

**DIECTORATE OF DISTANCE EDUCATION
AND
CONTINUING EDUCATION**

Environmental Management

M.SC. ENVIRONMENT STUDIES



**MANONMANIAM SUNDARANAR UNIVESITY
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Environmental Management

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UNIT - I

ENVIRONMENT MANAGEMENT

HISTORICAL PERSPECTIVE

In the August 2003, Members of the Parliament of India expressed serious apprehension about the health of the population who consume soft drinks like Coco Cola and Pepsi. This alarm was caused by the report by *Center for Science and Environment*, New Delhi which tested the soft drinks for contaminants. Later the *British Broadcasting Corporation* (BBC) and *Outlook* investigated samples of the sludge or wastes that resulted from production plants of the coco cola factories at Plachimada, Kerala and Paravai, near Madurai, Tamil Nadu and found severe contaminants such as lead, cadmium and other carcinogenic heavy metals. The Tamil Nadu Pollution Control Board (TNPCB) served notice to the **Multi National Corporation (MNC)** manufacturing coco cola.

In India, the consciousness and concern for protection of environment increased in the wake of Bhopal tragedy. The death and the continuing health problems of thousands of people caused by the release of poisonous methyl isocyanides gas from the Union Carbide factory (the manufactures of 'Eveready' batteries) made Indians painfully aware of the growing local and global environmental problems. By the sixties, there was growing perception that all life forms faced serious threats from the contamination of air, water and land and introduction of hazardous and poisonous substances in the atmosphere and biosphere. In 1972, the United Nations organized a conference on 'Human Environment' and in the subsequent conference called the 'Earth Summit' it was agreed by all participating nations that there were convincing reasons for humankind to strive for a wholesome environment for all living species and the rich heritage of nature should be shared by all organisms whether *Homo sapiens* (humans), or biotic (living plants and animals) or a biotic (non-living).

Nature provides all living organisms air, water, land, climate, and other prerequisites for sustenance on this planet. Humans, with the advancement of science and technology, have perhaps forgotten that they are a component of nature like the millions of other living things and this has resulted in the obliteration, injury and restructuring of entire gamut of ecological systems. This intense attack on nature for economic growth and advancement has altered and disrupted the delicate equilibrium in biosphere-a narrow zone which contains all forms of life including plants and animals and where land, water and air come in close contact with each other. Modernization, industrialization and urbanization have made the various ecological groups or communities of plants, animals and other living things, which like human communities find it difficult to survive because of adverse changes in their surroundings brought about by large scale human activities.

To sum up, it is the environment in its totality, be it air which surrounds the earth described as atmosphere, or water which encircles the earth surface called hydrosphere, and finally crust, stones, rocks and soil known as lithosphere, all form natural components of life on the earth which has been polluted or endangered by human greed and unsustainable development. Post-independent India has been marked in the early years by deficiency in legislative and administrative mechanisms, but has also been obviously devoid of environmental orientation in planning for development, which subsequently demonstrated a lack of sensitivity and awareness towards environmental management and conservation. Since environment as a discipline is multi-disciplinary, and little trodden by lawyers and judiciary, it would be appropriate to explain and illustrate the meaning, concept and contextual philosophy of the terms-'ecology' and 'environment' -for better perception and elucidation of the paradigms of judicial environmental perspectives.

Ecology and Environment : Seminal Relationship

Science believes that all organisms evolve and this evolutionary code governs the

relationship between organisms and their environment. Over a time as environment alters the organisms through the principle of evolution by natural selection adapt to new environment. Thus, such organisms that easily acclimatize to new environment survive, e.g., the mammals and other animals including humans while those that fail to adapt to such environmental change become reduced in number or extinct according to the principle of survival of the fittest as expounded by Darwin. It, therefore, only demonstrates that plants, animals including human beings are to a large extent, dependent on their environment. Contextually, 'ecology' and 'environment' are semantically interchangeable terminology and are normally used synonymously. However, scientifically, there is a distinct difference between them. 'Ecology' is a more wide-ranging and a generic term dealing with structure and functions of nature and natural organisms in relation to their surroundings. The word 'environment' is concerned only with natural surroundings wherein living things live. Hence, the need of preservation of a better quality of surroundings or environment for the survival of various living things of the earth is of paramount importance.

Ecology : Meaning and Concept

The term 'ecology'¹ is derived from the two Greek words *oikos* (house) and *logos* (the study of) which mean the study of wild animals, land and habitat. These two words thus constitute the term 'ecology'². It was Henry David Thoreau who is credited to have first used the term 'ecology' in 1858. According to German geologist Karl Fridericks³, ecology is defined as "the science of environment (*umweltlehre*)." The American ecologist Eugene Odum⁴ has defined it as "the study of the structure and function of nature. It mainly concerns itself with interrelationships of living organisms, plant or animal and their environments." Etymologically, it has been described as the "study of plants or animals or of peoples and institutions in relation to environment."⁵ It is the science of organisms and their environment as to how living things live and where they house (habitat). In other words, environmental sciences study or attempt to finding out the conditions that assist a plant or animal to survive and /or reproduce or become extinct in a certain surrounding. Its main concern is to find out the principles that govern the relationships and help in accelerating a better quality of environment.

Environment : Meaning and Concept

There is an urgent need to understand the core meaning of environment in its true spirit to save our "fragile and endangered planet" Global intensification of human activities have had deleterious effect on environment through contamination, pollution, radiation, global warming, destruction of ozone layer, acid rain, deforestation, and so on, which have disrupted the web of life for many a living organism. The promotion of a consumerism as part of modernity has increased contemporary pace of production and exploitation of natural resources without minimum protection of environment. Therefore, there is an urgent need to understand the core meaning of environment not merely to regulate human activities and consumption patterns but to promote sustainable development and save this planet.

The French word 'environs' meaning encircle is the root from which the word 'environment' is derived from. Environment denotes the milieu, circumstances or surroundings in which all species find themselves in when surrounded by living organisms like animals, plants, *Homo sapiens* and all biotic and a biotic objects. Accordingly, 'environment' contains the physical setting of living things, namely, some animals that live in water, other live in forests or in sand or under water, their appropriate places (habitats) or more suitable surroundings. 'Environment' is thus described as "the circumstances or conditions surrounding one, the total of circumstances surrounding an organism or group of organisms."⁶ Therefore, conservation and preservation of natural surroundings is inextricably tied with what constitute air, water, land, forests, rocks, etc., and any undue interference or alteration of such surroundings or environment affects the security of all living organism.

Although a plethora of legislations were enacted with regard to air, water and toxic gases it was only in The Environment (Protection) Act enacted in 1986 a general and meaningful definition of the term environment was incorporated. The Act stipulates,

“environment includes water, air and land, and human beings, other living creatures plants, micro-organism and property.” Environment is accordingly the sum of all physical, biological, geographical, economic and social factors, which compose the surroundings of men and other living beings. The theme of legislative and judicial process is to protect and conserve the environment, to ensure economic growth with eco-protection so that development and environment may go together in keeping with the needs of all beings and not exclusively for fulfillment of human needs.

Environment Pollution in Developed Nations and Developing Countries

It was during 1960s that people particularly in the developed countries became more concerned about the quality of environment. The Mina Mata Bay tragedy in Japan caused by mercury poisoning of fish which entered in the food channel of the Japanese people during 1958, the smog pollution in Donaora (USA) and London during early 1950s in which thousands of people died, and the massive oil spill caused by Torrey Canyon accident and resulted havoc to marine life, reinforced deep anxiety in the people's mind that the quality of air, water, land and other natural resources was seriously degraded, defiled and destroyed by economic and technological developments. Rachel Carson⁷ a scientist wrote *The Silent Spring* in 1962 lucidly exposed the dangers over the excessive and intense use of pesticides, insecticides and other chemicals, which seriously contaminated the environment and posed a danger to wildlife and humans. Similarly in Europe, the pollution of river Danube greatly affected Germany, France and Sweden. The cross boundary or transnational pollution of air caused the death of forests in Germany and Sweden while pollution of river waters owing to acid rain led to poisoning of fish and marine resources in Scandinavian countries. These events and disasters made people and legislators in Europe to act and environment protection movements and Green Parties were born.

However, in the developing countries including India, the concern for environment was not dictated basically by industrial pollution as in the developed countries. The environment movement in the West was mainly oriented to pollution control, pollution prevention and pollution regulation as industrial growth and development had caused pollution disasters. In the less developed countries, pollution related problems have been rather limited or lesser in gravity. The environmental problems in India as elsewhere mostly related to resource management, resource exploitation and conservation rather than control. Consequently, the environmental problems of India and most of Third World countries have been due to underdevelopment, poverty, population explosion and resource conservation.

Indian Environmentalism

It was the late Prime Minister Indira Gandhi who had put forth the environment problems of India in the right perspective when she declared that "environmental problems of developing countries are not the side effects of excessive industrialization but reflect the inadequacy of development. Are not poverty and need the greatest polluters?"⁸ Indeed initially the developing countries main aim was to become similar to highly industrialized countries so as to combat poverty and to improve the material standards of living by developing their own industries and therefore planners in these countries did not have much concern and anxiety to prevent pollution. Till the eighties many countries did not develop stringent laws to control and prevent damage to the environment and were indifferent to the issues of environmental pollution, caused by industries and factories, which were regarded as generating employment, jobs and income necessary for the removal of poverty. Rapid achievement of economic progress to overcome poverty, ignorance and backwardness became the nation's goal. Science and technology adoption and use of for Development and industrialization in India. In short, the priority issues for India have been poverty, population control, health and human settlements, housing and development, provision of water, etc. As Indira Gandhi rightly remarked at the Stockholm Conference (1972): "How can we speak to those who live in villages and in slums about keeping the oceans, rivers and air clean when their own lives are contaminated at source."⁹ In essence, environmental issues in India was essentially linked to improper management of land use, water use, or resources degradation of

forests, minerals, and energy due to haphazard and environmentally incompatible economic development.

In India, the mass consciousness about environment can be traced to the period prior to colonialism unlike the Western countries where it is of recent origin. Philosophies of Jain and Buddhist religions forbade harm to living creatures, while Hinduism, which propagated the worship of trees, were the foundation for protecting nature in India. Mass struggles to protect the environment from destruction took place during the colonial period. In 1730 the members of the Bishnoi community led by womenfolk laid down their lives to protect Khejdali trees being felled by the soldiers under orders of Maharaja of Jodhpur. A community such as the Bishnoi, is unique and unparalleled in devotion and reverence to ecology which has no example or any other parallel community in the world. No faith or religion in the world like the Bishnoi weaves the web of life so intimately and passionately with natural communities of species of plants and animals by prohibiting its followers from cutting green trees or killing wild life.

The Stockholm Conference of 1972 aroused elite interest and public opinion both in the developed and developing countries about the necessity for environment protection. In India the momentum of development was towards maximum growth, maximum production, maximum resource exploitation. It only led to over-exploitation, destruction and expropriation of natural resources due to inhuman, irrational and reckless greed of grabbing resources. The *Chipko* (hugging tree) movement in Garhwal Himalaya and *Appiko* (cut me, not the tree) movement in Karnataka represent the voice of the voiceless forest communities. In brief, during the first four decades, the Indian development made great strides while it had also impaired productivity due to contamination of agricultural land, ruining of forests, pollution of lakes and streams, damaged human health due to urbanization, industrialization and growth of slums. The extent of degradation of natural resources in India due to vandalizing activities of the politicians in collusion with liquor barons, timber and forest tycoons, land grabbing mafia and slum lords has reached catastrophic dimensions. Likewise, the projects like Narmada, Tehri, and Sardar Sarovar are touted as the models of unsustainable development, threatening the extinction of ecological communities and tribals from their natural habitat. It was in the wake of the Stockholm Conference that environmental goals and objectives in India gradually began to be incorporated in the constitutional, legislative and administrative mechanism. Under the dynamic leadership of the late Prime Minister Indira Gandhi linkages between environment and development were established by encouragement to *Chipko* and the shelving of the Silent Valley Project. As a policy, Indira Gandhi supported environmentalists such as Salim Ali, to give respectability and credence to grass root leaders of eco-protection, who in conjunction with scientists, social activists, historians, philosophers, jurists, and the like, worked for environment orientation of developmental decision-making. These groups accordingly demanded that environment be given constitutional and legislative protection in order to achieve environmental harmony in the interest of long-term sustainability of natural resources. With this official recognition the environmental movement, which was weak and ineffective in the early 1970s, grew from this incipient stage to a towering movement, strong enough to provide intellectual and qualitative leadership to fight the multinationals especially in areas of intellectual property rights, biopiracy and protecting of farmer and women rights.

Global Overtone : Western Environmentalists

Protection of environment developed into human rights oriented movement in the West. Rachel Carson's *Silent Spring* and the Three Mile Island nuclear disaster inspired many to take up environmental issues in the United States, and the Cold War brought the threat of nuclear disaster closer to Europe. During 1960s, public in many industrialized countries were concerned regarding the hazards of toxic chemicals to humans as well as nature. Production of wealth along with the philosophy of 'use and throw' created harmful waste and pollution, which in course of time proved to be gigantic problems particularly for the smaller countries of Europe. The global message of environmental protection inspired first by the U.S. Senator Gaylord Nelson on April 22, 1972 under the

banner of "Mother Earth" became a concern and commitment all over the United States for a clean and unpolluted earth. Accordingly, April 22 began to be solemnized as "Earth Day" from 1972. Indeed the problem of pollution in the West had caused considerable damage to environment, both locally and globally. The watchword of the environmentalists was then "think globally and act locally" and is still valid and meaningful for contemporary society. However, a new emotive term 'the global villages' has been coined to bring home the awareness of interdependence between nature and man and between human and human *inter se* irrespective of country, nationality, geographical, political and economic distinctions. It is human activities, which are endangering environment and altering it both locally and globally. In such situations, environment has to take precedence over human activities, which are damaging it. This is because environment is a common heritage of mankind shared locally and globally by man along with other species inhabiting the planet. This is the vision of a new world environmental order in which exploitation of nature by man should yield to conservation of finite and limited resources of nature for the coming generation. Such is the interdependence and interconnectedness of the world today, as it exists in a remote village where all activities are jettisoned towards common aims, common sharing and common web of life-the essence of environment order. A new linkage in this vista was added by UN Conference on Human Environment (1972) by designating June 5 as "World Environment Day" in order to create worldwide awareness on environmental issues. The June 1992 Rio de Janeiro UN Conference on Environment and Development attempted to reestablish equilibrium between economy and ecology for a more sustainable development for the twenty-first century. The First Earth Summit on Environment, which took place at Rio de Janeiro, has rekindled the message of planet protection adopting an Earth Charter setting out broad spectrum and strands on environmental protection and conservation in order to save natural resources for the succeeding generations. Its main theme is to avoid unilateral environmental threats and ecological collapse due to meshing of economy and ecology.

1. Kennedy, Edward, *Concept of Ecology*, pp. XII-XIV (Prentice-Hall of India, New Delhi, 1989)
2. *Ibid*
3. *Ibid*
4. *Ibid*
5. *Chambers Twentieth Century Dictionary*, p. 396
6. *Webster's II New Riverside University Dictionary*, p. 436 (1984)
7. Perkins, John H., *Silent Spring: Implications for Third World Development*, in Environmental Education for Conservation and Development, p.191(Editors:Desh
8. Bandhu and G. Derberet), Natraj Publishers, 1987.
9. Indira Gandhi's Speech at the UN Conference on Human Environment, Stockholm (Sweden), 1972.
10. *Ibid*

UNIT - II

ENVIRONMENT : INDEPENDENCE AND AFTER

Constitutional and Legislative Framework

Indian Constitution, being a product of post-World War II, did not contain the philosophy or notion of preserving of ecological harmony or environmental justice. It only adumbrated the notion of economic social and political justice. The only reason for such a missing link was perhaps the absence of eco-awareness that the dangers of environmental degradation had not been anticipated by the founding fathers of the constitution. In the post-Stockholm era, the age of ecology dawned, resulting in an environmental revolution against current policies and plans of development which had led to pollution, poverty, deforestation, soil erosion, growth of slums, etc. Hence, the need of moulding and reorienting of development policies for environmental conservation and protection through legislation appeared to be only possible and effective way of meeting the dangers of ere-destruction.

Therefore, for the first time, the parliament incorporated environmental objectives and goals by passing the Constitution (42nd Amendment) Act, 1976 with specific

constitutional provisions with respect to conservation and protection of different ecosystems, resources and natural habitats of various living organisms and species. It enjoins duties both on the state as well as on citizens to protect and conserve environment. In the Directive Principles of State Policy, the State is directed "to protect and improve environment and to safeguard the forests and wild life of the country." In Chapter VI-A, especially added by the said amendment, fundamental duties of citizens amongst other include "to protect, and improve the natural environment including forests, lakes, rivers and wildlife to have compassion for living creatures." Another important feature of the said amendment was that the exclusive power given to states over subjects connected with environment were now placed under concurrent jurisdiction of the parliament and the state legislatures and thereby giving wide powers to the parliament on over all matters of eco-protection and eco-conservation. In the Concurrent List of the Seventh Schedule, the Constitution (42nd Amendment) Act added three new entries relating to forests, protection of wild animals and birds and population control and family planning.

However, matters connected with environmental subjects like industries, regulation and development of oil fields and mineral oil resources, regulation of mines and mineral development, regulation and development of inter-state rivers, river valleys and fishing and fisheries beyond territorial waters are in the Union List and within exclusive jurisdiction of the parliament. Likewise, subjects like public health and sanitation, agriculture protection against pests and plant diseases, land, fisheries, mines and minerals, industries, and gas works fall within the sole jurisdiction of the state legislatures.

Apex Policy Mechanism for Environment Management

In order to implement the laws, rules and regulations concerning environment protection, there are specific ministries, boards and committees to oversee the working and application³¹ of the said laws, schemes and plans. These are described as under:

1. National Environment Council

In 1972, the National Committee on Environmental Planning and Coordination (NCEPC) was created for suggesting and reviewing policies and programmes for the environment in all its aspect in areas of pollution and environmental impact of human settlements on ecological systems. Later on, the NCEPC was replaced by the National Committee on Environmental Planning. It was composed of Environment Secretary, five other secretaries, eight senior government officials and some eminent non-official environmentalists. It was also abolished and substituted by a more broad-based and representative body wherein the representatives of the central government, environment ministers of the states, representatives from principal trade or industry associations and non-governmental organizations have been included as its members. The new body was to be known as National Environment Council (NEC) with prime minister as its chairman to advise the Ministry of Environment and Forests on environment policy.

The NEC has 100 members and the Minister for Environment and Forests as its, vice-chairman. Environment Ministers of all states and union territories; Secretaries of several central ministries; Director-Generals of Indian Council of Agriculture Research (ICAR), Council for Scientific and Industrial Research (CSIR), Archaeological Survey of India (ASI), Botanical Survey of India, and Zoological Survey of India; Directors of the National Institute of Oceanography, National Thermal Power Corporation (NTPC), and National Environmental Engineering Institute (NEERI); Chairman of University Grants Commission (UGC); and representatives of industry and trade like ASSOCHAM and FICCI have been included in the NEC as its members.

Non-official members included Anil Agarwal of CSE, Ashok Khosla of Development Alternatives, Chandi Prasad Bhatt, Sant Kumar Bishnoi, Annashheb Hazare, M.C. Mehta, Shyam Chainani, Madhav Gadgil, B.B. Vohra, Rattan Tata, H.S. Singhanian, T.N. Khoshoo, Deb Roy, Bittu Sahgal and Darryl D' Monte. The National Environment Council was to act as think-tank and provide inputs on issues brought before the Ministry of Environment and Forests.

2. Ministry of Environment and Forests

The Ministry of Environment and Forests has two departments, namely, (i) the Department of Environment, and (ii) the Department of Forests and Wildlife. In the central government, the ministry looks after all the matters concerning environment. Some of its subordinate wings are: Zoological Survey of India, Botanical Survey of India, Forest Survey of India, Project Ganga and Central Ganga Authority, Forest Research Institute, Wildlife Institute of India, Indira Gandhi National Forest Academy, Ecology and Environmental Conservation Education Cell, and Eco-Development Cell.

3. Ministry of Wasteland Development

Another ministry in the central government for wasteland development was created in 1992 to formulate, co-ordinate and catalyze programme for management and development of wastelands in the country. Wastelands include degraded forestlands, common grazing grounds, village common lands, desert and semi-arid tracts, lands affected by salinity, ravines, etc. In short, a separate ministry has been set up to manage ecologically unstable lands, or such land which has lost productivity or whose productivity has declined due to prolonged use and misuse or lands devoid of forest cover. Setting up of the Ministry of Wasteland Development is a milestone in the management of land resources to meet the needs of India's mounting population boom.

4. Other Bodies

There are other administrative bodies like the Indian Board for Wildlife for the management of national parks and sanctuaries, and the Water and Air Pollution Control Boards for prevention, abatement and control of water and air pollution due to sewage or industrial effluents discharged into rivers, streams or air pollution caused by thermal or gaseous factories, plants, etc., both at the central and state levels.

5. National Environment Tribunal

Setting up of separate and independent environment courts is still pending and under serious consideration of central government. It was the former Chief Justice of India

P.N. Bhagwati who had suggested the need of such a court to adjudicate matters relating to

environmental pollution and making hazardous units absolutely liable for environmental pollution. The urgency of such court was also felt acutely since the Bhopal gas disaster in 1984. However, the National Environment Tribunal Bill, 1992 was passed by the parliament for constituting initially four special environment tribunals at Delhi, Calcutta, Bombay and Madras to hear cases arising out of the Public Liability Insurance Act, 1990. Under this Act, the collector has the power to pay an interim or immediate compensation of Rs. 25,000 in case of death and Rs.12,000 in case of injury. The National Environment Tribunal Bill provides liability to pay compensation on principle of not fault and further empowers the tribunal with the same powers and authority as the collector. However, the final compensation for damage to population, property and environment, land, water and air, is to be determined by the environment tribunals.

6. Environmental Impact Assessment

In all major countries, environmental impact assessment (EIA) is a precondition for every major or minor industrial project. It is necessary for them to get environmental clearance before establishment so that people as well as natural resources are not adversely affected by undesirable environmental consequences. In India also, there are numerous examples where undesirable impact on environment has led to conflict situations between development and environment in the absence of prior environmental impact assessment. Therefore, environmental impact assessment has become a mandatory precondition for all upcoming industries to seek environmental clearance and approval of the Ministry of Environment which acts as a clearing house for granting or rejecting the setting up of the proposed industrial unit.

EIA is thus a broad based document presenting base line data of the proposed site together with a description of the proposed development and potential implications of the various alternative and abatement measures. Its purpose is to identify and evaluate the potential impacts, both beneficial and adverse, of the proposed project on the

environmental system. In essence, EIA is an overall statement concerning environment and on environment which the proposed project is likely to cause before, during and after its location.

In India, prior to 1991, industries were required to submit an EIA35 report conducted by an agency of their choice. This report was vetted by the Environment Ministry which could thereafter depute its own team to do an assessment if it was not satisfied with the report submitted by the concerned industry. Now, as per proposed notification under the amending Environment (Protection) Act, 1986, all industries are being covered under the purview of environmental clearance. This conditionality relates either to geographical area restrictions or power consumption limits of 10 MW. Under the new industrial policy, the government has greatly relaxed restrictions on location of industries or has exempted expansion from licensing. However, all industries, which consume more than 10 MW, would have to apply for environmental clearance. Similarly, industries would have to apply for such clearance in respect of geographical areas too. Of course, the specific objective of environmental clearance can be to maintain genetic diversity, to limit exploitation of resources to their sustainable yield level, and to minimize pollution.

Environmental Right to Life: Judicial Legislation

In India, the Supreme Court has extended the ambit of human rights pertaining to preservation of ecological balance and environment. However, the judiciary through judicial law making has extended the interpretation of right to life enshrined in Article 21 to such matters like right to water, air and land or resource conservation or right to healthy and clean environment free from pollution etc. The Supreme Court decision extending the right to life to cover the right to livelihood is a milestone in protecting the claims of pavement dwellers or slum dwellers not to be evicted from their squalid shelters without being offered alternative accommodation as it would lead to deprivation of their employment, their livelihood and, therefore, right to life.

Environmental Legislation in India Before 1947

In India, environmental legislation did exist prior to 1947 but it was rudimentary, primitive and punitive in character. It existed largely on the statute book with little or no implementation in letter and spirit. Both the people as well as the judiciary seldom during the British rule ever cared to seek, enforce and punish polluters and environmental offenders. Such legislation existed only for namesake as the people, the administrative machinery and the judiciary were neither serious nor interested in the protection of environment and prevention of pollution.

However, there existed numerous legislative measures, which also dealt with environmental matters. Some of these are: Shore Nuisance (Bombay Kolaba) Act, 1853; Oriental Gas Company Act, 1857; Indian Penal Code, 1860; Police Act, 1861; North India Canal Drainage Act, 1873; Indian Fisheries Act, 1897; Code of Criminal Procedure, 1898; Land Acquisition Act, 1894; Explosives Act, 1908; Indian Boiler Act, 1923; Indian Factories Act, 1923; Indian Forest Act, 1927; and Motor Vehicle Act, 1939.

It would not serve any purpose to reflect much on the above statutes as they utterly failed to punish violators or polluters⁴⁰ charged of offences concerning water, air or soil pollution.

During 1947-1970

In India, the era between 1947 and 1970 was essentially the age of socialistic pattern of society with overtones of scientific socialism, state ownership of the major segments of economy for planned development for the removal of poverty, backwardness and underdevelopment. Its key goal was attainment of social justice without concern and

awareness of environmental justice. Of course, the bulldozer of development greatly interfered, distorted and even destroyed the ecology of forests, polluted water and air, contaminated the rural and urban pattern of development but the political leadership and even the law-makers were lukewarm towards environmental problems. Such problems continued to remain at the backyard practically prior to Stockholm Conference of 1972. Nevertheless, a few legislative measures concerning environment enacted were the Factories Act, 1948; the Damodar Valley Corporation (Prevention of Pollution of Water) Act, 1948; the River Boards Act, 1956; the Mines and Minerals (Development and Regulation) Act, 1957; the Atomic Energy Act, 1962; the Insecticides Act, 1968; and the Merchant and Shipping (Amendment) Act, 1970.

During 1972-1993

The pre-1972 environmental legislation in India was marked by regulatory and political stagnation where both the government as well as politicians stalled the protection of environment and prevention of pollution. This had led to tension and suspicion between the environmentalists like *Chipko* and Save Silent Valley movements and the business community and politicians who were vehemently opposed to such environmental concerns. It goes to the credit of Indira Gandhi to approach the issues of environment and development in a spirit of reconciliation and harmony in order to build and preserve a healthy environment without undermining development. Indeed, she was a great environmentalist who devised a humane and realistic legislative strategy for preserving, conserving and enriching India's environmental heritage. Her keen interest in wildlife, her concern for population control and planning, her commitment for removal of poverty, provision for rural and urban housing, drinking water, better sanitation through Twenty Point Programme and above all the passing of the Constitution (42nd Amendment) Act, 1976, etc., are the landmarks in India's environmental history. It is around the legislative framework that late Indira Gandhi created on which the present and future progress of eco-development largely depends. Some of these are the Wildlife (Protection) Act, 1972; the Water (Prevention and Control of Pollution) Act, 1974; the Water (Prevention and Control of Pollution) Cess Act, 1977; the Forest (Conservation) Act, 1980; and the Air (Prevention and Control of Pollution) Act, 1981; besides the Environment (Protection) Act, 1986; and the Public Liability Insurance Act, 1991, which parliament had enacted during the late Rajiv Gandhi's tenure as prime minister.

Although environment protection has been debated, discussed and judicially scrutinized at length, no such corresponding exercise has been undertaken in regard to strategy and practice concerning environmental conservation and management. In India, it is only in the aftermath of Rio Earth Summit (1992) that the urgent need of a long-term strategy for the conservation of our biodiversity⁴¹ was realized as is evident from National Conservation Strategy, 1993.⁴² Nevertheless, the justification of wildlife protection and conservation is little discussed, still less known and much less understood even by wildlife managers and forest fraternity. More than often the policy makers—the ministers, members of legislatures, politicians and bureaucrats ignore or sideline existing wildlife legislation, rules and administrative practices under the cover of bogey of development thereby endangering, degrading and destroying vital natural resources like forests, plants, and wildlife species, etc. Herein an attempt is made to discuss and examine critically the law, policy and practice of the entire gamut of wildlife management with the hope that human specie learn to live with wildlife species not only for the survival of wild animals but also for the very survival of man on this planet.

UNIT - III

INTERNATIONAL CONVENTIONS AND ENVIRONMENTAL MOVEMENTS

International Conventions

International conventions are treaties or agreements among the states on some specific subjects, which require acceptance and action on the part of contracting parties

by way of incorporating the agreed norms or standards in their respective national legislation. In the realm of environmental and resource conservation, most of these conventions are sequel to Stockholm Conference, 1972 and Rio Earth Summit, 1992. India, as an active member in the said UN conferences on environment protection, adopted a large number of conventions, which concern, or relate to India. Moreover, several conventions on endangered species are the result of concerted efforts of International Union for the Conservation of Nature and Natural Resources (IUCN), the World Wildlife Fund (WWF), the United Nations Environment Programme (UNEP), the World Bank and other international non-governmental organizations under the overall aegis of UNESCO. For example, UNESCO's World Heritage Fund is the fountain for providing funds to support the management of main ecosystems of the world-the biosphere reserves-for conservation of representative systems. Similarly, the World Charter of Nature was adopted by the UN in October 1982 for the protection of wildlife species and threatened biospheres.

Biodiversity Protection: The Rio Earth Summit, 1992

The Rio de Janeiro Conference, 1992, popularly known as the Earth Summit, among other things, produced three important international agreements laying down new norms of conduct for the member states for conservation of resources. These three initiatives of global action and international co-operation are:

- (i) Earth Charter
- (ii) Convention on Climate Change, and
- (iii) Convention on Biodiversity.

The Earth Charter

The American astronaut, Edgar Mitchell, when flew to the moon on the board spaceship Apollo 14 in 1971 had described the earth from the moon "like a sparkling blue and white jewel...laced with slowly swirling veils of white... like a small pearl in a thick black sea of mystery..." However, in reality, the earth presents a vastly different dismal picture of filth, pollution, destruction, degradation of resources and poisonous gases and other dangerous chemicals in water and air and on land making survival of living things difficult. In brief, environmental disasters whether natural or man-made directly or indirectly affect the biosphere, damage the earth's resources, result in economic, social and political tensions which in turn create global environmental mess impairing the quality of life for all species including man. The Rio Conference, 1992, therefore, addressed itself to some of these problems to guide the participating 170 member-states by chartering out an action programme of protecting environment without hampering development. The result of the deliberations at the Rio Summit led to Rio Declaration, also known as Earth Charter.

The 27-point Earth Charter pledges global commitment to eradication of poverty, promotion of sustainable development, protection of environment and sustainable use of earth resources. It has laid down the main strands or norms to be pursued by governments and people in their inter and intra relationships in the twenty first century. The Earth Charter envisages a New International Environmental Order by harmonizing global environmental protection and developmental concerns by attempting to ensure satisfactory solutions to global environmental degradation and problem of poverty. The Earth Charter unambiguously places human interests at the centre of sustainable development concerns. While recognizing the right to development, the Rio Declaration qualifies the right in terms of equity and environmental needs of present and future generations. It also advocates a future international regime of liability for adverse trans boundary impacts by stipulating the polluter pays principle (PPP). To be more precise, the Earth Charter embodies the following principles for both the industrialized countries-the group of rich nations of the North and the impoverished countries of South united under the banner of the Group of 77. Some of the main principles in the Earth Charter are (i) State's sovereign right to exploit its own resources in accordance with its policies, without hampering environment elsewhere, (ii) the right to development, (iii) environmental protection as an integral part of development, (iv) sustainable development that requires reducing unsustainable patterns of production and consumption and that promotes appropriate demographic policies, and (v) the polluter pays principle.

Convention on Climate Change

The Convention on Climate Change attempts at controlling emission of green house gases (GHGs) like carbon dioxide, nitrous oxide, chlorofluorocarbons (CFC) and methane into the atmosphere, which are not only warming the earth but also causing drastic climate change responsible for global warming. Such a climate change has deleterious effect on the entire ecosystems including rivers, lakes, forests, wildlife, land, marine life, etc., on account of acid rain a form of precipitation of rain, snow, sleet, fog that contains high levels of acid. At the Rio Summit, the Group of 77 blamed the G-7 the economic super powers for excessive emission and wanted industrialized countries to reduce it. This would have meant a change in their economies and life-styles. The G-7, particularly USA, vehemently opposed it. The Group of 77 charged the North as the biggest polluter and insisted 20 per cent cut in green house gas emission like carbon dioxide and methane by 2005 and also opposed any cut in its own emission as it may hinder their development. The United States 20 which accounts for 22 per cent of the world's carbon dioxide emission was reluctant to be pinned down by any target. Germany, which accounts for 3.2 per cent of the global carbon emission unilaterally committed²¹ itself to 25 per cent cut by 2005. The World Resource Institute (WRI), on the other hand, put India's ranking to sixteenth place. Finally, a compromise was reached which led to the adoption of the framework of the Convention on Climate Change which attempts to restrict and forestall global warming and stabilize emission of green house gases by 2000 and get the emission reduced to 1990 levels. Developing countries were given a ten-year grace period.

The convention established a financial assistance mechanism to support its implementation in developing countries, to be administered by the **Global Environmental Facility (GEF)** on an interim basis. Also, it established institutional mechanism for periodic review and an update of commitments, including scheduling of regular conferences. Finally, two new subsidiary bodies, namely, (i) **Subsidiary Body for Scientific and Technological Advice**, and (ii) **Subsidiary Body for Implementation** were established by the convention. Representatives from 153 countries signed the Climate Change Convention in Rio in 1992. The convention has been ratified by USA, Australia, Japan, China, India, Mexico, and Zimbabwe.

The Biodiversity Convention, 1992

From the point of conservation of biospheres, especially wildlife species and plants, the Convention on Biodiversity is a significant milestone as the world community felt the desirability of protecting the wildlife species and their habitat all over the globe. The developed countries of Group- 7 began pressing for a convention that would declare forests as 'a global commons' and regulate and control its exploitation. They were greatly concerned about the huge genetic destruction and extinction of such resources. However, for the developing countries, forests are a major source of income and wood and a primary source for cooking and any attempt to prevent the use of forests would deny them a primary source of survival. It was, therefore, viewed with suspicion by developing countries and regarded the proposed convention as an infringement of their national sovereignty. Even if they agreed to some conservation they wanted such nations to compensate them for the loss of revenue. India too was firmly opposed to such a convention, which treated forests as global commons. It was strongly felt how an international convention on forestry could govern, manage and protect local forests and wildlife species spread over especially in the less developed countries from global capitals such as Washington, Paris, Rome or London. The forest control and management of biodiversity has to be for the benefit and needs of local people, forest tribal and forest communities. The Minister for Environment, Mr. Kamal Nath, as sorted: "How we deal with our forests is our business. This so called globalizing sinks idea stinks."

The negotiations for a Convention on Biodiversity were plagued by conflict over the financial mechanism, the sharing of benefits and the biotechnology regulations. France originally threatened not to sign the treaty because it did not include a list of global biodiversity-rich regions. Japan threatened not to sign because it feared biotechnology regulations, and USA refused to sign the treaty because of financial obligations and benefit sharing provisions incompatible with existing regimes for

intellectual property rights, etc. Despite such conflicting views among nations, a broad consensus was reached after bitter negotiations, which culminated in the Convention on Biodiversity, 1992. Although only ratifications were needed for it to come into force, 153 states signed it at Rio itself.

The main features of the Convention on Biodiversity are described as under:

1. The Preamble: Core Objectives

The fundamental theme and ethos of the convention embody the holistic message and mission in its preamble of serving, saving and securing a fearless environment to vast and innumerable vanishing wildlife species which otherwise may disappear or lost forever.

Indeed, the Earth Summit's greatest achievement has been the establishment of linkages of understanding between rich and poor states, between *Homo sapiens* and the rest of the living species on the basis of mutual need, survival and fellowship if mutual extinction is to be avoided. It is in the backdrop of awesome destruction of wildlife species that significance of the convention can be understood in its correct perspective. The preamble of the convention is both a commitment as well as guide to the member-states wherein the contracting parties declare their obligations, some of which are:

- States are conscious of the intrinsic value of biological diversity . . . and also of importance of biological diversity for evolution and for maintaining life-sustaining systems of biosphere.
- Affirms that conservation of biological diversity is the concern of human kind.
- Reaffirms that states have sovereign rights over their own biological resources. It further reaffirms that states are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner.
- Recognizes that economic and social development and poverty eradication are the first and overriding priorities of developing countries.
- Awareness that conservation and sustainable use of biological diversity is of critical importance for meeting the food, health and other needs of the growing population.
- Note that conservation and sustainable use of biological diversity will strengthen friendly relations among states and contribute to peace of mankind.
- Determines to conserve and sustainable use biological diversity for the benefit of present and future generations.

2. Sovereign Rights over National Resources

The convention again reiterates that states have, in accordance with the UN Charter and principles of international law, the sovereign right to exploit their own resources pursuant to their own environment policies and the responsibility to ensure that activities within their jurisdiction do not cause damage to the environment of other states beyond the limits of national jurisdiction. However, each contracting party is directed to co-operate with other contracting parties for the conservation and sustainable use of biological diversity in respect of areas beyond their national jurisdiction through competent international organizations for mutual good.

3. Plan for Protecting Habitat and Species

The plan for protecting habitat and species is wide enough to cover wildlife species, which grow in their original surroundings, i.e., *in situ* conservation and wildlife species which exist outside places, i.e. *ex-situ* conservation.

- (i) *In-situ conservation*: The convention makes it obligatory" for each contracting party to:
 - (a) Establish a system of protected area or areas where measures

- need to be taken to conserve biological diversity;
- (b) Develop guidelines for the selection, establishment and management of protected areas;
- (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas;
- (d) Promote the protection of eco-systems, natural habitats and the maintenance of viable population of species in natural surroundings;
- (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;
- (f) Rehabilitate and restore degraded eco-systems and promote the recovery of threatened species;
- (g) Establish or maintain means to regulate, manage or control risks associated with the use and release of living modified organisms resulting from biotechnology... that could affect the conservation and sustainable use of biological diversity, taking also account the risks to human health;
- (h) Prevent the introduction of control or eradicate those alien species which threaten eco-systems, habitats or species;
- (i) Endeavor to provide the conditions needed for compatibility with present uses and the conservation of biological diversity and the sustainable use of its components;
- (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge; and
- (k) Develop or maintain necessary legislation for the protection of threatened species and populations.

(ii) *Ex-situ conservation*

There are identical provisions for the *ex-situ* conservation of components of biological diversity in the country of origin of such components. The framers of the convention felt the need of developing countries to adopt *ex-situ* conservation measures for wildlife species outside the protected areas for complimenting *in-situ* conservation measures, establish and maintain facilities for *ex-situ* conservation of and research on plants, animals and micro-organisms, preferably in the country of origin of genetic resources, for the recovery and rehabilitation of threatened species, and for their introduction into their natural habitats under appropriate conditions; regulate, manage collection of biological resources from natural habitats for *ex-situ* purposes so as not to threaten eco-systems and *in-situ* population of species, co-operate in providing financial and other support for *ex-situ* conservation.

4. Public Awareness and Impact Assessment

For the management and protection of biodiversity resources, the convention

makes provisions for incentive measures, programmes for scientific and technical education and training for the identification, conservation and sustainable use of biological diversity and provide support for such measures, encourage educational and public awareness programmes, introduce appropriate procedures requiring environmental impact assessment with a view to avoiding or minimizing such effects and allow for public participation in such procedures...and examine the issue of liability and redress including restoration and compensation for damage to biological diversity except where such liability is a purely internal matter.

5. Access to Genetic Resources

As already observed, the convention has recognized the sovereign rights of states over their natural resources, the authority to determine access to genetic resources rests with the national governments and are subject to national legislation. However, each contracting party is obliged to facilitate access to genetic resources for environmentally sound uses by other contracting parties and not to impose restrictions that run counter to the objectives of the convention. Of course, the access shall be on mutually agreed terms, with full participation in scientific research of the contracting parties including the sharing of benefits arising from commercial and other utilization of genetic resources on mutually agreed terms.

6. Access to and Transfer of Technology

Like the access to genetic resources, the convention makes mandatory the access and transfer to technology including biotechnology among the contracting parties that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources.

7. Exchange of Information

It enjoins upon the contracting parties to facilitate the exchange of information⁴⁴ from all publicly available resources relevant to the conservation and sustainable use of biological diversity. Such exchange of information includes exchange of results of technical, scientific and socio-economic research as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such etc. For this purpose, the contracting parties may establish a clearing-house mechanism to facilitate technical and scientific co-operation.

8. Financial Support to Biodiversity Plans and Programmes

Each contracting party undertakes to provide as per its capabilities financial support and Incentives in respect of those national activities which are intended to achieve the objectives of this convention, in accordance with its national plans, priorities and programmes. The developed country shall provide new and additional financial resources to enable developing country to meet the agreed full incremental costs of "implementing measures which fulfill the obligations of this convention and to benefit from its provisions... the developed country may also provide and the developing country avail of financial resources related to the implementation of this convention through bilateral regional and other multilateral channels.

9. Conference of the Parties and Secretariat *Implementation Mechanism*

The convention creates two bodies-the conference of the parties and the secretariat-for the implementation of the said convention, the former being in the nature of legislative body and the latter its executive organ. The conference may hold its ordinary meetings at such regular intervals as it deems fit. It can also hold the extraordinary meetings at the request of any party provided it is supported by at least one-third of the parties. It is empowered to adopt rules of procedure for itself or for any subsidiary body by consensus, and to keep under review the implementation of the convention. These are: (a) to establish the form and the intervals for transmitting information and consider such information and reports of any of its subsidiary body; (b) to review scientific, technical and technological advice on biodiversity; (c) to consider and adopt

amendments to this convention; and (d) to establish, such subsidiary bodies for providing scientific and technical advice.

The secretariat is to arrange for meetings of the conference of the parties and to prepare reports on the execution of its functions and to perform such duties as determined or assigned by the conference. Likewise, a subsidiary body on scientific and technological advice is established to provide the conference of the parties timely advice relating to the implementation of this convention and in particular provide scientific and technical assessments of the status of the biological diversity including settlement of disputes with two annexure.

Conservation in India

In retrospect, in India too, the Stockholm Conference on Human Environment (1972) was a turning point, which focused on the need of protecting environment and conserving natural resources. It highlighted the grave problems of poverty, pollution, population and underdevelopment as the main causes of despoliation of environment destruction of natural resources.

The Silent Valley Project

The scheme to dam the Kunthipuzha river and generate 120 megawatts of power had raised a fierce controversy in the late 1970s and is probably the first test case in the country of the supposed conflict between the needs of development and environment.

The Silent Valley Forests, locally known as 'Sairandhrivanam' and considered by many to be one of the last representative tracts of virgin tropical evergreen forest in India, became the focus of India's perhaps fiercest and most widely-publicised environmental debate in the late 1970s, when the Kerala State Electricity Board decided to go ahead with a hydro-electric project in the valley. The project would generate 240MW of electricity and irrigate some 100,000ha of land in the relatively underdeveloped Palghat and Malappuram districts. It entailed the submergence of 830ha, including 500ha of prime tropical evergreen forest.

It was a group of science teachers and other progressive professionals who had banded together under the banner of the **Kerala Sastra Sahitya Parishat (KSSP)** who decided to take a close look at the pros and cons of the project. As the name of the organisation suggests, it first started translating scientific books into Malayalam but then began engaging in debates about environment and development. It published a tract on the pollution caused by Birla's Grasim plant at Mavoor on the Chaliyar river, which has recently been closed down for good. Today the KSSP is one of the foremost environmental groups in the world, with over 50,000 members.

The KSSP correctly assessed that the economic and ecological value of preserving this unique strip of forest, which was uninhabited even by tribals, outweighed the benefits of the power that it would produce. It possessed many types of wild flora and fauna, including a very rare primate, the lion-tailed macaque, the loss of which would deprive Kerala of its biodiversity. As can well be imagined, many of the arguments in favour of such preservation, which have today become commonplace, were difficult to defend three decades ago. Pointedly, the Kerala State Electricity Board asked: "Are monkeys more important than men?"

A task force of the National Committee on Environmental Planning and Coordination, under Dr. M.S. Swaminathan, the then Secretary of Agriculture of the Government of India, and several non-governmental conservation organisations, including the Bombay Natural History Society, Kerala Sastra Sahitya Parishad (Kerala Science and Literature Society) and the Indian Science Congress, urged the Government of Kerala to abandon the scheme but to no avail. The dispute became highly politicised and innumerable state and national organisations, as well as international organisations such as IUCN and WWF, became involved in the 'Save Silent Valley' campaign. In a bid to placate conservationists, the Government of Kerala created a national park in December 1980 which excluded the proposed project site from the area. In November 1983 the hydro-electric project was finally shelved and the present national park declared

a year later, in deference to the weight of public opinion and the sentiments of the then Prime Minister, Mrs. Indira Gandhi.

The Bhopal Gas Tragedy

The *Bhopal Tragedy* refers to the deaths of over 3,000 people in the city of Bhopal in Madhya Pradesh following the accidental release of forty tons of methyl isocyanate (MIC) on December 2-3, 1984. At least 50,000 people suffered significant injury.

The MIC was released from a chemical plant in the city producing pesticides. Owned by Union Carbide, the plant had been established in 1969 and expanded to produce Sevin in 1979; MIC was an intermediate in Sevin manufacture.

The accident was caused by the introduction of water into MIC holding tanks; the reaction generated large volumes of gas forcing the emergency release of pressure. The gas escape was caused as the chemical 'scrubbers' which should have treated the gas were off-line for repairs at the time of release. The majority of deaths and serious injuries were related to pulmonary oedemas, but the gas caused a wide variety of other ailments.

In an out-of-court settlement reached on February 14, 1989, Union Carbide agreed to pay \$470,000,000 to the Indian government for damages it caused in the Bhopal Tragedy. (The original lawsuit was for \$3 billion.) Very little of the settlement money went to the survivors, and people in the area feel betrayed not only by Union Carbide (and chairman Warren Anderson,) but also by their own politicians. On the anniversary of the tragedy, effigies of Anderson and politicians are burnt.

Rates of cancer and other ailments are higher in the region since the event.

The traditional belief of Indians in conserving nature, ecology and non-injury to wild animals is said to be a work of great religious merit. This provided rural communities and forest dwellers fodder, fuel, timber food, medicinal herbs, fruits, vegetables, etc., the conservation of these resources became common concern of common interest. There are testimonies when village folks placed around trees a ring of defense *for* defense of nature whenever trees were imperiled from human vandalism.

Jambhoji-Bishnoi Code of Faith

The great saint and founder of Bishnoi faith a sect of Hindus was Jambhoji Maharaj (1451-1536) who had waged a relentless war against religious superstitions, dogmas, crudities, cruelties, etc., amongst Hindus by preaching love, kindness, tolerance and purity of thought and actions and with no deviation between preaching and practice. These simple principles of day-to-day living and way of life constitute the highest code of conduct which in all are numerically 29-linguistically in local dialect-described Bishnoi 8and those who follow and adhere to these principles are known as Bishnois. A large number of people of the former princely states of Bikaner, Jodhpur, Jaisalmer and Udaipur in Rajasthan in particular and even some of the people in far away Delhi, Uttar Pradesh and Punjab too adopted the Bishnoi way of life and continue to adhere and follow with great solemnity and respect. Out of these 29 principles, several relate to nature conservation, protection of ecology and respect *for* all living and non-living beings which are religiously followed as a matter of faith by all Bishnois. These relate to cleanliness of human settlements, surroundings, regular morning cleanliness, preservation of cleanliness of water, purity of milk and air, kindness, and non-violence towards all living and non-living beings, forgiveness and compassion towards all animals, birds and plants, ban on felling green trees, no castration of bulls, interdicting the use and consumption of opium, tobacco, hemp, liquor, meat, indigo colour, etc.

Immortal Sacrifice for Protection of Khejdali Trees:

Bishnoi Heritage

Scholars tell us how the 'mother' of Khejdali trees, Emarti Devi of Khejdali village of former princely State of Jodhpur, has acquired an immortal place in the firmament of world environment and nature conservation movement. Emarti Devi's soul deeply stirred against the senseless act of rapacious ruler of former Jodhpur State hell bent to cut Khejdali trees was prevented by herself in 1730 placing a ring of defence around the Khejdali tree. The tyrant mowed down the both Emarti Devi and Khejdali tree. Her example was followed by 363 village women of Khejdali who were mercilessly slaughtered by the army of the ruler. Their only crime was the defense of Khejdali trees of the village. Such a supreme and glorious sacrifice by the village women of Bishnoi community is unparalleled in faithfully observing in letter and spirit their way of life as ordained by the great saint. It is also unparalleled as the frail yet spiritually and morally mighty women opposed the ruthless tyrant for the conservation of nature in a non-violent way. Indeed, the Bishnoi code of conduct is a bible *for* contemporary conservationists and environmentalists.

Chipko Movement

In modern times, taking inspiration *from* Khejdali epic sacrifice for the protection of nature, a movement initially led by women for the defense of ecology surfaced in Garhwal Himalayas due to sharp decline in forest cover and destruction of fragile ecosystem by mercenary forest contractors and timber tycoons at the behest of Uttar Pradesh government. It is Gaura Devi and other village women folk who stood as a rock in the protection of forest trees as their survival was linked with forests. This is because mass felling of forests had led to landslides, soil erosion, floods and it is mainly the women who bore the brunt of ecological damage involved in forest destruction. Thus, the movement called *Chipko* (clinging or hugging trees) emerged suddenly wherein people at the grass roots clung to trees in order to save them even if the contractors' axes axed their heads or stomachs. As a movement for conservation of forests, it has had direct bearing on wildlife too which can flourish and sustain only ecologically healthy environment. As the late Prime Minister Indira Gandhi also spoke in the same strain when she remarked that "India's philosophy has always been one of respects for all living creatures. So all life has flourished in our country. We have had great numbers and vast variety in our forests and wildlife. This lends colour and distinction to the national scene".

Conservation : Emerging Strategies

A concern for the protection of wildlife species had been launched by International Union for the Conservation of Nature and National Resources (ICUN) along with World Wildlife Fund (WWF) at the global and national levels which, had led to the establishment of national parks and sanctuaries by several countries for the conservation of wildlife heritage and natural resources. In India, the Bombay Natural History Society and the Zoological Survey of India made efforts for conservation of nature and wildlife, especially endangered species. Accordingly, India too followed suit and established a series of protected networks (PNWs) for the purposes of propagating protecting and conserving wildlife species by reserving areas wherein human interference, access and encroachment was prohibited. Even separate sanctuaries and parks have been established for the protection of a specific variety of wildlife species, such as lion, elephant, rhinoceros, reptiles, crocodiles, hungul, etc. These moves for conservation have initially originated mainly due to shared concern and need as echoed at different international conferences on environment such as Stockholm Conference (1972) and Nasobi Conference (1982) wherein policy-makers, conservationists, and industry, commerce and trade unions felt the need of policy guidance in the interest of harmony between development and environment. In this backdrop, the World Conservation Strategy was launched in 1980 to harmonize development and conservation. As a follow-up measure, India also came out with her own conservation strategy to strengthen linkages between conservation of wildlife species and the needs of forest communities and other rural people as well as eco-protection and development.

The World Conservation Strategy, 1980

The World Conservation Strategy (WCS) was launched in 1980 with a view to stimulate eco-protection and nature conservation in developmental processes in order to protect vulnerable and endangered species and ecosystems from the maze of development, population explosion and motivate forest communities to meet and fulfill their needs in a manner that does not destroy the ecosystem but helps towards the protection of wildlife. With the following main objectives, the World Conservation Strategy was launched:

- (i) to maintain essential ecological processes and life-support systems,
- (ii) to preserve genetic diversity on which depends the functioning of life-support systems, and
- (iii) conservation of biological diversity.

This strategy has been formulated by the ICUN and the WWF. The ICUN is the apex body towards which other national agencies for conservation look for guidance and direction on conservation policy matters. Being an inter-governmental organization, the state governments, all national park services, WWF and national bodies concerning nature conservation are its members. Its main function is to provide expertise and guidance on all aspects of conservation.

Conservation Strategies in India

India's strategies, programmes and plans concerning conservation emanate from the WCS. Its object is to build and preserve an equitable and ecologically sustainable society that is self-reliant in keeping with the spirit of our constitutional goals. Thus, India's National Conservation Strategy, 1980 derives its form and content from WCS. It pinpoints causes and factors responsible for the destruction and dwindling of natural resources, such as commercial greed, exploitative development like big power irrigation and nuclear projects, use of inappropriate and unsafe technologies, urbanization, population explosion and use of fuel, fodder and timber by the poor by limits. Some of such activities like Tehri, Narmada, Sardar Sarovar, Pooyamukutty, Subarnrekha, Bodhghat, Konkan Railway Project (KRD), Narora, Kaiga;andBalipal missile testing range, etc., are a living mass grave of our biodiversity depredations and extinction. Hence, the measures suggested for conservation and sustainable development are dubbed by populist politicians as anti people and anti-development.

(i) Conservation Strategy, 1992

In 1992, the Government of India, to minimize pressure on environment and natural resources, brought out a blue-print of National Conservation Strategy and Policy Statement on Environment and Development which has laid down guidelines that will help to weave environmental considerations into the fabric of our national life and developmental process. In a way it is claimed to be 'an expression' of our commitment for reorienting policies and actions in unison with environmental perspective. It is indeed a comprehensive policy statement containing every thing on conservation like environmental problems-nature and dimension; action taken e.g., legal, institutional, prevention and control of pollution, conservation of forests and wildlife, land soil, environmental impact assessment, constraints and agenda for action; priorities and strategies for action; conservation of natural resources, e.g., land and water, atmosphere, biodiversity, biomass, development policies from environmental perspectives, agriculture and irrigation, animal husbandry, industrial development, mining and quarrying, tourism, transportation, human settlements, international cooperation, support policies and systems, e.g., strengthening institutions and legislation, natural resources accounting, training and orientation programmes, promoting environmental awareness, promoting appropriate technologies, rehabilitation of project ousters, role of non-governmental organizations, women and environment, partnership role of centre and state governments, etc. In short, the National Conservation Strategy 1992 makes many promises to keep in regard to conservation of natural resources, especially of wildlife, but perhaps lacks conviction and betrays inaction when the question of implementation comes.

(ii) Wildlife Action Plan, 1983

Another significant plank of wildlife conservation is the policy perspective document--the Wildlife Action Plan, 1983, providing a framework of strategy as well as action programme for wildlife conservation. An action-oriented programme, it was launched with the participation and support of appropriate and competent authorities and voluntary non-governmental organizations (NGOs). Its main components are:

(a) Establishment of a Representative Network of Protected Areas

It envisages to establish a network of scientifically managed protected areas such as national parks, sanctuaries, biosphere reserves, etc., to cover representative and viable samples of all biogeography sub-divisions within the country. Such protected areas should have an adequate geographic representation. To achieve the said objectives, the Wildlife Action Plan provides for the action required to be taken, such as a review classification of protected areas, review location, size, ecological composition, establish new protected areas in relation to biogeography zones, etc. As regards priority projects, the Wildlife Action Plan requires review status of the existing protected area, draw-up proposals for adding more areas under protected status, draw-up recommendations for the improvement of the management of presently poorly managed protected areas, etc.

(b) Management of Protected Areas and Habitat Restoration

Its main objective is to develop appropriate management system for protected areas with due regard to the needs of the local people and ensuring their support and involvement, restore degraded habitats to their natural state, and build up a professional cadre of personnel fully trained in all aspects of wildlife and sanctuary management.

(c) Wildlife Protection in Multiple Use Areas

It makes an attempt to provide adequate protection to wildlife in multiple use areas so as to form corridors linking up protected areas and providing for genetic continuity, etc.

(d) Captive Breeding Programmes

Its underlying purpose is to support the management of captive propagation and breeding programmes for plants and animals for reintroduction of threatened species.

(e) Wildlife Education and Interpretation

The WII is to promote and support wildlife education and interpretation aimed at wider public appreciation of the importance of wildlife to human betterment. As regards 'action required' under this subject aims at to address wildlife education to different target groups particularly (i) politicians, decision-makers and administrators; the general public including school and college students at all levels; communities living in and around the wildlife areas to educate visitors to the protected areas and zoological parks... support for the non governmental organizations.

(f) Research and Monitoring

Its another objective is to develop research and monitoring facilities to provide scientific understanding of wildlife populations and habitats essential to their proper management and where appropriate their utilization with this in view as a priority project to set up a national committee on wildlife research, set up national data bank on wildlife ecosystems, institute research training at the Wildlife Institute of India with assistance from FAO, to encourage university departments in post graduate teaching and research in wildlife and set up units in key protected areas.

(g) Domestic Legislation and International Conventions

It reviews and updates statutory provisions providing protection to wildlife and regulating all forms of trade so as to ensure their current effectiveness. It also envisages the participation in international conventions designed to prevent the depletion of wildlife resources and to provide protection to migratory species.

(h) National Conservation Strategy

It assists in the formulation and adoption of National Conservation

Strategy for all living natural resources on the lines of the World Conservation Strategy launched in 1980.

(i) Collaboration with Voluntary Bodies

It makes collaboration with voluntary bodies and agencies in the total wildlife conservation effort represented by the Wildlife Action Plan.

UNIT - IV

BACKGROUND OF ENVIRONMENTAL LEGISLATION IN INDIA

Our Country has a rich heritage of tradition, culture and religious belief. Even from the time of Rigveda we believed in worshipping nature, e.g. air, water, sun sky, earth, trees, etc. There are numerous hymns, and '*slokas*' in our religious books.

Perhaps, the first written document in this regard is the Kautilya's *Arthashastra* written around 300 BC. Though this book mainly dealt with economics, finance and foreign policy, one part is entirely devoted to nature and environment.

Basically we Indians love nature and try to maintain harmony with nature. We worship Gods, Goddesses, as well as trees, cows, and snakes. Even after industrialization, every village has a big tree with a large canopy where public meetings, and functions are held.

PRE- INDEPENDENT-PERIOD

We have no written document available on laws on environment for the Hindu period, or Moghul periods. However there were customary laws, conventions, etc., which guided the public life. Moreover there was no pressure from Industry and population on environment at that time. With the growth of industry and advancement in knowledge of science, it became necessary to have some regulatory measures for abatement of environment pollution.

The first in this direction was Indian Penal Code (IPC) enacted in 1860 by the British Government, in which chapter XIV has devoted on offenses affecting public health, safety, convenience, decency and morals.

Some of the sections of IPC in this regard are given below:

Section 268	Public nuisance
Section 269	Negligent to spread infectious diseases
Section 272	Adulteration of food or drink intended for sale
Section 274	Adulteration of drugs
Section 277	Fouling water, spring, reservoir
Section 278	Polluting atmosphere
Section 284, 285, 286 matter	Negligent conduct of poisonous substance, combustible and explosive substance
Section 428 & 429	Dealing with mischief to animals

All the above offenses will attract fines of Rs. 1000 or 6 months imprisonment, or both. A few more legislations were made in Bengal and Bombay presidency to deal with smoke, gases and other pollutions, e.g.

- (i) The Oriental Gas Company Act 1857 and The Bengal Smoke Nuisance Act. 1905 to prevent or reduce atmospheric pollution in and around Calcutta.
- (ii) The Shore Nuisance (Bombay-Kalova) Act 1893 to check coastal and marine water pollution.
- (iii) The Bombay Smoke Nuisance Act 1912 to check smoke nuisance in Bombay area

For preservation of Forest, Fishery, etc., the Cattle Trespass Act 1871, Indian Fisheries Act 1897, and Indian Forest Act 1927 were passed. To prevent accident from Explosives and Boiler, the Explosive Act was passed in 1908, and the Boiler Act was passed in 1923.

POST -INDEPENDENT PERIOD (1947-1972)

The Factories Act 1948 can be considered as the pioneer among the post Independent enactments, which contain substantial provisions for the control of environmental pollution. The Factories Act provides the liquid effluents; gases and fumes generated during a manufacturing process should be treated before their final disposal to minimize the adverse effects.

The act is applicable to mineral beneficiation plants, and mineral-based industries located outside the mine. Few more legislations concerning safety and environment were passed during the period.

- i. The Mines Act 1952
- ii. The Merchant Shipping Act 1958
- iii. The Atomic Energy Act 1962
- iv. The Wildlife (protection) Act 1972
- v. Insecticides Act 1968
- vi. The ancient monuments and archaeological sites and remains Act 1958
- vii. River Boards Act 1956
- viii. The Inter-State Water Dispute Act 1956

But actual legislative measures on environment protection came after Stockholm (Sweden) Declaration in 1972, and 42nd constitutional amendment in 1976.

CONSTITUTIONAL PROVISIONS ON ENVIRONMENT

(a) Directive Principles

Article 48A

(inserted in 1976) The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

Article 49

It shall be obligation of the State to protect every monument or place or object of artistic and historic interest, declared by or under law by parliament to be of national importance, from spoliation, disfigurement, destruction, removal, disposal, or export as the case may be.

The directive principles are guidelines for future law making, but shall not be enforceable by any court as clarified in Art 37.

(b) Fundamental Duties: (Introduced in 42nd Amendment)

Art 51A(g)

To protect and improve the natural environment including forests lake, rivers, wildlife, and to have compassion for living creatures. Now protection of environment has attained the status of a joint venture, or a cooperative of the Government and the people.

(c) Delegation of Legislative Power between Union and States

Under Article 246, subject matter of laws have been grouped under 3 lists, namely-(i) Union list, (ii) State list, and (iii) Concurrent list, in the seventh schedule of the constitution. Regulation of Mines and Minerals (entry no 54) and Regulation of labour and safety in mines and oilfield (entry no 55) are in the Union list. Accordingly M M (R & D) Act, and Mines Act were made by the Central Government. However, Forests, wildlife and birds which were in the State list, have been brought into Concurrent list (entry no 17 A and 178) in 42nd amendment. But water and land still remain in State list.

NEW LEGISLATIONS! AMENDMENTS DURING 70'S AND 80'S

The following new legislations or amendment of old legislations have been made to protect the environment and ecology of the country including the mining areas:

- (1) Water (Prevention and Control of Pollution) Act 1974, and Rules '75
- (2) Water (Prevention and Control of Pollution) Cess Act 1977, and Rules '78
- (3) Air (Prevention and Control of Pollution) Act 1981 and Rules '82
- (4) Environment (Protection) Act 1986 and Rules made there under
- (5) Public Liability Insurance Act 1991
- (6) Forest (Conservation) Act 1980, and Rules 1981
- (7) Wildlife (Protection) Act 1972 and further amendments
- (8) Amendment of M M (R and D) Act 1957 in 1986 and Mineral concession

- Rules 61 (with amendment) and Mineral conservation and development Rules 1988.
- (9) Mines Act 1952 (with amendment); Coal Mines Regulation and Metalliferous Mines Regulation, Mines Rules, (with amendment to improve working conditions).

Scope and Limitations

It is a very difficult task, to give details of each Act and Rules, Regulations, notifications and guidelines issued under these Acts, which will be too voluminous for easy comprehension.

Therefore an attempt has been made to give a gist of the above Acts, and Rules with comments along with a few formats and flow-charts for day-to-day use of environmental scientists and engineers. The write-up has avoided the complicated language of the law, but made it easy for students, scientists and professionals. It may serve to some extent to legal practitioners for easy reference, but he may have to consult the authentic version of the Act and Rules to fight out a case in the court of law.

In addition to the Acts and Rules, some of the policies, such as (i) Policy statement on abatement of pollution, environment and development, (ii) National Forest Policy, (iii) Statement of industrial policy, and (iv) Mineral policy etc. and a few case laws relating to mining and environment will be also dealt.

The Water (Prevention and Control of Pollution) Act 1974(Amended in 1978, 88)

(Only abstract of important provisions and comments)

After Stockholm Conference on Human Environment in June 1972, the Government of India considered appropriate to have an uniform law all over the country for the prevention and control of water pollution, through Central and State Pollution Boards to be created for the purpose.

Since water is a state subject the parliament has no jurisdiction to make legislation on water pollution. Therefore in pursuance of clause (1) of article 252 of the constitution, most of the state legislatures passed resolutions authorising parliament to make laws in this regard. Accordingly the parliament passed the Water Act in March 1974 and it applies to the states which, passed resolution. Other states followed it subsequently.

The Act provides for prevention and control of pollution and restoring wholesomeness of water and establishing Boards for carrying out such functions.

Important provisions of this Act. are discussed:

Chapter I

Section-2 Definitions of Pollution, sewage effluent, sewer trade effluent, streams etc. have been laid down.

The definition of pollution is quite adequate and comprehensive and covers all chemical, physical and biological aspects of pollution of water and covers damage not only to human health, but also to the life of animals, plants or of aquatic organisms.

The definition of stream includes river, water course inland water, subterranean waters, and portion of sea and tidal waters notified by State Governments. Trade effluent means any substance discharged from any premises carrying any industry operation, process, or treatment or disposal system other than domestic sewage.

Chapter II

Section 3

Constitution of Central Pollution Control Board

A 15 member board with a full-time chairman and a

member

secretary.

Section 4

Constitution of State Pollution Control Boards: 15 members

board with a full or part time chairman and a member secretary. In many states, a politician (minister, MP or MLA)

have been made part-time chairman.

Section 5 to 12

Terms and conditions of service of members, holding of meetings, Constitution of Committees, Appointment of Consultants etc.

Chapter IV Powers and Functions of Boards

Section 16

Functions of Central Board

Its main function is to promote cleanliness of streams and wells all over India and advise Central Government on matters concerning water pollution.

It had a prominent role in Ganga-Action plan. It has also launched Yamuna Action plan, Damodar River cleaning plan and a few other rivers of South India.

It can also coordinate activities of State Boards, provide technical guidance to State Boards, carry out investigations, sponsor research work, train personnel, make publicity for prevention of water pollution, etc.

It can collect compile and publish technical and statistical data and prepare manuals, codes, etc.

It has published about 200 bulletins codes etc., on different aspects of air and water pollution. It can lay-down, modify or annul, in consultation with State Governments, the standards of a stream or well.

The board may establish or recognise Laboratories for analysing water from streams, wells, sewage and trade effluents.

Section 17

Functions of State Board

The functions of State Board are similar to central board, within the jurisdiction of the State Concerned. However, it has been given power to inspect sewage or trade effluents of works and plants and lay down standards of such treatments in connection with grant of consent as required by this Act. It can also advise State Government with regard to location of Industry.

Section 18

The Central Government can give directions to Central Board. The Central Board or State Government can give direction to State Boards. If there is inconsistency in the directions between Central Board and State Government the matter shall be referred to Central Government.

Chapter V Regulatory Powers

Section 19

The State Government can restrict the application of this Act and Rules to specified areas. However, all the State Governments have brought the entire State under review of this Act.

	Section 20	The State Boards can obtain information from industry, as well as collect information on quantity and quality of water in stream, sewage and trade effluents.
	Section 21 : and 22	These sections enable the State Board to take samples from any sewage or trade effluents and send for analysis. The procedure for taking sample, analysis and reporting has been spelt-out. If the sample is not drawn as per subsection 3, 4, and 5 of section 22, it shall not be admissible in legal proceedings.
	Section 23	The persons empowered by State board shall have a right at any time to enter any place for performing the functions of board and examining any plant, record, register, document. They will have power of search and seizure.
No	Section 24	It prohibits use of stream, or well, or sewer, or land for discharge of any poisonous, noxious, or polluting matter.
	Section 25	<p>person shall impede the proper flow of stream which may aggravate the pollution.</p> <p>No person shall without previous consent of State Board, (Important) establish any industry, operation or process or treatment system, which is likely to discharge sewage or trade effluents into stream or land.</p> <p>An application for consent with requisite fee has to be made in prescribed form (annexed). The State Board after making necessary inquiry may grant with specific conditions or refuse it by stating reasons recorded in writing. If nothing is heard from State Board within a period of four months after making application, it will be unconditioned deemed approval.</p> <p>This consent clause has been introduced only in 1988 amendment of the Act. This has largely strengthened the hand of State Boards and also increased income. The consent is given for one to 3 years, after which the industry has to ask for renewal with prescribed fee.</p>
	Section 26	Provision regarding existing discharge of sewage or trade effluents. The existing industries had to also apply for consent for regularization.
	Section 27 <i>Review</i>	: The State boards will have reviewing power for the conditions imposed under section 25 and 26.
	Section 28 <i>Appeals</i>	Any person aggrieved by the order of State Board, can appeal to an appellate authority consisting of one to three persons appointed by State Government, within 30 days in prescribed form with requisite fee.
	Section 29 <i>Revision</i>	The State Government will have power of revision of order of State Boards under section 25, 26 and 27, till the matter has not been referred to appellate authority.
	Section 30	Power of State Board to carry out work relating to

conditions imposed in the letter of consent, after giving adequate time and notice and recover the expense as arrears of land revenue.

Section 31 Furnishing information by industry or local bodies to State Boards for accidental discharge of pollutants into stream, well, sewer, or on land.

Section 32 Emergency measures: The State Board can carry out such temporary measures to remedy the pollution.

Section 33 Power of Board to make applications to courts for restraining apprehended pollution of water in streams and wells.

Section 33A (most Imp.) Power to give directions by the Board and to direct the closure, regulation of industry, operation or process or stoppage regulation of water and electric supply. This section was added in 1988 to give more power to the boards.

Chapter VII Penalties and Procedure

Section 41, 42, 43, 44, 45 and 45A.

(All these sections were amended in 1988, giving a wide power to the courts for control and abatement of water-pollution).

Most of the penalty provisions were enhanced in 1988, to give more power to the board.

Section 46 The list of offenders shall be published, at their cost.

Section 47 In case of company, the director, manager, or secretary of the company shall be prosecuted.

Section 48 In case of Government Department H.D.D. shall be deemed to be guilty, unless he proves that offense was committed without his knowledge or even after taking necessary steps.

Section 49 The complaint shall be filed in the court not inferior to
Judicial
board,
the
Magistrate of 1st class by an officer authorised by the
or
by any person after giving 60 days' notice to the board in
prescribed format. The board shall make available relevant
reports to such complainant.

The court of 1st class magistrate has been empowered to pass sentence of imprisonment exceeding two years or fine exceeding Rs. 2,000.

Section 50 The officers and servants of the boards shall be deemed to be public servants within the meaning of section 21 of penal code.

CHAPTER VIII

Section 51 Establishment of Central Water Laboratory or recognition any other laboratory.

Section 52	Establishment of State Water Laboratory or specify any other laboratory.
Section 53	Notification of analyst by Central and State Government.
Section 54	Reports of Government analysts may be used as an evidence, provided samples have been drawn as per the procedure laid down.
Section 55	Local bodies will assist the board in furnishing information.
Section 56 to 59	Miscellaneous general clauses.
Section 60	This Act has an over-riding effect over other laws.
Section 61 and 62	Power of Central/State Government to supersede the boards due to inefficiencies.
Section 63 Board. the	The Central Government shall make rules for Central Future amendments, etc. shall be made in consultation with board.
Section 64	Similarly the State Government shall make rules for State boards and amend it in consultation with the board.

The Air (Prevention and Control of Pollution) Act 1981 (Amended in 1987)

Preamble

An act to provide for prevention, control and abatement of airpollution, and for establishment of boards to carry out the functions.

It came into force from 15.5.1981. Since this Act came much later than the water Act, most of the sections are similar to the water Act 1974.

The Central and State Boards for water pollution control were also assigned the function of air pollution control, and by amendment made in 1987, these Boards were redesignated as Central Pollution Control Board and State Pollution Control Board.

Therefore The Air Act is not discussed in detail, but only important specific provisions for air pollution are dealt herewith.

Section 2 : Definitions

- (i) Air pollutant - means any solid, liquid, or gaseous substance [including noise] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

[The words 'including noise' was inserted during amendment in 1988]
- (ii) Air pollution - means the presence in the atmosphere of any air pollutants.
- (iii) Control equipment - means any apparatus, device, equipment or system to control the quantity and manner of emission of any air pollutant and includes any device used for securing the efficient operation of any industrial

plant.

- (iv) Emission - means any solid or liquid, or gaseous substance coming out of chimney, duct or flue or any other outlet.

Chapter III Power and functions of Central and State Boards

Under Section 16(2)(h), CPCB has amended National Ambient Air Quality (NAAQS) Standards in April 1994 which is enclosed.

Chapter IV Prevention and Control of Air Pollution

Section 19 Power of State Government to declare air-pollution control area after consultation with State Board. (Most of the States have declared the whole State as air-pollution control areas. However, Goa, HP, Kerala, MP, Maharashtra, UP have notified specific areas where industry is concentrated.

Section 20 The State Government in consultation with State Board can direct Motor Vehicle Department to ensure the standards of emission of air pollutants laid down by State Board.

Section 21 No person shall without the previous consent of State Board establish or operate any industrial plant in an air-pollution control area. An application for consent shall be submitted in prescribed form with requisite fee (copy enclosed for union territories).

[The procedure for grant, refusal, and appeal are same as the water Act 1974].

Section 28 and 29 Establishment of State Air Laboratory and Government analysts (procedure is same as water Act).

Section 31A The Board can issue any directions in writing to any person, authority for (a) closures prohibition, or regulation of any industries or (b) stoppage or regulation of supply of electricity, water or any other service.

Chapter VI Penalties and Procedure - Same as Water Act

Chapter VII Miscellaneous

Section 50 Power to amend schedule I, giving list of specified industry has been deleted along with schedule. Now the Air Act is applicable to all industries.

Section 52 Except the Atomic Energy Act 1962, in relation to radioactive pollution, this Act will have effect notwithstanding anything inconsistent therewith contained in other enactment.

Section 53 Power of Central Government to make Rules mainly in respect of functioning of Central Board, and Committees for the union territories.

Section 54 Power of State Government to make rules in all matters relating to the State.

The Environmental {Protection} Act 1986 Background

Background

After Bhopal disaster in 1984 claiming 3000 lives or so, the Central Government enacted the Environmental (protection) Act in May 1986. It came into force in whole of

India on 19th November 1986.

It is one of the most stringent Act that Government has passed to protect the environment and prevention of hazards to human beings, living creatures, plant and properties.

A synopsis of the Act is given below:

Section 2

Definitions

Environment

It includes water, air, and land and the interrelationship which exists among and between water, air, and land and human beings, other living creatures, plants, micro-organism and property.

Environmental pollutant

Means any solid liquid, or gaseous substances present in such concentrations as may be or tend to be injurious to environment.

Handling

Means the manufacture, processing, treatment packages, storage, transportation use, collection, destruction, conversion, offering for sale or transfer or like of such substance.

Hazardous substance

Means any substance or preparations which by reason of its chemical or physico-chemical properties or handling is liable to cause harm to human beings, other living creatures plant, micro-organism, property or environment.

Occupier

In relation to any factory or premises means a person who has control over the affairs of the factory or the premises and includes in relation to any substance, the person in possession of the substance.

Section 3

The Central Government shall have the power to take all such measures for purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution. It includes to all or any of the following matters.

- (i) Co-ordinate action of State Government, officers and other authority in relation to this Act, or any other relevant Act.
- (ii) Plan and execute nation wide programme (Like Ganga Action Plan).
- (iii) Laying down the standards for quality of environment, e.g. air and water standard and emission or discharge of pollutants. The schedule I to VI of E P Rules have laid down the standards, which have been dealt in E P Rules.
- (iv) Restriction of areas where certain industries/processes will not be carried out (Dehradun Valley, Aravalli Hills etc.).
- (v) Laying down procedures and safeguards for prevention of accidents.
- (vi) Laying down procedure for handling hazardous substance (separate Rules have been framed in 1989).
- (vii) Examination of manufacturing processes, material, and sub stance, which are likely to cause environment pollution.
- (viii) Carry out, sponsor investigation and research.
- (ix) Inspection of any premises, plant equipment by such officers, authorities.
- (x) Establish or recognise, environment laboratories and institute.
- (xi) Collection and dissemination of information.
- (xii) Preparation of manuals, codes and guides.

Section 3(3)

The Central Government may constitute an authority(es) for the purpose of performing such functions under the Act (e.g. Impact Assessment Agency (IAA) has been created by recent notification of January 1994).

Section 4 The Central Government may appoint officers and entrust them such powers and functions as it may deem fit.

Section 5 The Central Government may issue directions in writing to any person, officer, or authority, and they shall be bound to comply with such directions.

It will have power to direct closure, prohibition, or regulations of any industry, operation and process or stoppage/regulation of supply of electricity or water. The Central Government has already delegated powers under section 5 to all State Governments by different notifications during 1988 to 1991.

Section 6 The Central Government may make Rules in respect of all or any of the following matters

- (a) Standards of quality of air, water or soil, for various areas and purpose.
- (b) Maximum allowable limits of concentrations of pollutants
- (c) Procedures of handling hazardous substances.
- (d) Prohibition and restriction on handling of hazardous substances.
- (e) Restriction on location of industries.
- (f) Prevention of accidents.

Section 7 No person shall discharge or emit any environment pollutants in excess of prescribe standard (as per schedule I of E.P. Rules)

Section 8 No person shall handle hazardous substances except in accordance with procedure laid down under Rules made on this regard. (In consequence the following 3 rules have been made under E.P. Act. :

- a. Hazardous wastes (Management and Handling) Rules 1989.
- b. Manufacture, storage and import of Hazardous chemical Rules 1989.
- c. Rules for the manufacture, use import, export, and storage of Hazardous Micro-organisms, Genetically Engineered organisms, or cells.

Section 9 (& Rule 12 of E.P. Rule)

Where discharge of any pollutant in excess of prescribed standards occur or apprehended to occur, the person concerned shall be bound to prevent or mitigate the pollution, and shall forth-with intimate the fact to such authorities/ agencies as may be prescribed. They shall take such remedial measures as necessary. The cost shall be recovered from the polluter. Vender Rule - 12 of E.P. Rules the following authorities have been prescribed in Schedule II (Rel) numbered as Schedule - V in amendment of May, 1993).

- i The officer-in-charge of the emergency or disaster relief operation in a district/Region of State/V.T.
- ii (ii) Central Board or State pollution Board, and its regional offices.
- iii Statutory authorities or agencies, as per schedule II : of E P Rules and also to MOEF, viz.

- a. Establishment under atomic Energy Act - Atomic Energy, Regulatory Board.
- b. Establishment under Factory Act - Chief Inspector of factories + local officer.
- c. Mines under MMRD Act - e.g. IBM + Regional controller of mines concerned.
- d. (d) Ships - D.G. shipping + concerned surveyor.
- e. (e) Motor vehicles - State Regional Transport authority.

Section 10

Person empowered by the Central Government in this behalf shall have a right to enter at all reasonable times any place for (a) performing any function entrusted to him, (b) for seeing compliance position of any direction (c) for examining and testing any equipment plant, record, document, search object, and seizure.

The Central Government has empowered 60 officers of different Government agencies vide notification no. 83E dt. 16.2.87 and 18.1.88. A list of some agencies concerned with mines are given below:

No	Agency / Officer	Appointed Under
1	Chief Inspector, Addl. Chief, Joint Chief, Deputy Chief Inspector of Factories	Factory Act 1948
2	C.G., C.COM, RCOM, DCOM	MMRD Act, 1957
3	Chief, Joint Chief, Deputy Chief Controller of Explosive	Explosive Act 1884 and Rule 1983 and The Petroleum Act 1934
4	Chief Inspector of Mines Safety	Mines Act. 1952
5	Chief Dy. Chief Inspectors of Boilers	Indian Boiler Act 1923

Section 11 & Rule 6 The Central Government or any officer appointed on this behalf shall have power to take samples of air, water, soil, or other substance from any factory, premises and place in such manner as prescribed (under Rule 6 of E.P.R.) For legal validity authorised person shall (1) serve notice to the occupier, a notice then and there. (2) take sample in the presence of occupier or agent (3) the container shall be sealed and signed by the parties, (4) send it immediately to recognised laboratories.

All the 60 officers authorised under section 10 of E.P. Act have been also authorised to take samples under this section.

Section 12

(Establishment/Recognition of Environment Laboratories)

The Central Government may by notification establish one or more Environment laboratories and recognise one or more laboratories or institute as Environment Laboratories.

The Central Government in turn has delegated this power to Central Pollution Control Board vide notification no. So 145 (E), dt. 21.2.91, published on 27.2.91 for approval of laboratories run by Government department, Education Institutes, V.T. Board, etc. However, recognition of private laboratories will be done by Central Government. The Central Government has so far (up to 10.5.90) recognised 84 laboratories in the countries as notified from time to time.

The names of the analyst have been incorporated in the list. A list of a few recognised laboratories are given below:

1. Most of State Pollution Control Board Laboratories.
2. Vimta Laboratory, Hyderabad.
3. Essen & Co., Bangalore
4. Environment Engineering Laboratories, Walchand College of Engineering, Sangli, Maharashtra.
5. Department of Agriculture Chemistry, Akola
6. Laboratory of Environment Engineering Section, Civil Engineering Department, Roorkee
7. Trace Metal Environment Laboratory, Department of Bio-chemistry, P.G.I. Chandigarh
8. Central Food Laboratory, Kyd, st., Calcutta.
9. M.P. State Forest Research Institution, Jabalpur
10. Department of Microbiology, University of Poona.
11. UCIL - Jaduguda
12. R & O Laboratory, POI Ltd., Sindri
13. National Institute of Occupation Health, Ahmedabad
14. Environment Engineering Laboratory, Venkateshar University, Tirupati
15. Environment Engineering Laboratory, REC, Allahabad
16. Environment Science Laboratory, G.B Pant University of Agriculture, Pantnagar, Nainital
17. Hindusthan Anti Biotic Research Centre, Pimpri, Pune
18. Environment Engineering Laboratory, IIT, Khoragpur
19. CMRS, Dhanbad
20. All refineries
21. Post Graduate Department of Pollution Studies Laboratory, YC college of Science, Karad MS
22. MECON, Ranchi 23. NIO, Donapola, Goa 24. IBM, Nagpur

Section 13 and

Rule 10 Recognition of Government analyst for laboratories established under

The qualification of Government analyst has been prescribed under Rule 10 of E.P. Rules, as follows:

- (a) Science graduate with 5 years experience
- (b) Post graduate in Environmental Science or graduate in Engineering or medicine with 2 years experience.

Section 14 Any document signed by Government analyst may be used as evidence.

Section 15 (Penalty) - The penalty for contravention of the provision of Act, Rules, or order made there-under, has been prescribed up to Rupees one lakh and imprisonment up to 5 years, or with both.

For continued violation, the fine will be @ Rs. 5000 / day after the conviction for first such failure. If violation continues for more than a year, the offender shall be punishable with imprisonment up to 7 years.

Section 16 Offenses by the company Fixing on responsibly to any director, manager, secretary, or other officer.

Section 17 Offenses by Government Department H.O.D. shall be

deemed to be guilty of the offence, unless, he proves that the offence was committed without his knowledge. No court shall take cognizance of offence under this Act, except on complaint made by

a) Central Government or any authority or officer authorized in this behalf.

(The officers authorised here been notified in gazette notification no 394(E) dt. 16.4.87 and also in March, August, 1989 as follows)

Officer	Jurisdiction
1. Director, JS, Advisor, AS to MOEF	Whole of India
2. Chairman and member secretary C.P.C.B.	Whole of India
3. Secretary of Dept. of Env. of states and chairman or member secretary of S.P.C.B.	Whole State
4. Collector	Whole Dt.
5. Regional officer's of C.P.C.B.	Regional area
6. Regional officer's of S.P.C.B.	Area under jurisdiction
7. Regional, zonal officer or Director of Ganga project	Area of Ganga action present
8. DS, Director, JS, AS of Ganga project	Whole of states where Ganga action plan is implemented
9. Joint Director (legal) MOEF	Whole of India

Section 20 Information, reports, returns statistics, a/cs, have to be furnished by any person, officer, State Government or other authority, wherever required, to the Central Government.

Section 21 All members of the authority constituted under section 3 of this Act and their officers and employees shall be deemed to be public servants as per section 21 of PC.

Section 22 No Civil Court shall have jurisdiction to entertain any suit for action taken by Central Government or any other authority, when acting in pursqrance of this Act.

Section 23 Powers of Central Government to delegate its power and function to State Government/ authority officer subject to limitations and conditions.

Section 24 Effect of other laws
This Act will have overriding effect over other laws

When an offense has been committed under this Act, and also under any other act, the offender shall be punished under the other Act and not under E.P. Act.

(This has slightly diluted the power as penalty provision under other acts are liberal).

- Section 25** Power to make Rules - (E.P. Rules, Hazardous substance Rule, Hazardous Chemical Rules and Hazardous Microorganism Rules have been framed).
- Section 26** Every Rule have to be laid in each house of parliament for 30 days. It may be modified or annulled as directed by parliament.

Wildlife (Protection) Act, 1972

In India, the main legal instrument for the protection and conservation of wild animals is the Wildlife (Protection) Act, 1972. Of course, legislation concerning wildlife dates back to 1873 and then to 1878. The Wild Birds and Animals Protection Act, 1912 was an important milestone upon the earlier legislation to prevent the rapid decline of India's wildlife resources. This too became outdated and was replaced by the Wildlife Acts of 1932 and 1933. However, all these were piecemeal efforts and failed in preventing from the increasing tide of wildlife slaughter and decline in the country. Between 1947 and 1972, the Indian wildlife was without a legislative protective umbrella, which culminated in the extinction of a large species of wild animals. The movements for the conservation of natural resources under the aegis of *Chipko* (1965) and Kerala Sastra Sahitya Parishad (KSSP) (1969) indirectly paved the way for the enactment of the Wildlife (Protection) Act, 1972 to protect and conserve wildlife species in the country.

In the division of powers between the centre and the states under the Constitution of India, 'wildlife' originally was a state subject and the parliament had no constitutional power to make law in respect of wildlife unless the legislatures of two or more states pass a resolution in pursuance to Article 252 empowering the parliament to pass necessary legislation there to. As several states passed such resolutions, the parliament enacted the Wildlife (Protection) Act, 1972 providing for the protection of wild animals and birds and other incidental matters. The scheme of the Act stipulates management of wildlife on scientific lines so that there is no threat to its survival from burgeoning human population. The Act has been in operation for about two decades with minor amendments but hunters, poachers and smugglers have followed its provisions more in its breach. Several varieties of licenses concerning hunting of wild animal for special game hunting, big game hunting, small game hunting and wild animal trapping were more or less a paper formality making protection of wild animals a cruel joke. So were other provisions relating to conditionality of licenses, hunting of young and female wild animals, and declaration of closed time or closed area wherein hunting of wild animals was prohibited. The wildlife administration was a helpless spectator to the violation of other measures which prohibited or restricted use of propelled vehicles, air crafts, use of chemicals, explosives, nets, poisoned weapons, setting fire to vegetation or hunting of wild animals with dogs, etc. Accordingly, the aforesaid inadequacies and shortcomings have either been removed or repealed and new provisions have been added to improve and strengthen ecology of wildlife management by the Wildlife (Protection) Amendment Act, 1991.

The Wildlife (Protection) Amendment Act, 1991

The Amendment Act of 1991 has introduced several innovations to overcome the shortcomings experienced during the working of the original Act of 1972. The Constitution (42nd Amendment) Act, 1976 has given a greater say to the centre by placing subjects forests and protection of wild animals and birds,⁵² in the Concurrent List which prior to 1976 were exclusively in the State List. Moreover, the addition of Article 48-A and 51 1(g) in the Directive Principles of State Policy concerning protection of environment and safeguarding of forests and wildlife has bestowed moral constitutional authority on the centre for conserving country's wildlife heritage. It has given spurt to wildlife management and its conservation like the Forest (Conservation) Act, 1980; the Wildlife Action Plan, 1983; the National Forest Policy, 1988; the Wildlife (Protection) Amendment Act, 1991 and the National Conservation Strategy and Policy Statement on

Environment and Development, 1992. All these progressive measures emanating from the parliament have been largely possible because of the constitutional amendments in 1976. The new changes introduced in the Wildlife (Protection) Amendment Act, 1991 are self-evident of this new wind of change. Some of them are:

1. Wildlife coverage enlarged

The ambit of protection in the original Act of 1972 to wildlife was limited to wild animals and birds only. Under the amended Act of 1991 legal protection has been extended to wild Animals, birds and plants. In other words, animal species, birds species and plant species facing extinction due to over-exploitation of their habitat require urgent state protection. It is in this spirit that India ratified the Biodiversity Convention, 1992 and expounded the National Conservation Strategy and Policy Statement on Environment and Development, 1992.

2. Tribal needs and conservation goals harmonized

Under the Wildlife (Protection) Act, 1972 whenever measures concerning conservation of resources were enforced, conflict situations developed in the wildlife management affecting the tribals and other forest communities who had been dependent on natural resources including livestock grazing. The common folk in the rural and tribal areas were adversely affected due to killing of man by wild animals, especially elephants and predators besides livestock lifting and crop damage by herbivorous, monkeys, porcupines, etc. Likewise, the forest communities and tribals greatly endangered wildlife by encroachment on wildlife territory or poaching wild animals. Such a bizarre situation is being witnessed in Rajaji National Park, Dudhawa National Park (Uttar Pradesh), Sariska Tiger Reserve and Keolodeo Ghana National Park (Rajasthan), Kaziranga National Park (Madhya Pradesh), and several others. The framers of the new Act rightly diagnosed this serious lacuna and has now accommodated and adjusted⁵³ the needs of tribals and other dwellers with protection and conservation of wildlife while formulating the wildlife conservation goals.

3. Hunting wild animals prohibited

Under the original Act of 1972, hunting of wild animals was not legally banned and so killing wild animals was almost a routine course. Of course, it had prohibited hunting of wild animals as listed in Schedule I which had identified 70 mammals, 22 reptiles and amphibians and 41 birds as endangered species and given legal protection under the said Act. However, this carried little weight as the poachers killed such animals even in the national parks or sanctuaries without being afraid of their criminal prosecution. In respect of hunting other animals specified in Schedule II and Schedule III or Schedule IV, the requirement of obtaining a license from the Chief Wildlife Warden on payment of prescribed fee was made obligatory. These licenses were⁵⁴ special game hunting license, big game hunting license, small game hunting license and wild animal trapping license. The holder of such hunting licenses was required⁵⁵ to maintain records of wild animals killed or captured. Section 11 empowered⁵⁶ the Chief Wildlife Warden to permit hunting of wild animals specified in Schedule I when such animal has become a dangerous to human life or is disabled or diseased as to be beyond recovery. In respect of hunting of wild animals specified in Schedules II, III and IV, the Chief Wildlife Warden or other competent officer may issue permit of hunting such animals if : (i) it has become dangerous to human life, (H) is so disabled or diseased as to be beyond recovery, or (Hi) is a danger to property including standing crops. In short, there were innumerable provisions⁵⁷ enabling hunting or killing wild animals, namely, self defense, education, scientific research, scientific management, etc. The wild lifers too sidelined the Wildlife (Protection) Act themselves were side-lined by every tom, dick and harry holding license or no license.

The Wildlife (Protection) Amendment Act, however, is ruthless and draconian in the prevention of hunting wild animals. It has made hunting illegal and prohibits hunting of all wild animals and other species irrespective of the category of schedules. It has abolished big game, small game, special game, etc. But, on the top of it, a new Section 9 substituted for old Section 9 which declares that "no person shall hunt any wild animals specified in Schedules I, II and IV except provided under Sections 11 and 12 is indicative of the new policy".

4. Protection of specified plants

The Amendment Act of 1991 has also provided for the first time for the conservation of plant species⁵⁸ on the same 'level and extent' as is for the wildlife species. This is a new feature, which was not in the old Act. There is now mandatory prohibition⁵⁹ of picking, uprooting, damaging, destroying, acquiring or collecting any specified plant from forest land or possess or sell or gift or transport any specified plant from any forest land or area which is notified by the central government. However, there is a provision whereby a member of the scheduled tribe is exempted from the said rule. Therefore, subject to the provisions of Chapter IV concerning sanctuaries and parks, a member of the scheduled tribe is not prevented⁶⁰ from picking, collecting or possessing in the district he resides any specified plant for his bonafide personal use.

5. Rights concerning land within sanctuaries permitted

The Act of 1972 did not permit⁶¹ the continuance of rights of any person on land falling within the limits of the proposed sanctuary resulting in the eviction of villagers from the said land. Consequently, the establishment of a new sanctuary was looked upon by forest communities as an anathema resulting in confrontation and enormity between villagers and wild lifers and villagers and wildlife species, be it tigers or elephants. The Wildlife (Protection) Amendment Act, 1991 has made a bold departure in removing this long standing grouse of the rural communities by allowing⁶² the continuance of any right of any person in and over and land within the limits of the proposed⁶³ sanctuary.

6. No arms license to people nearby sanctuary

The original Act had provided⁶⁴ for registration of arms with Chief Wildlife Warden by people living within 10 km of the proposed sanctuary. However, under the amendment Act, a new provision⁶⁵ has been added which prohibits grant of new licenses under the Arms Act, 1959 within a radius of 10 km without prior concurrence of the Chief of Wildlife Warden.

7. Establishment of central zoo authority

A new Chapter IV -A has been added to the amendment Act dealing with establishment of the Central Zoo Authority for laying down uniform minimum standards for veterinary care of zoo animals, recognition or derecognition of zoo, and ensuring maintenance of study books of endangered species of wild animals bred in captivity.

8. Transport of wildlife and plants restricted

In the over all interest of conservation of biodiversity, the amendment Act has placed restrictions⁶⁶ on the transportation of any wild animal or any animal article or any specified plant, etc., which may be transported only after verifying that permission from the Chief Wildlife Warden has been obtained.

9. Immunization of livestock

To keep wildlife free from communicable diseases from other domestic animals, the livestock within 5 km of the sanctuary are required immunization against communicable diseases.

10. Administrative framework revamped

The original Act did not provide effective administrative machinery for safeguarding the wildlife species from poachers, hunters and smugglers largely responsible for the ruthless slaughter and extinction of wildlife on a large scale. As ban on hunting was confined to species listed in Schedule I, the wildlife's even utterly proved unequal to this limited task. There was large-scale encroachment not only on forestland for industrial and agricultural purposes but also the destruction of wildlife species went unabated. The machinery not only lacked will and power but direction in deterring the offenders. The amendment Act has geared the machinery with wide powers and authority to meet the menace of poachers and smugglers. The Chief Wildlife Warden has been assigned the key role to guide, lead and direct the entire machinery for protecting India's diverse and rich wildlife heritage. In this task, the participation of forest communities and tribals has been adequately ensured by harmonizing their interest with that of

conservation. However, the criminals, poachers and smugglers having political clout are paralyzing the machinery.

11. Criminal investigation geared

The Act of 1972 contained provisions on detection and criminal investigation, which had merely cosmetic value. In the face of horrendous slaughter, destruction and plunder of wildlife heritage during 1972 to 1991, there are hardly cases in which wildlife offenders were brought to book for wildlife offenses. Under the amendment Act, the Director, Wildlife Preservation or Chief Wildlife Warden, as the case may be, if satisfied that any person has committed an offence against this Act may require such person to produce the alleged animal for inspection and such action as required under the Act. The amended provision 68 confers wide powers, namely, require such person to produce for inspection, captive wild animal or animal article, trophy, uncured trophy, specified plant or part or derivative thereof... seize any captive animal, wild animal, animal article, meat, trophy or uncured trophy, or any specified plant.. in respect of which an offence...appears to have been committed, in the possession of any person together with any trap, toll, vehicle, vessel or weapon used for committing any such offence...and, unless he is satisfied that such person will appear and answer any charge which may be preferred against him, arrest him without warrant and detain him.

For purposes of investigation, the Act now makes the position clear. It says any officer of a rank not inferior to that of an Assistant Director of Wildlife Preservation or Wildlife Warden shall have the powers, for purposes of making investigation into any offence:

- a) to issue a search warrant,
- b) to enforce attendance of witnesses,
- c) to compel the discovery and production of documents and material objects, and
- d) to receive, and record evidence.

12. Penalties enhanced

The original Act contained soft penal provisions for the punishment of wildlife offenders who on conviction were punishable with imprisonment for a term not less than six months extendible to two years or with fine up to Rs. 2,000 or both. It had two provisions also containing penal sanctions depending on the gravity or nature of wildlife offence. The first provision relating to offence in relation to any animal listed in Schedule I or Part II of Schedule II or offence relating to hunting in a national park or sanctuary. Such offence was punishable with imprisonment not less than six months but could extend to six years or with fine which was to be not less than Rs.500. The second provision dealt with a second or subsequent offence, the imprisonment was to be not less than one year and fine not less than Rs.1,000.

Under the Amendment Act, 1991, the term of imprisonment 69 has been raised to three years (instead of two years) and fine Rs. 25,000 (instead of two thousand rupees). Similarly, in the first provision where offence relates to hunting in a sanctuary or national park or altering of boundaries, the amendment Act provides imprisonment of one year (instead of six months) and a fine of Rs. 5,000 (instead of Rs. 500). In the second provision, in case of second or subsequent offence as referred to in Section 51(1), the term of imprisonment may extend to six years but shall not be less than two years and the fine shall not be less than Rs.10,000. However, under the Act of 1972, for second or subsequent offence, as already mentioned, the term of imprisonment was not less than one year and fine not less than Rs.1,000.

13. Cognizance of offences: Ambit widened

The courts are ordinarily barred from taking cognizance of wildlife offences *suo motu* on the complaint of any person. Under the original Act, the courts could take such cognizance only on the complaint of the Chief Wildlife Warden or such officer authorized by the government. Under the amendment Act, basically the legal position remains unchanged except categories of persons making the complaint has been enlarged.
70 These are:

- a) The Director, Wildlife Preservation, or any other officer authorized by

the
central government.

- b) The Chief of Wildlife Warden, or any other officer authorized by the state government.
- c) Any person who has given notice of not less than 60 days of the alleged offence and his intention to make complaint to the central government or state government or the officer so authorized.

14. Reward to person assisting detection of offence

This is a new feature of the Wildlife (Protection) Amendment Act, 1991 whereby persons rendering assistance in the detection of wildlife offences may be rewarded. It has authorized the courts while delivering judgment may order that the reward be paid to a person who renders assistance in the detection of offence or apprehending the offender out of the proceeds of fine not exceeding 20 per cent of such offence...Likewise when case is compounded under Section 54, the officer compounding may reward a person who renders assistance in the detection of offence or apprehension of the offender out of the sum of money accepted by way of compromise not exceeding 20 per cent of such money.

15. Greater role in wildlife protection for 'central government

The original Act of 1972 did not contain any provision empowering the central government in regard to wildlife protection. This is because 'wildlife' and 'forests' were exclusively in the state List or were State subjects. The Constitution (42nd Amendment) Act, 1976 placed 'forest' and 'wildlife' in the Concurrent List whereby both the central and state governments have been made empowered to legislate concurrently but in case of conflict the central law prevails over the state law. It is due to this new constitutional reform that Wildlife (Protection) Amendment Act, 1991 has been possible to give greater coverage and protection to wildlife species. For example, the said Act comes into force on such date as central government⁷² may by notification determine. The central government has mandatory authority, power and responsibility for the protection of specified⁷³ plants. If any part of a territorial water⁷⁴ is to be included in a sanctuary, the concurrence of the central government by the state government is obligatory and it shall be determined in consultation with Chief Naval Hydrographer. Similarly, the central government has the exclusive power in regard to establishment^{1s} of the Central Zoo Authority including administrative, financial and parliamentary control over the Central Zoo Authority and the recognition of zoos all over the country. Finally, the central government has exclusive power in declaring⁷⁶ certain wild animals as to be vermin, of course, in respect of detection, apprehension⁷⁷ of wildlife offenders, compounding⁷⁸ of offences, and making a complaint¹⁹ of offences in a court of law. Thus, both the central and state governments share equal authority for the better and smooth enforcement of Wildlife (Protection) Act as amended from time to time.

16. Insertion of a new schedule

The unamended Act had five schedules. The amended Act has repealed 'big game' in Schedule III and 'small game' in Schedule IV, respectively. It has inserted a new Schedule VI listing specified plants.

THE FOREST (CONSERVATION) ACT, 1980

An Act to provide for the conservation of forests and for matters connected therewith or ancillary or incidental thereto.

BE it enacted by Parliament in the Thirty-first year of the Republic of India as follows:-

1. Short title, extent and commencement -

- i. This Act may be called the Forest (Conservation) Act, 1980.
- ii. It extends to the whole of India except the State of Jammu and Kashmir.
- iii. It shall be deemed to have come into force on the 25th day of October, 1980.

2. Restriction on the de-reservation of forests or use of forest land for non-forest purpose

- i Notwithstanding anything contained in any other law for the time being in force in a State, no State Government or other authority shall make, except with the prior approval of the Central Government, any order directing - that any reserved forest (within the meaning of the expression "reserved forest" in any law for the time being in force in that State) or any portion thereof, shall cease to be reserved; that any forest land or any portion thereof may be used for any non-forest purpose;
 - ii that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation not owned, managed or controlled by Government;
 - iii that any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for reforestation].
 - a. [Explanation_ For the purposes of this section "non-forest purpose" means the breaking up or clearing of any forest land or portion thereof for- the cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticulture crops or medicinal plants;
 - b. any purpose other than reforestation,
 - c. but does not include any work relating or ancillary to conservation, development and management of forests and wild-life, namely, the establishment of check-posts, fire lines, wireless communications and construction of fencing, bridges and culverts, dams, waterholes, trench marks, boundary marks, pipelines or other like purposes].
3. Constitution of Advisory Committee. - The Central Government may constitute a Committee consisting of such number of persons as it may deem fit to advise that Government with regard to - (i) the grant of approval under section 2; and any other matter connected with the conservation of forests which may be referred to it by the Central Government.
- 3A. Penalty for contravention of the provisions of the Act. - Whoever contravenes or abets the contravention of any of the provisions of section 2, shall be punishable with simple imprisonment for a period which may extend to fifteen days.
- 3B. Offences by authorities and Government departments. - (1) Where any offence under this Act has been committed -
- a. by any department of Government, the head of the department; or by any authority, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the authority for the conduct of the business of the authority as well as the authority, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly;
 - b. Provided that nothing contained in this sub-section shall render the head of the department or any person referred to in clause (b), liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.
 - c. Notwithstanding anything contained in sub-section(1), where an offence punishable under the Act has been committed by a department of Government or any authority referred to in clause (b) of sub-section (1) and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the head of the department, or in the case of an authority, any person other than the persons referred to in clause (b) of sub-section (1), such officer or persons shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly].

4. Power to make rules. - (1) The Central Government may, by notification in the Official Gazette, make rules for carrying out the provisions of this Act. Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

Rules for the Manufacture, use, import, export and storage of hazardous micro organisms, genetically engineered organisms or cells.

Ministry of Environment and Forests Notification, New Delhi, the 5th December, 1989.

(To be notified under the EP Act, 1986)

G.S.R. 1037(E) - In exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) and with a view to protecting the environment, nature and health, in connection with the application of gene technology and micro-organisms, the Central Government hereby makes the following rules, namely:-

1. Short title, extent and commencement

- (1) These rules may be called the Rules for The Manufacture, Use, Import, Export and Storage of Hazardous micro-organisms Genetically engineered organisms or cells.
- (2) These rules shall come into operation on the date to be notified for this purpose in the Official Gazette.

2. Application

- (1) These rules are applicable to the manufacture import and storage of micro-organisms and Gene-Technological products.
- (2) These shall apply to genetically engineered organisms, micro-organisms and cells and correspondingly to any substances and products and food stuffs, etc. of which such cells, organisms or tissues hereof form part.
- (3) These rules shall also apply to new gene technologies apart from those referred to in clauses (ii) and (iv) of rule 3 and these rules shall apply to organisms/micro-organisms and cells generated by the utilization of such other gene-technologies and to substances and products of which such organisms and cells form part.
- (4) These rules shall be applicable in the following specific cases:
 - a. sale, offers for sale, storage for the purpose of sales, offers and any kind of handling over with or without a consideration;
 - b. exportation and importation of genetically engineered cells or organisms;
 - c. production, manufacturing, processing, storage, import, drawing off, packaging and repacking of the Genetically Engineered Products;
 - d. Production, manufacture etc., of drugs and pharmaceuticals and food stuffs distilleries and tanneries, etc. which make use of micro-organisms genetically engineered micro-organisms one way or the other.
 - e. These rules shall be applicable to the whole of India.

3. Definitions. - In these rules unless the context requires,

- i "Biotechnology" means the application of scientific and engineering principles to the processing of materials by biological agents to produce goods and services;

- ii "Cell hybridisation" means the formation of live cells with new combinations of genetic material through the fusion of two or more cells by means of methods which do not occur naturally;
- iii "Gene Technology" means the application of the gene technique called genetic engineering, include self cloning and deletion as well as cell hybridisation;
- iv "Genetic engineering" means the technique by which heritable material, which does not usually occur or will not occur naturally in the organism or cell concerned, generated outside the organism or the cell is inserted into said cell or organism. It shall also mean the formation of new combinations of genetic material by incorporation of a cell into a host cell, where they occur naturally (self cloning) as well as modification of an organism or in a cell by deletion and removal of parts of the heritable material;
- v "microorganisms" shall include all the bacteria, viruses, fungi, mycoplasma, cells lines, algae, protodones and nematodes indicated in the schedule and those that have not been presently known to exist in the country or not have been discovered so far".

4. Competent Authorities

(1) Recombinant DNA Advisory Committee (RDAC)

This committee shall review developments in Biotechnology at national and international levels and shall recommend suitable and appropriate safety regulations for India in recombinant research, use and applications from time to time. The committee shall function in the Department of Biotechnology.

(2) Review Committee on Genetic Manipulation (RCGM)

This committee shall function in the Department of Biotechnology to monitor the safety related aspect in respect of on-going research projects and activities involving genetically engineered organisms/hazardous microorganisms. The Review Committee on Genetic Manipulation shall include representatives of (a) Department of Biotechnology (b) Indian Council of Medical Research (c) Indian Council of Agricultural Research (d) Council of Scientific and Industrial Research (e) other experts in their individual capacity. Review Committee on Genetic Manipulation may appoint sub groups.

It shall bring out Manuals of guidelines specifying procedure for regulatory process with respect to activities involving genetically engineered organisms in research, use and applications including industry with a view to ensure environmental safety. All ongoing projects involving high-risk category and controlled field experiments shall be reviewed to ensure that adequate precautions and containment conditions are followed as per the guidelines.

The Review Committee on Genetic Manipulation shall lay down procedures restricting or prohibiting production, sale, importation and use of such genetically engineered organisms of cells as are mentioned in the Schedule.

(3) Institutional Bio safety Committee (IBSC)

This committee shall be constituted by an occupier or any person including, research institutions handling micro organisms/genetically engineered organisms. The committee shall comprise the Head of the Institution, Scientists engaged in DNA work, a medical expert and a nominee of the Department of Biotechnology. The occupier or any person including research institutions handling microorganisms / genetically engineered organisms shall prepare with the assistance of the Institutional Bio safety Committee (IBSC) an up-to-date on-site emergency plan according to the manuals / guidelines of the RCGM and make available copies to the District Level Committee / State Biotechnology Co-ordinating Committee and the Genetic Engineering Approval Committee.

(4) Genetic Engineering Approval Committee (GEAC)

This committee shall function as a body under the Department of Environment, Forests and Wildlife for approval of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle. The Committee shall also be responsible for approval of proposals relating to release of genetically engineered organisms and products into the environment including experimental field trials.

The composition of the Committee shall be

- (i) Chairman - Additional Secretary, Department of Environment, Forests and Wild life.
Co-Chairman - Representative of Department of Bio-technology
- (ii) Members: Representatives of concerned Agencies and Departments, namely, Ministry of Industrial Development, Department of Biotechnology and the Department of Atomic Energy.
- (iii) Expert members: Director General - Indian Council Research, Director General - Indian Council of Medical Research, Director General - Council of Scientific and Industrial Research, Director General - Health Services, Plant Protection Adviser, Directorate of Plant Protection, Quarantine and storage, Chairman, Central Pollution Control Board and three outside experts in individual capacity.
- (iv) Member Secretary: An official of the Department of Environment, Forest and Wildlife.
The Committee may co-opt other members/experts as necessary.
The committee or any person/s authorised by it shall have powers to take actions under the Environment (Protection) Act.

(5) *State Biotechnology Co-ordination Committee (SBCC).*

There shall be a State Biotechnology Coordination Committee in the States wherever necessary. It shall have powers to inspect, investigate and take punitive action in case of violations of statutory provisions through the Nodal Department and the State Pollution Control board/Directorate of Health/Medical Services. The Committee shall review periodically the safety and control measures in the various industries/institutions handling genetically engineered Organisms/Hazardous microorganisms. The compositions of the Coordination Committee shall be:

- (i) Chief Secretary - Chairman
- (ii) Secretary, Department of Environment Secretary - Member
- (iii) Secretary, Department of Health - Member
- (iv) Secretary, Department of Agriculture - Member
- (v) Secretary, Department of Industries and Commerce - Member
- (vi) Secretary, Department of Forests - Member
- (vii) Secretary, Department of Public Works / Chief Engineer
- (viii) Department of Public Health Engineering - Member
- (ix) State Microbiologists and Pathologists - Member
- (x) Chairman of State Pollution Control Board

The Committee may co-opt other members/experts as necessary.

(6) *District Level Committee (DLC)*

There shall be a District Level Biotechnology Committee (DLC) in the districts wherever necessary under the District Collectors to monitor the safety regulations in installations engaged in the use of genetically modified organisms/hazardous microorganisms and its applications in the environment.

The District Level Committee/or any other person/s authorised in this behalf shall visit the installation engaged in activity involving genetically engineered organisms, hazardous microorganisms, formulate information chart, find out hazards and risks associated with each of these installations and coordinate

activities with a view to meeting any emergency. They shall also prepare an off-site emergency plan. The District Level Committee shall regularly submit its report to the State Biotechnology Co-ordination Committee/Genetic Engineering Approval Committee.

The District Level Committee shall comprise of:-

- | | | |
|--------|---|---|
| (i) | District Collector
Chairman | - |
| (ii) | Factory Inspector
Member | - |
| (iii) | A representative of the Pollution Control Board
Member | - |
| (iv) | Chief Medical Officer (District Health Officer)
Member
(Convenor) | - |
| (v) | District Agricultural Officer
Member | - |
| (vi) | A representative of the Public Health
Engineering Department
Member | - |
| (vii) | District Microbiologists/Pathologist(technical expert)
Member | - |
| (viii) | Commissioner Municipal Corporation
Member | - |

The committee may co-opt other members/experts as necessary

5. Classification of micro-organisms or genetically engineered product

- (1) For the purpose of these rules, microorganisms or genetically engineered organisms, products or cells shall be dealt with under two major heads; animal, pathogens and plant pests and these shall be classified in the manner specified in the Schedule.
- (2) If any of the microorganisms, genetically engineered organism or cell falls within the limits of more than one risk class as specified in the Schedule, it shall be deemed to belong exclusively to the last in number of such classes.

6. Microorganisms laid down in the Schedule are divided into the following _

- | | |
|-------------------------|--|
| (i) Bacterial Agents; | (ii) Fungal Agents; |
| (iii) Parasitic Agents; | (iv) Viral, Rickettsial and Chlamydial Agents; |
| (v) Special Category. | |

7. Approval and Prohibitions, etc

- (1) No person shall import, export, transport, manufacture, process, use or sell any hazardous microorganisms of genetically engineered organisms/substances or cells except with the approval of the Genetic Engineering Approval Committee.
- (2) Use of pathogenic micro organisms or any genetically engineered organisms or cells for the purpose of research shall only be allowed in laboratories or inside laboratory area notified by the Ministry of Environment and Forests for this purpose under the Environment (Protection) Act, 1986.
- (3) The Genetic Engineering Approval Committee shall give directions to the occupier to determine or take measures concerning the discharge of microorganisms / genetically engineered organisms or cells mentioned in the Schedule from the laboratories, hospitals and other areas including prohibition of such discharges and laying down measures to be taken to prevent such discharges.
- (4) Any person operating or using genetically engineered organisms/microorganisms mentioned in the schedule for scale up or pilot operations shall have to obtain license issued by the Genetic Engineering Approval Committee for any such activity. The possessor shall have to apply for license in prescribed perform.
- (5) Certain experiments for the purpose of education within the field of gene technology or microorganism may be carried out outside the laboratories and

laboratory areas mentioned in sub-rule (2) and will be looked after by the Institutional Bio-safety Committee.

8. Production

Production in which genetically engineered organisms or cells or micro-organisms are generated or used shall not be commenced except with the consent of Genetic Engineering Approval Committee with respect of discharge of genetically engineered organisms or cells into the environment. This shall also apply to production taking place in connection with development, testing and experiments where such production, etc., is not subject to rule 7.

9. Deliberate or unintentional release

(1) Deliberate or unintentional release of genetically engineered organisms / hazardous microorganisms or cells, including deliberate release for the purpose of experiment shall not be allowed.

Note : Deliberate release shall mean any intentional transfer of genetically engineered organisms/hazardous, microorganisms or cells to the environment or nature, irrespective of the way in which it is done.

(2) The Genetic Engineering Approval Committee may in special cases give approval of deliberate release.

10. Permission and approval for certain substances

Substances and products, which contain genetically engineered organisms or cells or microorganisms shall not be produced, sold, imported or used except with the approval of Genetic Engineering Approval Committee.

11. Permission and approval for food stuffs

Food stuffs, ingredients in food stuffs and additives including processing and containing or consisting of genetically engineered organisms or cells, shall not be produced, sold, imported or used except with the approval of the Genetic Engineering Approval Committee.

12. Guidelines

- (1) Any person who applies for approval under rules 8-11 shall, as determined by the Genetic Engineering Approval Committee submit information and make examinations or cause examinations to be made to eradicate the case, including examinations according to specific directions and at specific laboratories. He shall also make available an on-site emergency plan to GEAC before obtaining the approval. If the authority makes examination itself, it may order the applicant to delay the expenses incurred by it in so doing.
- (2) Any person to whom an approval has been granted under rules 8-11 above shall notify the Genetic Engineering Approval Committee of any change in or addition to the information already submitted.

13. Grant of approval

- (1) In connection with the granting of approval under rules 8 to 11 above, terms and conditions shall be stipulated, including terms and conditions as to the control to be exercised by the applicant, supervision, restriction on use, the layout of the enterprise and as to the submission of information to the State Bio-technology Co-ordination Committee or to the District Level Committee.
- (2) All approvals of the Genetic Engineering Approval Committee shall be for a specific period not exceeding four year at the first instance renewable for 2 years at a time. The Genetic Engineering Approval Committee shall have powers to revoke such approval in the following situations:-
 - (a) If there is any new information as to the harmful effects of the genetically engineered organisms or cells.
 - (b) If the genetically engineered organisms or cells cause such damage to the environment, nature or health as could not be envisaged when the approval was given, or
 - (c) Non compliance of any condition stipulated by Genetic Engineering Approval Committee.

14. Supervision

- (1) The Genetic Engineering Approval Committee may supervise the implementation of the terms and conditions laid down in connection with the approvals accorded by it.
 - The Genetic Engineering Approval Committee may carry out this supervision through the State Bio-technology Coordination Committee or the State Pollution Control Boards/District Level Committee or through any person authorised in this behalf.

15. Penalties

- (1) If an order is not complied with, the District Level Committee or State Biotechnology Co-ordination Committee may take measures at the expense of the person who is responsible.
 - In case where immediate intervention is required in order to prevent any damage to the environment, nature or health, the District Level Committee, or State Biotechnology Co-ordination Committee may take the necessary steps without issuing any order or notice. The expenses incurred for this purpose will be repayable by the person responsible for such damage.
 - The State Bio-technology Co-ordination Committee/District Level Committee may take samples for a more detailed examination of organisms and cells.
 - The State Bio-technology Co-ordination Committee/District Level Committee shall be competent to ask for assistance from any other government authority to carry out its instructions.

16. Responsibility to notify interruptions or accidents

- (1) Any person who under rule 7-11 is responsible for conditions or arrangements shall immediately notify the District Level Committee/State Biotechnology Co-ordination Committee and the state medical officer of any interruption of operations or accidents that may lead to discharges of genetically engineered organisms or cells which may be harmful to the environment, nature or health or involve any danger thereto.
- (2) Any notice given under sub-rule (1) above shall not lessen the duty of the person who is responsible to try effectively to minimise or prevent the effects of interruptions of operations or accidents.

17. Preparation of Off-site emergency Plan by the DLC

- (1) It shall be the duty of the DLC to prepare an off-site emergency plan detailing how emergencies relating to a possible major accident at a site will be dealt with and in preparing the plan, the DLC shall consult the occupier and such other person as it may deem necessary.
- (2) For the purpose of enabling the DLC to prepare the emergency plan required under sub-rule (1), the occupier shall provide the DLC with such information relating to the handling of hazardous microorganisms/genetically engineered organisms under his control as the DLC may require including the nature, extent and likely off-site effects of a possible major accident and the DLC shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 16.

18. Inspections and information regarding finance

- (1) The State Biotechnology Co-ordination Committee or the Genetic Engineering Approval Committee/the DLC or any person with special knowledge duly authorised by the State Bio-technology Co-ordination Committee or the Genetic Engineering Approval Committee or the DLC where it is deemed necessary, at any time on due production of identity be admitted to public as well as to private premises and localities for the purpose of carrying out supervision.
 - Any person who is responsible for activities subject to rules 7-11 above shall at the request of District Level Committee or State Bio-technology Co-ordination Committee or the GEAC submit all

such information including information relating to financial conditions and accounts, as is essential to the authority's administration under these rules. He shall also allow supervision or inspection by the authorities or persons indicated in sub-rule (1).

- The Genetic Engineering Approval Committee may fix fees to cover, in whole or in part, the expenses incurred by the authorities in connection with approvals, examinations, supervisions and control.

19. Appeal

- (1) Any person aggrieved by a decision made by Genetic Engineering Approval Committee/State Biotechnology Co-ordination Committee in pursuance of these rules may within thirty days from the date on which the decision is communicated to him, prefer an appeal to such authority as may be appointed by Ministry of Environment and Forests provided that the appellate authority may entertain the appeal after the expiry of the said period of thirty days if such authority is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

20. Exemption

The Ministry of Environment and Forests shall, wherever necessary, exempt an occupier handling a particular microorganism genetically engineered organism from rule 7-11.

UNIT - V

INTERNATIONAL CO OPERATION ON ENVIRONMENT

The Ramsar Convention on Wetlands

Conservation of wetlands which are breeding sites of waterfowl was undertaken on February 2, 1971 by international community at Ramsar- a seaport on the Caspian Sea coast of Iran. The result of the deliberations was the Convention on Wetlands of International Importance, especially as Waterfowl Habitat. It is also known as Ramsar Convention for Wetland Conservation. India acceded to the convention in 1981 and designated only two sites-Bharatpur (Rajasthan) and Chilka Lake (Orissa). Bharatpur is one of the finest water bird sanctuaries with a total of 2,800 hectares area which is the habitat of more than 330 species of birds; some of them are highly threatened Siberian Cranes who visit during winters. Chilka Lake is another wetland area, which is designated as the largest brackish-water lake in Orissa. It has a maximum area of 116.5 hectares during rains. A very shallow lake, it is separated from the Bay of Bengal by a narrow sandy ridge but remains connected to Bay of Bengal via a channel. It receives fresh water from the river Daya - a tributary of Mahandi so the salinity levels vary in different parts. However, due to human interference, Chilka lagoons are dying, especially due to weed and deforest action.

The Convention for the Protection of World Cultural and Natural Heritage

The Convention Concerning the Protection of the World Cultural and Natural Heritage was adopted by the General Conference of UNESCO in 1972. The primary mission of the Convention is to identify and protect the world's natural and cultural heritage considered to be of "*outstanding universal value*". The Convention draws up a list of properties "the World Heritage List", made up of *natural, cultural and mixed* sites and *cultural landscapes*. It promotes co-operation among all nations and peoples to contribute effectively to the protection of these important properties. The Convention is governed by the World Heritage Committee supported by The UNESCO World Heritage Centre, the secretariat for the Convention is based at UNESCO headquarters in Paris.

India is one of the signatories to the convention. Besides governmental organizations like the Archaeological Survey of India and National Museum etc., the Indian National Trust for Art and Cultural Heritage (INTACH) is rendering yeoman's service for the conservation of our natural and cultural heritage. The Ministry of Environment also deals with such natural sites⁹ inscribed in this convention. Thus, Keoladeo National Park, Sunderbans National Park, Nanda Devi National Park and Manas Wildlife Sanctuary have been inscribed on the world heritage list.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

India also adopted in 1976 the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (Washington), the Convention on Conservation of Migratory Species of Wild Animals, 1979 (Bonn), the Wildlife Convention, 1979 (Berne), and the Birds Directive, 1981 (Brussels). In India, the Wildlife (Protection) Act, 1972 as amended from time to time including the Wildlife (Protection) Amendment Act, 1991 has incorporated the basic features and innovations introduced by the aforesaid international conventions relating to wild animals, birds, and plant species. The different schedules of the Act include the lists of endangered species of wild life which the Convention on International Trade in Endangered Species of Wild Flora and Fauna has identified as endangered ones

Biosphere Reserves Programme

Biosphere reserves aim at preserving the genetic diversity in representative ecosystems. The major objectives of the biosphere reserves are: (i) to conserve diversity and integrity of plants, animals and micro-organisms, (ii) to promote research on ecological Conservation and other environmental aspects, and to provide facilities for education, awareness and training. In short, the biosphere reserve is a multipurpose project programme for preserving, maintaining and conserving the biological diversity of plants,

animals and other minor living things of species. A major thrust to conserve the biosphere reserves was launched by UNESCO in 1973 on a world-wide basis. It is popularly known as Man and Biosphere Reserves Programme (MAB), which paved the way for the establishment of 226 biospheres reserves in about 62 countries covering an area of 115 million hectares.

Under the above stated MAB programme, India had launched the conservation projects for individual endangered species like lion (1972), tiger (1973), crocodile (1974) and the brown antlered deer (1981). The Sixth Five Year Plan (1980-85) had enjoined upon the Department of Environment to constitute a (core group of specialists for the management of the biosphere reserves. The said group had recommended 14 potential sites which were identified for setting up biosphere reserves in the country. So far, 13 biosphere reserves have been set up. These are: 12 (1) Nilgiri (Tamil Nadu), (2) Nanda Devi, (3) Valley of Flowers-Tunganath-Rudra Nath (UP), (4) Namdapha (Arunachal Pradesh), (5) Nokrek (Meghalaya), (6) Great Nicobar (Andaman and Nicobar Islands), (7) Gulf of Mannar (Tamil Nadu), (8) Manas (Assam), (9) Sunderbans (West Bengal), (10) Thar Desert (Rajasthan), (11) Rann of Kutch (Gujarat), (12) Kaziranga (Assam), and (13) North Andamans.

These 13 biosphere reserves represent 12 bio-geographic regions of India for the preservation of rare flora, fauna, birds, reptiles, amphibians, and mammals, a large number of which are endangered species. For proper conservation, comprehensive guidelines have been laid down in the Eighth Five Year Plan¹³ with emphasis on: (i) gearing up of the research activities, (ii) monitoring of performance in the field, (iii) building up of massive public awareness by involving NGOs, (iv) regular manpower training programme, (v) bilateral programmes between India and Russia, USA, Mexico, UK and Canada, and (vi) use of the latest technologies like remote-sensing in carrying out the studies in the biosphere reserves.

AGENDA 21

On 22 December 1989, the United Nations General Assembly called for a global meeting that would devise strategies to halt and reverse the effects of environmental degradation “in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries”.

Agenda 21, adopted by the United Nations Conference on Environment and Development on 14 June 1992, is the international community's response to that request. It is a comprehensive programme of action to be implemented — from now and into the twenty-first century — by Governments, development agencies, United Nations organizations and independent sector groups in every area where human (economic) activity affects the environment.

The programme should be studied in conjunction with the Rio Declaration on Environment and Development and the principles for the sustainable management of forests. These were also adopted at the Conference, known as the Earth Summit, which was held from 3 to 14 June 1992 in Rio de Janeiro, Brazil.

Underlying Agenda 21 is the notion that humanity has reached a defining moment in its history. We can continue our present policies which serve to deepen the economic divisions within and between countries; which increase poverty, hunger, sickness and illiteracy worldwide; and which are causing the continued deterioration of the ecosystem on which we depend for life on Earth.

Or we can change course. We can improve the living standards of those who are in need. We can better manage and protect the ecosystem and bring about a more prosperous future for us all. “No nation can achieve this on its own,” states the preamble to Agenda 21. “Together we can — in a global partnership for sustainable development.”

The Preamble of Agenda 21 states

1. Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of

poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can - in a global partnership for sustainable development.

2. This global partnership must build on the premises of General Assembly resolution 44/228 of 22 December 1989, which was adopted when the nations of the world called for the United Nations Conference on Environment and Development, and on the acceptance of the need to take a balanced and integrated approach to environment and development questions.
3. Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century. It reflects a global consensus and political commitment at the highest level on development and environment cooperation. Its successful implementation is first and foremost the responsibility of Governments. National strategies, plans, policies and processes are crucial in achieving this. International cooperation should support and supplement such national efforts. In this context, the United Nations system has a key role to play. Other international, regional and sub regional organizations are also called upon to contribute to this effort. The broadest public participation and the active involvement of the non-governmental organizations and other groups should also be encouraged.
4. The developmental and environmental objectives of Agenda 21 will require a substantial flow of new and additional financial resources to developing countries, in order to cover the incremental costs for the actions they have to undertake to deal with global environmental problems and to accelerate sustainable development. Financial resources are also required for strengthening the capacity of international institutions for the implementation of Agenda 21. An indicative order-of-magnitude assessment of costs is included in each of the programme areas. This assessment will need to be examined and refined by the relevant implementing agencies and organizations.
5. In the implementation of the relevant programme areas identified in Agenda 21, special attention should be given to the particular circumstances facing the economies in transition. It must also be recognized that these countries are facing unprecedented challenges in transforming their economies, in some cases in the midst of considerable social and political tension.
6. The programme areas that constitute Agenda 21 are described in terms of the basis for action, objectives, activities and means of implementation. Agenda 21 is a dynamic programme. It will be carried out by the various actors according to the different situations, capacities and priorities of countries and regions in full respect of all the principles contained in the Rio Declaration on Environment and Development. It could evolve over time in the light of changing needs and circumstances. This process marks the beginning of a new global partnership for sustainable development.
7. Agenda 21 concentrates on all round development of people of all nations. Therefore it focuses on the :

I. Social and Economic dimensions : Such as to combat poverty; to accelerate international cooperation; sustainable development in developing countries; change consumption patterns; protecting and promoting human health; promoting sustainable human settlements and finally assist in policy-making for sustainable development.

Section I, Chapter 3 of Agenda 21 deals with combating poverty. Poverty is a complex multidimensional problem with both national and international origins. No one solution will apply globally; country-specific programmes are crucial. The eradication of poverty and hunger, greater equity in income distribution and human resources

development remain major challenges everywhere. All countries must cooperate and share responsibility. Agenda 21 proposals cover population policies, health care and education, the rights of women and the role of young people, indigenous people and local communities in order to enable all people to achieve sustainable livelihoods. Policies need to simultaneously address development, sustainable resource management and poverty eradication. Governments should, among other things, support a community-driven approach to sustainability by empowering local and community groups; generate employment by giving high priority to basic education and professional training; and set up an effective primary and maternal health care system accessible to all.

II. Conservation and Management of Resources for Development by protecting the atmosphere by making the energy transition by promotion of greater reliance on renewable energy; encouraging an integrated approach to land-resource use; offering assistance in combating deforestation and halting the spread of deserts; protecting mountain ecosystems; meeting agricultural needs without destroying the land; sustaining biological diversity; encouraging environmentally sound management of biotechnology; safeguarding the ocean's resources; protecting and managing freshwater resources ; promoting safe use of toxic chemicals; managing hazardous wastes; seeking solutions to solid waste problems and management of radioactive wastes.

III. Section III, Chapter 24 of Agenda 21. emphasizes the importance of the **involvement of all social groups in achieving sustainable development.** To guarantee the full and equal participation of women in all development activities and particularly environmental management, Agenda 21 proposes that Governments embrace a number of objectives related to women's advancement and education. Agenda 21 proposes that all countries should implement the Nairobi Forward-looking Strategies for Women which emphasize the need for women to participate in ecosystem management and control of environmental degradation.

IV. Means of Implementation

To implement the aims of Agenda 21 *Financial Resources and Mechanisms* are required. Economic growth, social development and poverty eradication are overriding priorities in developing countries, and are essential to sustainability. The provision to developing countries of financial and technical resources needed to implement Agenda 21 will benefit all humanity; the long-term cost of inaction could be much greater. International cooperation for sustainable development should complement the efforts of developing countries. For this, substantial new and additional financial resources, including grants or concessional financing at predictable levels, will be required.

Making Environmentally Sound Technology Available to All

Environmentally sound technologies are less polluting, use all resources more sustainably, recycle more of their wastes and products and handle residual wastes better than the technologies for which they substitute. They include both processes for reducing waste products and “end of pipe” treatment of pollutants.

Transfer of technology includes the exchange of knowledge, goods, services and organizational procedures. Developing countries need support to build their economic, technical and managerial capabilities. This will require a long-term joint effort by enterprises and Governments supplying and receiving technology; together with the systematic training of crafts persons, technicians, managers, scientists, engineers and educators.

Developing countries, in particular, require new and efficient technologies in order to alleviate poverty and human suffering. Better access to information on technologies, including environmental risks, is required so that Governments can make informed choices about improving or replacing unacceptable production methods.

Science for Sustainable Development

Science is essential to the search for sustainable development and should be responsive to emerging needs. Better scientific understanding of the connections between human activities and the environment and better use of that knowledge must be incorporated into the formulation of policies for development and environmental management.

More research into climate change, resource consumption rates, demographic trends and environmental degradation is needed and methods for long-term assessment of natural resources should be improved. Research capacity, especially in developing countries, should be strengthened.

Promoting Environmental Awareness

Knowledge of the Earth's carrying capacity and processes that impair or enhance its ability to support life should be expanded. More research is needed on natural systems. New analytical and predictive tools should be developed and applied, and the physical, economic and social sciences should be better integrated.

There should be better and more expanded monitoring of water, chemical and biological cycles; research in atmospheric chemistry and sources and sinks of greenhouse gases; coordination of satellite surveys of air, water and land and their interactions; and the development of techniques for predicting and countering the effects of environmental stresses.

Also needed are: studies of the role biodiversity and species loss play in ecosystems; parameters for managing coastal and mountain zones; expansion of water-quality monitoring systems; measures to better predict and prepare for natural disasters; and more research into the impact of human activities on environment and the responses of humans to global environmental change.

Building National Capacity for Sustainable Development

Capacity-building means developing a country's human, scientific, technological, organizational, institutional and resource capabilities. Technical cooperation for capacity-building, including technology transfer and know-how, should be driven by the individual needs and specific conditions of the recipients. Strategies, priorities and programmes should be based on broad internal consensus and should improve countries' ability to respond to new long-term challenges rather than concentrating only on immediate problems.

The international aid process as it relates to technology transfer, know-how and other technical cooperation for sustainable development should be reviewed and evaluated by the United Nations, donor and recipient countries, and public and private organizations. The United Nations system could strengthen its activities in technical cooperation and mobilize international funding in this area.

International Legal Instruments and Mechanisms

Agenda 21 proposals for international law on sustainable development focus on improving the legislative capabilities of developing countries, assessing the efficacy of current international agreements and setting priorities for the future.

International law on sustainable development needs to be further developed, giving special attention to the delicate balance between environmental and developmental concerns and to the special needs of developing countries. The participation of all countries in global treaty-making is essential. Many existing international legal instruments and agreements in the field of environmental law have been developed without the adequate participation and contribution of developing countries.

Global Environment Facility (GEF)

The Global Environment Facility (GEF) was established to provide new and additional financial resources to address global environmental issues in developing countries and economies in transition. Initially created in 1991 as an experimental partnership among three international agencies, the GEF was restructured, in conformity with the Rio action plan, Agenda 21, to be a permanent entity for financing global environmental actions while contributing to sustainable development.. The progress toward which the Global Environment Facility (GEF) is working is global sustainability - - the integration of local, national and regional economic development with protection of the planet's environment. That goal is both complex and novel. The Global Environment Facility is a unique international entity. Its mission, its governance, its management and

its internal procedures represent innovative responses to the general spirit and the detailed mandate of the 1992 Earth Summit in Rio de Janeiro, of which the Facility is the only major financial accomplishment.

There are certainly a number of positive accomplishments. As a grant-giver and maker of concessional loans, whose own limited resources leverage roughly three times their value, the Facility is expanding the horizons of decision-makers in both developing countries and the multilateral development agencies to include the major global environment issues as practical and policy concerns. As a significant catalyst for partnerships among governments, private groups and international institutions, the GEF is creating new coalitions to address development and environment and accelerating the transfer of environmentally friendly technologies. It has welcomed into its planning and operations non-governmental organizations whose concerns and expertise have been under appreciated and underutilized. The GEF has also promoted the involvement of affected communities in both the planning and the execution of sustainable development projects.

Membership

Approximately 160 countries are currently members of the GEF. The GEF's governing body is the Council, which has 32 seats allocated to constituencies (16 for developing country constituencies, 14 for developed countries and 2 for economies in transition). An Assembly of all members takes place every three years, the last assembly was held in October 2002 in Beijing, China.

Activities

The GEF has four focal areas for funding — climate change, biodiversity, international waters, and ozone depleting substances in the economies in transition (former Soviet Bloc countries). The GEF also provides funding to support land degradation issues such as desertification and deforestation that cross-cut the other focal areas (i.e. deforestation is also a climate change and biodiversity issue). Recently, new programming areas for biosafety and persistent organic pollutants (POPs) have been added, as a result of the GEF being designated as the financial mechanism for the Cartagena Biosafety Protocol under the Convention on Biological Diversity, and as the interim financial mechanism for the Stockholm POPs Convention.

Biodiversity

A wide spectrum of efforts to conserve and sustainably use earth's biological diversity makes up nearly half of all GEF projects. As the financial mechanism for the Convention on Biological Diversity (CBD), GEF receives guidance from the conference of parties (or COP) on policy, strategy, program priorities, and eligibility criteria related to the use of resources for purposes of the Convention. Projects generally deal with one or more of four critical ecosystem types and the human communities found there : 1) arid and semi-arid zones; 2) coastal, marine, and freshwater resources; 3) forests; and 4) mountains.

Climate change

Projects addressing climate change make up the next largest group of GEF-funded projects. As the financial mechanism for the United Nations Framework Convention on Climate Change (UNFCCC), GEF receives guidance from the COP on policy, program priorities, and eligibility criteria related to the Convention. Climate change projects are designed to reduce the risks of global climate change while providing energy for sustainable development. GEF climate change projects are organized into four areas: 1) removing barriers to energy efficiency and energy conservation; 2) promoting the adoption of renewable energy by removing barriers and reducing implementation costs;

- 3) reducing the long-term costs of low greenhouse gas emitting energy technologies; and
- 4) supporting the development of sustainable transport.

International waters

GEF projects to reverse the degradation of international waters are informed by—and help to realize the objectives of—a mosaic of regional and international water agreements. These projects enable countries to recognize and learn more about the water-related challenges they share, find ways to work together, and undertake important domestic changes needed to solve problems. The three categories of water projects are: 1) water bodies; 2) integrated land and water projects; and 3) contaminants.

Ozone depletion

Phasing out ozone depleting substances (ODS) is a highly effective means to achieving immediate, and future, global environmental benefits. The GEF, in partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances, funds projects that enable the Russian Federation and nations in eastern Europe and central Asia to phase out their use of ozone destroying chemicals. After more than a decade of international cooperation, the concentration of some of these chemicals in the atmosphere has already started to decline.

Land degradation

GEF's interest in financing activities to prevent and control land degradation comes from the nature and extent of its link to global environmental change. Destroyed forests and degraded water resources imperil biodiversity, induce climate change, and disturb hydrologic cycles. Taking into account the objectives of the UN Convention to Combat Desertification (UNCCD), dozens of GEF projects cut across the four focal areas described above to address land degradation. In October 2002, the GEF Assembly approved land degradation as a new focal area, which means that a project may tackle land degradation as its primary objective. In September 2003, UNCCD designated the GEF as an official financial mechanism.

Persistent Organic Pollutants

In May 2001, governments adopted the Stockholm Convention on Persistent Organic Pollutants (POPs) and named the GEF as the convention's interim financial mechanism, pending entry into force of the convention. In October 2002, the GEF Assembly approved the addition of POPs as a new focal area.

POPs are highly stable compounds that circulate globally through a repeated process of evaporation and deposit, and are transported through the atmosphere and the oceans to regions far away from their original source. They accumulate in the tissue of living organisms, which absorb POPs through food, water, and air. The effects of POPs exposure include birth defects, cancers, and dysfunctional immune and reproductive systems. POPs are also a threat to biodiversity, and even have the potential to cause disruption at the ecosystem level. The GEF has already been designated by Parties as the financial mechanism for the UN Framework Convention on Climate Change and the Convention on Biological Diversity. As such, it is the mechanism through which donor countries meet their financial commitments to support developing countries in meeting the terms and conditions of these conventions.

Two important principles guide the funding of projects by the GEF: (1) the project would not otherwise be undertaken without GEF funds ("additionality"). Operationally, this principle is intended to prevent the GEF from being used as an alternate source of funding for projects that should be undertaken as part of the regular activities of governments or international institutions; (2) the GEF funds only the incremental costs of achieving global benefits from project ("incrementality"). In practice, this means that the GEF does not fund projects that have only domestic benefits, but will provide funds to support changes in the project or additional measures that would provide global environmental benefits in one of the four areas noted above. Interpretation of what constitutes additionality and incrementality is an on-going subject of debate, with recipients generally favouring a more liberal interpretation than the donor countries.

About 40% of GEF's resources are notionally allocated for climate change activities. A similar amount is notionally allocated to biodiversity. Approximately 15% is allocated to international waters, and the remainder to ozone depleting substances. GEF projects are implemented primarily through the World Bank, the United Nations Development Programme (UNDP) and UNEP. The Regional Development Banks, and other UN organizations, such as, the Food and Agriculture Organization (FAO) and the United Nations Industrial Development Organization (UNIDO) have recently been added as executing agencies of the GEF.