmental Quality Standards (subject to prior publication for the purposes of soliciting public opinion) (paragraph 6(e));
- Enforcement of the National Environmental Quality Standards (paragraph 6(f));
- Establishment of the standards for the quality of ambient air, water and land (paragraph 6(9));
- Establishment systems for surveys, monitoring, inspection and audit to prevent and control pollution, and to estimate the costs of cleaning up pollution and rehabilitating the environment (paragraph 6(i));
- To render advice and assistance in environmental matters (paragraph 6(m));
- To encourage the formation and working of NGOs, community organizations and village organisations to prevent and control pollution and promote sustainable development (paragraph 6(s)), and
- To take all necessary measures for the protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution and promotion of sustainable development.

The Federal EPA will not necessarily exercise these functions itself. Section 26 provides that the Federal Government may delegate any of the functions of the Federal EPA to any specific part of the Federal Government, or of a Provincial Government, local council or local authority. Although the relevant Provincial EPA will ordinarily be delegated such powers for its own Province, it does not follow that a Provincial EPA will necessarily be the relevant body exercising delegated functions.

Additionally, it is important to note that in exercising its functions, the Federal EPA and the Provincial EPA's are bound by the directions given to them in writing by the Federal Government. Similarly, a Provincial EPA is bound by the directions given to it by the Provincial Government (section 27). This creates potential for either a positive or negative influence from external sources.

- **Provincial Environmental Protection Agencies (section 8):** These bodies will exercise those powers and functions of the Federal EPA that have been delegated to them by the Provincial governments, which were delegated to Provincial Governments by the Federal government pursuant to section 26.
- **Provincial Sustainable Development Funds (section 9):** These are to be set up to provide financial assistance to environmental projects and to further the objectives of PEPA.
- **Environmental Tribunals (section 20):** These are to be set up to try the more serious offences under PEPA as well as issue arrest warrants (section 21). This body also acts as an appeal body from the directions or orders of an EPA (section 22).

- **Environmental Magistrates (section 24):** These will be judicial magistrates especially empowered by the High Court to try the less serious offences under the Act.

CHAPTER VI

NATIONAL ENVIRONMENT GOVERNANCE

Key Issues: Water Pollution, Air Pollution, Solid Waste Disposal, Hazardous Waste, Biodiversity Loss; Land Degradation; Forest Depletion; Natural Disasters; Coastal Pollution; Environment Education, Environment Capacity Building

Policy Framework: National Conservation Strategy, 1993; Provincial Conservation Strategy, 1996;

Key Legislation: Constitution of Pakistan, 1973; Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997; Environmental Quality Standards; Fisheries Act, 1997; Pakistan Environment Protection Ordinance 1983, revised in 1997; The West Pakistan Regulation and Control of Loudspeakers and Sound Amplifiers Ordinance (11), 1965; The Pakistan Agricultural Pesticides Act, 1972; the Pesticide Rules; The Canal and Drainage Act (No. VIII) 1873 amended in 1952, 1965, 1968, 1970; The Sind Ligation Act, 1879 amended in 1961, 1969; The West Pakistan Water and Power Development Act, 1958 amended in 1958, 1964, 1967; The West Pakistan Land and Water Development Board (Authority for payment from Board Fund) Rules, 1966; The Greater Lahore Water Supply Sewerage and Drainage, Ordinances 1967; Water Supply and Drainage Forest Act, No. XVI), 1927; Wildbirds and Animals Protection Act, 1912; The Punjab Wild Birds and Wild Animals Protection Act (No. XIII), 1955; Punjab Wildlife (Protection, Preservation, Conservation and Management) Ordinance (No. XXI), 1972; specifically related Rules, 1973; West Pakistan Wildlife Protection Ordinance, 1959; Wildlife Conservation Wildlife Protection Rules, 1960; Wildlife Protection Ordinance (No. LVI) 1959;

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's; Environmental Tribunals; Pakistan Wildlife Management Boards; Ministry of Food and Agriculture Forest Department Forest and Wildlife Conservation; Water and Power Development Authority; Ministry of Health and Social Welfare; Ministry of Planning and Development; Ministry of Defense; Ministry of Petroleum and Natural Resources; Ministry of Production; Ministry of Science and Technology; Ministry of Water and Power; Pakistan Atomic Energy Commission.

1. INTRODUCTION

In the legislative and institutional sphere there have been many new introductions in an effort to fortify Pakistan's commitment to the environment. The Environmental Protection Ordinance (EPO) (1983) made it compulsory to carry out EIA/IEE under Section 8. The Environmental Protection Council and the Pakistan Environmental Protection Agency were made responsible for the implementation of EPO. An

environmental profile of Pakistan was prepared in 1987 and subsequently the National Conservation Strategy (NCS) emerged as a policy document on the environment. The government started implementing NCS by incorporating its recommendations in the Plan into each development sector, in addition to a separate section on the environment. An NCS unit was set up in the Ministry of Environment, Urban Affairs, Forestry, Wildlife, Fisheries, Local Government, and Rural Development. An Environmental section was also set up in the Planning Commission with similar cells in the Provincial Planning Departments. The Provincial Environmental Protection Agencies were also established. The Sarhad Provincial Conservation Strategy (SWFP) was created with the objective of securing the economic, social and ecological well-being of the population in the province through the protection/conservation of natural resources and their exploitation on a sustainable basis. This objective was pursued through existing institutions to make it capable of implementation. Public consultations at district and village levels have contributed to awareness raising, priority setting and the generation of ideas on local solutions for local problems. This local level consultation was also instrumental in creating an ownership of the environmental problems, which challenges a culture of denial and blame.

2. DEVELOPMENT POLICIES

In Pakistan, the environmental concerns received minimal mention in the 1st, 2nd, and 3rd 5th year Plans (1951-1965). The 4th Plan was indirectly oriented towards the preservation and protection of the environment, but was not implemented as a result of political change. The 5th Plan was premised upon the ideal that housing and a healthy living environment were basic human necessities and that improvements in the environment also contribute to the economic growth. The 6th Plan envisaged environmental protection, particularly the reclamation of land through control of salinity and water logging, and the improvement of slums and squatter settlements. The 7th Five Year Plan and the 15-year Perspective plan (1988-2003) came together and gave full recognition to the interrelationship between population, resources, environment and development. In the 8th Plan (1993-1998) a full chapter on the environment was included.

Pakistan drives its development policies for the environment from a document entitled the National Conservation Strategy (NCS). The NCS is organised around the 14 core areas with details of programs needed to support the changes called for. These core areas are:

- Maintaining soil in croplands
- Increasing irrigation efficiency
- Protecting watersheds
- Supporting forestry and plantations
- Restoring rangelands and improving livestock
- Protecting water bodies and sustaining fisheries
- Conserving bio-diversity
- Increasing energy efficiency

- Developing and deploying renewables
- Preventing/abating pollution
- Managing urban wastes
- Supporting institutions for common resources
- Integrating and population and environment programs
- Preserving the cultural heritage

Serious efforts to implement the Strategy were attempted in 1995 when a large portfolio of projects was prepared in every core area. The Federal and Provincial Governments and NGOs have since approved most of the projects. The Strategy's operating principle is to achieve greater public partnership in decision-making. The Strategy evolved through extensive process of experts' consultations, dialogue with target groups, seminar and meetings. Consequently the Sarhad Provincial Conservation Strategy was adopted by Pakistan in 1996. Unfortunately the following constraints exist, which inhibit efforts to accelerate growth:

- Less than 20% of Pakistan's land can be intensively farmed, nearly all of which is already cultivated.
- Only half the urban wastes are disposed of in sewers, with most remaining untreated.
- Range lands are producing only 15% to 40% of their potential.
- The total fertility rate, which has remained nearly unchanged for decades, is about 6.5 children per women, putting Pakistan in the group of the fastest populating countries in the world.
- Approximately 60% of infant deaths are due to infectious and parasitic diseases, most of which can be traced to polluted water.
- Only 30% of the irrigation water diverted at canal heads reaches crop routes, with the rest being lost during application.
- Population of some waterways has reached such a point that fish production in the river Ravi, below Lahore, has been cut by 5000 tones a year.

The drastic environmental destruction that has occurred in the last decades has inspired an international commitment to abating and preventing such environmental maladies. This commitment is evident in the enormous growth of international conventions and treaties on endangered species, hazardous wastes, deterioration of the earth's protective ozone layer and similar environmental issues. At the Earth Summit in Rio-de-Janeiro held in 1992, Pakistan coordinated with many nations in an effort to globally respond to the pressures being put on its created by consumption patterns and growing human numbers. In this respect the National Conservation Strategy of Pakistan was developed, which has three over-riding objectives i.e. Conservation of Natural Resources, Sustainable Development and Improved efficiency in the use and management of resources.

3. INSTITUTIONS

For the purpose of ensuring environmental protection and the preventing pollution, the Environment and Urban Affairs Division (EUAD) was established in 1974. The creation of this body has had limited benefits, particularly as the Division is composed of a staff of only four professionals, none of who are environmental specialists.

The creation of an upgraded and fully constituted Ministry of Environment is a specific step towards institutional strengthening. The Prime Minister of Pakistan is the Federal Minister, along with Minister of State as the Minister in charge of the subject of environment. This Ministry has responsibilities for dealing with issues relevant to the Environment, Urban Affairs, Forestry, Wildlife, Local Government, Rural Development and Energy Conservation.

A high level council referred to as the Pakistan Environmental Protection Council (PEPC), was first established under the Pakistan Environmental Protection Ordinance (PEPO) 1983. This Council was chaired by the President of Pakistan, and when it came under the legal cover of the Pakistan Environmental Protection Act (PEPA) 1997, the chair was the Prime Minister.

Environmental protection agencies established in all four provinces focus on industrial and urban pollution problems. The Ministry of Food, Agriculture, and Co-operatives is the lead agency for wildlife conservation, acting through the National Council for Conservation of Wildlife and in support of provincial wildlife departments and boards.

Almost 10,000 non-governmental organisations (NGOs) are registered in the country, mostly dealing with social welfare issues rather than development or the environment. Many senior officials of these groups are volunteers or part-time workers. Most are experienced individuals, but NGOs lack mid-level professionals and well-trained support staff. Their limited institutional development inhibits their capacity to facilitate sustainable development.

The Environment Section in NWFP was set up in 1992. The main responsibilities of this Section are the scrutiny and approval of projects related to the environment, forestry, wildlife, fisheries and tourism and overseeing the implementation of relevant parts of 5 year plans. In light of the comprehensive responsibilities of this body and the understaffed and under qualified nature of its existence it has inherent defects that need to be addressed.

The Environment Wing in NWFP was established in 1996. Its main tasks are policy formulation, the preparation and execution of environmentally related projects, the coordination and implementation of SPCS, the development and supervision of environmental legislation at the federal and provincial levels, the monitoring and supervision of EPA, the management of funds for sustainable development and the coordination and implementation of international Conventions on the environment. The Environmental Protection Agencies (EPA's) have been set up in all of the four provinces.

At the federal level, the Ministry of Environment is the main institution in charge of environmental issues. It has divisions directed to deal with concerns related to the environment, urban development and wildlife. Under the ministry, the Pakistan Environment Protection Council (PEPC) and Environmental Protection Agency (EPA) are the major authorities on environmental protection. The PEPC formulates environmental legislation, while the EPA is a planning and implementing agency. Other federal ministries make policies on the environment in their responsibilities and implement such. For example, the Ministry of Food and Agriculture covers wildlife conservation and national parks management with the support of National Council for Conservation of Wildlife. The Water and Power Development Authority (WAPDA) is responsible for implementing various projects in the water sector.

The Federal Environmental Protection Agency was created under the Ministry of Environment as an implementing agency. At the provincial level, a provincial EPA is to be established and has in fact been established in four provinces. The EPA in Punjab is the most active among them. The others Environmental Protection Agencies established in the Provinces include the Sind, North-West Frontier Province (NWFP) and Balochistan EPA's.

The government institutions for natural resource management are sectorally organised, in line with the general arrangements for administration and development between the federation, provinces, and local bodies. Coordination mechanisms for economic planning and project approval are well established, especially for large infrastructure projects. However, generally speaking, the ministries and attached departments have limited capacities for the analysis of environmental impacts, many of which are cross-sectoral. Additionally, line agencies are not oriented towards joint facilitation of local developments and, as such, it is clear that more collaboration and coordinated is needed to promote the long-term rational use of resources.

Land and revenue settlement and the demarcation of State, private, and common property is the function of the district administration under the provincial boards of revenue. Alternatively, forest departments oversee local rights to produce in forestlands.

4. PREVENTION AND SETTLEMENT OF ENVIRONMENTAL DISPUTES

The procedure for avoidance or prevention of environmental disputes may be characterised as relatively new and emerging. While procedures for the settlement of disputes are in contrast to the traditional and well established principles, they are more successful in dealing with specific problems related to the environment and development.

In the area of the environment, certain damage may occur for which no monetary compensation, however large, and no efforts at restoration, however, diligent, would ever restore the damaged area, property or resources to its original condition. Accordingly, it would be far better to prevent or avoid the occurrence of such damage in the first place,

than to count on corrective or compensatory measures through dispute settlement mechanisms.

The human activities that destroy the natural or cultural heritage or other protected areas, or pollute a marine environment to the extent of permanently affecting its capacity to serve as a sanctuary for the living resources, or its usefulness as a recreational area or a source of other amenities for which there is no market value; or activities which destroy a species of wild fauna and flora, create irrevocable damage. Thus it is clear that such damage to the environment cannot be satisfactorily rectified through dispute settlement procedures that address only the question of monetary compensation or reparation.

Pursuant to the above objectives, national legislation has been implemented to establish administrative mercenaries or quasi-judicial bodies to handle appeals from the various decisions concerning licences, project approvals, environmental protection orders, enforcement notices and closing orders. The main objective has been to avoid the delays, technicalities of procedure and expense inherent in normal judicial proceedings.

The Pakistan Environmental Protection Act (PEPA), 97 is premised largely on a proactive and preventive approach to environmental and resource management. Reference to sections 11, 12 and 16 respectively, demonstrate, the preventive aim behind this legislative regime.

6. PARTNERSHIP AND PUBLIC PARTICIPATION

The environment is an important, if not the most important, public resource. The manner of its current use affects the welfare of both present and future generations. The public should therefore, have a right not only to participate in the decisions affecting the management and status of the environment but also to institute legal proceedings in vindication of the public interest. There are four basic elements to the principle of public participation:

- Access to information held by public authorities;
- Participation in decision-making processes;
- The creation of public awareness on environmental issues; and
- Access to judicial and administrative proceedings, including redress and remedy.

The drafting of the Pakistan Environmental Protection Act 1997 was itself a result of a highly consultative public participation process. The first draft of the Pakistan Environmental Protection Act was circulated in 1993 among large number of individuals, groups, media, Parliamentarians, federal and Provincial Government functionaries, Federation of Pakistan Chambers of Commerce & Industry, Bar Councils and Associations, Journalists, educational institutions and NGOs. Special workshops were also held in the provinces to elicit view and comment. On the basis of feedback received

from extensive consultation and participatory work, the final draft was placed before the Parliament for enactment as a law.

Provisions for the involvement of public participation in the Pakistan Environmental Protection Act, 1997 includes:

- Under Section 4(2) –The Council may, either itself or on the request of any person or organization, direct the Federal Agency or any Government Agency to prepare, submit, promote or implement projects for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution, and the sustainable development of sources, or to undertake research in any specified aspect of environment”.
- Under Section 5(6) —for assisting the Federal Agency in the discharge of its functions, the Federal Government shall establish Advisory Committees for various sectors, and appoint as members thereof eminent representatives of the relevant sector, educational institutions, research institutions and non governmental organisation”.
- Under Section 6(1)(e) –Provided that before seeking approval of the Council, the Federal Agency shall publish the proposed National Environmental Quality Standards for public opinion in accordance with the prescribed procedure”.
- Under Section 6(1)(O) –Provide information and guidelines to the public on environmental matters”.
- Under Section 8(6) –For assistance of the Provincial Agency in the discharge of its functions, the Provincial Government shall establish sector Advisory Committees for various sectors and appoint members from amongst eminent representative of the relevant sector, educational institutes, research institutes and non-governmental organisations”.
- Under Section 12(7) —The Federal Agency shall maintain separate Registers for initial environmental examination and environmental impact assessment project, which shall contain brief particulars of each project and a summary of decisions taken thereon, and which shall be open to inspection by the public at all reasonable hours and the disclosure of information in such Registers shall be subject to the restrictions specified in sub-section (3)”.

CHAPTER VII

JUDICIARY AND ENVIRONMENT

Key Issues: The pending nature of cases; the technical and scientific nature of cases; cumbersome procedures; dissemination of judgments; training of judges and advocates; execution of and compliance with court orders; education and awareness

Key Institutions: Supreme Courts; High Courts; District Courts; Tribunals, Authorities; Agencies etc.

1. INTRODUCTION

The Judiciary of Pakistan has played a positive role in controlling pollution and preventing further environmental degradation. In addition to the exercise of their ordinary jurisdiction, the superior courts have also exerted extraordinary jurisdiction, which is conferred by the Constitution. Such jurisdiction is available to the High Court and Supreme Court under Articles 184(3) and of the Constitution. The superior courts have decided several cases under this jurisdiction. These courts have also tackled many cases of public interest in regards to issues of environmental concern. This extraordinary jurisdiction was exercised through the filing of regular petitions and the receipt of complaints from concerned citizens or social activists. Many times the courts initiated a suo moto action. In this process the courts have passed important orders and land judgments on environmental topics and have issued appropriate directions concerning the Government.

2. JUDICIARY

The Supreme Court of Pakistan has always sought to enforce the laws and regulations pertaining to the protection of the environment. In reaching this conclusion the Court has relied not only on the law and Constitution of Pakistan, which are binding on the Court, but has also invoked the rules contained in international conventions, declarations and protocols. Thus the Supreme Court has utilised international conventions as a mechanism for the enforcement of internationally recognised standards of environmental protection. The issue of protection of the environment is of vital importance to both the people of Pakistan and also the people of the world. Environmental issues transcend national boundaries and geographical barriers, as these concerns affect countries and individuals on a global spectrum. There is a growing consensus among the nations, including agreement from the people of Pakistan, that there is a definite need to consolidate and strengthen environmental protection legislation. The judiciary of Pakistan has taken hold

of this responsibility and has played and will continue to play its due role in preventing all forms of environmental nuisance, pollution, degradation and ecological disaster so as to protect and safeguard the ecological balance of nature in our one and only planet.

The superior judiciary and in particular, the Supreme Court of Pakistan, has played a positive and constructive role in preventing the degradation of the environment and preserving a sustainable ecological balance of nature. Several judgments have been rendered in cases relating to the prohibition of environmental degradation and the maintenance of a clean and pure environment. This commitment to the judicial enforcement of environmental laws has been reflected in the Supreme Court's exercise of extraordinary jurisdiction under Article 184(3) of the Constitution. Thus through this expanded jurisdiction the Court has been able to entertain petitions regarding the maintenance of a clean environment, which is clearly an issue of great public importance.

In the case of *Shehla Zia vs Wapda* (PLD 1994 SC 693) several citizens of Islamabad forwarded a petition to the Supreme Court of Pakistan complaining of the construction of a grid station in their locality. The Court formulated two questions for resolution: First, whether any government agency has a right to endanger the life of citizens by its actions without the consent of such citizens and; secondly, whether zoning laws vest rights in citizens which could not be withdrawn or altered without the citizens consent? The petitioners had relied on Article 9 of the Constitution which guarantees right to life, liberty and security of person. While interpreting this article, the Court observed that the word "life" was indeed very significant, as it covers all aspects of human existence. Although "life" has not been defined in the Constitution, the Court found this term not to be merely restricted to vegetative or animal life or mere existence from conception to death. It went on to state that life includes all such amenities and facilities, which a person born in a free country is entitled to enjoy legally and constitutionally.

In another case (PLD 1998 SC 102), the Supreme Court took *suo moto* notice of a news report to the effect that certain businessmen were purchasing land in the coastal area of Baluchistan for use when dumping hazardous nuclear and industrial waste. The Court asked for a report on the matter from the Provincial Government. Although there was no substance in the report the Court nevertheless issued directions to the Government that no person shall be allotted land for dumping nuclear or industrial waste. The Court directed that the Government should submit a list of persons to whom land in the coastal area of Baluchistan has already been allotted. It further directed that a condition must be inserted in the agreement of allotment to the effect that the land should not be used for the dumping of nuclear or industrial waste. Furthermore, to reaffirm their position the Court ordered that a similar undertaking was to be obtained from the allottee of the land in the coastal area.

Continuing this trend of judicial activism, in another case (1996 SCMR 543), the Supreme Court directed the Provincial Government of Sindh to take effective measures with regard to eliminating the pollution caused by smoke emitting vehicles. The Court ordered that all vehicles, whether privately or publicly owned, should be regularly

inspected and checked. The Court further asked for emergency checks to be carried out by the concerned officials. The Court directed that motorcycles and auto-rickshaws must not be allowed to operate without silencers and that the use of pressure horns and multi-toned horns, must be prohibited.

In the case, General Secretary, W. P. *Salt Mines Labour Union vs. Director, Industries and Mineral Development, Government of the Punjab* (1994 SCMR 2061), the Supreme Court expressed the view that the provision of clean and unpolluted drinking water to the citizens was a fundamental right, enshrined in Article 9 of the Constitution. Thus the Court concluded that any effort or activity, which deprives the citizens of this right, violates the Constitution. Therefore the Court prohibited further mining in water supply areas, as it created the possibility of contamination of the water reservoir or watercourse, which is frequently used for residential purposes. Furthermore the Court asserted that, as the Constitution provides for the right to life and ensures the dignity of man, it would be difficult to consider these rights upheld if a person does not get the minimum clean atmosphere and unpolluted environment. The Court further stated that it would not hesitate to stop the functioning of a factory that creates pollution and environmental degradation.

The precautionary principle was applied in Pakistan by the Supreme Court in 1992 Human Rights case, *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.

3. CITIZEN SUITS:

The facts of the case *Ms. Shehla Zia and Others v WAPDA* ((PLD (1994) SC 693), heard on 12 February 1994 in Okidi C. (ed) Compendium of Judicial Decisions on Matters Related to Environment, Volume One-National Decisions) December 1998) UNEP/UNDP, are set out as follows:

Citizens concerned by the construction of a new power grid station wrote to the Supreme Court requesting an order under Article 184 (3) of the Pakistan Constitution. The said Article provides, without prejudice to the provisions of Article 199, that the –Supreme Court shall, if it considers that a question of public importance with reference to the enforcement of any of the Fundamental Rights conferred by Chapter I of Part II is involved, have the power to make an order of the nature mentioned in the said Article”. The right, which the citizens sought to have enforced, was stated in Article 9, which reads, —~~that~~no person shall be deprived of life or liberty save in accordance with law”.

The Court construed the notion of –life” broadly to include –~~all~~ such amenities and facilities which a person born in a free country is entitled to enjoy with dignity; legally

and constitutionally". The term was to be given a wide interpretation —to enable a man not only to sustain life, but to enjoy it". Accordingly, the suit, which was initiated by citizens with no direct interest in the power grid station, was allowed to proceed. It was accepted that the evidence on the effects of electromagneticism had not been conclusively proven, but that there was a possibility of adverse effects. Due to these risks, it was held that the proposed grid represented a threat to the fundamental right to life (as broadly interpreted by the Court). Therefore, an order to protect the public was issued under Article 184. The Court ordered an investigation into the proposed grid and the likelihood of adverse effects on health, as well as series of measures involving consultation and access to information.

Most of the cases pertaining to the environment have been decided on the basis of Article 9 of the Constitution which provides for the fundamental right to life.

As a result of the court's observations and judgments, together with appropriate directions and instructions issued to the Government and public authorities, remedial actions and measures were undertaken. These included the shifting of hazardous and dangerous machinery and installations away from residential areas, inspecting premises to ensure compliance with the law, and controlling pollution and degradation of the environment. The pronouncements also served an important purpose in arousing public opinion and bringing about public awareness on the issue of protecting and preserving the environment. As a result, many cases are presently pending before the Supreme Court in its original jurisdiction for safeguarding the environment.

It was only recently that countries began to realise the harmful consequences of their development activities. Recognition of this fact has been perhaps one of the most difficult but important achievements of mankind. The UN Conference of Human Environment in 1972 in Stockholm, had a major impact on making humanity recognise this common concern and that it is the responsibility of the international community to take steps protect the environment. The member countries were also asked to pass necessary domestic legislation to adopt administrative measures for its effective enforcement. Pakistan has actively pursued the case of environmental protection and has become a party to all most every important international declaration, agreement and convention on the subject, which are approximately 27 in number.

In adhering to these international obligations it would be necessary for the Pakistani Government to establish an Authority or Commission controlled by internationally recognised scientists whose opinion or permission should be obtained before any new grid station is constructed. Such a Commission should also examine the existing grid stations and the distribution lines from the point of view of health hazards and environmental pollution. If the Government takes such a step, much of these environmental problems and consequences can be alleviated and avoided in the future.

Under the common law a person whose right of easement, property or health is adversely affected by any act of omission or commission of a third person, in the neighbourhood or at any other place, is entitled to seek an injunction and also claim

damages. However, it must be understood that such legal rights, whether conferred by common or statutory law are subordinate to higher constitutional rights. The danger of the construction of a power grid is bound to affect a large number of people who may suffer from it unknowingly because of lack of awareness, information and education and also because such sufferance is silent and fatal and most of the people who would be residing near, under or at a dangerous distance of the grid station do not know that they are facing any such risk. In light of this incredible danger, Article 184 can be invoked, as a large number of citizens throughout the country cannot make such representation and may not like to make it due to ignorance, poverty and disability. The word "life" in terms of Article 9 of the Constitution is so wide that the danger and encroachment complained of would impinge on the fundamental rights of a citizen. In this view of the matter the petition under Article 184(3) of the Constitution of Pakistan, 1973 is maintainable.

The word "life" in the Constitution should not be used in a limited manner. A wide meaning should be given to enable a man not only to sustain life but also to enjoy it. Article 14 provides that the dignity of man and subject to law, the privacy of home shall be inviolable. The fundamental right to preserve and protect the dignity of man under Article 14 is unparalleled and could be found only in a few Constitutions of the world. Where the quality of life of citizens is adversely affected and health hazards are created that affect a large number of people, the Court in exercise of its jurisdiction under Article 184(3) of the Constitution may grant relief to the extent of stopping the functioning of units that create pollution and environmental degradation.

In these circumstances, before passing any final order and with the consent of both the parties a Court appointed Commissioner is to examine and study the scheme, planning device and technique employed by the Authority and report whether there was any likelihood of any hazard or adverse effect on health of the residents of the locality. The Commissioner might also suggest variation in the plan for minimising the alleged danger. The Authority was to submit all the plans, schemes and relevant information to the Commissioner. The citizens will be at liberty to send to the Commissioner necessary documents and material, as they desire and these documents are to reach the Commissioner within two weeks. The Commissioner is also authorised to call for such documents of information from the Authority and the citizens, which in its opinion is necessary to complete its report. The report shall be submitted within four weeks from the receipt of the order after which further proceedings are to be taken. The Authority is further required to afford a public hearing to the persons filing objections. This procedure shall be adopted and continued by WAPDA till such time the Government constitutes any commission or authority as suggested above.

4. PUBLIC TRUST

The facts of the Human Rights Case (Environment Pollution in Balochistan), PLD, 1994 Supreme Court 102 (Pakistan) in Okidi C. (ed), Compendium of Judicial Decisions on

Matters Related to Environment, Volume One - National Decisions, December 1998, UNEP/UNDP) are set out as follows;

No direct representations were made to the Court on this matter. Alternatively, the Court made the orders based upon a newspaper report that had alleged that the coastline of Balochistan was to be used to dump chemical and nuclear waste. Relying on Article 9 and Article 184 (3), the Court first ordered that the paper be requested to supply more information and that the Chief Secretary of Balochistan be queried regarding the nature of the land permits issued in the region. Upon receipt of this information the Court, through Saleem Akhtar J, ordered a number of control mechanisms to be applied to future permits, which would restrict the nature of activities permissible on the Balochistan coastline. There were also orders requiring that the area be monitored to ensure that illegal dumping did not take place.

The judge noticed a news item reported by APP published in "Dawn" and dated the 3rd July 1992 entitled "Waste to be dumped in Balochistan". The publication reported that business tycoons were making attempts to purchase coastal areas of Balochistan for the purpose of converting it into dumping ground for waste material, which may be extremely hazardous to the developing ports of Guwadar, Pasni, Ormara and Jiwani. The coast land of Balochistan is about 450 miles long. To dump waste materials including nuclear waste from the developed countries would not only be hazard to the health of the people but also to the environment and the marine life in the region. In their view, if nuclear waste was dumped on the coastal land of Balochistan, it was bound to create environmental hazards and pollution. Thus this activity will violate Article 9. It was, therefore, necessary to first enquire from the Chief Secretary, Balochistan whether coastal land of Balochistan or any area within the territorial water of Pakistan has been or was being allotted to any person. If any allotment had been made or applicants had applied for allotment, then full particulars should be supplied. A letter was also written to the Editor of "Dawn" referring to the news item and requesting him to supply further particulars or give the name and address of the reporter of APP from whom necessary information may be obtained. In compliance with the notice issued on 9 July 1992, the Chief Secretary had made inquiries from various departments. The officials present reported that no plot had been allotted to any party for dumping nuclear waste. The Commissioner, Makran Division pointed out that the law enforcing agencies on the high seas would always be on the alert and could locate any vessel from a distance of more than 500 miles. It may be noted that no one can now apply for an allotment of land for the purpose of dumping nuclear or industrial waste. The authorities are therefore not only to be vigilant in checking the vessels but also regularly check that the allottees are not engaged in dumping industrial or nuclear waste of any nature on the land or in the sea or destroying it by any device. It seems that Balochistan Development Authority, with all the relevant terms, have allotted the plots on condition. In these circumstances, the following interim order was passed:

- (1) The Balochistan Development Authority should submit to the Assistant Registrar, Supreme Court, Karachi, a list of persons to whom land on the coastal area of

- Balochistan have been allotted, giving their name and full address along with copies of the letters of allotment, lease or licence which may have been issued in their favor.
- (2) The Government of Balochistan and the Balochistan Development Authority are directed that if any application for allotment of coastal land is pending or in future any party applies for allotment of such land then full particulars of such applicants shall be supplied to the Assistant Registrar, Supreme Court of Pakistan, Karachi before making any allotment to any such party;
 - (3) The Government functionaries, particularly the authorities that are charged with the duty to allot the land on coastal area should insert a condition in the allotment letter/licence/lease that the allottee/tenant shall not use the land for treating, burying or destroying by any device waste of any nature including industrial or nuclear waste in any form. The Balochistan Development Authority should also obtain similar undertaking from all the allottee to whom the allotment has been made for ship-breaking, agriculture or any other purpose whatsoever. Before parting with the order they must record their appreciation for the officials present who have shown their interest and keenness in tackling the problem. Such eagerness coupled with public awareness can eliminate much of the problems creating health hazard to the citizen.

CHAPTER VIII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: WATER

Key Issues: Trade Effluents; Ground Water Contamination; Wastewater Treatment; Cleaning of Rivers; Water quality Management;

Policy Framework: National Conservation Strategy

Key Legislation: Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997; Environmental Quality Standards; The Canal and Drainage Act, 1873; Water Management and Water Users Associations Ordinance, 1981; The Punjab Local Government Ordinance, 1979; Balochistan Ground Water Rights Administration Ordinance, 1978

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's; Environmental Tribunals

1. INTRODUCTION

The major sources of water pollution are industry, agriculture and municipal liquid and solid wastes. Municipal sewage is mixed with wastewater from industries located in or nearby the cities and then discharged into rivers, canals and other water bodies. Untreated industrial and municipal wastewater from the various industrial estates and urban centres is discharged into common drainage systems, ultimately polluting the rivers. Typical examples are the Swat and the Kabul rivers, where domestic and industrial wastes are dumped from the cities of Mingora and Peshawar. IUCN and the government of NWFP are now formulating an action plan to clean up the Kabul and Swat Rivers.

The Kabul River has become extremely polluted by untreated domestic/municipal and industrial waste discharges from Peshawar, Charsadda, Nowshera, Mardan and other urban centres. Near Nowshera, untreated industrial waste from Aman Garh is dumped into the river, resulting in the gross deterioration of water quality. The industries that are predominantly responsible for the discharge of effluents are tanneries and those producing paper, chemicals, insecticides, textiles, soap, pharmaceuticals and ghee. The dissolved oxygen level has been seriously depleted by organic waste discharges, spent sulphite liquor, spent mineral acids and oxidisable organic compounds. The dissolved oxygen level has been reported as returning to acceptable levels about 6 km downstream of Aman Garh, which indicates a high re-aeration coefficient for that area of river.

The poor quality of the water supplies, which have the presence of undesirable substances and microorganisms, make it hazardous when used. Thus it is when the alteration of natural quality and character of water with “foreign matter” so as to render it partly or completely unfit for consumption, that this polluted water becomes dangerous to human beings.

The 100% pure water with its chemistry formula (i.e.) H₂O is not available in nature and if prepared in laboratories, its use is restricted for some certain reasons. Only 3% of total quantity is potable water and the remaining 97% of water is not fit for human consumption.

Water pollution may be classified as physical, chemical and biological. These types are as follows;

- i. Physical Pollution -This pollution includes the physical characteristics like colour, taste, silt content, turbidity, temperature, etc.
- ii. Chemical Pollution - This type of pollution covers the presence of chemical compounds such as acids, gases, alkalis and salts.
- iii. Biological Pollution - Biological pollution is due to the presence of microorganisms in the water.

2. CAUSES OF WATER POLLUTION

Industrial and municipal wastes are the main causes of water pollution. Most of the available water in Pakistan, whether it is of ground or surface water has been badly polluted.

Municipal wastes, which are composed largely of human excreta, sewage, kitchen wastes and storm water are allowed to flow in the drains, sewers, canals and rivers in an untreated state, which effectively pollutes the water bodies. Human excreta contains many pathogenic microorganisms like protozoa, bacteria, worms and viruses. These harmful organisms make the surface and sub-surface resources polluted. Thus human beings and other animals are affected when they come in contact or consume the contaminated aquatic life. In Pakistan 13 million tonnes of human excreta is produced annually. 80% of the excreta in the villages are thrown in the crop fields as manure. In the urban areas about half of the excreta is washed into the water borne sewerage system as solid wastes. The rate of generation of excreta per head, per day, is 250 grams, where 20 grams BOD is required for its decomposition. Thus 850,000 tonnes BOD is required in a year.

Wastewater is produced at the rate of 70% of the consumed quantity. This contains many types of biological, inorganic, organic and industrial compounds and, as such, more BOD is required for its treatment. Wastewater is generated in Lahore and Karachi at rates of 1,000 and 1,600 million litres, per day, respectively. In Karachi about 1/10 of the generated sewage is treated and the balance quantity ultimately enters the Arabian Sea. 30% people die from gastro-intestinal diseases, which are predominantly caused by

polluted water. Similarly 60% infant deaths also occur at early ages. At a world level 200, 000 children less than 5 years of age die from dysentery per annum. Overall 54 million people are seriously affected by water pollution every year.

3. LEGISLATION

The following are the main enactments on Water Quality and Freshwater Pollution, and their relevant sections.

1. The Pakistan Penal Code, 1860

Section 277 - Fouling water of public spring or reservoir:

Whoever voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render it less fit for the purposes for which it is ordinarily used, shall be punished with imprisonment of either description for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both.

2. The Canal and Drainage Act, 1873

Definitions

Section 3 - Definitions:

(1) Canal includes:

- (a) All canals, channels and reservoirs constructed maintained or controlled by the Provincial Government for the supply or storage of water:
- (b) All works, embankments, structures, supply and escape-channels connected with such canals channels or reservoirs:
- (c) All watercourses as defined in the second clause of this section;
- (d) All parts of a river, stream, lake or natural collection of water or natural drainage-channel, to which the Provincial Government has applied the provisions of Part II of this Act:

Watercourse means any channel, which is supplied with water from a canal, but which is not maintained at the cost of the Provincial Government, and all subsidiary works belonging to any such channel:

- (1) Drainage-work includes escape-channels from a canal, dams, weirs, embankments, sluices, groins and other works for the protection of lands from flood or from erosion, formed or maintained by the Provincial Government under the provisions of

Part VII of this Act, but does not include works for removal of sewage from towns;

- (2) Vessel includes boats, rafts, timber and other floating bodies;
- (3) Commissioner means a Commissioner of a division and includes any officer appointed under this Act to exercise all or any of the powers of a Commissioner;
- (4) Collector means the head revenue-officer of a district and includes a Deputy Commissioner or other officer appointed under this Act to exercise all or any of the power of a Collector;
- (5) Canal-officer means an officer appointed under this Act to exercise control or jurisdiction over a canal or any part thereof;

Superintending Canal-officer means an officer exercising general control over a canal or a portion of a canal;

Divisional Canal Officer means an officer exercising control over a division of a canal;

Sub-Divisional Canal-officer means an officer exercising control over a sub-division of a canal:

- (8) District means a district as fixed for revenue-purposes.

Section 20 B - Cutting of supply for any land not being irrigated at site:

- (1) Whenever, on an application or otherwise, the Divisional Canal Officer considers it expedient to terminate the water supply of any land which cannot be used for agriculture or has become unirrigable, he shall give notice of not less than fourteen days to the landowners and the persons responsible for the maintenance of the watercourse through which such supply is conveyed, to show cause why such supply should not be cut off, and after making enquiry, the said Canal Officer may pass orders to stop the complete or partial supply of water.
- (2) After expiry of thirty days of the announcement of the decision by the Divisional Canal Officer, if no objection is received and after giving due opportunity of hearing, if any objection is received, the Superintending Canal Officer may confirm or modify it. The decision of the Superintending Canal Officer shall be final and binding on the parties concerned.

Section 33 - Liability when water is taken from canal or watercourse without authorisation:

When the water of a canal is to be used in an unauthorised manner, the Divisional Canal Officer shall, after holding an enquiry, levy charges in the manner and to the extent provided in the rules framed under this Act from the person by whose act such use has occurred, or if such person cannot be identified, from the person on whose land the water has flowed and such land has derived benefit therefrom:

Provided that where the water so used has been supplied through a watercourse, the charges shall be levied:

- (a) From the person by whose act or neglect such use has taken place;
- or
- (b) If such person cannot be identified, from the person on whose land the water has flowed and such land has derived benefit therefrom;
- or
- (c) If such person cannot be identified or the land on which the water has flowed has derived no benefit therefrom, from all persons chargeable in respect of the water supplied through such water-course.

Section 55 - Power to prohibit obstructions or order their removal:

Whenever it appears to the Provincial Government that injury to any land or the public health or public health or public convenience has arisen or may arise from the obstruction of any river, stream or drainage channel, such Government may, by notification published in the official Gazette, prohibit, within limits to be defined in such notification, the formation of any obstruction, or may within such limits, order the removal or other modification of such obstruction.

Thereupon so much of the said river, stream or drainage channel as is comprised within such limits shall be held to be a drainage work as defined in section 3.

Section 56 - Power to remove obstructions after prohibition:

The Divisional Canal Officer, or other person authorised by the Provincial Government in that behalf, may, after such publication issue an order to the person causing or having control over any such obstruction to remove or modify the same within a time to be fixed in the order.

If within the time so fixed, such person does not comply with the order, the said Canal officer may himself remove or modify the obstruction; and if the person to whom the order was issued does not, when called upon, pay the expenses involved in such removal or modification, such expenses shall be recoverable by the Collector from him or his representative in interest as an arrear of land-revenue.

Section 70 - Offences under Act

Whoever, without proper authority does any of the following acts, that is to say:

- (5) Corrupts or fouls the water of any canal so as to render it less fit for the purpose for which it is ordinarily used;

Shall be liable, on conviction before a Magistrate of such class as the Provincial Government directs in this behalf, to a fine not exceeding two hundred rupees or to imprisonment not exceeding three months or both.

Section 73 Any person in charge of or employed upon any canal or drainage-work may remove from the lands or buildings belonging thereto, or may take into custody without a warrant and take forthwith before a Magistrate or to the nearest police station, to be dealt with according to law, any person who, within his view, commits any of the following offences:

- (1) Willfully damages or obstructs any canal or drainage-work;
 (2) Without proper authority interferes with the supply or flow of water in or from any canal or drainage-work, or in any river or stream, so as to endanger, or render less useful any canal or drainage-work.

3. On-Farm Water Management and Water Users' Associations Ordinance, 1981

Section 2 - Definitions:

- (i) Irrigator, in respect of any land which is irrigated from a water course means any person for the time being directly deriving benefit by such irrigation, and includes a land owner, tenant or lessee of any such land;
- (ii) Water-course means any channel which is supplied with water from a canal, but which is not maintained at the cost of the Government and such subsidiary works belong to any such channel
- (iii) Improvement means and includes:
- (a) Demolishing of old watercourse;
 - (b) Removing of vegetation including trees etc. growing in the way of a water-course sanctioned by Government;
 - (c) Unloading of the banks of the water-course by physical removal of the silt deposit;
 - (d) Clearance of silt from the bed of the water-course;
 - (e) Re-alignment of the watercourse based on engineering survey and design;
 - (f) Installation of pacca nakkas at sanctioned sites,
 - (g) Construction of culverts on the crossings;

- (h) Brick-lining of weak reaches of the watercourse up to certain fixed limit:
- (i) Construction, reconstruction or maintenance of buffalo wallows, where required.

Section 3

(4) Where the irrigators of a watercourse jointly responsible with others for the construction, maintenance or improvement of a watercourse or jointly making use of a watercourse with others, have formed themselves into an Association and the same is registered with the Field Officer under the provisions of the Ordinance, he shall, before undertaking the reconstruction, maintenance or improvement of the watercourse, provide an opportunity to the Association to carry out the job of reconstruction, maintenance or improvement of the watercourse.

Section 5 - Field Officer to check maintenance of watercourse:

The Field Officer shall from time to time, make spot-inspection of the watercourse to satisfy himself that it is being maintained and may issue such directions for the proper maintenance of a watercourse as may be considered necessary.

Section 6 - Formation and registration of association:

- (1) Where the majority of the irrigators of a watercourse agree to associate in the work of reconstruction, maintenance or improvement of the watercourse, they may form an Association to be known as Water Users' Association (Aniومان-e-Absashan).

4. The Punjab Local Government Ordinance, 1979

Section 59 - Private source of water supply:

- (1) All private sources of water supply within the local area of the urban council shall be subject to control, regulation and inspection by the urban local council.
- (2) No new well, water-pump or any other source of water for drinking purposes, shall be dug, constructed or provided except with the sanction of the urban local council.
- (3) An urban local council may, by notice, require the owner of any person having the control of any private source of water supply used for drinking purposes.
 - (a) To keep the same in good order and to clean it from time to time of silt, refuse and decaying matter;
 - (b) To protect the same from contamination in such manner as the urban local council directs: and

- (c) If the water therein is proved to the satisfaction of the urban council to be unfit for drinking purposes, to take such measures, as may be specified in the notice to prevent the use of such water for drinking purposes.

Section 61- Drainage and sewerage schemes for commercial and industrial area:

- (1) An urban local council may through a notice require the owners, tenants and occupiers of commercial and industrial concerns in any area or areas within its local area to have at their own cost prepared a scheme for the adequate and safe drainage and disposal of their wastes and effluent of the quality permitted under the rules or the by-laws and submit it to the urban local council within the time specified in the notice:

Provided that the time limit may be extended by the urban local council for a maximum period of three months at the request of the owners, tenants or occupiers of the commercial and the industrial units concerned

- (2) The drainage, sewerage and disposal scheme as approved by an urban local council with modification, if any, shall be executed and implemented by the owners, tenants or occupiers of the commercial or industrial units at their expense in such manner and within such time as may be specified by an urban local council.
- (3) In case of the failure of the owners, tenants or occupiers of the commercial or industrial concerns to comply with the provisions of sub-section (1) and (2) an urban local council may itself prepare the drainage, sewerage and disposal scheme and execute and implement it after approval by Government at its own expense and cost so incurred shall, under this Ordinance, be deemed to be a tax levied on the owners, tenants or occupiers of the industrial and commercial units concerned

5. The Balochistan Ground Water Rights Administration Ordinance, 1978

Section 2 - Definitions:

- (1) In this Ordinance unless there is anything repugnant in the subject or context, the following terms shall be defined as under:
- (a) Basin means the surface area within a given watershed.
- (b) Aquifer means a preambled geological formation that stores and transmits water.

Section 3 - Establishment and functions of provincial water board

- (1) There shall be a Provincial Water Board consisting of:

(2)-(5)...

(6) The Provincial Water Board will:

- (a) Lay down policies for conserving and developing the ground water resources in Balochistan.
- (b) Make rules and regulation for use of ground water resources and administering the water rights of various persons:
- (c) Act as a supervising and controlling authority of the various water committees;
-
- (e) Identify aquifers of ground water and declare such aquifers as it may consider necessary as Designated Ground Water Basins;
- (f) Such basins shall be notified by the Board in the official Gazette:
- (g) The Board will arrange to determine the existing withdrawal of ground water through tube-wells / open surface wells / Persian wells / karezes or any other means:
- (h) All existing open surface wells / tube-wells / karezes / springs and any other device of the extracting ground water will be got registered with the provincial Water Board.
- (i) All such registered wells / karezes / springs and other means of extracting ground water will be notified by the provincial Water Board.
- (j) The Water Board will also lay down distances between wells / springs and

Section 4 - Establishment of water committee:

(1) There shall be a water committee in each District to be constituted by the Government.

.....

(d) No person will be allowed to extract ground water designated ground water basins, without the permission of the District Water Committee.

.....

(h) The Committee will have the power to stop the extraction of ground water by any unauthorised person.

Section 6 - Offences and penalties:

(1) Any person contravening any of the provisions of this Ordinance shall be punished with imprisonment of either description for a term which may extend to one year or with fine or with both.

6. The Pakistan Environmental Protection Act, 1997

National Quality Standards

Discharges or emissions in excess of the National Quality Standards or other standards established by Pakistan Environmental Protection Agency, where ambient conditions so require, has been prohibited.

CHAPTER IX

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: ATMOSPHERE

Key Issues: Air Pollution; Vehicular Pollution; Inadequate Capacity for Management of Environment; Rapid Urbanisation; Vehicular Pollution; Indoor Pollution; Environment Education; Human Health; Fuel Quality

Policy Framework: National Conservation Strategy

Key Legislation: The Pakistan Environmental Protection Act, 1997; The Motor Vehicle Ordinance, 1965; The Motor Vehicles Rules, 1969, Rule 155; The Pakistan Penal Code, 1860; The West Pakistan Prohibition of Smoking in Cinema Houses Ordinance, 1960; The Punjab Local Government Ordinance, 1979

Key Institutions: Ministry of Environment, Local Government and Rural Development; Pakistan Environmental Protection Agency (PEPA); Provincial Environmental Protection Agencies; city/town municipalities

1. INTRODUCTION

In Pakistan the problem of atmospheric pollution is restricted mainly to urban centers, where the worst affected cities are Karachi, Lahore, Faisalabad, Hyderabad, Quetta, Multan, Peshawar, Rawalpindi and Islamabad. The availability of data on the atmospheric situation in Pakistan is limited, however irrespective of this data constraint there is a general consensus that the problem is real and acute. The main factors responsible for air pollution are the rapid growth in the number of motor vehicles and industry. To a lesser extent thermal power plants contribute to this pollution.

The sources of atmospheric pollution may be natural such as volcanic eruption, smoke, wind blown, dust etc. It may also be anthropogenic such as combustion processes, chemical and petrochemical industries, metallurgical reactions etc.

Limited data is available on the ambient environment in NWFP. However, rapid urbanisation and an exponential increase in the number of all types of vehicles has given rise to the deterioration of air quality, especially in the large urban centres of Peshawar, Nowshera, Charsadda, Mardan, Abbottabad, Mingora, Kohat, Bannu and D. I. Khan. Older vehicles that have not been properly maintained are a particular problem. Lead

emissions from automobile exhausts are excessively high in some parts of the cities during specific traffic peak hours. The indiscriminate burning of municipal solid wastes also contributes to air pollution. Dense smoke emissions from foundries, brick kilns and rolling mills in Peshawar and Nowshera have also been reported.

Approximately 350 brick kilns are situated in and around Peshawar. On average, a brick kiln producing 800,000 bricks uses large amounts of rubber to start fires and burns a total of eight tons of low-quality coal or 20 drums of used vehicle oil. Thus it is staggering to realise the incredible amounts of hazardous material that is cumulatively burned by all 350 brick kilns. In light of the major polluting nature of hydrocarbon fuel emissions, especially carbon monoxide, like other major cities of Pakistan, is facing a serious air pollution problem from rapidly increasing traffic density. According to the Police Department in Peshawar, in that city alone 143,594 vehicles were registered in 1994 compared with 83,625 in 1989, averaging an annual increase of 10 per cent. If that trend continues the number of vehicles in the city will have doubled by the year 2000.

Carbon monoxide levels from time periods between 6 a.m. to 6 p.m. were studied at 16 different locations to identify the level of emissions within a maximum traffic density. Twelve of the 16 locations were found to have an average carbon monoxide concentration above the threshold limit of 9 ppm for eight hours of exposure. At one location the average carbon monoxide concentration reached 35 ppm for one hour's average exposure. Those results suggest that at 12 locations, the carboxyhaemoglobin level present in the blood of people exposed to such concentrations of carbon monoxide for eight hours would be in the range 2.04-4.4.85 per cent, a level that can adversely affect the central nervous system and cause changes in psychomotor functions. Another air pollution survey carried out by EPA at eight locations within the city of Peshawar showed levels of carbon monoxide as high as 14 ppm. Similarly, the levels of nitrogen dioxide and ammonia also exceeded acceptable levels.

2. INDUSTRIAL

The effluent of a fertilizer factory was found to contain 66 ppm Nitrogen Oxides, 8 ppm Fluorine and 1.02 ppm Ammonia. 520 tonnes of lead is released in our atmosphere every year. The lead level, as observed in Karachi, is from 0.024 to 0.13 microgram per cubic metre. Emission levels are increasing at an annual rate of 9% in our atmosphere. In the United States the dust fall ranges from 16 to 24 tonnes per square kilometre per month, whereas in Lahore the same was observed to be 500 tonnes per square kilometre in June. In Karachi the dust fall has been found to be 100 tonnes per square kilometer per month in July.

3. VEHICULAR

A comparative study indicates that in Pakistan vehicles emit 25 times more Carbon Monoxide, 20 times more Hydrocarbons and 3.6 times more Nitrous Oxide than those in the United States. Levels of Nitrogen Dioxide found in our environment are much higher

than those recorded in the United Nations, which has a specified limit of 0.05 ppm. The numbers of auto-rickshaws are increasing daily, their smoke and unbearable noise exacerbating the pollution problem within the urban areas. In Karachi 20,000 auto-rickshaws are in use and 15,000 rickshaws are in use in Lahore. At present approximately 3.5 million registered or unregistered vehicles are running on the roads of Pakistan. This number is increasing at the rate of 10% per annum. Nearly 90% of these vehicles are in dismal state, which has the consequence of causing more pollution than more recently purchased transport. This high level of vehicular use has resulted in air pollutants such as carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matters, hydrocarbons, sulphur dioxide (SO₂), smoke, dust and lead compounds becoming a major contributing element in Pakistan's atmospheric pollution.

Under the influence of sunlight, nitrogen oxides combine with gaseous hydrocarbons to form a complex variety of secondary pollutants called photochemical oxidants. These oxidants, together with solid liquid particles in the air, make up what is commonly known as "smog". The photochemical oxidant family of pollutants includes, among others, ozone, an unstable, toxic form of oxygen; nitrogen dioxide; peroxyacyl nitrates; aldehydes; and acrolein. Once in the atmosphere these pollutants can cause eye and lung irritation, damage to vegetation, offensive odor and thick haze.

4. DOMESTIC

The major cause of carbon dioxide and carbon monoxide emissions is the inefficient and incomplete burning of fuel. Such emissions can be controlled considerably by proper operation and maintenance of fuel-consuming equipment and vehicles. In Pakistan, the burning of fuel wood and biomass accounts for more than 50% of CO₂ emissions, while gasoline and fuel wood accounts for almost 70% of CO emissions. Thus burning fuel wood has the twofold destructive effect of producing hazardous emissions and causing deforestation and land erosion. This situation can be improved by using fuel-efficient cooking technologies in the rural areas of Pakistan.

5. POLLUTION BY ACCIDENTS/INCIDENT

Pak-American Fertilizer Limited had an accident in the year 1964. High back-pressure developed in a pipe, which resulted in the explosion of the valve. The lead chemical engineer died in the accident many other losses, injuries and damages occurred. In January 1997, a tanker of Chlorine Gas was transported in Lahore without ensuring that the risk of accident or incident was adequately alleviated. Consequently, when the vehicle/tanker approached an area of dense and rapidly moving traffic a leakage in the gas tank was created. 20 people died in this tragedy. This disaster also caused considerable health problems and material loss to peoples living in the vicinity.

In compliance with the judgement of the Supreme Court of Pakistan, the Federal Government under section (3) of the Pakistan Commission of Inquiry Act, 1956, established a Transmission Lines Commission to review the environmental and health

related issues of transmission lines and grid station projects, with the view that these are a definite matter of public importance. The Commission's area of jurisdiction for instigating proper remedial action includes all areas, whether rural or urban, from where the transmission lines pass and a grid station has been constructed.

This Commission also has the capacity to make suggestions for the modification, alteration or substitution of any component to bring it into conformity with the guide lines already provided.

6. INSTITUTIONS

At the federal level, the Ministry of Environment, Local Government and Rural Development agencies control policy formulation in conjunction with the Pakistan Environmental Protection Agency (PEPA) as the implementing/regulating institution. The Provincial Environmental Protection Agencies and city/town municipalities are the institutions responsible for the control of atmospheric pollution.

The Ministry of Environment, keeping in view that the quality of fuel and mechanical condition/tuning of engine is largely responsible for pollution, has undertaken the following strategy and action plan:

- In August 1993, the Ministry notified National Environmental Quality Standards, *inter-alia*, of motor vehicle exhaust and noise. The Standards prescribe maximum limits of visible and non-visible vehicle exhaust.
- The Pakistan Environmental Protection Council in consultation with the Ministry of Petroleum and Natural Resources formulated an action plan on clean fuels. The action plan *inter-alia* recommended the introduction of unleaded gasoline in major cities. The action plan has been forwarded to the Ministry of Petroleum and Natural Resources for effective implementation.
- The Pakistan Environmental Protection Council in its 8th meeting has directed Pakistan Environmental Protection Agency to prepare a National Clean Air Plan, which is under preparation. It is expected that this Plan will comprehensively address the Air Pollution issue of Pakistan.
- The Federal Ministry of Environment introduced Compressed Natural Gas (CNG) on experimental basis for use in cars and now in light of its success, many new filling stations have been established in the private sector.

Air quality exceeding the WHO standards is costing Pakistan about 25 billion rupees per year, particularly in relation to the adverse health and other effects caused by the current atmospheric pollution. The air quality is being degraded due to vehicular emissions; transport of pollutants from point sources; domestic burning of fuel; wind blow dust etc. In addition to the efforts being made to introduce clean fuels into the country, a massive forestry program is already being implemented in all of the four provinces and in the Federal Capital. To effectively protect public health from adverse ramifications of pollution, national standards and generation of ambient air data are necessary. In this

respect the Ministry is establishing ambient air quality standards and setting up air monitoring stations in major eight cities of Pakistan so that data on air quality can be generated and the necessary remedial measures can be taken to alleviate this problem.

7. LEGISLATION

In light of the growing consciousness of the need to enact a framework of environmental law to address environmental issues, the Pakistan Environmental Protection Ordinance was promulgated in 1983. The focus of this legislation is on motivation and awareness and it seeks to ensure that environmental considerations and concerns are incorporated into national development plans and policies. The main functions of this ordinance is the requirement of EIA to be undertaken for all major development projects and the provision of statutory cover for the establishment of Pakistan Environmental Protection Council (PEPC), Pakistan Environmental Protection Agency (Pak-EPA) and provincial EPA's. Furthermore the Ordinance makes provision for the formulation of National guidelines for pollution control and, as a result, the National Environmental Quality Standards (NEQS) has subsequently come into existence.

The PEPO, 1983 has been supplemented with the National Conservation Strategy, which emerged out of an extensive and consultative approach with all various interest groups, the general public and technical experts. The National Conservation Strategy of Pakistan operates with three basic objectives guiding its implementation, being the conservation of natural resources, sustainable development and improved efficiency in the use and management of resources.

In light of the fact that the PEPO, 1983 was considered too narrow in scope and having some deficiencies it was replaced with the promulgation of a more comprehensive PEPO, 1997, which was later enacted as an Act of Parliament of Pakistan and enforced with the name of Pakistan Environmental Protection Act, 1997.

8. MAIN ENACTMENT ON ATMOSPHERIC POLLUTION

The following are the main enactments and relevant sections on atmospheric pollution.

1. The Pakistan Penal Code, 1860

Section 278 - Making atmosphere noxious to health:

Whoever voluntarily vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighborhood or passing along a public way, shall be punished with a fine which may extend to five hundred rupees.

2. The Motor Vehicle Ordinance, 1965; The Motor Vehicles Rules, 1969

Rule 155 - Silencers:

(1)...

- (2) Every motor vehicle shall be so constructed or equipped that the exhaust gases from the engine are not discharged downwards so as to impinge on the road surface.

Rule 163 - Emission of smoke vapour or grease:

- (1) Every motor vehicle shall be so constructed, shall be maintained in such conditions, and shall be so driven and used that there shall not be emitted therefrom any smoke, visible vapour, grit, sparks, ashes, cinders or oily substance the emission of which could be prevented or avoided by taking of reasonable steps or the exercise of reasonable care or the omission of which might cause damage or annoyance to other persons or property or endanger the safety of any other users of the road.

(The penalty for the contravention of the above rules is as follows):

Section 112 - General provision for punishment of offences not otherwise provided for:

Whoever contravenes any provision of this Ordinance or of any rules made thereunder shall, if no other penalty is provided for the offence under this Ordinance, be punished with fine which may extend to one hundred rupees and if having been previously convicted of such an offence, shall again be guilty of as offence punishable under this section, shall be subject for every such subsequent offence to a fine which may extend to five hundred rupees.

4. The West Pakistan Prohibition of Smoking in Cinema Houses Ordinance, 1960**Section 3 - Penalty for smoking in cinema houses:**

Whoever smokes, during any performance, demonstration or exhibition, in any part of a cinema house reserved for the audience or the spectators, shall be punished with a fine which may extend to one hundred rupees.

EXPLANATION: For the purpose of this section, a performance, demonstration or exhibition shall be deemed to commence when the audience or the spectators have entered the cinema house to witness the performance, demonstration or exhibition therein and to continue until they have left the house after the final closing of the performance, demonstration or exhibition.

5. The Punjab Local Government Ordinance, 1979

Section 51- Functions of Zila Council:

A Zila Council may and if Government so directs shall undertake all or any of the following functions:

(L) Environmental Pollution:

- (liv) preparation and implementation of schemes for the prevention of the pollution of air by gases, dust or other substances exhausted or emitted by automobiles, engines, factories, brick kilns, crushing machines for grain, stone, salt or other material and such other sources of air pollution as the bye-laws may provide; and
- (lv) preparation and implementation of schemes for the prevention of pollution of water or land from such sources and in such manner as the bye-laws may provide.

Section 93 - Environmental Pollution:

- (1) An urban local council may prepare and implement schemes for the prevention of the pollution of air by gases, dust or other substances exhausted or emitted by automobile engines, factories, brick kilns, crushing machines for grain, stone, salt or other materials and such other sources of air pollution as the bye-laws may provide.
- (2) An urban local council may prepare and implement schemes for the prevention of the pollution of water or land from such sources and in such manner as the bye-laws may provide.

CHAPTER X

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 Conservation Strategy, 1993; Provincial Conservation Strategy, 1996;

Legislation: The Factories Act, 1934; Punjab Local Government Ordinance. 1979; The Pakistan Environmental Protection Act, 1997; The Pakistan Environmental Protection Ordinance, 1983

Key Institutions: Metropolitan Corporations, Municipal Corporations and Municipal Committees; Ministry of Environment

1. INTRODUCTION

The production and disposal of solid waste is a growing problem in the urban and industrial areas of Pakistan. The generation of solid waste is a direct consequence of life, as it is composed of all wastes arising from human and animal activities that are normally solid, semi-solid, liquid in containers. The generation of large amounts of solid waste is problematic in that it is generally useless and necessitates immediate disposal.

In a country such as Pakistan, the generation of Municipal Solid Wastes (MSW's) is estimated to be between 0.6-0.8 kilograms per day per capita. In Pakistan, there is a virtual absence of any appropriate waste management system and, as such, approximately 40% of the generated wastes remain either at collection points or in exposed urban areas. Inappropriately disposed of solid waste emits a host of pollutants into the air, which exacerbates atmospheric degradation and makes air more unacceptable for breathing. In addition to the adverse effects of inadequate waste disposal for general sanitation, this situation also provides a breeding ground for various carriers of diseases like mosquitoes and flies. The roadside dumping and burning of much of the MSW's generates furan and dioxin, which if inhaled, cause diseases that are more serious than cancer. The leachates from MSW's also the penetrate ground and pollute sub-soil water.

In light of the multitude and magnitude of problems caused by the improper disposal of wastes in Pakistan, there is a mandatory demand to implement appropriate management systems for MSW's.

2. CURRENT STATE OF SOLID WASTE MANAGEMENT IN PAKISTAN

Waste collection is perhaps the most critical component of every Solid Waste Management strategy (SWM), as it provides protection for local inhabitants from environmental nuisance and harm. The present system in Pakistan varies from a purely manual system involving sweepers and animal drawn transport to a more sophisticated system that utilises mechanised vehicles for transportation. In addition, the presence of scavengers, which are people that recycle and reuse various wastes, must be factored into any system of waste management and disposal. For example in all cities scavengers play an important role by removing items like metals, glass, polyethylene bags, paper and similar items which can be sold in the market place.

Waste collection differs amongst various sectors of each city. Affluent areas have more efficient arrangements for removal compared to those less advantaged sections where the systems for removal of solid waste are extremely unsatisfactory. Rapid urbanisation has also aggravated the problem of waste disposal, as limited public resources are strained even further to meet the needs and demands in the urban centers. Even the available resources are not being utilised to their full potential due to poor management, inefficient use of manpower and poor maintenance of old transportation and equipment.

Local municipal bodies have been unable to cope with the complex challenges of urbanisation. The growth of the urban population has been around 4-10 percent per annum, which places an enormous amount of pressure on existing civic services. This problematic scenario is exacerbated by the corresponding rapid growth of katchi abadis (slum areas) and the lack of water sewerage mechanisms in the major urban areas of cities. Thus due to a myriad of ineffective development planning issues, large cities are confronted by a number of complex urban problems.

It is estimated that urban Pakistan generates about 48,000 tonnes of solid waste daily and 17.5 million tonnes per annum. Appropriate SWM can considerably improve the standard of sanitation, which indirectly leads to better health, a higher productivity rate and reduced expenditure on health care. Furthermore SWM has the twofold effect of leading to increased revenues for the municipal bodies and thus providing additional public resources that are desperately required.

3. PRESENT SYSTEM OF SOLID WASTE MANAGEMENT IN PAKISTAN

In the urban centres of Pakistan, which includes eight selected cities, urban local councils such as Metropolitan Corporations, Municipal Corporations and Municipal Committees are responsible for the management of solid waste generated in areas within their jurisdiction. These areas may be residential, commercial, or industrial. Some exceptions

to this jurisdiction apply to large industrial and medical establishments and affluent residential areas, which independently manage the solid waste within their premises. The existing services for the management of solid waste include the following:

(a) Municipal Collection and Street Cleaning Service

Within this system solid waste is collected from streets, roadside dustbins and open heaps, much of which is composed of household wastes, street/road sweeping and garbage recovered from drain cleaning operations. To accommodate this system a considerable number of sweepers and sanitary workers have been employed by the respective municipalities. These workers are provided with traditional cleaning tools such as brooms, baskets, shovels, spades, scarifiers, pickaxes and wheelbarrows. These employees have an eight hour workday and work for six days a week.

(b) Waste Collection and Transportation Service

The waste is collected from the communal storage points i.e. dustbins, masonry or open filth depots that are frequently located on streets, roadsides and corners. These storage points are randomly distributed, depending on the availability of space at the point of collection. In most cases people themselves dispose of the waste by throwing litter anywhere that they can find space. In light of the incredible environmental and health hazards created by exposed wastes, the process of prompt storage of waste for collection is the most crucial aspect of existing solid waste management strategies.

Waste transportation is facilitated through donkey carts, bullock carts, Suzuki pickups, tractor trolleys, trucks and dumpers, with tractor trolleys and trucks being the most commonly utilised mode. The process of loading and unloading waste is done manually, except within the metropolitan cities of Islamabad, Karachi and Faisalabad where mechanical loaders and dumpers are used to a limited extent.

Reasons for the inadequacy of transport for SWM can be traced to the fact that a considerable number of vehicles available within municipalities remain out of use for reasons of being defective. Furthermore the vehicles that are consistently utilised are often used inefficiently and meet less than half of collection and transportation requirements.

(c) Waste Disposal Service

The disposal of waste is the end of the existing SWM processes. The procedure is often executed in the most haphazard fashion and without consideration of the negative environmental effects. In small intermediate cities, waste is largely disposed of into exposed and low-lying patches of land within municipal boundaries, and sometimes even within built-up areas. In some cases municipalities have facilitated SWM disposal through land ownership or lease of disposal areas, however even in these circumstances not all of the waste reaches disposal sites.

Once at the point of disposal many inadequacies within the existing SWM process continue to undermine successful disposal. For example no formal separation of recyclables is carried out, with the exception of that done by scavengers and hazardous toxic waste is mixed with the ordinary municipal waste. Furthermore, the disposed waste is not compacted to any degree and no soil cover or any alternative form of mitigating measure is taken to counter the adverse environmental impacts of disposal.

4. HOSPITAL WASTE MANAGEMENT

Hospitals, dispensaries, clinics, pharmacies, clinical laboratories and health care units produce a variety of toxic wastes. These wastes are categorised into solid wastes, chemical wastes, infectious wastes and radioactive wastes. Approximately 10-15% of all this wastes is considered infectious, and has been attributed to the spread of the two most common and dangerous diseases that afflict Pakistan's population- Hepatitis B and Acquired Immuno-Deficiency Syndrome (AIDS).

In Pakistan, around 250,000 tonnes of hazardous medical waste is the annually produced from all of the various health care facilities. These wastes are usually dumped within or external to the unmanaged bins. They generally remain at these collection points for several days and once at the point of putrefaction they emit highly toxic and noxious gases into the environment. In addition these wastes remain scattered over sizeable areas and, as such, have the consequence of spoiling general sanitation in a vast area. Vectors of various diseases, including flies and mosquitoes, breed on them, which has the effect of further spreading these diseases to the human populous. Cats and dogs so often visit these heaps in search of food and thus, through their contaminated legs, paws and other body parts spread contamination into residential areas. The situation is so dire that even amputated human limbs and removed organs are being disposed of in these garbage heaps.

5. INDUSTRIAL WASTE

Liquid waste

Industrial liquid wastes and effluents contain organic and inorganic salts, pathogenic organisms, toxic materials, metal scrapes, acids, alkalis, heavy metals and many other pollutants. Pakistan is confronted with the serious dilemma of industrial pollution, particularly as the waste and effluents are being dumped into watercourses in an untreated state. 50 varieties of metallic compounds have been detected in the effluents, including mercury, cadmium, chromium and lead. In this respect these extremely harmful substances contaminate the water that is commonly used for human and domestic purposes.

Sewage/Sanitation

The quality of water used by the urban population in Pakistan is severely degraded by pollution, with the exception of water supplies located near the head works in the mountains. As the surface water is harmful for human use, unless treated or boiled, people prefer to use and consume the ground water.

The sewerage system in place for the disposal of domestic wastes is limited to certain parts of the major cities. Thus the majority of the population relies on septic tanks and soak pits to rid wastes via open drains or directly on land or waterways. It is worth mentioning here that only Karachi and Islamabad use sewerage treatment plants, whereas all other sewerage systems in Pakistan are discharging raw and un-treated sewerage into the water.

Radioactive waste

A wide variety of radioisotopes are being used extensively in hospitals and nuclear medical centres for diagnostic and therapeutic purposes and as a result radioactive waste is produced. This particularly hazardous form of waste should be managed and disposed of with extreme care in order to protect mankind, the biosphere and the environment from the detrimental effects of nuclear radiation.

The Pakistan Atomic Energy Commission prepared a document entitled –Guidelines on the Handling of Radioactive Waste in Hospitals/Nuclear Medical Centres” and forwarded it to the Hospitals with the aim of providing guidelines on the control and safe management of radioactive waste produced in hospitals/nuclear medical centres. The overriding purpose of these guidelines is to minimise the chance of radiation exposure for employees and the general public.

6. INSTITUTIONAL STRUCTURE:

At the federal level the institutions responsible for the subject of waste management are the Ministry of Environment, Local Government and Rural Development and Health. Provincially, Health Departments, Municipal Administrations etc. are the controlling institutions.

7. ENACTMENTS/ LEGISLATION

Following are the some enactments met for Solid Waste, effluents and its management.

1. The Factories Act, 1934

Section 14 - Disposal of wastes and effluents:

- (1) Effective arrangements shall be made in every factory for the disposal of wastes and effluents due to the manufacturing process carried on therein.

- (2) The Provincial Government may make rules prescribing the arrangements to be made under sub-section (1) or requiring that the arrangements made in accordance with that sub-section shall be subject to the approval of such authority as may be prescribed.

2. The Punjab Local Government Ordinance, 1979

Section 51 - Functions of the Zila Council:

A Zila Council may and if Government so directs shall undertake all or any of the following functions:

(F) Drainage:

.....

(xxx) Provisions and maintenance of adequate system of public drains and regulation of the disposal of industrial wastes.

Section 54 - Removal, collection & disposal of refuse:

- (1) An urban local council shall make adequate arrangements for the removal of refuse from all public roads and streets, public latrines, urinals, drains and all buildings and lands vested in the urban local council and for the collection and proper disposal of such refuse.
- (2) The occupiers of all other buildings and lands within the area of an urban local council shall be responsible for the removal of refuse from such buildings and land subject to the general control and supervision of the urban local council.
- (3) An urban local council shall cause public dustbins or other suitable receptacles to be provided at suitable places and in proper and convenient situations in streets or other public places and where such dustbins or receptacles are provided, the urban local council may, by public notice, require that all refuse accumulating in any premises or land shall be deposited by the owner or occupier of such premises or land in such dustbins or receptacles.
- (4) All refuse removed and collected by the staff of an urban local council or under their control and supervision and all refuse deposited in the dustbins and other receptacles provided by the urban local council shall be the property of the urban local council.

Section 60 - Drainage:

- (1) An urban local council shall provide an adequate system of public drains in its local area and all such drains shall be constructed, maintained, kept cleared and emptied with due regard to the health and convenience of the public.

- (2)...
- (3) All private drains shall be subject to control, regulation and inspection by the urban local council.
- (4) Subject to the provisions of any other law for the time being in force an urban local council may by notice direct a commercial or industrial concern to provide for the disposal of its waste or effluent in the manner specified and failure on the part of the owner, tenant or occupier thereof to comply with such directions shall be an offence under the Ordinance.
- (5) An urban local council may, by notice, require the owner of any building, land or an industrial concern within its local area
- (a) To construct such drains within the building or land or the street adjoining such building or land and to take such other measures for treatment and disposal of effluent as may be specified in the notice;
 - (b) To remove, alter or improve any such drains; and
 - (c) To take such other steps for the effective drainage of the building or land as may be so specified.
- (6) In case of failure of the owner to comply with the requirements of notice under subsection (5), the urban local council may itself cause to carry out such requirements and the cost so incurred shall be deemed to be a tax levied on the owner of the building or land, as the case may be, under the Ordinance.

Section 61 - Drainage and sewerage schemes for commercial and industrial areas:

- (1) An urban local council may through a notice require the owners, tenants and occupiers of commercial and industrial concerns in any area or areas within its local area to have at their own cost prepared a scheme for the adequate and safe drainage and disposal of their wastes and effluent of the quality permitted under the rules or the by-laws and submit it to the urban local council within the time specified in the notice:

Provided that the time limit may be extended by the urban local council for a maximum period of three months at the request of the owners, tenants or occupiers of the commercial and the industrial units concerned

Section 67 - Disposal of Carcasses:

- (1) Whenever an animal in the charge of a person dies, otherwise than by being slaughtered for sale or consumption or for some other religious purpose such person shall either:

- (a) Convey the carcasses within twenty-four hours to a place, if any, fixed by the urban local council for the disposal of the dead bodies of animals or to a place beyond the limits of local area, not being a place within one mile of such limits; or
- (b) Give notice of the death to the urban local council whereupon the urban local council shall cause the carcass to be disposed of and charge such fees from the person concerned as the by-laws may provide.

3. The Pakistan Environmental Protection Ordinance, 1983

Section 9 - Agency to assist Local Councils etc., in disposal of wastes:

Section 13 - Prohibition on import of hazardous waste:

This is a blanket prohibition on the importation of hazardous waste into Pakistan, its territorial waters, the exclusive economic zone or Pakistan's historic waters (as specified pursuant to section 7 of the Territorial Waters and Maritime Zones Act 1976)

Section 14 - Handling of hazardous substances:

Section 14 prohibits the generation, collection, transportation, treatment, disposal, storage or handling of hazardous waste except under a license issued by the EPA or in accordance with the provisions of, any domestic law or relevant international convention, in particular the Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, Basel, 1989.

CHAPTER XI

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; Enforcement Compliance; Public Participation;

Policy Framework: National Conservation Strategy; Five year Plans;

Key Legislation: Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's; Environmental Tribunals

1. INTRODUCTION

Forests, like many natural resources, are improved through the use of certain basic principles. For example forest will be nurtured if mature trees with slow growth are harvested and replaced with younger rapidly growing trees, which has the effect of maintaining a high level of forest productivity. Over-mature trees also become susceptible to disease and insect attacks, which further reduces forest productivity.

2. DEFORESTATION

Besides supplying timber and other products, forests have a major role in maintaining vital ecological processes. On the global scale forests serve as filters for CO₂, they ameliorate climate change and help to ensure a continuous supply of clean water. Watershed forests are particularly important because they help conserve soil cover and protect downstream areas from excessive flooding. By reducing the silt load of rivers, watershed forests help prevent the clogging of reservoirs, irrigation systems and harbour facilities.

Unfortunately, as a direct consequence of processes of development in less developed countries, forests are widely being devastated. New estimates of tropical deforestation

announced in 1990, indicate that every year some 20 million hectares are lost. This has implications for the future viability of forest areas, where over the next 15 years an area the size of India will be denuded. In Africa, the situation is just as dire, as estimates a decade ago indicated that only one hectare was being replanted for every 29 hectares cut down.

3. ENACTMENTS

The following are the main enactments related to the forest and their relevant sections:

1. The Punjab Forest (Sale of Timber) Act, 1913

Section 3 - Power to make rules regulating sale of timbers and the establishment of sale depots:

The Provincial Government may, by notification in official Gazette, make rules to regulate the sale of timber, the establishment of sale depots for such timber.

Such rules may among other matters;

- (a) Prescribe the classes of timber to which the rules shall apply;
- (b) Define what shall be deemed to be a sale depot;
- (c) Provide for the establishment, registration, regulation and inspection of sale depots, and the levy of fees for registration, prescribe the period for which registration shall hold good and the conditions under which timber may be brought to, stored at and removed from, sale depots; and prohibit the sale of timber at or the establishment or maintenance of unregistered sale depots;
- (d) Regulate the use of sale depot marks and the registration of such marks; prescribe the time for which registration shall hold good; and provide for the levy of fees for registration.
- (e) Prescribe the registers to be maintained at sale depots and provide for the production of such registers before and for their examination by any forest or police officer authorised in this behalf by the Divisional Forest Officer, or by the District Superintendent of Police, respectively; or by the District Superintendent of Police, respectively;
- (f) Prescribe as penalties for the infringement of any rule made under the section imprisonment which may extend to six months or fine which may extend to Rs. 590 or both. Double penalties may be inflicted where the offence is committed after sunset and before sun-rise, or after preparation for resistance to lawful authority or if the offender has been previously convicted of a like offence.

(Rules regarding the registration of Timber Depots under Section 3 have been made by Notification No 1436 dated 12 January 1923, amended by Notification No 14696 dated 11 May 1927. Rules describing the tracts to which the Act shall apply have also been

made by Notification No 17415 Forest dated 14 June 1923 amended by Notification 14697-Forests dated 11 May 1927)

2. The Forests Act, 1927

Section 3 - Power to reserve forests:

The Provincial Government may constitute any forestland or wasteland which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest-produce of which the Government is entitled, a reserved forest in the manner hereinafter provided.

Section 26 - Acts prohibited in such forests:

(1) Any person who:

- (a) Makes any fresh clearing prohibited by section 5, or
- (b) Sets fire to a reserved forest, or, in contravention of any rules made by the Provincial Government in this behalf, kindles any fire, or leaves any fire burning, in such manner as to endanger such a forest; or who, in a reserved forest-
- (c) Kindles, keeps or carries any fire except at such seasons as the Forest-Officer may notify in this behalf;
- (d) Trespasses or pastures cattle, or permits cattle to trespass;
- (e) Causes any damage by negligence in felling any tree or cutting or dragging any timber;
- (f) Fells, girdles, lops, saws or burns any tree or strips off the bark or leaves from, or otherwise damages, the same;
- (g) Quarries stone, burns lime or charcoal, or collects, subjects to any manufacturing process, or removes, any forest-produce;
- (h) Clears or breaks up any land for cultivation or any other purpose;
- (i) In contravention of any rules made in this behalf by the Provincial Government hunts, shoots, fishes, poisons water or sets traps or snares; or
- (j) In any area in which the Elephants' Preservation Act, 1879, is not in force, kills or catches elephants in contravention of any rules so made:

shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both, in addition to such compensation for damage done to the forest as the convicting Court may direct to be paid.

(2)...

- (3) Whenever fire is caused willfully or by gross negligence in a reserved forest, the Provincial Government may (notwithstanding that any penalty has been inflicted under this section) direct that in such forest or any portion thereof the exercise of all

rights of pasture or to forest-produce shall be suspended for such period as it thinks fit.

Section 32 - Power to make rules for protected forests:

The Provincial Government may make rules to regulate the following matters, namely:

- (a) The cutting, sawing, conversion and removal of trees and timber, and the collection, manufacture and removal of forest-produce from protected forests;
- (b) The granting of licences to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use, and the production and return of such licenses by such persons;
- (c) The granting of licences to persons felling or removing trees or timber or other forest-produce from such forests for the purposes of trade, and the production and return of such licences by such persons;

.....

- (a) The examination of forest-produce passing out of such forests;
- (b) The clearing and breaking up of land for cultivation or other purposes in such forests;

.....

- (i) The cutting of grass and pasturing of cattle in such forests;
- (j) Hunting, shooting, fishing, poisoning water and setting traps or snares in such forests, and the killing or catching of elephants in such forests in areas in which the Elephants' Preservation Act, 1879, is not in force;
- (k) The protection and management of any portion of a forest closed under section 30; and

Section 33 - Penalties for acts in contravention of notification under section 30 or of rules under section 32:

(1) Any person who commits any of the following offences, namely:

- (a) Fells, girdles, lops, taps or burns any tree reserved under section 30, or strips off the bark or leaves from, or otherwise damages, any such tree;
- (b) Contrary to any prohibition under section 30, quarries any stone, or burns any lime or charcoal, or collects, subjects to any manufacturing process, or removes any forest-produce;
- (c) Contrary to any prohibition under section 30, breaks up or clears for cultivation or any other purpose any land in any protected forest;
- (d) Sets fire to such forest, or kindles a fire without taking all reasonable precautions to prevent its spreading to any tree

reserved under section 30, whether standing, fallen or felled, or to any closed portion of such forest;

- (e) Leaves burning any fire kindled by him in the vicinity of any such tree or closed portion;
- (f) Fells any tree or drags any timber so as to damage any tree reserved as aforesaid;
- (g) Permits cattle to damage any such tree;
- (h) Infringes any rule made under section 32;

shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees or with both.

- (2) Whenever fire is caused willfully or by gross negligence in a protected forest, the Provincial Government may, notwithstanding that any penalty has been inflicted under this section, direct that in such forest or any portion thereof the exercise of any right of pasture or to forest-produce shall be suspended for such period as it thinks fit

Section 35 - Protection of forests for special purposes:

The Provincial Government may, by notification in the official Gazette, regulate or prohibit in any forest or wasteland.

- (a) The breaking up or clearing of land for cultivation;
- (b) The pasturing of cattle; or
- (c) The firing or the clearing of the vegetation:

When such regulation or prohibition appears necessary for any of the following purposes:

- (i) For protection against storms, winds, rolling stones, floods and avalanches;
- (ii) For the preservation of the soil on the ridges and slopes and in the valleys of hilly tracts, the prevention of land-slips or of the formation of ravines and torrents, or the protection of land against erosion, or the deposit thereon of sand, stones in gravel;
- (iii) For the maintenance of a water-supply in springs, rivers and tanks;
- (iv) For the protection of roads, bridges, railways and other lines of communication;
- (v) For the preservation of the public health.

- (2) The Provincial Government may, for any such purpose, construct at its own expense, in or upon any forest or wasteland, such work as it thinks fit.

(3) No notification shall be made under subsection (1) nor shall any work be begun under sub-section (2), until after the issue of a notice to the owner of such forest or land calling on him to show cause, within a reasonable period to be specified in such notice, why such notification should not be made or work constructed, as the case may be, and until his objections, if any, and any evidence he may produce in support of the same, have been heard by an officer duly appointed in that behalf and have been considered by the Provincial Government.

Section 52 - Seizure of property liable to confiscation:

When there is reason to believe that a forest-offence has been committed in respect of any forest-produce, such produce, together with all tools, boats, carts or cattle used in committing any such offence, may be seized by any Forest-officer or Police officer.

Provided that, when the forest-produce with respect to which such offence is believed to have been committed is the property of Government, and the offender is unknown, it shall be sufficient if the offender makes, as soon as may be, a report of the circumstances to his official superior.

Section 63 - Penalty for counterfeiting or defacing marks on trees and timber and for altering boundary marks:

Whoever, with intent to cause damage or injury to the public or to any person, or to cause wrongful gain as defined in the Pakistan Penal Code -

- (a) Knowingly counterfeits upon any timber or standing tree a mark used by Forest-officers to indicate that such timber or tree is the property of the government or of some person, or that it may lawfully be cut or removed by some person; or
- (b) Alters, defaces or obliterates any such mark placed on a tree or on timber by or under the authority of a Forest-officer; or
- (c) Alters, moves, destroys or defaces any boundary-mark of any forest or wasteland to which the provisions of this Act are applied, shall be punishable with imprisonment for a term which may extend to two years, or with fine or with both.

Section 70 Cattle Trespass Act, 1871 to apply:

Cattle trespassing in a reserved forest or in any portion of a protected forest which has been lawfully closed to grazing shall be deemed to be cattle doing damage to public plantation within the meaning of section 11 of the Cattle Trespass Act, 1871, and may be seized and impounded as such by any Forest officer or Police-officer.

Section 80 - Management of forests the joint property of government and other persons:

- (1) If the Government and any person be jointly interested in any forest or waste-land, or in the whole or any part of the produce thereof, the Provincial Government may either:
- (a) Undertake the management of such forest, waste-land or produce, accounting to such person for his interest in the same; or
 - (b) Issue such regulations for the management of the forest, waste-land or produce by the person so jointly interested as it deems necessary for the management thereof and the interests of all parties thereto.

3. The West Pakistan Firewood and Charcoal (Restriction) Act, 1964

Section 3 - Definitions:

In this Act, unless the context otherwise requires, the following expressions shall have the meanings hereby respectively assigned to them, that is to say:-

- (a) Factory means any premises including the precincts thereof where any process is being carried on with the aid of power;
- (b) Firewood includes any kind of wood used for burning a fire, but does not include shrubs, lopping of trees not exceeding six inches in girth, or the stumps of trees;
- (c) Power means electrical energy and any other form of energy, which is mechanically transmitted and is not generated by human or animal agency.

Section 3 - Restrictions on burning firewood and charcoal:

It shall be unlawful to burn firewood or charcoal in any factory, brick-kiln, lime-kiln, or such other fire places or class of fire places as may be specified by Government by notification:

Provided that the prohibition contained in this section shall not apply to:

- (i) Any fireplace for burning of earthenwares;
- (ii) Any brick kiln or lime-kiln worked for the preparation of bricks or lime for the personal use of the proprietor of such kiln;
- (iii) The use of firewood for any domestic purposes:

Provided further that Government may, in any area, permit the burning of firewood or any kind of firewood or charcoal in any class of factories, brick-kilns or lime-kilns subject to such conditions as may be prescribed.

Section 4 - Penalty:

Any person who contravenes the provisions of Section 3 or such of the rules made under this Act, as may be specified, shall be liable to simple imprisonment for a term which may extend to thirty days or with fine up to five hundred rupees or with both.

4. Plantation and Maintenance of Trees Act, 1974

Section 2 - Definitions:

In this Act, unless the context otherwise requires, the following expressions shall have the meanings hereby respectively assigned to them that is to say -

.....

- (a) Land means land which is not occupied the site of any building in a town or village and is occupied or has been le for agricultural purposes or for purposes subservient to agriculture or for pasture, and includes the sites of buildings and other structures on such land;

Section 3 - Plantation of trees:

- (1) There shall be planted and maintained three trees per acre by the occupier thereof in such manner as may be prescribed.
- (2) In case the occupier fails to comply with the requirements of sub-section the required number of trees shall be caused to be planted in his land by the Department without any let or hindrance by him. The occupier shall be responsible for the maintenance of the trees so planted.

EXPLANATION: For the purpose of this section:

- (i) Trees already planted and maintained in orchards or otherwise or trees that may be planted and maintained in orchards shall be taken into account; and
- (ii) Trees required to be planted and maintained may be planted and maintained in compact block or otherwise in his holding.

Section 4 - Penalty:

- (1) Any person who contravenes the provisions of Section 3 shall be liable to pay the penalty, not exceeding rupee one per tree, after giving an opportunity to the person concerned of being heard, by an officer authorised in this behalf by the Government.
- (2) The fine imposed under this section shall be recoverable as arrears of land revenue.

5. The Cutting of Trees (Prohibition) Act, 1975

Section 3 - Cutting etc, of trees prohibited:

Notwithstanding anything contained in any other law for the time being in force, no person shall, without the prior written approval of the local formation commander or an officer authorised by him in this behalf, cut, fell or damage or cause to be cut, felled or damaged any tree growing within the five miles belt along the external frontiers of Pakistan.

Section 4 - Penalty:

Whoever contravenes the provisions of this Act or the rules made thereunder shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.

6. The NWFP Management of Protected Forests Rules, 1975 [made under the Forests Act, 1927]

Rule 3 - Grant of trees:

No trees shall be felled or removed from the forests to which these rules are applicable except with the permission in writing of the Conservator of Forests, Malakand, or the Divisional Forest Officers having jurisdictions in the forests.

Rule 4

Free grant of trees for domestic needs may made to the owners or right-holders and to other local inhabitants entitled to this privilege subject to silvicultural availability of trees and up to the limit given in the sanctioned working plans, except in the case of Swat and Kalam. Limit in the case of Swat and Kalam shall be such as is given in the Schedule appended to these rules.

Rule 9

The trees will be granted in the diameter range of 24 - 30. The Standing Deodar tree shall not be granted for domestic use, except in Kalam, Upper Indus-Kohistan, Dir, Kohistan and Chitral. Windfallen trees will be granted and counted against the quota. Trees will be marked strictly according to the silvicultural availability. No trees shall be marked within 300 feet of the outer boundaries of the forests.

Rule 10

Trees will be marked by the Range Officer himself or through Block Officer within three months from the receipt of the orders. The Range Officer will be responsible for the correctness of the marking whether he does himself or through the Block Officer. The trees will be cut within two months of the date of marking and will be utilised for purposes stated and for no other within six months from the date of cutting.

Rule 13

Neither the person to whom trees have been granted for construction of a house in any year nor a member of his family shall be entitled to the grant in the following year unless proved to the satisfaction of the Divisional Forest Officer concerned that the timber is required for the construction of a separate house.

Rule 15

Every person to whom the trees have been granted under these rules shall plant five trees in a place or places designated by the Forest Officer during the plantation season and look after them for such time as may be directed by the forests authorities.

Rule 20 - Punishment:

Any breach of these rules shall be punishable with imprisonment or with fine or with both as provided in section 33 of the Forest Act, 1927.

7. The Punjab Local Government Ordinance, 1979**Section 51 - Functions of the Zila Council**

A Zila Council may and if Government so directs shall undertake all or any of the following functions:

(a) Public Works

.....

(i) Plantation and preservation of trees and road sides, public ways, public places and public buildings;

8. The NWFP (Conservation and Exploitation of Certain Forests in Hazara Division) Ordinance, 1980**Section 3 - Prohibition of private extraction of timber, etc:**

- (1) For the purposes of conservation and better exploitation of forests, there shall be no extraction of timber and other forest produce in the specified areas, except by Government or by a corporation or an agency set up or authorised by government in this behalf.
- (2) Notwithstanding anything to the contrary contained in any law for the time being in force, or any decree, order or judgment of any Court or other authority.
 - (a)...

- (b) All timber and other forest produce produced in and extracted from the specified areas and transported from, through or to any place within Hazara Division shall, whether extracted before or after the commencement of this Ordinance, be liable to duty at the rate notified by Government under sections 28 and 29 of the Hazara Forest Act, 1936 (NWFP Act VI of 1937), by Notification No. SOFT (FAD) V-105/70/HFA 1936), dated the 24th December 1979, or at such other rates as may, hereinafter, be notified by Government under the said Act.

9. The Agricultural Pesticides Ordinance, 1971

Section 4 - Pesticides to be registered:

No person shall import, manufacture, formulate, sell, offer for sale, hold in stock for sale or in any manner advertise any brand of pesticide which has not been registered in the manner hereinafter provided.

CHAPTER XII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: BIODIVERSITY

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

Policy Framework: National Conservation Strategy

Key Legislation: Wildlife Protection Ordinance (No. LVI) 1959; under Pakistan Environmental Protection Act, 1997; National Conservation Strategy, 1993; Pakistan Environmental Protection Ordinance of 1983; Pakistan's Forestry Sector Master Plan 1992.

Key Institutions:

Ministry of Environment, Local Government and Rural Development

1. INTRODUCTION

The diversity of mammal, bird, fish, reptile, amphibian, invertebrate and flora species in Pakistan, in Pakistan is incredibly rich. For example there is a listing of 158 species of mammals in Pakistan, including the brown bear, stoat, greater white-grey long-eared bat and ibex, leopard cat, goral, snow leopard, Altai weasel and the long-tailed marmot found in far north Chitral of Kohistan. The Himalayan moist and semi-moist temperate forests of NWFP have one of the richest mammalian communities of all the ecosystems of Pakistan, including the Kashmir grey langur, rhesus macaque, gray wolf, Kashmir red fox, Himalayan black bear, stone marten, yellow-throated marten, leopard, leopard cat, musk deer, gray goral, Royle's pika, Indian giant flying squirrel, small Kashmir flying squirrel and Indian crested porcupine.

The definition of "Biological Diversity" or "Biodiversity" under the Pakistan Environmental Protection Act, 1997 has been taken from the Convention on Biological Diversity (CBD) 1992. This term has been defined as;

–The availability among living organisms from all sources including *inter-alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of

which they are part; this includes diversity within species, between species and of ecosystems”.

2. CONSERVATION OF BIODIVERSITY

The conservation of biodiversity is fundamental to achieving sustainable development, particularly as it provides flexibility and options for our current and future use of natural resources. Almost 70% of the population lives in rural areas and a large part of this population depends directly and indirectly on natural resources. The air we breathe, the water we drink and the soil that supports crop production are all products of the complex interactions that occur among various living organisms on Earth. Conservation of biodiversity is crucial to the sustainability of sectors as diverse as energy, agriculture, forestry, fisheries, wildlife, industry, health, tourism, commerce, irrigation and power. Pakistan's development in the future will continue to depend on the foundation provided by living resources and the conservation of biodiversity will ensure this foundation remains a strong basis for survival and development.

Loss of Natural Habitats

While the loss, fragmentation and degradation of natural habitats in the territory of Pakistan has been taking place for centuries, the last few decades have seen a particularly rapid acceleration in this process. This trend is most evident in the remaining upland forests, scrub forests and mangrove forests, arid and semi-arid rangelands (including sand dune deserts), inland wetlands, Indus Delta and coastal waters.

Forests

According to the Government of Pakistan Forestry Sector Master Plan delivered in 1992, forests, scrubs and planted trees existing on farmlands, cover 4.2 million ha or 4.8% of the country. However, if plantations are excluded, the total area of natural and modified coniferous, scrub, riverain and mangrove forest areas comprise less than 3.5 million ha (4% of the country). If scrub forests are excluded, the total area of “tall-tree” forest decreases to just 2.4 million ha (2.7%), of which four-fifths (2 million ha) have sparse cover (patchy forests with <50% cover). Specifically, more than half of Pakistan's remaining mangrove forests, more than two-thirds of the remaining riverain forests and more than nine-tenths of remaining coniferous forests have less than 50% canopy cover. Good quality, “tall tree” forest area in Pakistan covers less than 400,000 ha (under one two-hundredth parts of the country). These remaining forests, fragmented and degraded as they are, also appear to be rapidly disappearing.

The mangrove forests of the Indus Delta show a similarly dramatic decline. In the last 20 years, mangrove cover has been halved from 2,600 square kilometres in the late 1970s to 1,300 square kilometres in the mid 1990s. Once the largest mangrove forests in an arid area of the world, this national heritage is quickly disappearing.

It is now feared that Pakistan is having the world's second highest rate of deforestation. This destruction is leading to the wholesale disappearance of trees, shrubs, and ground flora together with the vertebrate and invertebrate fauna they normally support. The loss of forest habitat has had a severe impact on Pakistan's biodiversity, and has serious implication for the nation's other natural and agro-ecosystems.

Causes of Biodiversity Loss in Pakistan

The current losses of biodiversity have both direct and indirect causes, in addition to economic causes. The direct causes include activities resulting in the loss and degradation of habitats, such as the overexploitation of plant and animal species, agricultural intensification, pollution, and the invasion of introduced species and climate change. The indirect causes are largely systemic and include the increasing demand for natural resources, population growth, low primary productivity etc. The identifiable economic causes relate to market failure, intervention failure, weak ownership, high discount rates and the globalisation of the world economy.

Ecological Zones and Agro-ecosystems

Although no systematic attempt has been made to define the ecological zones of Pakistan, there is an initial classification of terrestrial ecosystems within 12 major vegetative zones. From the permanent snowfields and cold deserts of the mountainous north to the arid sub-tropical zones of Sindh and Balochistan; from the dry temperate coniferous forests of the inner Himalayas to the tropical deciduous forests of the Himalayan foothills, the steppe forests of the Suleiman Range and the thorn forests of the Indus plains; and from the swamps and riverine communities of the Indus and its tributaries to the mangrove forests of the Indus delta and Arabian Sea coast.

The coast of Pakistan forms the northern boundary of the Arabian Sea. As such oceanographic influences dominate the continent and the only major freshwater input comes from the Indus at the eastern extremity, which discharges some 200 km³ of water and 450 million tonnes of suspended sediment annually. This creates the Indus Cone, a 2,500 m deep pile of loose sediment on the floor of the Arabian Sea, which fans away from the mouth of the river as a vast, sub-aqueous delta. Coastal ecosystems include numerous deltas and estuaries with extensive inter-tidal mudflats and their associated wetlands (the Indus Delta has an estimated 3,000 km² of delta marshes); sandy beaches; rocky shores; four species of mangroves; and sea grasses.

The 1992 Forestry Sector Master Plan identifies nine main agro-ecological zones. The agro-ecosystems have almost entirely replaced the original tropical thorn forests, swamps and riverain communities of the Indus plains. The irrigated plains of Pakistan constitute the largest irrigated system in the world. Through the conversion of natural habitats to agricultural use, a number of distinct agro-ecosystems have been created in Pakistan.

Conservation

By definition, a Wildlife Sanctuary offers greater protection than a National Park, while a Game Sanctuary affords no protection to habitat but merely regulates hunting. As a result, the value of Game Sanctuaries for long-term conservation of biodiversity is very limited. If only National Parks and Wildlife Sanctuaries are taken into account, then Pakistan lags behind many other Asian countries (including Nepal, Sri Lanka and Bhutan) in terms of the percentage of national land area that has been designated for conservation.

In-Situ Conservation

The Convention on Biological Diversity recognises *in-situ* conservation as the primary approach to biodiversity conservation (Article 8). Of particular importance is the balance to be struck between conservation measures within protected areas (PA's) and measures that extend beyond PA's and into the wider countryside.

It is generally recognised that activities, which occur in areas adjacent to protected areas, may be critical to the viability of the protected areas themselves. Adjacent communities ultimately control the protected area to the extent that if the protected area negatively affects the local population, then this area may be destined to fail. However, if that which the local people have lost is replaced, and other forms of development compatible with the goals of the protected area are promoted in adjacent areas, then the protected area's long-term viability is likely to be enhanced.

The majority of Pakistan's protected areas were created in the 1970s. In this era insufficient attention was given to ecological criteria and the requirements of local communities, which undermined the effectiveness of such conservation strategies. Today, many of the PA's are too small and isolated to be effective. Most ecological zones are not adequately represented within the protected area system. For example, there are no marine PA's, very few coastal PA's and no formal designation to protect the remaining juniper forests in Balochistan Province.

There is also considerable regional disparity in the distribution of PA's across Pakistan. For example, whilst over 16 % of Punjab is protected within one of the three PA categories (National Park, Wildlife Sanctuary or Game Reserve), approximately 6% of NWFP and less than 6% of Balochistan is formally protected. This is unfortunate, particularly as these are the regions where most of Pakistan's remaining biodiversity is concentrated.

Ex-Situ Conservation

Ex-situ conservation facilities provide excellent opportunities for researchers to study plants, animals and microorganisms in controlled conditions and to improve collection, storage and regeneration techniques. *Ex-situ* facilities can also be used for germplasm evaluation, as centres for documentation and information systems and for providing information on genetic resources on a commercial basis

The Convention on Biological Diversity specifically recommends that *ex-situ* measures be adopted to support *in-situ* conservation programs. These measures have most extensively been applied to conserve cultivated and domesticated species, employing techniques such as seed banks, field gene banks, *in-vitro* storage, and captive breeding measures. Other groups in need of *ex-situ* conservation measures include: threatened species; wild relatives of cultivated plants and domesticated animals; medicinal plants; plant crops of local and regional importance; ornamental plant species; tree species; and micro organisms. *Ex-situ* conservation is complementary to the rehabilitation and restoration of degraded ecosystems and promotes the recovery of threatened species. The ultimate purpose of these *ex-situ* conservation measures is to re-introduce species into the wild and, hence, restore a satisfactory system of ecological biodiversity.

The captive breeding of wild animals can also be instrumental in the restoration of endangered species populations. It is important to increase populations as quickly as possible and reintroduce the animals back to their original habitat, to minimise the possibility of genetic erosion. Plants can also be re-introduced to their natural areas of occurrence. Such re-introductions should, however, be carried out in such a way that other indigenous species are not harmed or adversely affected. Similarly, care must be taken while collecting materials and animals for *ex-situ* conservation, so as not to endanger other native species and genetic resources. The regulation and management of such transactions requires accurate information to determine the impact of collection on populations and ecosystems. The establishment of a National Microbial Culture Collection would be essential for the preservation and use of the rich microbial diversity present in Pakistan.

Preferably, *Ex-situ* conservation should be undertaken in the country from which the biological resources and genetic materials have originated. In Pakistan, institutions involved in *ex-situ* conservation of biodiversity include the National Agricultural Research Center (NARC), the Plant Genetics Resource Institute and the Animal Sciences Research Institute. Microbiological collections are held at the Nuclear Institute for Agriculture and Biology (NIAB), National Institute for Biotechnology and Genetic Engineering (NIBGE), the Ayub Agricultural Research Institute (MRI) and the Karachi and Islamabad Universities. There are also a number of botanical gardens, zoos, captive collections, wildlife parks and breeding centres as well as within private collections of wildlife species. However, the lack of adequate coordination and integration among these institutions, particularly with respect to identifying conservation priorities in Pakistan, severely challenges the potential for successful conservation measures. Many of these facilities also require significant strengthening if they are to make an effective contribution to biodiversity conservation.

Access to Biodiversity

The CBD is the first international convention that acknowledges a State's sovereign rights over the genetic resources within its jurisdiction and the resulting authority to regulate

and control access to these resources (Article 15). However, the degree and extent to which the State could exercise this right has to be determined by domestic law enacted within the country itself. Parties to the Convention are also required to promote the fair and equitable sharing of benefits arising from the use of genetic resources and the development of biotechnologies (Articles 15 and 19); and to facilitate access to, and transfer of, technology, including biotechnology (Article 16).

Genetic resources have been developed and used since the dawn of civilisation in Pakistan. Although the use of some traditional genetic materials has declined over time as new, high-yielding varieties have been introduced, there is still considerable potential for the further development of native genetic resources. For example, there are hundreds of species of wild plants found in different parts of Pakistan, which can be used for medicinal purposes however, at present, their use is limited to local remedies and homeopathic medicines. Some genetic resources that have originated within Pakistan have been characterised and patented in developed countries. Access to these resources for use and research in the country of origin is essential for the successful implementation of conservation strategies.

There are several research institutions in Pakistan that focus on genetic resources and biotechnology, including the Genetic Research Institute at the Pakistan Agriculture Research Council (PARC), the Agriculture Biotechnology Institute at NARC, the Nuclear Institute for Agriculture and Biology in Faisalabad and the National Institute for Biotechnology and Genetic Engineering (NIBGE), also in Faisalabad. Despite this seemingly comprehensive institutional network, these institutions operate in a policy vacuum in relation to the conservation and use of genetic resources. There is also limited scope for focusing on biological resources that are not of commercial value.

3. THE CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

The future of life on Earth captured worldwide attention at the Earth Summit in Rio de Janeiro in 1992 when 155 nation states and the European Union signed the Convention on Biological Diversity (CBD). This act was testimony to the intention of these countries to form a global alliance to protect habitats, species and genes, to shift to sustainable modes of resource use and to make the necessary policy, economic and managerial adjustments to guarantee that the benefits to be gained from the use of components of biological diversity are equitably shared across local, regional and global societies. The CBD was signed by Pakistan in 1992 and ratified by the Cabinet in 1994.

Pakistan and other nations who attended the pivotal conference in Rio also adopted a comprehensive global plan for sustainable development and global environmental protection for the 21st century. Named 'Agenda 21', the plan contains 40 chapters of non-binding recommendations, which deal with a full range of social, economic and environmental issues. One chapter is devoted to the conservation of biological diversity and additional biodiversity-related activities are featured throughout other chapters.

Having agreed to conserve biodiversity, foster the sustainable use of forests, fisheries, agriculture and other resources, and to transfer related technologies and share in financial investments, Pakistan faces the dilemma of how to determine what steps, as a nation, to take to implement the Convention. Article 6 of the Convention calls for parties to:

–Develop national strategies, plans or programs, or adapt existing plans, to address the provisions of the Convention; and to integrate biodiversity work into sectoral and cross-sectoral plans, programs and policies”.

The preparation of conservation and development strategies and action plans is not a new consideration for Pakistan, as the country has a well established procedure for the preparation of Five Year Plans and Annual Development Plans. Pakistan has a National Conservation Strategy (GOP/JRC’s Y2), which was adopted as national policy in 1993 and accepted by the World Bank as the National Environmental Action Plan. A Sarhad Provincial Conservation Strategy (GoNWFP 1996) has been completed and other regional strategies (Northern Areas, Balochistan) are in preparation. There are also a number of sectoral plans for biological resources such as the Government of Pakistan’s Forestry Sector Master Plan 1992.

Pakistan has been involved in many aspects of biodiversity conservation including national park planning, endangered species protection and recovery and plant and animal propagation and breeding. However, Pakistan’s experience with planning and implementing measures specifically related to biodiversity has been limited. In light of this inexperience in the realm of biodiversity conservation strategies, Pakistan has not yet approached biodiversity planning and implementation in the comprehensive, integrated manner required by the Convention.

Three sequential processes have been recommended for adoption in the Convention: country studies (biodiversity assessment), national strategies (developing goals and operational objectives), and action plans (identifying actions and implementation measures). All three are components of a larger and quite flexible process that can assist countries in fortifying existing institutions, programs, investments and capabilities. This process is *cyclical*. It leads countries to periodically assess their capacity, identify an evolving set of priorities and actions for responding to new opportunities and prepare different reports to government, society and the Convention on their findings and conclusions. The process is also *multi-sectoral*, as it involves a wide range of government ministries, private resource-using industries and civil groups. And finally, it is *adaptive*. It is revised and reformulated as new information arrives and the results of previous activities and investments are continually assessed to accommodate changing circumstances.

4. OTHER INTERNATIONAL BIODIVERSITY-RELATED CONVENTIONS TO WHICH PAKISTAN IS A PARTY

Pakistan is a party to two international conventions dealing with species: the Convention on Conservation of Migratory Species of Wild Animals (adopted in Bonn, Germany in 1979 and to which Pakistan has been a party since 1987); and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (signed in Washington in 1973, to which Pakistan has been party since 1976). Pakistan is also a party to two area-based treaties: the Convention on Wetland of International importance especially as Waterfowl Habitat (signed in Ramsar, Iran in 1971, and which Pakistan has been a party since 1978); and the Convention concerning the Protection of the Cultural and Natural Heritage (signed at UNESCO, Paris in 1972). In addition to these, Pakistan is also treated as a party to the United Nations Convention on the Law of the Sea (signed at Montego in 1982), supports the UNESCO Man and Biosphere (MAB) program (initiated in Paris in 1968) and has signed (but not yet ratified) the Convention for Combating Desertification.

Under the Bonn Convention Pakistan's principal obligations are ~~to~~ protect certain endangered species listed in Appendix I of the Convention and to endeavour to conclude agreements for the protection of migratory species whose conservation status is unfavourable and of those whose conservation status would substantially benefit from the international cooperation deriving from agreement (such species are listed in Annex II)".

Under CITES, Pakistan's principal obligations are to restrict the import and export of listed species. Appendix I lists those endangered species of flora and fauna that are in immediate danger of extinction. Appendix II lists those species that are not in immediate danger of extinction, but which may become so if trade restrictions are not applied. Appendix III lists those species for which cooperation between Parties is desirable for their protection.

The Ramsar Convention is primarily concerned with the conservation and management of wetlands included in the ~~List~~ "List of Wetlands of International Importance". Parties are also required to promote the ~~wise use~~ "wise use" of wetlands within their territory and to take measures for the conservation of wetlands and waterfowl habitats by establishing nature reserves on wetlands, whether they are included in the list or not. A Wetland Fund was established in 1990 to assist Parties to discharge their obligations under this Convention. A range of legislative measures are required to be undertaken to implement the Ramsar objectives, particularly in relation to the specific wetlands, and for the division of jurisdiction among government agencies for the catchment-side management of wetlands. To date, Pakistan has designated 11 protected wetland areas under the Ramsar Convention, and a further six sites have been identified for consideration.

The World Heritage Convention designates that Pakistan's principal obligations are to conserve and transmit the natural and cultural heritage situated on its territory for the benefit of future generations. The inclusion of a site on the World Heritage List requires the approval of the World Heritage Committee. In addition to facilitate the objectives mentioned above, a special financial mechanism, being the World Heritage Fund, has

been established to assist Parties to discharge their obligation in respect of sites. This has been achieved with great success.

Although a number of Pakistan's cultural sites have been inscribed on the World Heritage List, none of Pakistan's natural sites have yet been included. However, an application in respect of the Central Karakorum National Park has been prepared and is being considered by UNESCO.

The only worldwide program for the establishment and conservation of protected areas is the Biosphere Reserve Network, which was developed under UNESCO's Biosphere Program. As there are no treaties or legally binding obligations governing this network, designations of Biosphere Reserves are made on a purely voluntary basis.

To date, Pakistan has designated only one Biosphere Reserve (Lal Suhanra National Park), although a number of other areas (e.g., the Indus Delta) would appear to be ideal for this management approach.

Under those provisions of the UN Convention on the Law of the Sea (UNCLOS) relating to Biodiversity, Pakistan's principal obligations relate to the conservation and exploitation of marine species, the establishment of marine protected areas and the prevention of marine pollution (which includes the introduction of alien or exotic species).

Furthermore, Pakistan has also recently signed and ratified the UN Convention to Combat Desertification (UNCCD). Although this Convention does not directly address Biodiversity, it addresses the degradation of arid and semi-arid rangelands, which inadvertently impacts upon issues of biodiversity. There are potential synergies between UNCCD and CBD that need to be further explored.

5. DOMESTIC LEGISLATION

Domestic legislative support is required for the successful implementation of many of the articles of the CBD. Although the term "biological diversity" is new and, as such does not find expression in much of the existing legislation, Pakistan has a wide range of laws relating to the conservation of the different components that inextricably relate to biodiversity (forests, fisheries, wildlife etc). What is required is to review the relevant existing laws, to relate them to the CBD, and where necessary, to amend them or to enact new laws to implement the objectives enunciated in the CBD

The first piece of legislation targeting environmental conservation as a whole was the Pakistan Environmental Protection Ordinance of 1983. This has been subsequently been replaced by the Pakistan Environmental Protection Act of 1997. The relevance of this Act to the conservation of biodiversity is primarily through the introduction of a screening process for proposed projects, as provided for by the Act. In the implementation of the provisions of this Act it is important to ensure that IEE's and EIA's adequately address

the relevant issues and that the Environmental Protection Agency has the required skills to evaluate these reports in relation to the conservation of biodiversity in Pakistan.

The legislative framework for the conservation of wildlife consists of the various provincial Acts and Ordinances. These laws provide for the establishment of Provincial Wildlife Management Boards, which is endowed with responsibility for the formulation of policy and the supervision of activities relating to the conservation and management of wildlife. In practice, such Boards have not been established in several provinces and even where they have been set up they remain largely ineffective.

There is a serious deficiency in the legal framework in relation to the conservation of species. The existing legislation deals excessively with animal species and no provision is made for the protection of threatened and endangered plant species. The current laws attempt to control the hunting of designated game animals, but most of these regulatory measures have proved difficult to enforce. Although some rules have been framed under the existing laws to protect a few selected species (falcons, cranes), the need for additional control measures to protect other key threatened species should be examined.

Under the existing wildlife laws in Pakistan, there are three categories of Protected Areas: National Parks, Wildlife Sanctuaries, and Game Reserves. A current trend of thought on the management of these Protected Areas is that, to be effective, the communities living in proximity to the area should be involved in the management process and should also derive some benefits from the area. None of the existing categories of Protected Areas make allowance for participatory management by communities and, as such, a draft Model Wildlife Law empowering local communities to participate in joint wildlife management with governments has been prepared and is currently under review by provincial governments.

The Forest Acts and other related legislation of the provincial government have a primary focus on the exploitation of the forests. In practice, there is no clear jurisdiction over the forests and conservation of forest biodiversity is handled by default.

In 1993, the Federal Government adopted the policy (through a long term Master Plan) to "recognise, safeguard and manage animal and plant diversity in forest areas under the conservation area and working plan systems". The Ecosystem and Biodiversity Action Program, which was formulated under the Master Plan, includes schemes for the rehabilitation of mangrove forests of the Indus Delta, the preservation and protection of the juniper and chilgoza pine forests in Balochistan and the protection of all endemic and endangered species of flora and fauna and ecosystems through designated conservation areas and scientific management of these areas. The Plan also recommends updating provincial forest legislation to promote, amongst other things, the conservation of natural forest ecosystems and suggests a model law to facilitate this purpose. In this respect the Plan assumes that the groundwork has been laid for an effective program for the conservation of forest biodiversity outside the protected area system. It is now necessary to move into action and implement these objectives, particularly at the provincial level.

Fisheries constitute an important component of Pakistan's biodiversity. The Federal Government is responsible the protection and administration of marine fisheries beyond the provincial jurisdiction, which is limited to 12 miles from the coast. For example, freshwater and estuarine fisheries come under provincial jurisdiction as they reside within the aforementioned limitation. The existing laws prohibit the capture of certain species of fish below a prescribed size and the use of poison or explosives. This legislative regime also regulates fishing craft and fishing gear, and empowers the government to designate any water body as a protected sanctuary. These measures, both in terms of coverage and enforcement, are inadequate mechanisms of protection for Pakistan's aquatic biodiversity and a continuing failure to address the issues may eventually lead to the erosion of the resource base upon which the fisheries industry relies.

Considerable potential for the conservation of biodiversity exists at the local government level. The functions delegated to local government coincide with many aspects of biodiversity conservation and these could promote a window of opportunity for the implementation of conservation measures at the local level. Conservation at a local level is particularly imperative to incorporate community participation, awareness and consultation in the process of conservation.

CHAPTER XIII

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: WILDLIFE

Key Issues: Loss of Wildlife; Park Management; Forest Degradation; Illegal Poaching; Man-Animal Conflict; Livelihood for Local Peoples; The dependency of local people on Forests;

Policy Framework: National Conservation Strategy;

Key Legislation: Pakistan Environmental Protection Act, 1997; Sindh Wildlife Protection Ordinance, 1972; Sindh Wildlife Protection Rules, 1972; NWFP Wildlife (Protection, Preservation, Conservation & Management) Act, 1975; NWFP Wildlife (Protection, Preservation, Conservation & Management) Rules, 1977; Punjab Wildlife (Protection, Preservation, Conservation & Management) Act, 1974; Balochistan Wildlife Protection Act, 1974; Islamabad Wildlife (Protection, Preservation, Conservation & Management) Ordinance, 1979;

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's; Environmental Tribunals

1. INTRODUCTION

–Wildlife” is a term that depicts the freely flourishing animals, birds, insects, aquatic and marine life and plants and trees. Generally speaking, all varieties of flora and fauna that grows in natural habitats are wildlife. There is such an incredible range of wildlife, which is reflected in the fact that approximately 1.5 million species of different sizes and weights and ranging from microscopic organisms to dinosaur and whale species, have been known to exist. In this respect, wildlife is constituted by many diverse species, which are largely interdependent and interrelated with one another within the ecosystem.

2. WILDLIFE AND THEIR ECOSYSTEMS

Pakistan is well endowed with biological resources, although as time progresses many of the country's ecosystems have become degraded and its rare wildlife species threatened with extinction. It can take thousands of years to achieve ecologically rich communities that are capable of sustaining local populations with food, fuel, timber, medicine and other aspects essential to human sustainability. In sharp contrast, it only takes a matter of minutes or days for these biological assets to be destroyed as part of a development

program or regime. Whilst the importance of protection may be appreciated, all too often the practical realities of human development and consumption are not comprehended.

Legislation implemented for the protection of ecosystems and wildlife conservation needs to be strictly enforced and supported by appropriate penalties. This recommendation is based on expert opinion, and recognises the considerable scope for reducing conflicts with poachers and other unscrupulous persons. Eliminating ineffective laws and replacing them with legislation that approaches problem solving more appropriately would improve the persistent problems with enforcement. This can be achieved by involving persons that are likely to be affected by the legislation in the process of law making, by making the law realistic, by increasing conservation education and enlisting public support to encourage a sense of civic pride in the country's natural heritage and by improving administrative and judicial enforcement capabilities.

3. SUSTAINABLE UTILISATION OF WILDLIFE RESOURCES

The harvesting and cropping of wildlife populations is beneficial in a number of ways, provided it does not exceed sustainable yield levels. Such benefits include the collective welfare of wild animals themselves, which is a concern of utmost importance. In nature, wildlife stocks are kept in balance by a complex web of predator/prey relationships. When numbers increase beyond the carrying capacity of the habitat, the predators maintain the balance and restore numbers to achieve an ecologically sustainable situation.

There have been numerous examples of isolated and often island-based wildlife stocks that have had no natural predators. Their numbers exceeded the limit of the carrying capacity of the habitat, and consequently, universal malnutrition, dwarfism, and disease were rampant in the area. Predators cull the stock and remove the weakest specimens, who are easiest to kill. When this does not happen, survival depends on improving the efficiency of feed conversion or on adopting aggressive behavior towards other members of the species in the competition for limited food supplies. In such circumstances, the natural balance is upset and corresponding ecological problems ensue.

Humans are the greatest predators of wildlife. This does not mean that the human population is the best or the most beneficial mechanism to achieve ecological balance, only that they are capable of harvesting greater numbers over a shorter period of time, than other species. When they do, the management principle that should be applied is that priority should be given to killing the weakest, the slowest and the oldest members of the wildlife community. It is safe to harvest old animals, since they have probably already reproduced and their genetic material will remain in the herd. They also have the advantage from the hunter's viewpoint of being amongst the most prized specimens, with, for example, large trophy antlers and a high weight or large size.

In this respect, if human interference is inevitable females, their young and other more youthful members of a species should be protected to ensure the perpetuity of the species. If a herd is cropped according to these principles, a solid breeding stock can be

maintained more effectively. Furthermore, if a herd is not allowed to exceed the carrying capacity of the habitat, then biological diversity can be maintained.

4. SUSTAINABLE DEVELOPMENT AND SUSTAINABLE HARVESTING

Pakistan also provides an interesting example of the impact or absence of human predatory tendencies on the maintenance of biological and wildlife diversity. For religious reasons, the wild boar is not part of the diet of Muslims, which has meant that there is little or no hunting pressure on wild boars. Moreover, since their natural predators, such as the tiger, have been hunted to extinction, the wild boar has increased in numbers to the point where it is a pest.

A certain number of wild boars are an essential element in the ecological balance, the hunting and eating of snakes for example, is critical to the proper balance. However, when they reach excessive numbers they destroy crops, present a danger to humans and tend to over harvest snakes. Consequently, with a shortage of snakes as predators, rats tend to multiply and become a major factor in post-harvest grain losses, which accounts for a loss of between 5 and 30% of total production. Thus any minute disruption to the ecological balance can have adverse and wide ranging ramifications for the viability of many other areas and species within the ecosystem.

5. PROTECTED PLACES AND WILDLIFE

Ecosystems and wildlife habitats are protected in national parks, wildlife sanctuaries, and game reserves. These areas were formally designated as Protected Areas following identification by the Conservator of Wildlife, which was formulated on the basis of expert advice. Subsequently, detailed plans for the protection, management and development of some of the areas have been prepared. The implementation of some of these plans has already commenced however, the process of protecting biological resources is by no means complete. Stricter management and control measures are necessary to save the natural capital within the existing network. The resources allocated to the protected areas have also fallen extremely short of the amounts required. The reality that communities still reside within some protected areas has led to the recommendation that the boundaries should be revised and their size reduced, which would obviate the need for the unpopular and extremely expensive relocation of the communities.

Clearly, it is not sufficient to merely fence off an area as a reserve. Positive management and affirmative steps towards conservation is usually required if biological diversity is to be maintained. Furthermore, the location, size, shape, and composition of the protected areas are also significant. Unless they are above a particular minimum size and sufficiently close to similar feeding and breeding sites, the areas will ultimately fail to achieve their objectives as protected reserves. Thus the protection and conservation of both habitats and wildlife necessitates careful planning and management.

For benefits such as these to materialise, special provisions must be made that will enlist the interest and facilitate the cooperation of local residents. Local communities should be given preference in the provision of services in protected places and improved training and capital should be given to accommodate this aim. Foremost, local residents require skills in all of the occupational areas within the visitor industry including those attributed to guides, cooks, drivers, housekeepers, and vehicle and boiler mechanics, electricians, waiters and sales staff. This list is non-exhaustive and emphasises only manual jobs, where in practice a wide range of skills and remuneration packages should be made available.

Unless local residents are intimately involved and prosper from the opportunities of the visitor industry, there can be severe dislocation. An influx of visitors and tourists with different cultural backgrounds can be quite disturbing and in the absence of benefits to compensate for the disruption the visitors will be resented over time by the locals, rather than being regarded as an opportunity. This situation is a more definite possibility where the industry has been established with external persons providing both the facilities and filling the service jobs.

6. MAIN ENACTMENT ON WILDLIFE

The following laws and their relevant sections are the main legislative provisions for Wildlife.

1. The Sindh Wildlife Protection Ordinance, 1972

Section 2 - Definitions:

In this Ordinance, unless the context otherwise requires, the following expressions shall have the meanings hereby respectively assigned to them, that is to say:

.....

(c) Dealer, when used in relation to wild animals, trophies or meat, shall mean any person who in the course of trade or business carried on by him whether on his own behalf or on behalf of any other person:

- (i) Sells, purchases or barter any wild animal, its meat or trophy;
- (ii) Cuts, carves, polishes, preserves, cleans, mounts or otherwise prepares any such animal, trophy meat or manufactures any article therefrom;

(d) Game animal means a wild animal specified in the First Schedule;

(e)...(i)

(j) Protected animal means a wild animal specified in the Second Schedule;

(l) Trophy means any dead animal or any horn, antler, tooth, tusk, bone, claw, hoof, shin, hair, feather, egg-shell or other durable part of a game animal or protected animal whether or not included in a manufactured or processed article;

- (m) Wild animal means a wild bird or animal specified in the First or Second Schedule;
 (n) Wildlife includes organic resources, animals, birds, reptiles, vegetation, soil and water;

Section 7 - Restrictions on hunting:

No person shall:

- (i) Hunt any protected animal;
- (ii) Hunt any game animal except under a permit and in accordance with the provisions of this Ordinance or the rules;
- (iii) Hunt any wild animal by means of set-gun, drop spear, dead fall, gun trap, explosive projectile, bomb, grenade, baited hook, net, snare or any other trap, an automatic weapon, or a weapon of a calibre used by the Pakistan Army or Police Force or by means of a projectile containing any drug or chemical substance having the property of an anaesthetising, paralysing, stupefying or rendering incapable an animal whether partly or totally;
- (iv) Hunt any game animal, other than birds or hares, with a shot-gun or with non-magnum rifle of .22 calibre or less;
- (v) Use, or have in his possession any net, snare, bhagwa, poison or like injurious substance for the purpose of hunting a game animal;
- (vi) Use a vehicle of any type to pursue any game animal, or to drive or stampede game animals for any purpose whatsoever;
- (vii) Shoot any game animal from any conveyance or from within 200 yards of the conveyance;
- (viii) Hunt with the help of decoys or call birds;
- (ix) Construct or use, for the purpose of hunting any wild animal, any pitfall, game pit, trench or similar excavation, any fence or enclosure, or bhagwa or any other similar contrivance;
- (x) Hunt after sunset and before sunrise;
- (xi) Hunt by hiding near a water hole or salt licks.

Provided that it shall not be an offence to use:

- (a) A motor vehicle or aircraft to drive any wild animal away from an aerodrome or airstrip when such action is necessary to ensure the safety of aircraft using that aerodrome;
- (b) Any one or more of the aforesaid prohibited methods if the officer authorised in this behalf grants, at his discretion, a licence with permission to employ such methods;

Section 8 - Prohibition to employ hawks and dogs without a special licence:

No person shall use hawks for hawking or dogs for coursing the game animals except under a special licence issued under this Ordinance.

Section 10 - Certificate of lawful possession:

(1) No person shall be in possession of any wild animal dead or alive, trophy or meat of a protected animal or the horns of Goral, Ibex, Sindh Wild Goat, Markhor or Urial, or Skin of Beech or Stone Marten, Jungle Cats and Desert Cats unless he be in possession of a Certificate of Lawful Possession granted in respect thereof by the officer authorised in this behalf:

Provided that any person importing any wild animal, trophy or meat of a wild animal in accordance with this Ordinance, or acquiring such animal, trophy or meat in accordance with the terms of permit issued under this Ordinance, shall obtain such certificate by applying to the authorised officer within thirty days from the date of importing or acquiring the animal, trophy or meat.

(2) The officer authorised in this behalf may mark or register, the animal, trophy or meat in respect of which a Certificate of Lawful Possession is issued, in the prescribed manner or he may seize, pending the taking of legal action under this Ordinance, any such animal, trophy or meat which in his opinion has not been legally imported or acquired.

(3) No person shall counterfeit, change or in any way interfere with any marks or registration put on any animal, trophy or meat for which a Certificate of Lawful Possession has been issued, or alter or in any way change a Certificate of Lawful Possession.

Section 11 - Restriction on transfer of animals, trophies or meat:

(1) No person shall transfer by gift, sale or otherwise to any other person any animal, trophy or meat of a kind specified in subsection (1) of section 10 unless he be in possession of a Certificate of Lawful Possession in respect thereof, and such certificate is endorsed with details of the transaction and given to the transferee at the time of the transfer.

(2) No person shall receive by gift, purchase or otherwise any animal, trophy or meat of a kind specified in subsection (1) of section 10 unless he receives at the same time valid Certificate of Lawful Possession in respect thereof.

Section 12 - Restriction on import and export of animals, trophies or meat:

(1) No person shall import, or attempt to import into Sindh any wild animal of an endemic or exotic species, or any trophy or meat of a kind specified in subsection (1) of section 10 except under an import permit granted under this Ordinance and if such import be from outside Pakistan except through a customs post of entry and subject to any law relating to control on imports for the time being in force.

- (2) No person shall export, or attempt to export any animal, trophy or meat specified in subsection (1) of section 10 except under an export permit granted under this Ordinance, and if such export be to any country outside Pakistan except through a customs post of exit and subject to any law relating to control on exports for the time being in force.
- (3) Nothing in this section shall apply to any animal, trophy or meat in transit through Sindh, if such animal, trophy or meat:
 - (i) Is accompanied by necessary transit customs documents;
 - (ii) Is entered through a customs port of entry or is scheduled to a customs post of exit;
 - (iii) Is not unloaded from the ship or motor vehicle on which it is being carried or, in the case of rail or air transport, it does not leave the precincts of the railway station or airport at which it is landed or trans-shipped or does not remain there for more than forty-eight hours.

Section 13 - Restriction on dealing in animals, trophies or meat:

- (1) No person shall as a profession, trade or business, buy, sell or otherwise deal in wild animals, trophies or meat thereof, or process or manufacture goods or articles from such trophies or meat, unless he be in possession of a valid licence to do so, hereinafter called a Dealer's Licence issued by the officer authorised in this behalf.
- (2) The officer authorised in this behalf may on payment of such fees as may be prescribed, grant a Dealer's Licence to any person, which shall entitle that person to deal in any wild animal, trophy or meat thereof, or any class of wild animals, trophies or meat specified in such licence.
- (3) For the purpose of assessment of fees, dealers may be divided into different classes and a different fee may be prescribed for each class.
- (4) The holder of a Dealer's Licence shall maintain such register or record of his dealings in such a manner as may be prescribed, and shall produce them for inspection at any reasonable time when called upon to do so.

Section 14 - Wild life sanctuary:

- (1) Government may, by notification in the official Gazette, declare any area to be a wildlife sanctuary and may demarcate it in such manner as may be prescribed.
- (2) The wildlife sanctuary shall be set aside as undisturbed breeding ground for the protection of wildlife and access thereto for public shall, except in accordance with the rules, be prohibited and no exploitation of forest therein shall be allowed

except for reducing fire hazards, epidemic or insect attacks or other natural calamities.

- (3) No person shall:
- (i) Enter or reside,
 - (ii) Cultivate any land,
 - (iii) Damage or destroy any vegetation,
 - (iv) Hunt, kill or capture any wild animal or fire any gun or other firearm within three miles of the boundaries, or
 - (v) Introduce any exotic species of animal or plant,
 - (vi) Introduce any domestic animal or allow it to stay,
 - (vii) Cause any fire, or
 - (viii) Pollute water, in a wildlife sanctuary:

Provided that Government may for scientific purposes or for aesthetic enjoyment or betterment of scenery authorise the doing of the aforementioned acts.

Section 15 - National Park:

- (1) With a view to the protection and preservation of scenery, flora and fauna in the natural state, Government may, by notification in the official Gazette, declare any area of outstanding scenic merit and natural interest to be a national park and, may demarcate it in such manner as may be prescribed.
- (2) A national park shall be accessible to public for recreation, education and research.
- (3) Provision for access to roads and construction of rest houses, hostels and other buildings in the national park along with amenities for public may be so made and the forest therein shall be so managed and forest produce obtained as not to impair the object of the establishment of the national park
- (4) The following acts shall be prohibited in a national park:
 - (i) Hunting, shooting, trapping, killing or capturing of any wild animal in a national park or within three miles radius of its boundary
 - (ii) Firing any gun or doing any other act which may disturb any animal or bird or doing any act which interferes with the breeding Places:
 - (iii) Felling, tapping, burning or in any way damaging or destroying, taking, collecting or removing any plant or tree therefrom;
 - (iv) Clearing or breaking up any land for cultivation, mining or for any other purpose;
 - (v) Polluting water flowing in and through the national park:

Provided that Government may for scientific purpose or betterment of the national park, authorise the doing of the above-mentioned prohibited acts.

Section 16 - Game Reserves:

Government may declare any area to be a Game Reserve where hunting and shooting of wild animals shall not be allowed, except under a special permit, which may specify the maximum number of animals or birds that may be killed or captured and the area and duration for which such permits shall be valid.

Section 17 - Penalties:

- (1) Whoever contravenes or attempts to contravene:
 - (i) Any provisions of sections 10, 11, 12 and 13 shall be punished with imprisonment which may extend to a period of one year or with fine which may extend to one thousand rupees, or with both, and any licence or permit granted or issued to him under this Ordinance shall be suspended for a period of two years;
 - (ii) Any provisions of section 7 shall be punished with imprisonment which may extend to two years, or with fine which may extend to one thousand rupees, or with both;
 - (iii) Any provisions of sections 8, 9 and 24 shall be punished with a fine which may extend to five hundred rupees;
 - (iv) Any provision of this Ordinance or any rule for the contravention of which no special penalty is provided, shall be punished with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.
- (2) Whoever interferes or attempts to interfere in the performance of any function or in the discharge of any duties under this Ordinance, shall be punished as in clause (i) of subsection (1).
- (3) Whoever, having already been convicted of an offence under subsection (1) or subsection (2) is again convicted thereunder, shall, on every subsequent conviction, be punished with imprisonment which shall not be less than twelve months or fine which shall not be less than one thousand rupees or both, and his firearm, vehicle, appliance or anything used in the commission of the offence and his hunting licence shall be confiscated and he shall not be entitled to a hunting licence for a period of ten years.

2. The Sindh Wildlife Protection Rules, 1972

[Made under the Sindh Wildlife Protection Ordinance , 1972]

Rule 15

- (1) A shooting permit or special permit may be granted only to such persons as are entitled to carry guns and rifles under the West Pakistan Arms Ordinance, 1965, or are exempted from the operation of that Act.
- (2) A retainer shall not be entitled to shoot any game animal unless he is in possession of a valid shooting licence under these rules in his own name.
- (3) A special permit in Form B shall be issued only to the holder of a valid rifle licence which would be of a calibre not smaller than 240 and hunting with shot gun and smaller calibre rifle shall not be permitted.
- (4) The holder of a shooting permit or special permit shall not be entitled to kill on any single day more than the number specified in the First Schedule in the permit or licence as the case may be issued under these rules.
- (5) No party engaged in the shooting of partridges shall consist of more than 5 permits and the number of beaters shall not exceed 25

Rule 17

No person shall possess, cook or serve in any public place, hotel, cafe, restaurant, hotel, boarding house or any other catering place, any bird or animal mentioned in the First and Second Schedules, except during the periods specified in respect of that bird or animal in the third column of the schedules and save when the bird or animal has been lawfully obtained.

Rule 18

No person shall carry a firearm or take with him a sporting dog within a National Park, Wildlife Sanctuary or Game Reserve unless a right of way through such Park, Sanctuary or Reserve exists or a permit for such purpose is obtained from the Honorary District Game Warden or Deputy Conservator of Forests Wildlife

3. The Punjab Wildlife (Protection, Preservation, Conservation & Management) Act, 1974

Section 2 - Definitions:

In this Act, unless the context otherwise requires, the following words and expressions shall have the meanings hereby respectively assigned to them, that is to say -

.....

- (a) Hunt means any act directed immediately to the killing or capturing of a wild animal and shall include taking the nest or eggs of a wild animal;
- (b) Meat means the fat, blood, flesh or any eatable part of wild animal, whether fresh or preserved;
-
- (v) Unprotected animal means a wild bird or wild animal specified in the Fourth Schedule.

Section 5 - Constitution of the Board:

- (1) Government shall establish a Board to be called the Punjab Wildlife Management Board.

Section 6 - The functions of the Board shall be:

- (a) To take all policy decisions about the conservation and development of wildlife and game management in the Province;
- (b) To scrutinise and approve all the development schemes relating to the wildlife and game management in the Province;
- (c) To supervise the progress of the development activities in the field of wildlife protection, preservation, conservation and management and to scrutinise the annual progress report submitted in this behalf; and
- (d) To undertake such other functions as may be prescribed.

[The remaining provisions of the Act are similar to the Sindh Wildlife Protection Act, 1972]

4. The Balochistan Wildlife Protection Act, 1974

The NWFP Wildlife (Protection, Preservation, Conservation & Management) Act, 1975

[The provisions of these two statutes are similar to the Sindh Wildlife Protection Act, 1972]

5. The NWFP Wildlife (Protection, Preservation, Conservation & Management) Rules, 1977

Rule 20

- (1) No person shall capture any hawk or falcon. Those who are in possession of these birds before the coming into force of these rules will get their hawks/falcons distinctly marked with permanent symbols and obtain a licence from the authorised officer within three months of the enforcement of these rules.

(2) Hawking will only be allowed with hawks under sub-rule (1) for which separate hawking licence will be obtained.

[The remaining provisions of these rules are similar to the Sindh Wildlife Protection Rules, 1972]

6. Islamabad Wildlife (Protection, Preservation, Conservation & Management) Ordinance, 1979

[Similar to the Sindh Wildlife Protection Act, 1972]

3. The Pakistan Environmental Protection Act, 1997

The Pakistan Environmental Protection Act, 1997 has certain provisions dealing with protection and conservation of wildlife in the country.

CHAPTER XIV

SECTORAL ISSUES, LEGISLATION AND INSTITUTIONS: ECO-TOURISM

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

Key Legislation: National Tourism Policy; National Conservation Strategy; Registration of Foreigners Rules, 1996; Registration of Foreigners Act 1979;

Key Institutions: Ministry of Planning and Development; Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency; Provincial EPA's;

1. INTRODUCTION

In Pakistan, the National Tourism Policy and the National Conservation Strategy emphasise the crucial interdependence between tourism and the environment. Tourism has a significant impact upon the physical and social environment and correspondingly, the success of the tourism industry depends upon the continued well being of the environment. As the physical and social environment constitutes the resource base for tourism, tourism has a vested interest in conserving and strengthening this resource base. Hence, the conservation and strengthening of biodiversity is central to a successful tourism industry in Pakistan.

The interdependence between tourism and the environment is a relationship that is recognised on a global scale. A recent survey by the Industry and Environment Office of the United Nations Environment Program (UNEP/IE) demonstrates that the environment is the key resource that is most essential for the growth and stability of tourism (UNEP 1995: 7). Correspondingly, the viability and growth of tourism growth will cease when negative environmental effects diminish the tourism experience.

The GEF/UNDP funded project –“Maintaining Biodiversity in Pakistan with Rural Community Development” (Biodiversity Project), intends to involve local communities in tourism development by equipping them with the necessary skills to manage the environment. The Biodiversity Project also recognises the potential need to involve private companies in the implementation of tourism plans for these to be successful tourism innovations. By clearly demarcating the direct linkage between the well being of the environment and the success of tourism, both local communities and private business will realise the direct economic incentive in conserving biodiversity. The maintenance of

biodiversity is central to any successful tourism enterprise, as it is biodiversity that attracts tourists in the first place

2. ECO TOURISM

–Ecotourism” describes the process when tourism operates with the sustainability of the physical and social environment and its ecological balance as a key consideration. The precise definition of this term remains ambiguous, even within the tourism industry itself. However, ecotourism can be differentiated from traditional tourism in that ecotourism not only attempts to minimise the environmental impact of tourism, but also has aspirations that local communities and the physical environment will actually benefit from tourism. In its ideal form, ecotourism is a philosophy, an activity, a development policy and an environmental policy.

Because of the ambiguity in the definition of the term, the usage of this term by the Biodiversity Project requires clarification. Essentially ecotourism means different things to different people and as such, it is better for the stakeholders to develop their own definitions rather than attempting to make an umbrella definition to fit all applications of this process.

3. ENVIRONMENT AND TOURISM

The most widely accepted method for stakeholders to develop their own definition of ecotourism and to operationalise this definition is through the development of codes of conduct. The UNEP/IE, which is the program of action agreed upon at the United Nations Conference on Environment and Development held at Rio de Janeiro in 1992, recommends the development of voluntary Codes of Conduct on the environment by all sectors involved in tourism. The UNEP/IE concludes that codes function to preserve the environment, preserve biodiversity and reduce pollution, which are central concerns to tourism in any form.

The benefits of codes include:

- Improvement of the natural environment and of the sustainability of the tourism industry;
- Ability to attract tourists who seek environmentally responsible forms of tourism;
- Support for local economy and infrastructure which catalyses further tourism development; and
- Improved quality of life for host communities.

In turn the following is achieved:

- Conservation of biodiversity through ecotourism;
- Enhanced marketing of ecotourism;
- Income generation at the local level through ecotourism; and

- Rural community development through ecotourism.

These codes must be positive, specific and action-oriented and include the common features of:

- An overall commitment to the physical and human environment, acceptance of responsibility for environmental damage and corrective action where necessary, and rewarding of outstanding environmental performance; and
- Cooperation with other sectors and stakeholders in tourism and conservation.

With a cooperative approach between all sectors to develop codes, IUCN can assure that the codes do not have conflicting messages and that they are developed as a result of partnerships between tourism stakeholders. As environmental codes for tourism also require implementation and monitoring, IUCN can work with those stakeholders who are developing codes and assist in:

- Publicity and dissemination campaigns;
- Publications of all types;
- Provision of expert services to code signatories;
- Provision of networks to improve communication between stakeholders;
- Organisation of conferences and seminars for exchange of ideas;
- Provision of awards for outstanding environmental behavior;
- Organisation of demonstration projects to set examples for others to follow; and
- Incorporating the reactions of people directly affected by the codes into the process of evaluating code effectiveness.

4. RESOURCE BASE FOR TOURISM

The resource base for tourism is the physical and social environment. The resource base in Chitral and the Northern Areas is a large but not well-known area, even to domestic tour operators/trekking companies. The wise use of this resource base holds the key to future income for the next tourism generation. If the resource base is lost, tourism is lost. Our survey of tourists shows that the quality of both the physical and social environment is the single most important factor in whether or not tourists have a positive experience. This analysis is based on our field visits to each valley. The criteria we include in the analysis are:

- Outstanding natural features;
- Outstanding cultural features;
- Outstanding biological features (including botanical features);

- Activities for tourists; and
- Accessibility.

By identifying if these criteria have or have not been satisfied, it can be determined which areas require immediate attention. Areas with outstanding features (e.g., Karambar Lakes), but difficult access, are less in need of immediate attention than areas presently receiving significant tourist impact due to ease of access. Some areas with outstanding features and easy access (e.g., Chitral Gol National Park and Tooshi Gol in Chitral) are rarely visited by tourists and could be considered by the Biodiversity Project.

5. ECONOMICS OF TOURISM

Tourism is the ninth largest earner of foreign exchange in Pakistan, according to the Tourism Division of the Ministry of Sports and Tourism. In Chitral and the Northern Areas, which are the major destinations for most foreign tourists, it is probably the largest earner of foreign exchange and constitutes one of the largest components of the economy. This wide scale impact of tourism is illustrated particularly at local levels, where communities have no industry besides tourism, which provides widespread, though largely seasonal employment opportunities. In some areas, such as Gojal in the upper Hunza River valley, at least one male member of each household finds seasonal work in tourism. In the Hushe Valley of Baltistan's Ghanche district, tourism has become so imperative at a local level that villagers have altered their grazing practices to better accommodate tourism activities.

The economic benefits of tourism in Chitral and the Northern Areas are at present overwhelmingly positive. In studies undertaken no opposition to tourism was encountered. Some people expressed desires for the modification of the industry, however no person wanted to stop tourism. Communities that once expressed a more antagonistic attitude toward tourism are deeply involved in the industry and are now looking to make changes to attract tourists. Nagyr exemplifies this dramatic embrace of tourism, where the roads were recently paved, new hotels are under construction and villagers are cooperating to make tourists more welcome. In villages with different religious communities, such as Naltar in the lower Hunza Valley, the communities have established systems of cooperation to ensure the equal distribution of earnings from tourism. Essentially economic benefits are powerful motivators for change and development. Particular tangible economic benefits come from many sources including:

- Employment as porters, cooks, and guides within in hotels and in transportation;
- Small business ownership of transport, hotels, shops, and tour operators and travel agencies; and
- Increased business activity due to economic input into local economy by tourism.

However the economic benefits of tourism do not disguise the adverse environmental repercussions this industry can have. Thus although everyone is happy to see more tourists, this same joy is not present when piles of trash at camp sites appear, trees are cut

down, toilet paper is strewn along trails and plastic bottles are found everywhere. In addition to these overt consequences, more covert problems are caused by tourism, such as villagers being angry with tourists for wearing indiscreet clothing and trekkers arguing with guides and porters over wages. Tourists, local people, and tour operators/trekking companies need to be aware of these problems before they can be satisfactorily resolved.

Essentially, where ecotourism is mentioned as an activity –which can either be promoted as an individual activity or as a package”, ecotourism becomes a commodity to be promoted, packaged, and sold. This is an unnecessarily narrow definition that constricts the range of activity that is inextricably linked with ecotourism. Alternatively, if ecotourism is considered as a way for tourists, host communities and the tourism industry to act and interact, the potential for useful activities that sustain the resource base for tourism and conserve biodiversity is greater. Thus if ecotourism is given a broader meaning the potential benefits of this process will also increase.

Within a broader concept of ecotourism, not only those activities that are income generating are included but activities that conserve and strengthen the resource base for ecotourism are also given priority. Many of these activities are actually investments that will bring a future return in the form of increased tourism and increased tourism carrying capacity.

6. TOURIST ACTIVITIES

Tourists are the ultimate –consumers” of ecotourism. Most activities are organised with tourists as the preeminent consideration, and with an idea to enhance their experience; to minimise their impact; and to increase their economic input into the local economy. However, tourists themselves, as stakeholders in tourism, need to know how to become –ecotourists” for the process of ecotourism to successfully operate. Codes of Conduct facilitate by informing tourists of how to act appropriately and responsibly.

Pollution & Trash Control

Our survey shows most tourists identify pollution and trash as the major problems they encounter in Chitral and the Northern Areas. Recycling programs, trash disposal programs and clean-up campaigns are activities that all three sectors can and should participate in. Hence, establishing recycling programs and trash disposal facilities so as to enhance tourist participation, would be positive actions. In certain high-volume areas, such as Gilgit, Hunza and the Baltoro Glacier, such facilities are an immediate remedial necessity, as the problem of pollution and trash control is already extreme. The construction of incinerators to burn garbage, especially in remote locations where removal is prohibitively expensive (e.g., Paiju on the Baltoro Glacier trek is one such site) is a solution proven to have been effective in the Nepal Himalaya region. Grassroots organisations willing to provide the labour for such activities should be supported and assisted to design, implement and monitor such programs. Local administrations must also be involved to make any such innovations successful.

Cultural Festivals, Museums & Architecture

Another activity for the host communities is the establishment of cultural museums and the scheduling of cultural festivals. Silk Route festivals, under the auspices of AKCS and Lok Virsa, are already being held in Hunza and Gojal. In Gojal, Wakhi cultural museums have been established in Gulmit, Passu, and Shimshal. These activities encourage local cultural pride and promote cultural awareness among tourists. Tour operators can use them as destinations to include in tour itineraries, which has the twofold effect of enhancing Chitral and the Northern Areas as interesting destinations.

Local residents should receive training in interpretation and display to improve the quality and attractiveness of museums and festivals.

New hotels and small scale lodges that include major elements of local design would also enhance tourism for local communities and for stakeholders in the tourism industry.

Ecotourism Training Programs

Our survey indicates that most tourists perceive the lack of environmentally conscious attitudes by guides, cooks, kitchen helpers, porters, hotel-keepers and local residents as a major problem and a “turn-off” for tourists in Chitral and the Northern Areas. The tourism industry must develop training programs to facilitate the objectives of ecotourism, in particular the development of environmentally sensitive attitudes for those employed in the industry. Training programs are initially needed for two key groups: the domestic tour operators/trekking companies; and hotel operators. The formulation of Codes of Conduct for each sector is a necessary first step toward developing these training programs. Training programs need to be conducted on an annual basis, prior to the start of every tourist season.

7. POLICY AND REGULATIONS

Within the public sector of the tourism industry some policy initiatives and regulations constrain ecotourism. The Registration of Foreigners Rules, 1996, framed under the Registration of Foreigners Act 1979, places tedious and cumbersome requirements on any foreigner staying in Pakistan for more than 30 days. This period is too short, as most countries allow tourists a six-month stay beyond which they must seek special resident status and permission. IUCN should lobby with the GoP to extend the period before which tourists must obtain residential permission to at least 90 days.

Certain areas within Chitral and the Northern Areas require a special restricted area permit from the Tourism Division for foreigners to visit. The Baltoro Glacier is one such area. Other attractive areas, such as the Chapursan Valley in Gojal also require a permit. Tourism development and ecotourism is constrained when infrequently visited, but easily accessible areas, such as Chapursan, can only be accessed by obtaining a permit. Currently, any tourist who wants to visit a restricted area must go to Islamabad to obtain the permit and return to Islamabad for debriefing after visiting the restricted area. This difficult and cumbersome procedure hinders and discourages tourist activity. To compound this burden the permit application process is needlessly slow, often taking five

to seven days to complete. In other mountain regions in South Asia, similar permit processes take just one day.

Given the substantial tourist flow from China over the Khunjerab Pass and the KKH, the establishment of Tourism Division branch offices in Chitral, Gilgit, and Skardu would greatly facilitate ecotourism development in such areas. The Tourism Division rules and regulations for trekking and mountaineering could be revised to present a clear and transparent porter policy, which would avoid disputes and negative interactions between porters and foreigners.

The Tourism Division currently collects a US\$200 non-refundable clean-up fee from all mountaineering expeditions. In 1994, 50 expeditions came to Pakistan, paying a total of US\$10,000 in clean-up fees. Despite this hefty fee being sought for environmental preservation purposes, the fact that the annual Baltoro Glacier clean-up expedition received only Rs. 50,000 (ie, US\$1,667) from the Tourism Division demonstrates that the bulk of the fees collected were not utilised for clean-up operations. In this respect it is necessary for IUCN to approach GoP to pursue this constraint and ensure that these funds are fully applied to the designated purpose, both on the Baltoro Glacier and in other areas receiving mountaineering expeditions, such as Nanga Parbat, Tirich Mir, Rakaposhi, and Diran.

National parks all over the world attract tourists, yet Pakistan's national parks do not have the same level of tourist attraction. This lost opportunity means lost revenue and, as such, problems with national parks need to be resolved in order to promote the parks as tourist destinations. In particular, existing national park legislation does not provide a sound legal basis for currently accepted management practices. This results in conflict between park managers and local communities. IUCN should vigorously address this specific issue to remove impediments toward ecotourism development in the area of national parks.

Fishing Licences

Fishing licences are easily obtained at Fisheries offices, however it would be more conducive to the objectives of tourism if this availability received more widespread notification.

Antiquities & Export Laws

Antiquities and export laws do not significantly hinder tourist purchases at present.

8. MARKETING AND PROMOTING ECOTOURISM

This survey indicates the significant potential for tourism in Chitral and the Northern Areas to become ecotourism. Realising this potential is what is envisaged when one speaks of promoting ecotourism. Responsible tourism on the part of all stakeholders will:

- Address existing problems;
- Conserve and strengthen the resource base for tourism (i.e., biodiversity);

- Increase the carrying capacity for tourism;
- Enhance Pakistan's international image as a tourist destination; and
- Increase the benefits, in both tangible income generation and the improved quality of life for residents of Chitral and the Northern Areas.

Marketing ecotourism means publicising Pakistan's efforts to promote responsible tourism and highlighting specific activities to attract visitors. The paradox of Pakistan's tourism is that tourists are attracted by the present lack of tourists. Unlike other major Himalayan areas, Pakistan's Karakoram and Hindukush are relatively unspoiled. Hence, Pakistan offers an attractive alternative for tourists to areas that attract excessive human traffic. This clean, natural, tranquil environment with friendly, honest people is the image Pakistan should promote abroad. Promotional "gimmicks" that are merely marketing ploys with no resemblance to the reality of the tourist destination are incredibly harmful and are more problematic than an inadequate marketing campaign.

Rather than developing many new programs and activities, we recommend improving and expanding existing forms of tourism in Chitral and the Northern Areas. Our survey indicates that over 20,000 tourists visit the area annually. If they are favorably impressed by ecotourism and biodiversity conservation measures, tourism will grow substantially by word of mouth. New programs to attract a new category of tourists (e.g., luxury tourists, helicopter tourists) are more likely to falter and be a waste of scarce marketing and promotional resources.

It is clear to us that the key sector for ecotourism development is the private sector domestic tour operators/trekking companies. These businesses are key, as they mediate directly between tourists, host communities, and tour operators abroad. Additionally, tour operators respond immediately to market factors, unlike public sector stakeholders. Currently, no domestic tour operators/trekking companies are actually implementing ecotourism principles consistently or effectively.

CHAPTER XV

STATUTORY TOOLS

Key Issues: Implementation; Public Participation; Education and Awareness; Enforcement and Compliance; Monitoring, Evaluation and Assessment of Tools;

Key Legislation: Pakistan Environmental Protection Act, 1997; Environmental Impact Assessment;

Key Institutions: Pakistan Environmental Protection Agency; Pakistan Environmental Protection Council

1. ENVIRONMENTAL IMPACT ASSESSMENT

The EIA process is a mechanism used in domestic legislation within many countries for the purpose of integrating environmental considerations into national and social economic planning. In this respect the most effective project option can be determined with regard to both environmental and socio-economic considerations. EIA can definitely serve an integrative and preventative role in development planning, as it requires public participation, inter-sectoral co-ordination and the consideration of alternatives. However, the main deficiency within this mechanism, as exemplified in the less developed countries is the natural inclination of the investor to pursue profits at the expense of irreversible environmental degradation. Thus the overriding aspirations for profit often undermine the effect that EIA can have. Furthermore it has been found that the opinion of the people most likely to benefit from a proposed project could seriously influence the EIA process. The Sri Lankan experience with regard to Katunayake Express Highway, Marine Drive, Kotmale Hydro Power Project go to illustrate this point. An improved element of public involvement in the EIA process helps to eliminate this potential for bias and creates the basis for better-informed and more balanced decisions by the decision makers.

Article 14 of the CBD requires parties to introduce appropriate environmental impact assessment (EIA) procedures for projects, programs and policies that may have significant adverse impacts.

EIA is most commonly used as a tool at the project level to identify the environmental effects of a proposed project and to plan ways of reducing negative impacts. Most projects are typically designed in a series of stages, involving needs identification, pre-feasibility and feasibility studies, appraisal, and approval. In many cases, EIA's have been undertaken very late in this design process, when it has become too expensive to re-

design or halt the project - even if significant negative impacts have been identified. To be most effective, EIA's must be initiated at an early stage in project development and include adequate means for public participation in the review of potential effects of the development on human health, property and local livelihoods.

EIA has now been made mandatory for all development projects in Pakistan. The Pakistan Environmental Protection Act (1997) provides that:

- 1) No proponent of a project shall commence construction or operation unless the proponent has filed with the Federal Agency an Initial Environmental Examination (IEE) or, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA).
- 2) The Federal Agency shall:
 - i) Review the IEE and recommended the approval of the project, or require submission of an EIA by the proponent;
 - ii) Review the EIA, with public participation where it may deem appropriate, and recommend that the project be approved subject to such conditions as it may deem fit to impose, or rejected in the interest of such modifications as may be stipulated, or rejected in the interest of environmental objectives.
- 3) The provisions of sub-sections (1) and (2) shall apply to such categories of projects and in such manner as may be prescribed.

A particular strength of the Pakistan Environmental Protection Act 1997 is that it specifically includes damage to a sustainable environment in its definition of "adverse environmental effect".

2. STANDARDS

The Pakistan Environmental Protection Council shall provide guidelines for the protection and conservation of species, habitats, and biodiversity in general and for the conservation of renewable and non-renewable resources. The responsibility of the Council also extends to the coordination and integration of the principles and concerns of sustainable development into national development plans and policies as specified by section 3.

The Pakistan Environmental Protection Agency, as stipulated in section 5, shall prepare or revise, and establish the National Environmental Quality Standards with the approval of the Council. To facilitate this process the Federal Agency shall publish the proposed National Environmental Quality Standards for public opinion accordance with the prescribed procedure and establish standards for the quality of the ambient air, water and land, by notification in the official Gazette, in consultation with the Provincial Agency concerned.

Section 6 (1) (e), (f) & (g) of the Pakistan Environmental Protection Act, 1997 provides the –functions of federal agency” which are as follows;

- (e) Prepare, establish and revise the National Environmental Quality Standards with approval of the Council:

Provided that before seeking approval of the Council, the Federal Agency shall publish the proposed National Environmental Quality Standards for public opinion in accordance with the prescribed procedure; and

- (f) Ensure enforcement of the National Environmental Quality Standards;
- (g) Establish standards for the quality of the ambient air, water and land, by notification in the official Gazette in consultation with the Provincial Agency concerned:

Provided that:

- (i) Different standards for discharge or emission from different sources and for different areas and conditions may be specified;
- (ii) Where standards are less stringent than the National Environmental Quality Standards prior approval of the Council shall be obtained; and
- (iii) Certain areas, with the approval of the Council, may exclude from carrying out specific activities, projects from the application of such standards;

–Standards” have been defined in section 2 (xli) of Pakistan Environmental Protection Act, 1997 as:

The –qualitative and quantitative standards for discharge of effluent and wastes and for emission of air pollutants and noise either for general applicability or for a particular area, or from a particular production process, or for a particular product, and includes the National Environmental Quality Standards, emission standards and other standards established under this Act and the rules and regulations”;

The Pakistan Environmental Protection Act, 1997 define the National Environmental Quality Standards under section 2 (xxix) as:

The –standards established by the Federal Agency under clause (e) of sub-section (1) of section 6 and approved by the Council under clause (c) of sub-section (1) of section 4”;

The Federal Environmental Protection Agency has already drafted the revised NEQS, which has not been notified and remains in draft form awaiting response from the Law and Justice Division.

3. LICENCING AND PERMITTING

Section 14 of Pakistan Environmental Protection Act, 1997 provides for the provision of licences and permits for the Handling of Hazardous Substances;

Subject to the provisions of this Act, no person shall generate, collect, consign, transport, treat, dispose of, store, handle or import any hazardous substance except—

- (a) Under a licence issued by the Federal Agency and in such manner as may be prescribed; or
- (b) In accordance with the provisions of any other law for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Pakistan is a party.

4. PUBLIC PARTICIPATION IN ENVIRONMENTAL MATTERS

It is now well established that public participation in decision-making arenas is essential for local level development in general and is also imperative for the effective management of natural resources. The principle of public participation may be directed at the increasing empowerment of civil society in decision-making or the empowerment of the public to seek enforcement of environmental protection through judicial and/or administrative mechanisms. The twofold repercussions of improved public participation, whether in decision-making or enforcement processes is critical to environmental protection initiatives and the effectiveness of statutory innovations.

Public participation may ultimately be facilitated by at least three legal mechanisms. First, a right to participation in decision-making spheres may be entrenched in the national Constitution, often as part of the Bill of Rights. The second mechanism to facilitate participation may be in the increased reliance on public consultation in the review process of environmental impact assessment. Thirdly, it may be through direct *locus standi*, where legal actions can be brought on behalf the public in relation to environmental causes. Although the character of public participation may vary from country to country, it is of crucial importance that some form of public participation mechanism be provided for, as is increasingly occurring at national levels.

The Stockholm Declaration does not include any explicit principle on public participation. At the time of this conference it has been conceded that the concept of public consultation had not been a serious consideration, even though the 1969 US National Environment Protection Act had recognised the necessity of public participation in promoting the enforcement of environmental law. The only reference is the Stockholm Declaration to an entrenched right of public participation is Principle 19, where explicit provision for the dissemination of knowledge and information as a form of empowerment is made.

The drafting of Pakistan Environmental Protection Act, 1997 itself was the result of a highly consultative public participatory forum. The first draft of Pakistan Environmental Protection Act was circulated in 1993 among large number of individuals, groups, media,

educational institutions and NGO's. Special workshops were also held in the provinces to elicit view and comment and following such feedback, the final draft was placed before the parliament for enactment as a law.

The Pakistan Environmental Protection Act, 1997 even directly provides for public participation, as evidenced by the various sections of the Act including sections 4(2), 5(6), 6(1)(e), 6(1)(O), 8(6) and 12(7).

5. APPLICATION OF INCENTIVES AND MARKET BASED INSTRUMENTS

Incentive and Disincentive Mechanisms

This is another method adopted in contemporary legislation as a means of achieving sustainable development. Incentives such as user pay schemes and disincentives such as adherence to the polluter pays principle, have gained considerable popularity among the contemporary law-making institutions in Pakistan. Some governments have even dealt with certain consumer practices that contribute to pollution by imposing direct taxes on products that are considered environmentally unfriendly.

For example, the Government of the Republic of Korea was considering imposing a tax on disposable items in an effort to proactively prevent the consumer from disposing of the product in environmentally insensitive manner. Another method invented to encourage the development of environmentally sound products is to grant eco-mark labels to certain products that satisfy a test of environmental safety. Such a program has commenced in the Republic of Korea.

An additional disincentive for environmentally friendly methods is the imposition of import duties for pollution monitoring and control instruments/equipments. In an effort to facilitate the positive impact that these measures can have such taxes should be reduced or waived entirely. Furthermore, the reduction or elimination of customs and other regulatory duties on import of anti-pollution equipment is expected to expedite procurement process and installation of pollution free equipment. In light of this anticipation the Government of Pakistan has reduced the tax on industries involved in the design and manufacture of equipment and machinery that is to be used in compliance with the various environmental laws.

Non-regulatory measures should also be taken to promote compliance with the governing legislation. These measures include education and information, technical advice on licence compliance and waste minimisation, establishment of an industry code of practice, promotion of environmental assessment and the encouragement of environmental improvement plans. Close contact and coordination with local communities should be encouraged as an essential element in good environmental performance.

The Pakistan Environmental Protection Act, 1997 introduced many provisions based on the application of incentive and market based instrument, which include;

Under Section 6(2) (d) –The Federal Agency may, recommend to the Federal Government the adoption of financial and fiscal programs, schemes or measures for achieving environmental objectives and goals and purposes of this Act, including -

- (i) Incentives, prices, awards, subsidies, tax exemptions, rebates and depreciation allowances, and
- (ii) Taxes, duties and other levies”

Under Section 6(2) (f) the government is permitted to ~~provide~~ provide or arrange, in accordance with such procedures as may be prescribed, financial assistance for projects designed to facilitate the discharge of its functions”;

Under Section 9(3) (a) & (b) –The Provincial Sustainable Development Fund shall be utilised for

- (a) Providing financial assistance to the projects designed for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution, the sustainable development of resources and for research in any specified aspect of environment; and
- (b) Any other purpose which is the opinion of the Board will help achieve environmental objectives and the purposes of this Act.”

Under Section 10(2) (a) ~~In~~ accordance with such procedures and such criteria as may be prescribed, the Board shall have the power to –

- (a) Sanction financial assistance for eligible projects”,

Additional features contained in the Pakistan Environmental Protection Act, 1997 in respect of incentive and market based instruments, includes the following:

Polluter pays principle - Imposition of pollution charges on staggered basis, which means the penalty gradually increases with time, and thus the costs of environmental mitigation correspond with the penalty.

Carbon trading principle - Though this principle has not yet been expressly provided for in the Pakistan Environmental Protection Act 1997, it is hoped that the inclusion of this principle in subsequent legislation will become a vehicle for achieving pollution control and abatement in Pakistan.

CHAPTER XVI

MULTILATERAL ENVIRONMENT AGREEMENTS AND THEIR IMPLEMENTATION

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

Domestic Legislative Measures: Environmental Protection Ordinance (PEPO), 1983; Pakistan Environment Protection Act, 1997; National Environmental Quality Standards (NEQS);

Key Institutions: Ministry of Environment; Pakistan Environmental Protection Council (PEPC); Pakistan Environmental Protection Agency (PEPA); Provincial EPA's; Environmental Tribunals.

1. INTRODUCTION

Over the decades Pakistan has increased its commitment to global environmental issues and, as such, has become a signatory to various international conventions and protocols. Many different projects are under currently being implemented in conjunction with the development of various activities that are concerned with a diverse array of environmental issues. For example, several current projects focus on discouraging the use of ozone depleting substances, encouraging the protection of biodiversity, promoting the use of renewable energy, promoting energy conservation in road transport sector and enhancing forestry cover. These areas of concern comprise but a few of the many issues relevant to the environment, which confront Pakistan and the nations of the world.

2. INTERNATIONAL CONVENTIONS SIGNED AND RATIFIED BY PAKISTAN

- Convention on Biological Diversity (CBD). No data.
- Framework Convention on Climate Change (FCCC). No data.
- Vienna Convention for the Protection of the Ozone Layer. No data.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) No data.
- Ramsar Convention: Convention on Wetlands of International Importance Especially as Waterfowl Habitats 1982.
- United Nations Convention on the Law of the Sea. No data.
- International Convention for the Prevention of Pollution from Ships. No data.
- Convention of Protection of Marine Life. No data.

- Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal. No data.
- Convention on Desertification. No data.
- Treaty Banning Nuclear Weapons Testing in the Atmosphere in Outer Space and Under Water. No data.
- Convention on the Prohibition of Military or any Other Hostile Use of the Environment.

In light of a growing consciousness of environmental issues Pakistan has signed and ratified many conventions and protocols, some of the most important conventions and protocols are described below.

3. MONTREAL PROTOCOL

The ozone layer acts to provide a shield against the harmful effects of the sun's ultraviolet radiation. In response to the growing scientific consensus that substances such as chlorofluorocarbons (CFCs), carbon tetrachloride and halons will ultimately destroy the ozone layer, the United Nations Environment Program (UNEP) commenced negotiations to develop multilateral protection measures for the ozone layer in 1981. These negotiations culminated in the Vienna Convention for the Protection of the Ozone Layer in March 1985, which further led to the signing of the Montreal Protocol. In essence this development was crucial as it related to the gradual phasing out of ozone depleting substances (ODS), which commenced in September 1987.

Pakistan joins the Montreal Protocol

Pakistan became a Party to the Montreal Protocol by ratifying the Protocol and its London Amendments on the 18th December 1992. The subsequent amendments are known as the Copenhagen Amendments and they provide for the acceleration of the phase out dates, which is central to the achievements envisaged by the Montreal Protocol. The amendments were ratified in January 1995.

Use of Ozone Depleting Substances (ODS) in Pakistan

Ozone depleting substances (ODS) are predominantly utilised in Pakistan in processes for the manufacture and use of deep-freezers, refrigerators, car air-conditioners, foam, dry-cleaning, fire extinguishers and solvents. ODS consumption during the years 1995, 1996 and 1997 was recorded at a level of 3188, 2510 & 2352 metric tons respectively, which translates to approximately 0.02 kg per capita. As Pakistan's per capita consumption of ODS is less than 0.3 kg, Pakistan falls within the category of Article 5 (I) Parties. In respect of this categorisation Pakistan is required to phase out certain ODS such as chlorofluorocarbons as given in Group I, Annex-A of the Protocol by the year 2010 (50% by the year 2005 and 85% by the year 2007). A more detailed record of consumption of ODS in the country during 1995, 1996 and 1997 is provided in Appendix-I.

Establishment of Ozone Cell

The Ministry of Environment, Local Government & Rural Development are the bodies that assume the sole responsibility for the implementation of the provisions of the Montreal Protocol. In light of Pakistan's commitments to the international community, an Ozone Cell has been established within the Ministry of the Environment. This Cell comes within the project entitled "Institutional Strengthening for the Implementation of the Montreal Protocol for the phase-out of Ozone Depleting Substances", which is facilitated by the provision of financial assistance by the Multilateral Fund of the Montreal Protocol. The total cost of the project is US \$ 259,000, which is being provided by the Multilateral Fund for the Implementation of the Montreal Protocol (MFMP) through the United Nations Development Program (UNDP). This Ozone Cell became operational in January 1996.

4. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Pakistan was a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and ratified this Convention in 1994. The ratification of the Convention had the effect of triggering a series of activities in Pakistan regarding climate change issues. These activities included the Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS) project, which was completed in 1998 and was the first comprehensive national project on climate change. This strategy was central to addressing many of the global concerns regarding climatic change, particularly in that it covered both quantification of emissions and the establishment of a long-term emission reduction program. In addition, the Country Case Study on Climate Change Impacts and Adaptation Assessments in Pakistan was also completed in 1998, which assessed the impact of climate change on four major sectors of the economy, being agriculture, forestry, water resource, and meteorology.

All parties to the Convention are required to prepare a National Communication to the UNFCCC, which is to contain an inventory of Greenhouse Gases (GHG's), and also indicates the policies and measures that the government is planning to undertake in an effort to adapt to or mitigate the adverse impacts of climate change. In response to the Convention's requirement of the submission of a National Communication, the Ministry of Environment, Local Government and Rural Development (MELG&RD), commissioned a National Study Team (NST) to prepare the report. The NST consisted of a number of consultants and agencies including the Pakistan Agriculture Council, the Pakistan Forest Institute, the National Institute of Oceanography, the Pakistan Science Foundation, ENVORK, which is an environmental consultant firm, Marine Investigators and some independent sector experts. The National Study Team (NST) has prepared the Pakistan National Communication (PNC).

5. CONVENTION ON BIOLOGICAL DIVERSITY

Biodiversity is defined as "the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological

complexes of which they are part; this includes diversity within species, between species and of ecosystems” (Convention on Bio Diversity (CBD)1992).

A United Nations Convention on Biological Diversity (CBD) was developed in 1992. The objectives of this Convention, which are to be pursued in accordance with its relevant provisions, include; the conservation of biological diversity, the sustainable use of its components and fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including appropriate access to genetic resources and appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Pakistan ratified the Convention in 1994 and is a Party to the CBD. This Convention gives recognition to the intrinsic value of biological diversity and the ecological, genetic, social, economic, cultural, educational, recreational and aesthetic values inherent in biodiversity and its components. This commitment to biodiversity is fortified by the fact that Pakistan is also a signatory to the Convention on International Trade in Endangered Species (CITES), the Convention on the Conservation of Migratory Species of Wild Animals, the World Heritage Convention and Ramsar Convention. These Conventions express similar aspirations, being the protection and conservation of components of biological diversity.

Country Parties to the CBD are obliged to take steps for the conservation and sustainable use of biological resources in their countries in accordance with the provision stipulated in the Convention. Article 6 of the CBD requires that each Contracting Party to the Convention, shall, in accordance with its particular conditions and capabilities (1) develop national strategies, plans or programs for the conservation and sustainable use of biological diversity, and (2) integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies.

Preparation of Biosafety Guidelines on Genetic Engineering and Biotechnology

Pakistan is a Party to the Convention on Biological Diversity (CBD). Article 19 of CBD provides that the parties may need to consider establishing appropriate procedures for the safe transfer, handling and use of any living organism resulting from biotechnology that may have an adverse affect on the conservation and sustainable use of biodiversity. In light of this obligation Pakistan has prepared these guidelines, which were discussed in a national workshop organised by this Ministry and will soon be finalised.

Preparation of Biodiversity Action Plan for Pakistan (BAP)

Pakistan being party to CBD is required to prepare national strategy and action plan for the conservation and sustainable use of biodiversity. A Biodiversity Action Plan (BAP) for Pakistan has been prepared with the financial assistance of the Global Environment Facility (GEF). The Plan has been developed with the fundamental aim of fulfilling the provisions espoused in the CBD. The BAP has been prepared within a context of extensive consultations with all major stakeholders including the federal and provincial

government departments, organisations, institutions, NGO's and individuals. It provides an integrated framework for biodiversity conservation and emphasises the prioritisation of interventions and the establishment of targets to ensure the implementation of the CBD.

Pakistan's Biodiversity Action Plan has been finalised and printed for dissemination to all concerned Government Institutions, NGO's and other stakeholders. The broad objectives of BAP are:

- 1) To create a policy framework that fosters the sustainable use of biological resources and the maintenance of biodiversity.
- 1) To strengthen and promote national biodiversity conservation programs and facilitate international and regional cooperation.
- 2) To create conditions and incentives for biodiversity conservation at the local community levels.
- 3) To strengthen and apply more broadly the tools and technologies for conserving biodiversity.
- 4) To strengthen human knowledge and the will and capacity to conserve biodiversity.

To oversee the implementation and coordination of BAP, a Federal Steering Committee has been established. A Biodiversity Working Group is also being established which will be a central an advisory group on biodiversity issues. In an effort to facilitate the achievements envisaged in BAP, Provincial Steering Committees are also being established in the provinces to provide a network concerned with issues of conservation and biodiversity.

Preparation of National Action Program to Combat Desertification (NAP) in Pakistan

To fulfil its obligations under the Convention to Combat Desertification (CCD), Pakistan has prepared a National Program, which focuses upon measures to combat desertification within the country. This final draft of the National Program (NAP) has been prepared after a broad process of consultation with all of the relevant organisations, stakeholders and individuals. It will be presented at the next meeting of PEPC for approval. The program of action has the following aims:

- (a) Providing a guidelines and a framework for sustainable development of the natural resources and preservation of biological diversity in different agro-ecological regions of the country.
- (b) Alleviating poverty and improving the living standards of the people of arid lands by adopting improved technologies and by having access to extension and support services.
- (c) Providing an effective institutional mechanism at various levels of formulating policy and plans and conducting research and development in the arid lands.
- (d) Human resource development through capacity building and creating awareness among the masses for identification and tackling area specific problems.

- (e) Gender-balanced decision making and effective participation through the recognition of the economic value of women's work.

Preparation of National Country Reports on the Implementation of the Convention on Biological Diversity (CBD) in Pakistan

As Pakistan has been a Party to the CBD since 1994 it is required to submit reports on the implementation of CBD. First and second National Reports on the implementation of CBD have been prepared through a wide consultation process involving all relevant Government and non-governmental institutions, individuals and the public.

6. CONVENTION TO COMBAT DESERTIFICATION AND DROUGHT (CCD)

Desertification is defined as "land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities". Land degradation means the reduction or loss in arid, semi-arid and dry sub-humid areas, of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, range, pasture and woodlands resulting from land usage and from a process or combination of processes, including those arising from human activities and habitation patterns such as:

- Soil erosion caused by wind and/or water;
- Deterioration of the physical, chemical and biological or economic properties of soil; and
- Long-term loss of natural vegetation.

Desertification is a global problem, particularly as it affects more than 100 countries and has the dire consequences of environmental degradation, loss of soil fertility, loss of biodiversity and reduction in land productivity. The United Nations established an Inter-Governmental Negotiation Committee (INC) to investigate this problem and after a series of meetings, the INC developed the United Nations Convention to Combat Desertification (CCD). This Convention was adopted in 1994 and was signed and ratified by Pakistan in 1996.

The objective of the CCD is to combat desertification and mitigate the effects of drought in countries that experience serious drought and or desertification. Essentially, through effective action at all levels and international cooperation and partnership arrangements within the framework of an integrated approach, this Convention aims to contribute to the achievement of sustainable development in affected areas. Achieving this objective will involve long-term integrated strategies that have a multiple focus on affected areas, improved productivity of land and the rehabilitation, conservation and sustainable management of land and water resources. Within this multi-faceted approach is the fundamental objective of achieving improved living conditions for the people that reside within the affected areas.

Similar to the previously mentioned Conventions those countries that are a Party to the CCD are required to prepare “National Action Plans to Combat Desertification”. Thus Pakistan has developed the National Action Plan to Combat Desertification in Pakistan (NAP), which has been prepared with the financial and technical support of United Nations Environmental Program (LTNEP) and the Economic and Social Commission for Asia and the Pacific (ESCAP). The proposed Plan identifies the factors contributing to desertification and the various practical measures necessary to combat desertification and mitigate the effects created by drought. It envisages participatory process as well as the coordination of results of research with other efforts to formulate national policies for sustainable development.

Pakistan has been a Party to CCD since 1997 and is required to regularly submit reports on the implementation of CCD in Pakistan. The first National Report on the implementation of the CCD has been prepared and submitted to the CCD Secretariat.

Focal Point of Convention on Convention to Combat Desertification and Drought

The Ministry of Environment is focal point for CCD in Pakistan. The Ministry is cooperating with the CCD Secretariat in disseminating relevant information about the Convention from the Secretariat to all stakeholders in Pakistan and is preparing country reports on the implementation of CCD and other information required to the Secretariat. ERNP sub-projects were also engaged in at the World Environment Day 2001.

7. WILDLIFE RELATED CONVENTIONS (CITES, RAMSAR AND CMS)

NCCW is implementing the obligations of the following three Conventions to which the Government of Pakistan is a signatory:

- (a) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- (b) Convention on Wetland of International Importance Especially as Waterfowl Habitat (Ramsar).
- (c) Convention on the Conservation of Migratory Species of Wild Animals (CMS).

A ban on the commercial export of species named in Appendix I of CITES and II was implemented with the limited exception of those species necessary for scientific use. Similarly the export of mammals and reptiles, which are not common in the country, remained closed. The commercial export of common birds, mostly captive bred species was encouraged. This policy was regulated by NCCW in collaboration with the Ministry of Commerce and Provincial Wildlife Departments.

For the improved implementation of the Ramsar Convention, Pakistan has nominated eight Ramsar sites in collaboration with the Ramsar Bureau. With the addition of eight new wetlands there are now 16 Ramsar Sites that have been nominated for conservation in relation to wetland associated biodiversity. This recent increase in Ramsar Sites has

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enhanced the image of Pakistan as a country with growing commitments to conservation of biodiversity on a global spectrum.

NCCW has also encouraged the Provincial Wildlife Departments to implement the obligations of the Convention on Conservation of Migratory Species of Wild Animals (CMS), which is also known as the Bonn Convention. Threatened migratory species such as cranes, geese, storks, pelicans and many others are now afforded protection in most of the provinces. NCCW, as an obligation of MOU signed under CMS, is attempting to implement measures to protect the threatened Siberian crane in collaboration with the WWF Pakistan and the NWFP Wildlife Department. Similarly, an additional Conservation Plan and MOU are under consideration for the conservation of marine turtles. NCCW is also trying to minimise the hunting pressure on the Houbara bustard and falcon species in collaboration with Houbara/Falcon Foundation International-Pakistan.

APPENDIX A

LIST OF ABBREVIATIONS

ACRONYM	MEANING
ADB	<i>Asian Development Bank</i>
ALGAS	<i>Asia Least-Cost Greenhouse Gas Abatement Strategy</i>
ALGAS	<i>Asia Least-Cost Greenhouse Gas Abatement Strategy</i>
AOSIS	<i>Alliance of Small Island States</i>
AOSIS	<i>Alliance of Small Island States</i>
BAP	<i>Biodiversity Action Plan</i>
BAP	<i>Biodiversity Action Plan</i>
CBD	<i>Convention on Biological Diversity</i>
CBD	<i>Convention on Biological Diversity</i>
CITES	<i>Convention on International Trade in Endangered Species</i>
CMS	<i>Conservation of Migratory Species of Wild Animals (Bonn Convention)</i>
CNG	<i>Compressed Natural Gas</i>
EIA	<i>Environmental Impact Assessment</i>
EIS	<i>Environmental Impact Statement</i>
EPA	<i>Environmental Protection Agency</i>
EPO	<i>Environmental Protection Ordinance</i>
ESCAP	<i>Economic and Social Commission for Asia and the Pacific</i>
EUAD	<i>Environmental and Urban Affairs Division</i>
FAO	<i>Food and Agriculture Organisation</i>
FCCC	<i>Framework Convention on Climate Change</i>
GC	<i>Governing Council</i>
GEF	<i>Global Environmental Facility</i>
ICLEI	<i>International Council of Local Environmental Initiatives</i>
ICTP	<i>International Conventions, Treaties and Protocols</i>
IEE	<i>Initial Environmental Examination</i>
INC	<i>Inter-governmental Negotiation Committee</i>
IUCN	<i>International Union for the Conservation of Nature</i>
LDC	<i>Least Developed Country</i>
MEA	<i>Multilateral Environmental Agreement</i>
MFMP	<i>Multilateral Fund for the Implementation of the Montreal Protocol</i>
MOU	<i>Memorandum of Understanding</i>
NARC	<i>National Agricultural Research Centre</i>
NCCW	<i>National Council for Conservation of Wildlife</i>
NCS	<i>National Conservation Strategy</i>
NEC	<i>National Environmental Commission</i>
NEQS	<i>National Environmental Quality Standards</i>
NES	<i>National Environmental Assessment</i>

NGO	<i>Non-Governmental Organisation</i>
NIAB	<i>Nuclear Institute for Agriculture and Biology</i>
NORAD	<i>Norwegian Agency for Development Co-Operation</i>
NPC	<i>National Planning Commission</i>
NST	<i>National Study Team</i>
NWFP	<i>North West Frontier Province</i>
ODS	<i>Ozone Depleting Substances</i>
PA	<i>Protected Area</i>
PARC	<i>Pakistan Agriculture Research Centre</i>
PEPA	<i>Pakistan Environmental Protection Agency</i>
PEPC	<i>Pakistan Environmental Protection Council</i>
PEPO	<i>Pakistan Environmental Protection Ordinance</i>
PIL	<i>Public Interest Litigation</i>
PNC	<i>Pakistan National Communication</i>
ROAP	<i>Regional Office for Asia and the Pacific</i>
SAARC	<i>South Asian Association for Regional Cooperation</i>
SACEP	<i>South Asia Cooperative Environment Programme</i>
SAFP	<i>Subject Area Focal Points</i>
SAPTA	<i>SAARC Agreement on Preferential Trading Arrangements</i>
SFSR	<i>SAARC Food Security Reserve</i>
SIDA	<i>Sindh Irrigation and Drainage Authority</i>
SMRC	<i>SAARC Meteorological Research Centre</i>
SWM	<i>Solid Waste Management</i>
TCO	<i>Technical Committee on Environment</i>
UNCCD	<i>United Nations Convention to Combat Desertification</i>
UNCEP	<i>United Nations Conference on Environment and Development</i>
UNCLOS	<i>United Nations Convention on the Law of the Sea</i>
UNDP	<i>United Nations Development Program(me)</i>
UNEP	<i>United Nations Environment Program(me)</i>
UNESCO	<i>United Nations Educational, Scientific and Cultural Organization</i>
UNFCCC	<i>United Nations Framework Convention on Climate Change</i>
URBAIR	<i>Urban Air Quality Management Strategy</i>
WWF	<i>World Wildlife Fund</i>