

12 Environment

INTRODUCTION/ROLE OF THE MINISTRY

THE primary concerns of the Ministry of Environment & forests under the Government structure and implementation of policies and programmes relating to conservation of the country's natural resources including lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals and prevention and abatement of pollution. While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being. The Ministry also serves as the nodal agency in the country for the United Nations Environment Programme (UNEP), South Asia Co-operative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD) and for the follow-up of the United Nations Conference on Environment and Development (UNCED). The Ministry is also entrusted with the issues relating to multilateral bodies such as the Commission on Sustainable Development (CSD), Global Environment Facility (GEF) and of regional bodies like Economic and Social Council for Asia and Pacific (ESCAP) and South Asian Association for Regional Co-operation (SAARC) on matters pertaining to environment.

The broad objectives of the Ministry are:

- Conservation and survey of flora, fauna, forests and wildlife.
- Prevention and control of pollution.
- Afforestation and regeneration of degraded areas.
- Protection of the environment and
- Ensuring the welfare of animals.

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, a Natural Conservation Strategy and Policy Statement on Environment and Development, 1992, National Forest Policy, 1988, a Policy Statement on Abatement of Pollution, 1992 and a National Environment Policy 2006 have also been evolved.

NATURAL RESOURCES-SURVEY AND EXPLORATION

SURVEY OF FLORA

BOTANICAL SURVEY OF INDIA

The Botanical Survey of India (BSI) was established on 13th February, 1890 with the basic objective to explore the plant resources of the country and to identify the plant species with economic virtues. The Headquarter of BSI is located at Kolkata and its 10 circle offices have been set up at various places of the country. During the successive plan periods, the functional base of Botanical Survey of India was expanded to include various new areas such as inventorising endemic rare and threatened plant species, evolving conservation strategies; studies on fragile ecosystems and protected areas like sanctuaries, national parks and biosphere reserves; monitoring of changes in floristic components; conservation; multiplication and maintenance of germplasm of plant genetic resources, endemic and threatened species, wild ornamentals etc., in

Botanic Gardens and Orchidaria, ethnobotanical and geobotanical studies and development of National Data base on Herbarium (including type specimens) and live collections, plant genetic resources, plant distribution and nomenclature.

- Thirty-eight field/exploration/live plant collection/EIA Study tours were undertaken by different circle offices and units of BSI covering wildlife sanctuaries, catchment areas, wetlands, mangrove areas, etc. of several districts of various States like Arunachal Pradesh, Mizoram, Sikkim, Uttar Pradesh, Uttarakhand, Karnataka, Orissa, Tamilnadu, Kerala, West Bengal, etc.
- During the field/ exploration/ collection tours. more than 5,500 specimens were collected including lower groups of plants viz. Algae, Fungi, Lichens, Bryophytes and Pteridophytes. About 3,000 specimens belonging to 900 species were identified by different circles and units of Botanical Survey of India.
- Ten herbarium consultation tours/study tours were undertaken in connection with the revisionary and floristic studies under National/State/Region/District Flora.
- The BSI undertook documentation of phytodiversity of various national flora, regional flora and State flora. Indigenous knowledge of several plant resources was also documented by the BSI
- Eleven New Species/variety, sixteen new records for India and eight new records for states were discovered so far by the BSI. Four species were also collected by the BSI during 2007-08 after 50 years or more.

SURVEY OF FAUNA

ZOOLOGICAL SURVEY OF INDIA

The Zoological Survey of India (ZSI), a premier institute under the Ministry, has been undertaking survey, exploration and research leading to the advancement of our knowledge on the exceptionally rich faunal diversity of the country since its inception in 1916, with its headquarters at Kolkata and 16 Regional Stations located in different parts of the country, ZSI in recent years, has reoriented its plan of work by grouping the survey and studies under six major programmes viz. Fauna of States, Fauna of Conservation areas, Fauna of Important Ecosystems, Status survey of endangered species and Ecological Studies/Environment Impact Assessment Survey and Identification of Wildlife Seized materials related to Wildlife (Protection) Act. 1972. Besides, the on-going Fauna of India Programme was also continued.

- One hundred and one extensive faunal surveys were undertaken to different States/Union Territories including important ecosystems and some selected conservation/ protected areas. Five status surveys were carried out. One Environment Impact Assessment survey at Rowghat of Bhilai Steel Plant in Chhattisgarh was carried out. Besides, several short duration intensive surveys for ecological studies were also undertaken. Detailed taxonomic studies were carried out on the material collected during these as well as earlier surveys.
- the National Zoological Collection was further enriched by the addition of 13016 Identified specimens belonging to 1165 species. In addition to above major activities, Identification and Advisory Services were rendered to 96 individuals or institutions in India and abroad.

- Faunal exploration and surveys of various eco-systems, conservation areas, ecological status surveys, etc. were undertaken by the ZSI and its regional offices during the year 2007-08.
- The book on Faunal diversity of Tiger of India Reserves was released by the Hon'ble Prime Minister of India during the meeting of the National Board for Wild Life.
- Website of Zoological Survey of India was launched during November 2007. The website can be viewed at <http://www.zsi.gov.in>.

FOREST RESOURCES AND SURVEY

FOREST SURVEY OF INDIA, DEHRADUN

Forests are renewable resources & contribute substantially to economic development. They play a major role in enhancing the quality of environment. Forest Survey of India (FSI), a premier national organization for forest resource assessment is for collection of data on scientific lines through countrywide comprehensive forest resources survey at regular intervals. The FSI with its headquarters at Dehradun and four Regional Offices at Shimla, Kolkata, Nagpur and Bangaluru, work in close coordination to carry out the various activities of FSI. Besides administration as well as technical control the major activity at the headquarters is forest cover mapping data processing and conducting training. The zonal offices are mainly engaged in the inventory of forests and trees outside forests and supporting headquarters in other activities as and when assigned.

- Forest Survey of India (FSI) assesses forest cover of the country by interpretation of remote sensing satellite data and publishes the results in a biennial report called 'State of Forest Report (SFR). Nine SFRs have been brought out so far, and the 10th SFR has now been published. Starting with data of US Remote Sensing Satellite Landsat for SFR 1987, FSI shifted over to the data of the indigenous satellites Indian Remote Sensing (IRS) in 1995. In the current cycle (i.e. for FSI has used satellite data for IRS P6 Resource sat LISS III.
- The forest cover maps on different scales are kept in public domain and sold to the State Forest Departments and other user agencies on nominal price. Since 2001. the latest tree cover maps are available as hard copy and also in digital form.
- After the creation of the FSI the field inventory remained the primary activity with a modified design covering the whole country. The total forest area inventoried until the year 2000 was about 69.2 million ha which included some areas inventoried twice. Thus, more than 80 per cent forest area of the country was inventoried comprehensively in a period of 35 years.
- According to State of Forests Report 2005, the total forest cover of the country as per 2005 assessment is 677,088 km² and this constitutes 20.60 per cent of the total geographic area of the country. Of this, 54,569 km² (1.66%) is very dense forest, 332,647 km² (10.12%) is moderately dense forest, while 289,872 km² (8.82%) is open forest cover. The scrub accounts for 38,475 km² (1.17%)
- While computing the percentage of forest cover of the country. The total geographic area of 2,287,263 km² is taken. A closer analysis of this reveals that a sizeable part of the country's area lies in high altitude mountainous region under permanent snow/glaciers, steep slopes and rocks which are not available

for free planting due to climatic and physical reasons. As per recent study of FSI, about 1,83, 135 km² area in the states of Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Sikkim and Uttarakhand have been found above 4,000 m. altitude where climatic and edaphic conditions limit growth. If this part of the geographic area of the country is excluded for the purpose of forest cover analysis, the forest cover of the country in terms of percentage to the geographic area comes to 21.81%.

- The State/UT wise forest cover in the country shows that Madhya Pradesh with 76,013 km² has the largest area under forest cover, followed by Arunachal Pradesh (67,777 km²), Chhattisgarh (55,863 km²), Considering the proportion of geographic area under forest cover, Mizoram has the maximum percentage of 88.63% followed by Nagaland (82.75%), Arunachal Pradesh (80.93%) and Andaman & Nicobar Island (80.36%), Andhra Pradesh has the largest area under scrub (9.862 km²).
- The latest assessment shows that mangrove cover in India is 4,445 km², which is 0.14% of the country's total geographic area. The very dense mangrove comprises 1,147 km² (25.8% of mangrove cover), moderately dense mangrove is 1,629 (36.6%) while open mangrove covers an area of 1,669 km² (37.6%).
- Tree cover estimate comprises tree patches outside the recorded forest cover which are not captured by remote sensing satellite during forest cover assessment. This area is less than the minimum mappable area (1 ha) and comprises block & linear patches having area up to 0.1 ha and scattered trees. All areas more than one ha. in extent and having tree canopy density of 10 % and above are included under forest cover. However, there are many small patches of trees less than 1.0 ha. in extent, such as trees in small scale plantation woodlots or scattered trees on farms, homestead and urban areas or trees along linear features such as roads, canals, bunds etc. are not being captured by satellite sensors under forest cover due to technological limitations.
- The total tree cover of India has been estimated to be 91,663 km², which constitutes 2.79% of the country's geographic area. The tree cover for each physiographic zone has been estimated. It is observed that the tree cover is the maximum in East Deccan (11,293 km²), followed by Northern Plains (10,747 km²) and West Coast (8,307 km²). However, West Coast has maximum percentage of tree cover (6.85%) with respect to geographic area followed by Western Ghats (5.37%) and East Coast (4.84%) Eastern Himalayas, has the lowest tree cover of 255 km², as the area is full of forest.
- A new National Forest (NFI) has been designed and adopted by FSI since 2002. The country has been divided into 14 physiographic zones and 60 districts randomly selected from these zones on probability proportional to size are inventoried in two years. About 8,000 sample plots are laid in forest areas distributed over the country in each cycle for field inventory. It has now been possible to generate a national estimate of growing stock on a two-year cycle.
- The Ministry constituted a National Working Group/Governing Body to frame the policy guidelines on 'Forest Certification' for timber and NTFPs. The National Working Group / Governing Body also finalized the 'Terms of Reference (TOR)' for the following three committees;

- Committee for 'Certification Criteria'
- Committee for 'Certification Processes'
- Committee for 'Accreditation Criteria and Processes'

With the objective to prepare the road map and the necessary criteria and processes for the National Certification of forests, timber and Non-Timber Forest Products etc. in the country at par with the international standards.

- The Ministry of Environment and Forests constituted a Core Group to study the applied rates and the import duties which play a significant role for import of commodities including forestry products and in the multi-lateral/bilateral trade negotiations so that various alternatives may be discussed alongwith objectives and constraints and correct specifications of the models encompassing the timber and other forestry products in raw, semi-finished and finished form, can be formulated.
- The Ministry constituted an Expert/ Advisory/ Working Group with an aim to support the implementation of an integrated National Forestry Database Management System (NFDMS) in a comprehensive manner including strengthening of the technological, institutional and human capabilities to ensure continuing and effective dissemination and use of forest statistics.
- On the occasion of world forestry Day on 21st March, 2007, Hon'ble Minister of Environment & Forests, Government of India released the book 'National Forestry Database Management System - A Vision'. which is a compilation of the presentations in the meetings by the Expert Group constituted by the Ministry to guide the development and implementation of the National Forestry Database Management system (NFDMS).

CONSERVATION

MANGROVES AND CORAL REEFS

- The Ministry is at the forefront in regard to conservation and management of mangroves & coral reefs and accords high priority to the conservation and management of Mangroves and coral reefs in the country. The Coastal Regulation Zone Notification (1991) under the Environmental Protection Act (1986) recognizes the mangrove and coral reefs areas as ecologically sensitive and categorizes them as CRZ-I (i) Which implies that these areas are afforded protection of the highest order. Under the promotional measures, the Government has identified 28 mangrove areas and four coral reefs areas on a country-wide basis for intensive conservation and management. The details are given in Table-1 and Table-2 respectively. The National Policy, 2006 recognizes that Mangroves and coral reefs are important coastal environmental resources which provide habitats for marine species; protection from extreme weather events; and a resource base for sustainable tourism. The Policy also recognizes that mangroves, as indeed the other coastal resources like coral reefs & coastal forests, face threats from various quarters.
- Mangroves in India account for about 5 per cent of the World's mangrove vegetation and are spread over an area of about 4500 km² along the coastal States/UTs of the country. Sunderbans in West Bengal account for a little less than half of the total area under mangroves in India. The Forest Survey of India is assessing the vegetation cover of the country including mangroves using

remote sensing since 1987. West Bengal has maximum of mangrove cover in the country followed by Gujarat and Andaman & Nicobar Islands. India is home to some of the best mangroves in the world. The Ministry has established a National Mangrove Genetic Resources Centre in Orissa.

CORAL REEFS

The four major coral reefs areas identified for intensive conservation & management are:

- Gulf of Mannar
- Gulf of Kachchh
- Lakshadweep and
- Andaman and Nicobar Islands.
- The Indian reef area is estimated to be 2,375 km². Recognizing that the year 2008 is the International Year of Coral Reefs, the Ministry has sponsored a Workshop entitled 'Status of Coral Reefs in India' jointly organized by UT Administration of Lakshadweep and National Institute of Oceanography. Goa from 21-23 January, 2008 at Kadamat Islands, Lakshadweep.
- Two tier system at national and State level are in operation for effective coordination to implement the Scheme on Mangroves & Coral Reefs.

BIOSPHERE RESERVES

Biosphere Reserves are areas of terrestrial and coastal ecosystems which are internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) programme. These Reserves are required to meet a minimal set of criteria and adhere to a minimal set of conditions before being admitted to the World network of Biosphere Reserves designated by UNESCO. These Reserves are rich in biological and cultural diversity and encompass unique features of exceptionally pristine nature. The goal is to facilitate conservation of representative landscapes and their immense biological diversity and cultural heritage, foster economic and human development which is culturally and ecologically sustainable and to provide support for research, monitoring education and information exchange. The scheme is a pioneering effort at pursuing the increasingly difficult yet urgent task of conserving ecological diversity under mounting pressures. India has been divided into ten Bio-geographic Zones and these zones together consist of twenty five Bio-geographic provinces. The aim is to designate one representative site as Biosphere Reserve in each Bio-geographic province for long term conservation.

- The Ministry has provided financial assistance to the respective State Governments for conservation and management of fourteen Biosphere Reserves designated so far. In addition Kachchh Biosphere Reserve in Gujarat has been designated as 15th Biosphere Reserve in the country on 29th January, 2008.
- Out of the Fifteen Biosphere Reserves designated nationally, four Biosphere Reserves namely Sunderbans (West Bengal), Gulf of Mannar (Tamil Nadu), Nilgiri (Tamil Nadu, Kerala and Karnataka) and Nanda Devi, (Uttarakhand) have been included in the World Network of Biosphere Reserves so far. The proposals in respect of Kanchenjunga (Sikkim), Manas (Assam), Simlipal (Orissa) and Pachmarhi (Madhya Pradesh) are in active consideration of the UNESCO for their recognition on the world Network. Efforts are being made for

getting remaining Biosphere Reserves included in the World Network of Biosphere Reserves.

- The Core areas of the Biosphere Reserves Continue to be protected under the Wild Life (Protection) Act. 1972 and Indian Forest Act. 1927 and Forest Conservation Act, 1980. However, separate Regulation within the framework of existing Environment (Protection) Act, 1986 is being firmed up to regulate activities within Buffer Zone of the Biosphere Reserves. Entities of Incomparable Value (EIVs) within Buffer Zones, as defined in the National Environmental Policy, 2008 shall be identified under new regulation.

BIODIVERSITY CONSERVATION

Biodiversity is the variability among living organisms and ecological complexes of which they are part, including diversity within and between species and ecosystems. Biodiversity has direct consumptive value in food, agriculture, medicine and industry. A scheme on biodiversity conservation was initiated earlier to ensure coordination among various agencies dealing with the issues related to conservation of biodiversity and to review, monitor and evolve adequate policy instruments for the same.

- The Convention on Biological Diversity (CBD), one of the key agreements adopted during the Earth Summit held in Rio de Janeiro in 1992, is the first comprehensive global agreement which addresses all aspects relating to biodiversity. The CBD, which has near universal membership with 190 countries as its Parties, sets out commitments for maintaining the world's ecological underpinnings, while pursuing economic development. The Convention, while reaffirming sovereign rights of nations over their biological resources, establishes three main goals; the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources. India is a party to the CBD.
- Eight meetings of the Conference of the Parties (CoP) to the CBD have been held so far. The eighth meeting of CoP was held in Curitiba, Brazil from 20-31 March, 2008.
- Pursuant to a decision of CoP-8, India hosted the Sub-Regional workshop on the Review of and Capacity Building for CBD programme of work on protected areas for South and West Asia regions. The workshop was organized through the Wildlife Institute of India in Dehradun from 2-4 April, 2007.
- In pursuance of CoP-8 decision, four international meetings under CBD have been held so far. These include twelfth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-12) held in Paris, France from 2-6 July, 2007; second meeting of the Ad hoc open-ended Working Group on Review of Implementation of the Convention (WGRI-2) held in Paris, France from 9-13 July, 2007; fifth meeting of Open Ended Working Group on Access and Benefit Sharing (ABSWG-5) held in Montreal, Canada from 8-12 October, 2007; and fifth meeting of Ad hoc Open Ended Working Group on Article 8j and related provisions (WG 8j-5) held in Montreal, Canada from 15-19 Oct. 2007.
- Subsequent to the approval of the National Environment Policy (NEP) by the Cabinet in 2006, preparation of a draft NBAP in consonance with the NEP and using the final technical report of the UNDP/GEF project on national Biodiversity Strategy and Action Plan (NBSAP) has been undertaken.

- The National Biodiversity Authority (NBA) set up at Chennai on 1st October, 2003 as per the provisions of the Biological Diversity Act, 2002 is mandated to facilitate implementation of the Act. The Authority has held 3 meetings during the year and taken a number of important decisions including prescribing format of "agreements" to be signed between NBA and other parties seeking access to Genetic Resources And Associated Knowledge and Notification of guidelines on collaborative Research. The Authority organized a number of seminars, symposia involving various stake holders to educate and create awareness in regard to provisions of the Act. The NBA has also considered a number of applications relating to access of Biological Resource and related matters.

GENETIC ENGINEERING APPROVAL COMMITTEE

The Ministry under the Environment Protection Act (1986), has notified the "Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/ Genetically engineered Organisms or Cells 1989" (known as Rules, 1989). The Genetic Engineering Approval Committee, the apex body under the Rules, 1989 has the mandate to approve the large scale trials and commercial release of Living Modified Organisms (LMOs) and ensure that research and development and testing of LMOs prior to release are conducted in a safe and scientific manner. The rules also cover the application of hazardous microorganisms which may not be genetically modified. Hazardous microorganisms include those which are pathogenic to animals as well as plants. Seven meetings of the Genetic Engineering Approval Committee have been held from April, 2007 till date.

- The Bt technology was deployed in cotton crop through genetic engineering techniques for control of bollworms the major pest thereby reducing the risk of crop failures and use of pesticides. Bt cotton producing a natural insecticide that comes from the ubiquitous soil bacterium known as *Bacillus Thuringiensis* was approved by the Genetic Engineering Approval Committee (GEAC) for introduction in India in 2002 after extensive biosafety and agronomic testing. As of date, the GEAC has approved 135 Bt cotton hybrids expressing Cry 1 Ac gene (MON 531 event) and stacked genes Cry1 Ac and Cry 2Ab (MON 15985 event)-BG-II developed by M/s Mahyco, encoding fusion genes (cry 1Ab+Cry Ac) 'GFM developed by M/s Nath Seeds and cry 1Ac gene (Event-1) developed by M/s J.K. Agrigenetics Ltd. of which 73 Bt cotton hybrids were approved for commercial release in the nine cotton growing states namely Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Tamilnadu.
- The Ministry has set up a Sub-committee, to review the need for case by case regulation of Bt cotton expressing cry 1Ac (MON 531 event) which has been commercialized and is extensively being cultivated in majority of the cotton growing area since, 2002.

CARTAGENA BIOSAFETY PROTOCOL

The Cartagena Protocol on Biosafety, the first international regulatory framework for safe transfer, handling and use of living Modified Organisms (LMOs) was negotiated under the aegis of the Convention on Biological Diversity (CBD). The Protocol was adopted on 29th January, 2000. One hundred and forty three countries have signed the Protocol. India has acceded to the Biosafety Protocol on 17th January 2003. The

Protocol has come into force on 11th September, 2003. As of date, 143 countries are parties to the Protocol.

- The fifth Meeting of the Ad Hoc Open Ended Working Group on Liability and Redress is scheduled for 12-19 march 2008 at Cartagena, Colombia. India's country position and negotiating text has been prepared based on a consultative approach.. The negotiating text has been extensively discussed in the meetings of the Consultative Group on Biodiversity and Biosafety and the Expert Advisory Group on Liability and Redress. The Ministry had also organized a "National Consultation of Liability and Redress" on 14.1.2008 at New Delhi.
- The GEF world Bank Capacity Building Project on Biosafety (June 2004 to June 2007) to implement the Cartagena Protocol has been successfully completed.
- The achievements and the success indicators of the Project are as follows
- Component 1. Strengthening of institutional and legal framework to improve capacity and coordination in decision-making within and across Ministries.
- Component 2. improved capacity for risk evaluation and management
- Component 3. Strengthening of laboratories/Institutions for analytical detection of LMOs
- component 4. Biosafety Clearing House (BCH) and Enhanced information sharing and public awareness.

ALL INDIA COORDINATED PROJECT ON CAPACITY BUILDING IN TAXONOMY (AICOPTAX)

Taxonomy is the science which helps in exploration, identification and description of living organisms. However, the scope of taxonomy does not end with this. A sound taxonomic base is a pre-requisite for environmental assessment, ecological research, effective conservation, management and sustainable use of biological resources.

- About 90,000 species of animals and 47,000 species of plants have been identified and described so far. A large number of animals and plants are yet to be explored, identified and described.
- As a signatory to the Convention on Biological Diversity (CBD) held in Rio de Janeiro in 1992, India has committed itself to capacity building in taxonomy and taken up exploration and preparation of an inventory of living organisms. The Ministry has set up an All India Coordinated Project on Taxonomy. The Project has organized specialist groups drawn from Universities, Botanical and Zoological Surveys of India to take up taxonomic work on animal viruses, bacteria and archaea, algae, fungi, lichens, bryophytes, pteridophytes, gymnosperms, palms, grasses, bamboos, orchids, helminthes and nematodes, Microlepidoptera and Mollusca.

BOTANIC GARDEN OF THE INDIAN REPUBLIC (BGIR), NOIDA

The BGIR was *inter-alia* set up to facilitate *ex situ* conservation and propagation of rare and threatened indigenous plants of the country, serve as a 'Centre of Excellence' for research and training and thereby cater to the need for conservation of endangered species in the region, and build public awareness on the conservation needs through education on conservation of plant diversity. The BGIR is presently carrying out the basic scientific/technical work to facilitate project execution in context of research/field operations.

- The Programme continued with about 350 plants being introduced in the south eastern section of the woodland to develop a Red Sander Mixed Forests, about 375 plants species being introduced in the northern section of the woodlands for development of Dry Deciduous Gangetic forest subtype, and about 20 species being introduced in the Ficus Arboretum in the western section of the woodland.

UNDP-GOI CCF II Project on promoting Conservation of Medicinal Plants and Traditional Knowledge for enhancing Health and Livelihood Security.

The project was initiated in 2005-06 at an estimated cost of Rs. 12.00 crores and is being implemented in nine States. The Foundation for Revitalization of Local Health Tradition (FRLHT), Bangaluru is coordinating the project. The States namely Andhra Pradesh, Kerala, Tamilnadu, Madhya Pradesh, Rajasthan, Orissa, West Bengal, Karnataka and Maharashtra are participating in the project.

- A high Level Project Management Board (PMB) to oversee and facilitate the interdepartmental coordination and an Empowered Project steering committee (EPSC) to guide the implementation of the Project have been constituted. The Technical Coordination and implementation of the project is being done by the Foundation for Revitalization of Local Health Traditions, Bangaluru. The field level project components are being implemented by the respective State Forest Departments and selected NGOs.
- The Project States have constituted Project Steering Committees and have prepared work plans for their respective components. The process of identification of sites for establishing Medicinal Plants Conservation Areas (MPCAs) in four states, establishment of sustainable harvest of NTFPS and medicinal Plants in three states, need assessment for central seed centers in four states, capacity building for establishing Home Herbal Gardens (HHGs) has started. Rapid Threat Assessment exercises called Conservation Area of Medicinal Plants (CAMP) workshops, as per IUCN guidelines for prioritized medicinal Plants species, are being organized in three states viz; Orissa, Rajasthan and West Bengal.

ASSISTANCE TO BOTANIC GARDENS

The scheme on Assistance to Botanic Gardens and Centers for ex-situ conservation was initiated in 1992 to augment ex-situ conservation of rare endemic plants. One time financial assistance is provided to the Botanic Gardens and Centres of Ex-situ Conservation, for improvement of their infrastructural facilities to facilities ex-site conservation of rare endemic plants. The achievements made in these Botanic Gardens are periodically monitored with the help of Botanical survey of India.

- The Ministry has constituted an Expert Group to identify and recommend proposals received under the scheme. The Botanical Survey of India helps in identification of rare endemic plants requiring ex-situ conservation. During the year seven proposals for Botanical Gardens have been approved for funding.
- The revised guidelines for the scheme were circulated to various states for submission of suitable proposals. The Revised Guidelines envisages establishment and promotion of Lead Gardens in each phyto-geographic zone. Based on the criteria prescribed in the guidelines, three proposals have been received for development of 'Lead Gardens' in different phyto geographic zones of the country. These Lead Gardens shall provide necessary expertise for smaller gardens, and shall be equipped with modern facilities.

FOREST CONSERVATION

The mandate of the Forest Conservation Division is to implement the Forest (Conservation) Act, 1980, which was enacted on 25 October, 1980. This Act deals with grant of forestry clearances for diversion of forest lands for non-forestry purposes in respect of development projects like power, roads, railways, irrigation, mining, schools, defence, drinking water, resettlement & rehabilitation of people etc.

- Since its enactment in 1980 till 31st December, 2007, about 16,939 developmental projects involving 11.56 lakh hectares forest area have been granted forestry clearance. These include the projects for power generation, irrigation, construction of roads, railway lines, transmission lines, drinking water supply projects, village electricity, schools, hospitals etc. Out of these, 2244 developmental projects of various categories involving 84275.55 hectares of forest land, have been granted forestry clearance under the Forest (Conservation) Act, 1980 during the year (upto 31st December, 2007)
- Further, to boost the development of underdeveloped area, one time clearance has been granted under Forest (Conservation) Act, 1980 for public utility developmental projects involving not more than one hectare of forest land, to be executed by Government Department namely, schools, dispensary/hospital, electric and telecommunication lines, drinking water, water/rainwater harvesting structures, minor irrigation canal, non-conventional sources of energy, skill upgradation/vocational training centre, power substations, communication posts and police establishments like police stations/outposts/watch towers, in sensitive areas. The Validity of general approval has been further extended upto 31.12.2008
- In tribal areas, general approval under Section-2 of the Forest (Conservation) Act, 1980 has been accorded for underground laying of electric cable and wires to individual household, drinking water supply/water pipelines, telephone lines which involve felling of trees not exceeding 50 numbers per project and are outside the National Parks and Sanctuaries and are laid along the road and validity of general approval has been extended up to 31.12.2008.
- To provide better living conditions to the tribal and rural people, Central government has issued general approval under forest (Conservation) Act, 1980 to permit the right holders recognized under Indian Forest Act, 1927, to collect the stones/slates/boulders etc. from forest areas for their bonafide domestic use subject to certain conditions. No commercial use is permitted under this dispensation.
- Government also issued directions to the State/UT Governments not to evict the tribal and forest dwellers, other than in-eligible encroachers, from forest lands till the process of verification of their rights is complete. Fresh guidelines for verification/recognition of rights of tribal forest dwellers on forest land for settlement of disputed claims have also been issued on 3 November, 2005. These guidelines provide for constitution of village level, block level and district level Committees, procedure to be followed, nature of admissible evidence and criteria for accepting claims for settlement of rights.

REGIONAL OFFICES

The Ministry has six Regional Offices located at Bangaluru, Bhopal, Bhubaneswar, Lucknow, Shillong and Chandigarh with its headquarter in the Ministry at New

Delhi. The primary function of the Regional Offices are to monitor and evaluate the ongoing forestry projects and schemes with specific emphasis on conservation of forests and follow up action on the implementation of conditions and safeguards laid down by the Ministry which granting clearance to development projects under FCA, 1980 and EPA, 1986.

INTEGRATED FOREST PROTECTION SCHEME

Integrated Forest Protection Scheme (IFPS) was being implemented during the X Five Year Plan and is being continued during XI Plan. The Planning Commission has suggested to rename the Scheme as "Intensification of Forest Management" during 11th Five Year Plan. It is proposed to broadbase the scheme by including following two new components in addition to the existing components of IFPS i.e. Infrastructure Development & Forest Fire Control Management.

NEW COMPONENTS

- Conservation and Restoration of unique vegetation and Eco-systems.
- Protection and Conservation of Sacred Groves.
- Joint Forest Management (JFM) - the conceptual frame work for JFM emphasizes development of partnerships with forest fringe people. Guidelines on JFM have been updated from time to time focusing on the management and utilization of NTFFPs in coordination with PRIs at various levels. Presently there are 1,06,479 JFMCs managing on extent of 22.02 mha. involving 21.99 million people of forest area.

Management of Gregarious Flowering of Muli Bamboos in North-Eastern States of India

The Scheme has been finally approved on 30 March, 2006 by the Planning Commission and the Ministry of Finance for implementation from 2005-06 to 2008-09 with a total project outlay of Rs. 85.00 crores. A total of seven NE states are implementing the project along with ICFRE.

FOREST POLICY

Non-Legally Binding International Instrument for sustainable development of all types of forests has been agreed to as Global Forest Policy by all member countries of the United Nations and adopted by General Assembly. The Government of India has assigned the ownership of minor forest produce to the people living in and around forests for the purpose of collection, processing, trade and marketing through a national level legislation named as the Scheduled tribes and Other Traditional Forest Dwellers (Recognition of Forest rights) Act, 2006. This will help the forest dependent people to improve their economy, and will also enhance contribution of forests towards achievement of Millennium Development Goals (MDGs).

- National Forest Commission (NFC) is the first of its kind ever. Constituted earlier, it submitted its report on 28 March, 2006. The Commission took a view for long term betterment of Forests and wildlife in India as well as safeguarding the interest of forest dependant communities and also maintained the national commitment for ecological security of the country as mandated in National Forest Policy.
- The report examined the current status of forests, review of forest policy, legal framework, institution and administrative structure of forestry sector. The goals and constraints of the forestry sector, approach to forests, wildlife and nature

conservation, farm and agro-forestry, centre-state relations, forest and local communities have been considered in depth. The report also examined forest related international instruments, forestry research, relation between forestry and industry, forests and local communities in depth.

- A National Level Consultation on the implementation of Scheduled tribes and Other. Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 was convened on 25 June, 2007 with state/UT Governments and other central Ministries on the implementation of this legislation. Forest Secretaries, PCCFs and Chief Wildlife Wardens of the State/UT Governments participated and expressed their views.

WILDLIFE CONSERVATION

The Indian Constitution entails the subject of forest & wildlife in the Concurrent list. The Federal Ministry acts as a guiding torch dealing with policies and planning on wildlife conservation while the State Forest Departments have been vested with the responsibility of implementation of national policies and plans. To combat wildlife related crimes, a Wildlife Crime Control Bureau under the Director, Wildlife Preservation has been constituted with five Regional Offices viz., Delhi, Mumbai, Kolkata, Chennai and Jabalpur and three Sub-regional offices at Amritsar, Guwahati and Cochin. The Ministry provides necessary technical and financial support to the State Governments for wildlife conservation under various Centrally Sponsored Schemes (CSS) which include schemes for Development of National Parks and Sanctuaries. Project Elephant, Central Sector Scheme on Strengthening of Wildlife Division, and through Grants in Aid to the Central Zoo Authority and the National Tiger Conservation Authority (NTCA).

- The Protected Area network in India includes 99 National Parks and 513 Wildlife Sanctuaries, 41 Conservation Reserves and four Community Reserves. Realizing the gigantic task of managing our Protected Areas, the National Wildlife Action Plan (2002-2016) was adopted in 2002, emphasizing the peoples participation and their support for wildlife conservation.
- The Ministry had undertaken an independent evaluation of National Parks and Wildlife Sanctuaries in the country by a group of experts to ascertain how effectively the Protected Area (PA) network in the country performs in realizing the conservation objectives as well as the social objectives for effective wildlife management. Five regional committees of experts have also been constituted for the purpose. During the first phase, 30 Protected Areas were evaluated.
- Government of India has formulated an Action Plan for Vulture Conservation which is being implemented in collaboration of States/UTs to stem the decline and put the vulture population on growth path. The Government has supported breeding centres at Pinjore in Haryana, Buxa in West Bengal and Rani Forest in Assam including captive breeding centres at four zoos at Bhopal, Bhubaneswar, Junagarh and Hyderabad have also been setup through CZA, These centres are at various stages of implementation.
- The wildlife Crime Control Bureau has been constituted through amendment of the Wildlife (Protection) Act, 1972 in 2008. The powers and function of the bureau have been defined u/s38z of the Act.

- With the creation of the bureau, the four regional offices have been integrated with it along with their sub regional offices. A new regional office at Jabalpur has also been constituted.
- The fourth meeting of the National Board for Wildlife was held on 1st November, 2007 under the Chairmanship of Hon'ble Prime Minister. The important decisions taken during the meeting includes setting up of a sub-committee for recovery programme of endangered terrestrial species and for conservation of marine species.
- The Standing Committee of National Board for Wildlife was re-constituted vide order dated 9th July, 2007 and the meeting of the re-constituted Committee was convened on 10th September, 2007 under the chairmanship of Hon'ble Minister for State for Forests & Wildlife.
- The Ministry is the nodal agency for the various international conventions related to climate change, bio-diversity, wildlife conservation etc. India is a party to five major international conventions related to wildlife conservation, viz. Convention of International Trade in Endangered Species of wild fauna and flora (CITES). International Union for Conservation of Nature and Natural Resources (IUCN). International whaling Commission (IWC), United Nations Educational, Scientific & Cultural Organization-world Heritage Committee (UNESCO-WHC) and the Convention on Migratory Species (CMS).
- The 14th Conference of Parties to the CITES was held at The Hague, Netherlands from 3-15 June, 2007. A delegation from India had participated in the conference. The Hon'ble Minister for Environment & Forests, also participated in the Ministerial Round Table held on 13th June, 2007 in connection with the COP 14. The Indian delegation actively participated and intervened in various agenda, particularly, in those which were of National interest or indirectly affected country's conservation efforts. India's initiatives in conservation of Asian Big Cats and Tibetan Antelope were much appreciated. The COP also acknowledged with appreciation, the establishment of Wildlife Crime Control Bureau by India/ India informed the convention regarding various initiatives taken by India to strengthen the conservation tigers in India. This included, *inter alia*, the 2006 amendment to Wildlife (Protection) Act creation of National Tiger Conservation Authority and wildlife Crime Control Bureau. India further appealed to the international community to desist from any proposed move to go for commercial breeding of tigers as it can have devastating impacts on wild tiger population. There after, India, China, Nepal, Russian Federation and USA moved a joint resolution for strengthening tiger conservation and was adopted by the convention.
- India is a member of World Heritage Convention responsible for listing of World Heritage Sites, which include both Cultural and natural sites. Wildlife wing of the Ministry is associated with conservation of the Natural World Heritage sites.
- Considering the importance of World Natural Sites in India, an externally aided project has been undertaken titled "World Heritage Bio-diversity Programme for India: Building Partnerships to support (UNESCO's World Heritage programme)". This project is an outcome of a planning grant received from the UNESCO & United Nation Foundation (UNF) and was developed under the

guidance of a Project Steering Committee chaired by the Addl. Director General of Forests (WL), of the Ministry.

- Under the auspices of Convention on the Conservation of Migratory Species of Wild animals (CMS), the 6th Meeting of the Range States for Conservation of Siberian Cranes was held at Almaty, Kazakhstan. During the meeting, Keoladeo National Park, Rajasthan has been accorded as a potential wintering site for Siberian Cranes. Two more potential sites, viz, Etawah-Mainpuri Wetlands in Uttar Pradesh and Banni Grasslands in Gujarat, are also under consideration for conservation of Siberian Cranes.
- The 59th Annual meeting of the International Whaling Commission was held at Anchorage, Alaska from 28-31 May, 2007. An Indian delegation attended the meeting. India had played a proactive role during the meeting in its efforts to conserve the whale population in the world.
- India has joined hands with United States of America and other partners against the illegal Wildlife crime/trafficking by joining Coalition Against Wildlife Trafficking (CWAT). First meeting of the Ministerial partners of the coalition was held in Nairobi on 10th Feb, 2007. Hon'ble Minister of Environment and Forests attended this meeting. It was a follow up of the preparatory meeting held in London on 20-21 November, 2006, which was also attended by India.
- Established in 1982, Wildlife Institute of India (WII) is an autonomous institution under the administrative control of the Ministry and has been recognized as a country's premier training and research institution in the field of wildlife conservation. The Institute was awarded the Rajiv Gandhi Wildlife Conservation Award in 1999 in the Institutional Category by the MoEF for its outstanding performance and activities.

CENTRAL ZOO AUTHORITY

The Central Zoo Authority (CZA), established by the Government of India in the year 1992 through an amendment in the Wild Life (Protection) Act, 1972 oversees the functioning of Zoos and to enforce minimum standards and norms for upkeep and health care of animals in Indian Zoos and to restrain mushrooming of unplanned and illconceived Zoos that were cropping up as adjuncts to public parks, industrial complexes and waysides. The Central Zoo Authority has been reconstituted sixth time in the month of September, 2007 with Minister of State, Environment and Forests (Forests & Wildlife) as Chairman. The Central Zoo Authority is a 12 Member body headed by a Chairman. The Member Secretary is the Chief Executive Officer of the Authority. There is a 15 Member contingent in the office of the Central Zoo Authority for discharge of its mandated functions.

- Thirty nine different Zoos and Rescue Centres have been evaluated during the year. Out of which, 33 Zoos/Rescue Centres have been given conditional recognition. Six Mini Zoos/Rescue Centres have been de-recognized during the period.
- Sixty one different critically endangered wild animal species have been identified for coordinated conservation breeding programme in Indian Zoos. This has been done after a series of meeting with Chief Wild Life Wardens and Zoo Directors of the concerned States. Meetings at Guwahati (for the endemic species of North East), New Delhi (for high altitude Himalayan species) and Ooty (for endemic species of Western Ghats) were organized for the purpose.

- Funds for creation of off-display conservation breeding centres for Vultures (Junagarh, Bhopal, Hyderabad and Bhubaneswar), Painted roof turtle (Kukril) Blyth's tragopan (Rangapahar), Hume's pheasant (Aizawl) and Pangolin (Bhubaneswar) were released during the year.
- A Memorandum of Understanding (MoU) has been signed with Wildlife Institute of India, Dehradun for establishment of National Studbook Cell for maintaining National Studbooks of all the endangered wild animal species taken up for coordinated conservation breeding.
- Eleven proposals for exchange of animals between Indian Zoos and seven such proposals between Indian and foreign Zoos were approved by the Central Zoo Authority during the year.
- Hands on trainings for Zoo Veterinarians on control of avian influenza were organized at New Delhi (Northern region) and Chennai (for rest of India). One day workshop on Conservation of bustards was organized at New Delhi involving Chief Wild Life Wardens from the concerned States and other experts.

PROJECT TIGER (NATIONAL TIGER CONSERVATION AUTHORITY)

The Centrally Sponsored Scheme 'Project Tiger' was launched in April, 1973 with the objective 'to ensure maintenance of the viable population of Tigers in India for scientific, economic, aesthetic, cultural and ecological values, and to preserve for all times, areas of biological importance as a national heritage for the benefit, education and enjoyment of the people'.

- Amendment of the wild Life (protection) Act, 1972 for providing enabling provisions for constitution of the National Tiger Conservation Authority and the Tiger and Other Endangered Species Crime Control Bureau. The punishment in cases of offence within a tiger reserve has been enhanced. The Act also provides for forfeiture of any equipment, vehicle or weapon that has been used for committing any wild life offence.
- 100% Central Assistance provided to 17 Tiger Reserves as an additionality for deployment of Tiger Protection Force, comprising of ex-army personnel and local worldforce.
- Constitution of the National Tiger conservation Authority with effect from 4,09,2006, for strengthening tiger conservation by, *inter alia*, ensuring normative standards in tiger reserve management, preparation of reserve specific tiger conservation plan, laying down annual/audit report before Parliament, constituting State level Steering Committees under the Chairmanship of Chief Ministers and establishment of Tiger Conservation Foundation.
- Constitution of a multidisciplinary Tiger and Other Endangered Species Crime Control Bureau (Wildlife Crime Control Bureau) with effect from 6.6.2007 comprising of officers from Police, Forest, Customs and other enforcement agencies to effectively control illegal trade in wildlife.
- Approval accorded for declaring eight new Tiger Reserves.
- The revised Project Tiger guidelines have been issued to States for strengthening tiger conservation, which apart from ongoing activities, *inter alia*, include funding support to States for enhanced village relocation/rehabilitation package for people living in core or critical tiger habitats (from Rs.1 lakh/family to Rs.10 lakhs / family, rehabilitation/resettlement of communities involved in traditional hunting and mainstreaming livelihood and wildlife concerns in

forests outside tiger reserves and fostering corridor conservation through restorative strategy to arrest habitat fragmentation.

- A scientific methodology for estimating tiger (including co-predators, prey animals and assessment of habitat status) has been evolved and mainstreamed. According to the refined methodology, an estimated land of 93697 km² has been observed as tiger habitat. The estimated number of tigers is 1411 (with an upper limit 1657 & lower limit 1165 as per the refined scientific methodology). The findings of this estimation/assessment are bench marks for future tiger conservation strategy.
- India has a Memorandum of Understanding with Nepal on controlling transboundary illegal trade in wildlife and conservation, apart from a protocol on tiger conservation with China.
- A Global Tiger Forum of Tiger Range Countries has been created for addressing international issues related to tiger conservation.

PROJECT ELEPHANT

Project Elephant was launched in February, 1992 to assist States having free ranging populations of wild elephants to ensure long term survival of identified viable populations of elephants in their natural habitats. The Project is being implemented in States, viz Andhra Pradesh, Arunachal Pradesh, Assam, Jharkhand, Karnataka, Kerala Meghalaya, Nagaland, Orissa, Tamilnadu, Uttarakhand, Uttar Pradesh and West Bengal. States are being given financial as well as technical assistance in achieving the objectives of the Project, Help is also provided to other States with small populations of elephants for the purpose of census, training of field staff and mitigation of human elephant conflict.

- Assistance was provided to Haryana for creation of first elephant rehabilitation centre in the country.
- All India estimation of elephant was carried out in May 2007 all over India except the North East states where it will be done in winter due to climatic conditions. The preliminary reports indicate increase in population compared to 2002 census.
- Permission was given for creation of three more Elephant reserves - two in Chhattisgarh namely - Lemru & Badalkhod and; Deomali in Arunachal Pradesh.

ANIMAL WELFARE

The Animal Welfare Division is entrusted with the implementation of the provisions of the Prevention of Cruelty to Animals Act, 1960 (59 of 1960). Plan Schemes are in operation for implementation of the statutory obligations under this Act. Two statutory organizations viz. Animal Welfare Board of India (AWBI) and committee for the Purpose of Supervision and Control of Experiments on Animals (CPCSEA) have also been set up under this Act. The mandate of the Animal Welfare Division is to prevent the infliction of unnecessary pain or suffering on animals.

- Under the scheme for shelter houses for looking after the animals grant is provided to establish and maintain shelter houses for distressed animals in the country. Primarily, Non-Governmental Organisations (NGOs) and Society for Prevention of Cruelty to Animals (SPCAs) are given grants of upto Rs. 22.50 lakhs for construction of boundary walls, shelters, water tank, drains in-house

Dispensary, medical Equipment, contingencies etc. In the current financial year, 13 shelter houses have been constructed up to November 2007.

- In the current financial year, under the Scheme for Birth Control and Immunization of Stray Dogs, 33,222 animal birth control operation have been conducted upto November 2007.
- Under Scheme for Provision of Ambulance Services to Animals in Distress, 22 ambulances have been given to Animal Welfare Organisations (AWOs) upto November , 2007
- The Animal Welfare Board of India (AWBI) has granted recognition to 55 newly established Animal Welfare organizations (AWOs) during the year.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Environmental Impact Assessment is a process by which the developmental activities are appraised by the Ministry. This is to ensure that environment concerns are integrated in the developmental activities in order to achieve sustainable development. The process of EIA which was started in 1978-79 with river valley projects has now extended to about 39 activities. The major statutory regulations governing EIA are EIA Notification of 2006 and Coastal Regulation Zone (CRZ) Notification. 1991.

- The EIA notification of 2006 has been in operation during the year along with the EIA notification of 1994. A total number of 1412 proposals were accorded in Environmental Clearance during 2007-2008 (April-December). The sector wise clearance accorded was as follows:

S. No.	Activity	No. of proposals Accorded Environment Clearance
1.	Industry	371
2.	Thermal Power	77
3.	River Valley and Hydroelectric	22
4.	Mining	335
5.	Infrastructure and Miscellaneous	107
6.	Construction Projects	500
Total		1412

- The Ministry has sought assistance from the World Bank for implementation of Integrated Coastal Zone Management which includes vulnerability line mapping all along the coast, mapping of coastal ecological sensitive areas, institutional strengthening and capacity building etc. For Demarcation of vulnerability line on pilot scale six sites have been identified.
- For ensuring compliances to the environmental clearances in various sectors. Monitoring is undertaken by the six Regional Offices alongwith the State/UT and Central Pollution Control Board. Based on the monitoring reports suggestions are made for improvement in environmental management practices

in addition, interactive meetings were also organized during the year with proponents at Bhubaneswar, Lucknow, Mumbai, Jaipur etc., to facilitate understanding of cross sectoral issues related to implementation of environmental project.

ABATEMENT OF POLLUTION

CONTROL OF POLLUTION

The Concern for environmental quality has become the utmost issue in the present scenario of increasing urbanization, industrial and vehicular pollution as well as pollution of water courses due to discharge of effluents without conforming to the environmental norms and standards. Realizing this trend of pollution in various environmental media like air, water, soil etc., the Ministry adopted policy for abatement of pollution, which provides multi-pronged strategies in the form of regulations. Legislations, agreements, fiscal incentives and other measures to prevent and abate pollution. The give effect to various measures and policies for pollution control, various steps have been initiated which include stringent regulations, development of environmental standards, control of vehicular pollution, spatial environmental planning etc.

- The monitored ambient air quality data indicates that the levels of Sulphur Dioxide and Oxides of Nitrogen are within the notified ambient air quality norms. However, on certain occasions, the values of Suspended particulate Matter (SPM) are exceeding the prescribed norms due to the meteorological conditions.
- During the 10th Plan period, financial assistance of Rs. 24.98 crore was provided under the scheme, assistance for Abatement of Pollution, against the approved outlay of Rs. 24.5 crore to various State Pollution Control Boards/UT Pollution Control Committees. Environment Departments, Central/State Research Institutions, and other government agencies/organizations with the aim of strengthening their technical capabilities to achieve the objectives of the Policy Statement, salary support to North-Eastern Pollution Control Boards and Committees as well as for undertaking projects for abatement of pollution.
- To evaluate contribution from various sources to air quality, Source Apportionment Study (SAS) has been initiated for six cities namely, Delhi, Bangaluru, Chennai, Mumbai, Pune and Kanpur involving the Institutions like National Environmental Engineering Research Institute (NEERI), Nagpur. The Energy and Resources Institute (TERI), New Delhi, Indian Institute of Technology (IIT), Chennai, Automotive Research Association of India (ARAI), Pune and Indian Institute of Technology (IIT), Kanpur, For appraisal and guidance during the Survey and study, a National level Steering Committee under the chairmanship of Secretary (E&F) has been constituted. In order to provide technical assistance and guidance during data collection, use of appropriate model etc. a Technical Committee has also been constituted under the chairmanship of Chairman, Central Pollution Control Board (CPCB) and members drawn from various technical institutions and organizations.
- During the year 2007-08, standards in respect of following category of industry have been evolved and are being finalized for notification:

- Petroleum Oil Refinery;
 - Sulphuric Acid Plant;
 - Common Hazardous Waste Incinerator;
 - Sponge Iron Plant; and
 - Coffee Industry;
- The noise limits for Diesel Generator (DG) sets up to 1000 KVA were notified in May, 2002 and are under implementation since 1st January, 2005. The Ministry has issued a draft notification in November, 2007 inviting suggestions for amending the said notification on 'Noise Limit For Generator Sets Run with Diesel' under Environment (Protection) rules, 1986 so as to make the definition of 'manufacture' broad based by including assemblers of DG sets and to facilitate transportation of DG sets above 250 KVA capacity without comprising with emission and noise norms.
- The tenure of the Loss of Ecology (Prevention and Payments of Compensation) Authority for the State of Tamilnadu has been extended upto December 28, 2008 vide IV S.O. 2228 (E) dated 31-12-2007.
- During the year 2007-08, eleven Laboratories have been recognized by the Central Government under E (P)A, 1986 (till February, 2008).
- A total of 118 Waste Minimization Circles (WMCs) have been established in 41 industrial sectors through which 600 small and medium industries have been benefited. In this process, 39, WMC Facilitator Organizations have taken an initiative in establishing WMCs under the guidance of National Productivity Council. The WMC training programmes are integral part of the activity for which the Government of India funding under the scheme is utilized. The participating organizations facilitate NPC in conducting the training programme by providing necessary logistic assistance.
- During the year 2007-08, an amount of Rs. 167.33 crore were collected by SPCBs/ PCCs and Rs. 76.52 crore were reimbursed to different SPCBs and PCCs by the Central Government.
- An Experts' Committee on Noise Pollution Control has been exploring the idea of formulating suitable legislations in the country on aircraft/airport noise. As a first step, a 'Draft Procedure for Monitoring Ambient Noise Level due to Aircrafts' has been prepared considering prevalent noise monitoring procedure practiced internationally and also based on the results of the detailed noise monitoring conducted in an around IGI International airport. The objective of this document is to specify suitable requirements and procedures for airport authorities to carry out monitoring ambient noise level due to aircrafts around airports.
- Central Pollution Control Board (CPCB) coordinated with the Ministry in preparation of 'National Policy Document on Management of Hazardous Waste' and revision of Schedule 3 (list of wastes applicable for import & export for reprocessing, Schedule 4 (list of wastes, the reprocessing of which need registration from Central Pollution Control Board) and Schedule 8 (list of wastes prohibited for import and export of hazardous wastes) of the Hazardous Waste (Management & handling) Rules, 1989 as amended in 2003. The final draft of 'National Policy Document on Management of Hazardous Waste' and proposed draft amendments to Schedule 3, Schedule 4 and Schedule 8 of the Hazardous

Waste (Management & Handling) Rules has already been forwarded for consideration.

- COMMON BIOMEDICAL WASTE TREATMENT FACILITIES (CBWTF) have been set up in various cities for treatment of Bio-medical waste generated in various hospitals, nursing homes. In North Zone 28 CBWTF have been established. Out of these, 8 common facilities were inspected. In central zone, 18 CBWTFs have been established. Out of these 15 common facilities were inspected. In South Zone 10 CBWTFs facilities were inspected. In West Zone 31 CBWTF have been established. Out of these, nine common facilities were inspected.
- Nationwide water quality is monitored regularly under National Water Quality Monitoring Programme (NWMP) through a network of water quality monitoring comprising 1019 stations in 27 States and six Union Territories is being operated by CPCB in collaboration with concerned SPCBs/PCCs. The monitoring network covers 592 monitoring stations on 200 rivers, 65 monitoring stations on 60 lakes, 5 monitoring stations on each on five tanks, three monitoring stations on three ponds, three monitoring stations on three creeks, 13 stations on 13 canals, 17 stations on 17 drains and 321 stations on 321 wells. The monitoring is undertaken on monthly or quarterly basis in surface waters and on half yearly basis in case of ground water.
- Nationwide air quality is monitored regularly under National Air Quality Monitoring Programme (NAMQP) through a network of water quality monitoring comprising 332 operating stations at 121 cities/towns in 25 States and four Union Territories of the country are being operated. Under NAMQP, four air pollutants viz., Sulphur Dioxide (SO₂), Oxides of Nitrogen as NO₂ and Suspended Particulate Matter (SPM) and Respirable Suspended Particulate Matter (RSPM or PM₁₀), have been identified for regular monitoring at all the locations. The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature also been integrated with the monitoring of air quality. The monitoring of pollutants are carried out for 24 hours (4-hourly sampling for gaseous pollutants and 8-hourly sampling for particulate matter) with frequency of twice a week, to have 104 observations in a year.
- Analysis of National mean concentration with 90th percentile and 10th percentile for SO₂, NO₂, RSPM and SPM has revealed that National mean SO₂ concentration has decreased over the years indicating that there has been a decline in SO₂ levels. National mean NO₂ and RSPM concentration has remained stable over the years despite increase in emission sources such as vehicles. The reason for this may be various intervention measures that have taken place such as improvement in vehicle technology and other vehicular pollution control measures like alternate fuel etc. National mean SPM concentration has been fluctuating over the years.

MANAGEMENT OF HAZARDOUS SUBSTANCES

The major functions of the Hazardous Substances Management Division (HSMD) include regulatory activities for framing necessary Rules relating to environmentally sound management of hazardous wastes/chemicals, plastics and municipal solid wastes under the Environment (Protection) Act, 1986 and promotional activities by providing necessary financial support to the concerned agencies for their

implementation. The Division is also responsible for planning, overseeing and implementation of the policies and programmes on the management of chemical emergencies and hazardous substances including hazardous wastes. The mandate of this Division is to promote safety in the management and use of hazardous substances including hazardous chemicals and hazardous wastes with an objective to prevent and mitigate damage to health and environment due to hazardous chemicals and wastes.

- A fresh draft Notification of Hazardous Waste Management Rules has been published on 28th September, 2007 for seeking public comments. The title of the proposed Rules is 'Hazardous materials (Management, Handling & Transboundary Movement) Rules, 2007. The time for providing objections/suggestions on the said Draft Rules was over on 28th November 2007. The proposed Draft Rules would repeal the Hazardous Waste (Management & Handling) Rules, 1989 and amendments thereof. The comments on the draft Notification have been received from various organization and are being examined.
- Financial assistance for conducting training programmes on Emergency Preparedness. Accident Prevention has been provided to National Safety Councils, Associated Chambers of Commerce and Industry and other state run institutions. The main objective of the programme is to effectively prepare, prevent and mitigate emergencies arising due to chemicals and to impress upon the concerned people regarding the necessity of emergency preparedness and response.
- A Red Book containing duties to be performed during emergency, names, addresses and telephone numbers of key functionaries of the Ministry, State Governments, State Pollution Control Boards, Chief Inspectorate of Factories, and Experts/Institutions is published and circulated.
- Global Environment fund (GEF) has sanctioned the grant for the preparation of India's National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants (POPs).
- An Inter-Ministerial delegation from India participated in the Open-ended Ad Hoc Working Group on Non-compliance and the 2nd Conferences of Parties of the Stockholm Convention on Persistent Organic Pollutants from 25th -27th April, 2007 and 30th April - 4th May, 2007 in Dakar, Senegal.
- Training workshops for stakeholders on Bio-medical Waste Management for effective implementation of Bio-Medical Waste (Management & Handling) Rules, 1998 as amended in 2000 and 2003, were conducted in the States of Gujarat, Uttar Pradesh & Chandigarh and Andhra Pradesh by M/s Safety Action Group (Vadodara), Advanced Management Institute (Delhi) and M/s C.P.R. Environmental Education Centre (chennai), respectively during the year.

CONSERVATION OF WATER BODIES

NATIONAL RIVER CONSERVATION DIRECTORATE (NRCDD)

The National River Conservation Directorate, functioning under the Ministry is engaged in implementing the River and Lake Action Plans under the National Lake Conservation Plan (NLCP) & National River Conservation Plan (NRCP) by providing assistance to the State Governments.

- The objective of NRCP is to improve the water quality of the rivers, which are the major water sources in the country, through the implementation of pollution abatement works, to the level of designated best use. So far a total of 35 rivers have been covered under the programme.
- Major works being taken up under the NRCP include Interception and diversion works to capture the raw sewage flowing into the river through open drains and divert them for treatment. Setting up Sewage Treatment Plants for treating the diverted sewage. Construction of Low Cost sanitation toilets. Construction of Electric crematoria and improved Wood Crematoria to conserve the use of wood, River Front Development, afforestation on the river banks, Public Participation & Awareness etc.
- Works under Ganga Action Plan Phase-II (presently part of National River Conservation Plan) are taken up in 59 towns along the main stem of river Ganga at an approved cost of Rs. 663 crore.
- The Ministry of Environment and Forests have received financial assistance of Yen 13.33 billion from the Japan Bank for International Cooperation (JBIC) for implementation of Yamuna Action Plan (YAP) Phase II, which is part of the National River Conservation Plan (NRCP).
- Under the Gomti Action Plan Phase-I, out of 31 sanctioned schemes, 26 schemes have been completed. A total of 42 mid STPs capacity had already been created under this Plan.
- Besides the river Ganga and its tributaries covered under GAP-I and GAP-II the NRCD has taken up the pollution abatement projects of 14 other States covering 30 rivers and 68 towns.
- The water quality of river Ganga is being monitored at 27 locations from Rishikesh in Uttarakhand to Uluberia in West Bengal by institutions such as pollution Control Research Institute (Haridwar), CPCB Zonal Office Lucknow, Indian Institute of Technology, Kanpur, Patna University and Bidhan Chandra Krishi Vishwavidyalaya, Kalyani. As a result of the projects completed under Ganga Action Plan, the water quality of river Ganga has shown a general improvement despite tremendous population growth along the river banks.
- The water quality monitoring has also been undertaken for rivers namely, Yamuna, Western Yamuna Canal, Gomti, Hindon, Satluj (Punjab) Cauvery (Tamilnadu), Tunga, Bhadra, Tungbhadara in Karnataka and Waterways of Chennai. The number of monitoring stations presently are 158 in 10 rivers which include 27 stations set up in the upper reaches of Ganga and 32 stations of Chennai Waterways.
- A total of 33 projects for conservation of 49 lakes have been sanctioned in 13 States at a total estimated cost of Rs. 632.62 crore. Conservation works for 11 lakes have been completed so far whereas in some cases the project implementation is in last stages of completion.. Funding pattern under NLCP (w.e.f. February, 2002) is on a 70:30 cost sharing between the Central and the State Governments.
- The 12th World Lake Conference (Taal 2007), a biennial event under the aegis of international Lake Environment Committee (ILEC) Foundation, was organized by the Ministry, at Jaipur, Rajasthan from 28th October to 2nd November, 2007. The State Govt of Rajasthan was the co-host for this mega event. The central

theme of the Conference was 'Conserving lakes & Wetlands for Future'. Other main objectives included identifying the issues concerning lakes and wetlands along with restoration approaches under different conditions adopted by different countries.

- The Conference was inaugurated by Hon'ble President of India, Smt. Pratibha Devisingh Patil on 29th October, 2007 in the presence of other dignitaries including Hon'ble Governor and Chief Minister of Rajasthan. As many as 600 no. of delegates comprising of nearly 150 overseas delegates from different parts of the world, attended the Conference with their oral or poster presentations on their studies pertaining to the subject matter. The Jaipur Declaration was adopted at the Valedictory session, to work upon as a follow up action of the Conference.

NATIONAL WETLANDS CONSERVATION PROGRAMME

The scheme on conservation and management of Wetlands was initiated in 1987 to lay down policy guidelines for implementing programs of conservation and management of wetlands in the country, to undertake priority wetlands for intensive conservation measures. To monitor Implementation of the Programme of conservation, management and research, and to prepare an inventory of Indian wetlands.

- Number of wetlands under Wetland Conservation Programme increased from 27 in 2004 to 71 in 2005 and to 103 in January 2008.
- A brochure on 'National Wetland Conservation. An approach and Guidelines' was released on the eve of 2nd February, 2007 which has now been published and circulated to all the user agencies.
- Management Action Plans (MAPs) of 36 wetlands have been approved and financial assistance sanctioned. Cases of 10 more M.A.Ps, for newly identified wetlands are being taken up.
- Twenty five sites have already been designated as Ramsar sites in India till date;
- India has been nominated on Board of Directors of wetland International and on request from India. Meeting of Board of Directors of Wetland International was held in New Delhi at Manesar during 19-20 October, 2005, About 23 countries participated. India chaired one of the sessions and efforts made by India in Wetland conservation were highly applauded by all the participating countries.

REGENERATION AND ECO-DEVELOPMENT

NATIONAL AFFORESTATION AND ECO-DEVELOPMENT BOARD

In order to promote afforestation, tree planting ecological restoration and eco-development activities in the country. the National Afforestation and Eco-development Board (NAEB) was set up in August 1992 for promoting Special attention is also being given by the NAEB to the regeneration of degraded forest areas and lands adjoining forest areas, national parks, sanctuaries and other protected areas as well as the ecologically fragile areas like the Western Himalayas, Aravallis, Western Ghats etc.

- Seven hundred forty three FDAs have been operationalised so far, since the launch of the FDA mechanism in 2000-01, at a cost of R. 1,920.69 crores to treat a total area of 12.31 lakh ha. (as on 19.11.2007). Bamboo Plantation, Medicinal

Plants and biofuel have been given adequate focus under NAP during the Tenth Plan period. Rehabilitation of shifting cultivation lands have been given specific focus under the programme, and so far 25 Jhum projects have been sanctioned in NE States and in Orissa. Rs. 193.23 crore was released to FDA's during the year 2007-08 for implementation of National Afforestation Programme (NAP) (As on 19.11.2007)

- Financial assistance to the tune of Rs. 2.56 crores was released during the current financial year 2007-08 (upto 27.12.2007) to 58 implementing agencies out of which 56 are voluntary agencies for tree plantation and two State Forest Departments for setting up of High Tech Nursery.
- Four Eco Task Force (ETP) Battalions are being supported under the Eco Development Forces (EDF) Scheme. These battalions are located at Pithoragarh, Samba, Bikaner, and Dehradun. Two new battalions have been approved in Assam.
- All ETF Battalions have undertaken works like raising nursery, and plantation and protection measures to protect the plantation area. They have also constructed stone dam as also other soil and moisture conservation works. Besides, the battalions also take up maintenance of old plantations.
- Under UN Convention to combat Desertification (UNCCD), a pilot project was taken up to finalize the indicators of desertification and also to evolve and standardize national level classification and methodology for desertification land Degradation Status Map (DSM) for the entire country has been prepared using Indian Remote Sensing (IRS) AWIFS images on 1:500.000 scale. This map is useful in planning for activities to reverse and arrest land degradation, and also for periodic monitoring.
- India participated in the 5th Meeting of the Committee to Review Implementation of the Convention (CRIC) of UNCCD held at Buenos Aires, Argentina from 12-21 march 2007.
- India participated in the 8th Meeting of Conference of Parties (COP) to UNCCD from 3-14 September, 2007 at Madrid, Spain. The CDP approved the Ten Year Strategic Plan (2008-2018) of UNCCD. The new Plan restructures the working of the Committee on Science & Technology (CST), the Committee for the Review of implementation of the Convention (CRIC) and the Global Mechanism in terms of priorities and reporting procedures.
- India participated in the Regional Implementation mechanism meeting for Asia-Pacific region for Commission on Sustainable Development (CSD) on 25-28 November, 2007 at Jakarta, Indonesia. A common strategy for Asia Pacific region relating to the progress on the thematic issues and challenges therein were deliberated in the meeting.

RESEARCH

ENVIRONMENTAL RESEARCH

Research in multi-disciplinary aspects for environmental and ecosystems protection, conservation and management at various universities, institutions of higher learning, national research institutes and non-governmental organizations in identified thrust areas under its Research & Development (R&D) programme continued to be funded by the Ministry. It is a Central Plan Scheme for supporting research in environment

since 1985. The objectives of the scheme are to generate information required to develop strategies, technologies and methodologies for better environmental management. It also aims at attempting solutions to the practical problems of resource management, conservation of natural resources and eco-regeneration of degraded areas. Further, the scheme also aims at strengthening infrastructure to facilitate research and scientific manpower development.

- During the year 2007-08, Ministry brought out new guidelines for supporting research clearly indicating the order of priority and broad research themes in the identified thrust areas. Six Thematic Expert Groups have been constituted by merging various research funding programmes of the Ministry during the year.
- Under the thematic Group Prevention, abatement and Control of Pollution three Programmes/Schemes are covered namely i) Environment Research ii) National River Conservation and iii) Climate Change /Clean Technologies, During the year four meetings of the Thematic group were held to consider the new / revised proposals & review / monitor the ongoing / completed projects Sixty nine new projects were considered by the Expert Group. Based on the recommendations of the Expert Group 28 new projects have been sanctioned (Annexure-III) during the period. Progress of 46 ongoing projects was reviewed and monitored during the year. The Expert Group also reviewed the FTR of 17 completed projects during the period.
- During the year 2007-08 under Ecosystem Research Scheme five new projects were initiated, 14 studies were completed and 33 projects were reviewed and monitored for their progress.
- During the year 2007-08, under Ecosystem Research Scheme six new projects were initiated and four studies were completed.
- The Ministry constituted new Thematic Group 'Economic & Social issues' during the year. Though no specific programme will be covered under this thematic group, the group would consider all proposals related to Cost Benefit analysis, Socio-economic issues and other miscellaneous issues. One meeting of the Thematic Group was held to consider the new / revised proposals & review / monitor the ongoing / completed (FTR) projects. Four new and one revised projects were considered by the Expert Group. Based on the recommendations of the Expert Group one new project has been sanctioned during the period. Progress of two ongoing projects was reviewed and monitored. The Expert group also reviewed the one FTR of Completed project.

NATIONAL NATURAL RESOURCE MANAGEMENT SYSTEM (NNRMS)

- The Scheme of National Natural Resource management System (NNRMS) involves utilization of remote sensing technology for accurate inventory of resources such as land water forests, minerals oceans. etc. and to utilize this information for monitoring changes in ecological system. A standing Committee of Bio-resources and Environment (SC-B) has been constituted by the Planning Commission under the Chairmanship of Secy. (E&F). This Standing Committee on Bio-resources and Environment (SC-B) constituted by the Planning Commission advises on the methods of using the remote sensing technology for optional use and management of natural resources in the country. In order to streamline the projects. The SC-B has constituted to technical & financial Sub-Committee to scrutinize/review all the proposals submitted for funding under NNRMS SC-B from the technical and financial angle. One those proposals

recommended by the Technical and Financial Sub-Committee are taken up by NNRMS SC-B for financial assistance. The Committee also oversees and monitors the progress of sanctioned projects.

- National projects on Snow and Glaciers, Mapping of Wildlife Sanctuaries/ National Parks, Forest Type Mapping, and Coastal/mangroves/coral reef studies have been initiated after peer review.
- About 30 projects were approved by SC-B during xth plan and are under various stages of implementation in the broad areas of Forestry & Wildlife, Wetlands Desertification, Environmental impact of developmental activities, landslides and forest fire etc.

G.B. Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora

G.B. Pant Institute of Himalayan Environment and Development (GBPIHED) was established in August 1988 by the Ministry as an autonomous Institute with a mandate of achieving sustainable development and environmental conservation in the Indian Himalayan Region (IHR). The Institute executes the mandate through its Headquarter located at Kosi-Katarmal, Almora (Uttarakhand), and its four regional Units located at Kullu (Himachal Pradesh), Srinagar (Uttarakhand), Pangthang (Sikkim) and Itanagar (Arunachal Pradesh). The Institute designs and implements R&D activities on priority environmental problems; develops and demonstrates best practices and delivers technology packages for improved livelihood of the people of the IHR.

- Microbiological studies on 21 species of *Penicillium* isolated from the soil collected from IHR for their phosphate solubilizing activity revealed that seven species of *Penicillium* brought maximum solubilization after 15 days of incubation. Isolation of microorganisms in the fermented foods (a wheat based starter culture, *balam*) used by Bhotiya community recorded 32 microbial isolates. While the spore forming bacterial species belonged to genus *Bacillus*, the yeast isolates were identified as *Sacharomycopsis fibuligera*, *Kluyveomyces maxianus*, and *Sacharomyces* spp.
- Under a programme entitled, 'Institutionalizing Technology Backstopping and Capacity Enhancement within the Tribal Areas of North East' > Seven Partner NGOs from different states of the NE region established technology demonstration parks in their respective areas for demonstration and dissemination of relevant technologies.
- Demonstration on restoration of degraded wastelands were implemented through restoration of village community degraded land (3 ha) at Kolidhaik village (Distt. Champawat, Uttarkhand), plantation of fodder trees (>10,000 saplings of 15 species) in village wastelands (approx 40 has) for silvi-pasture development, and collaborative programme on Bhimtal lake catchment restoration (Distt. Nainital).

RESEARCH ON WETLANDS, MANGROVES AND CORAL REEFS

WETLANDS

A Research Sub-Committee on Wetlands has been constituted to identify more Wetlands of national importance and to supplement Management Action Plan (MAP) for intensive conservation on thrust areas of research.

- Nineteen on-going research projects on various aspects in the field of wetland conservation are operational under Wetland Conservation Programme which are at various stages of execution. Three search projects have been completed during the year 2007-08.

MANGROVES AND CORAL REEFS

Based on the felt-need for a separate, dedicated institute for targeted R&D studies on Sunderbans in view of their uniqueness and importance on more than one works for Sunderbans may be desirable. While Sunderbans would be at the centrestage of work of the envisioned institute, it may also do research in related areas of coastal & marine biodiversity of the entire country, and cater to capacity-building & education, awareness programmes in the region.

- The Ministry has decided that the proposed research institute may be titled 'National Institute for Research in Mangroves and Coastal Bioresources' and may be located in West Bengal in proximity to the Sundarbans.
- Four research Projects in the area of Mangroves and Coral Reefs, are recommended by the Expert Group B on 'Conservation & Sustainable Utilization of Natural Resources' are being sanctioned by the Ministry during the year 2007-08.

RESEARCH ON BIOSPHERE RESERVES

Research and development projects are also supported in the designated Reserves and potential sites of the Biosphere Reserves. While a number of Research projects have been sanctioned during the year, a good number of projects were also completed, which provided baseline data helpful in the scientific management of these Reserves.

FORESTRY RESEARCH

The Indian Council of Forestry Research and Education (ICFRE) is the apex body in the national forestry research system mandated to develop a holistic forestry research strategy through appropriate planning, coordination, execution and promotion nation-wise presence through its network of eight research Institutes located in different agro-ecological zones of the country, viz., at Dehradun, Shimla, Ranchi, Jorhat, Jabalpur, Jodhpur, Bangalore and Coimbatore and four Centres, one each at Allahabad, Chhindwara, Hyderabad and Aizawl.

- Gall insect problem in Eucalyptus caused by *Leptocybe invasa*, a wasp was recorded for the first time in India, and strategy and extension plan to control the pest was evolved.
- ICFRE has been granted ISO 9001:2000 certification.
- Design of solar heated kiln has been developed and standardized for accelerated seasoning compared to air drying, and to substitute the thermal energy requirement for drying in steam heated kilns by solar heating. About 200 commercial units have so far been installed.
- Forest Research Institute developed a wide range of panel products through its work on plywood research by using ligno cellulosic material.
- Seventy fascinating shades of eco-friendly dyes were prepared from Poplar, Eucalyptus, Lantana, Parthenium etc.
- Bamboo Propagation Macroproliferation technique was developed for multiplication from 1 to 64 plantlets in one year.

- Indian plywood industries research and training institute (IPIRTI) has demonstrated the feasibility of creating affordable, safe, secure and durable shelter using bamboo in conjunction with other locally available materials. This type of housing system could be ideal for earthquake and other disaster prone areas.
- A tannin extended resin formulation was developed by IPIRTI to manufacture Boiling Water Proof (BWP) grade plywood and the same was successfully demonstrated on industrial scale for commercialization.
- A 4 ply moulded ridge cap was developed to enhance the strength properties for Bamboo Mat Corrugated Sheets. In this connection Moulding Dies for ridge cap were fabricated, installed and commissioned in the existing Hydraulic hot press.
- While the Indian Institute of Forest Management (IIFM), Bhopal completed 14 research projects and eight consultancy assignments, 21 research projects were being continued during the year.
- The study conducted by IIFM on rehabilitation of lepers in Chhattisgarh state found that income generating activities through natural resource management particularly sericulture, floriculture, bamboo plantation and marketing, lac cultivation, farm forestry and nursery management are most effective and successful in rehabilitating the lepers.

WILDLIFE RESEARCH

Increasing human induced changes are posing new threats to conservation of wilderness resources today. The forests harboring wild animals are deteriorating in terms of quality and quantity (fragmentation) thereby threatening survival of species particularly mega/endangered species like elephants, tigers, rhinos, etc. As habitats shrink and populations become increasingly isolated, factors like poaching, disease, population structure (sex-ratio) and stochastic events like droughts, fire and floods which once were part of natural processes causing manageable oscillations are now becoming limiting and critical factors. The situation is throwing enormous challenges to managers and policy makers alike particularly in managing the wildlife of the country.

- The Wildlife Institute of India (WII) so far completed 128 research projects undertaken in different bio-geographic zones of the country. The Institute also continued 55 projects at present.

EDUCATION AND AWARENESS

ENVIRONMENTAL EDUCATION, AWARENESS AND TRAINING

The environmental damage already inflicted due to alarming on-going population explosion, rapid movement towards urbanisation and industrialisation, increasing needs of energy and fast scientific and technological advancement cannot be reversed unless there is collective thinking, will and effort. These call for public awareness and participation for bringing about an attitudinal change and finally restricting further damage to the environment. Effective implementation of environmental management and conservation programmes depends on education, awareness raising and training in the relevant areas. Without an understanding of how to conserve natural resources and the compelling need to do so, few people would be motivated to participate actively in programmes on environmental conservation, Environment

education and awareness thus assume critical importance. The 'Environmental Education, Awareness and Training' is an important scheme of the Ministry for enhancing the understanding of people at all levels about the relationship between human beings and the environment and to develop capabilities/skills to improve and protect the environment.

- During the year 2007-08 (up-to 31.12.07), 83372 eco-clubs were supported across the country. NGC Programme is implemented throughout the country through State Nodal Agencies.
- Training of the Master Trainers has already been launched in current financial year. Among the conventional modes of mass communication, radio is the most potent medium to reach out to largest number of target groups with information and messages concerning their lives and environment. Considering the coverage of the radio, which is more than 80% of the geographical area and population of the country, the Ministry has decided to produce and broadcast through Directorate of Advertising and Visual Publicity, two sponsored weekly radio programmes of half an hour and 15 minute duration over CBS stations and FM stations respectively of All India Radio.
- In 2007-08, 9938 organizations were associated with National Environment awareness campaign and were provided financial assistance under the scheme through concerned Regional Resource Agencies. In this campaign, NGOs, schools, colleges, universities, research, institutions, women and youth organisations, army units, government departments etc. from all over the country got associated in organising and conducting awareness raising activities followed by action oriented activities.
- Under Mass Awareness Programme, Telecast of 22 episodes of 'Bhoomi' including 'Best of Bhoomi' a half an hour weekly environmental television magazine on Doordarshan National Channel was supported.
- Vativaran-2007-4th Competitive Environment & Wildlife Film Festival was held at India Habitat Centre, New Delhi from 12-16 September 2007 with a total of 275 entries including 54 entries from 18 foreign countries. Thirty one awards were given in 18 different categories (12 for Indian Section and 6 for International Section). The 'Young Environment Journalist. In Print and Broadcast' award as well as awards for Technical excellence for camera, story telling and editing were also introduced for the first time.
- In order to provide interested persons an opportunity to learn in detail about specific environmental issues, a course module has been developed from Indira Gandhi National Open University (IGNOU) for Environmental Appreciation Courses. Delivery of these courses has already started through distance education mode through IGNOU regional centres.
- So far about 1800 GLOBE trained teachers in the country, had included Global learning and Observations to Benefit the Environment (GLOBE) programme under the 'Environment Education in School system'(EESS) programme for Hands-on activities. The programme was launched and a component of the EESS project in the 16 States namely Andhra Pradesh, Assam, Goa, Jammu & Kashmir, Maharashtra, Orissa, Punjab, Uttarkhand, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Sikkim, Tamilnadu, Tripura and West Bengal Teachers of 100 schools in each State have been trained in the protocols for conducting the experiments in four broad environmental parameters -

Hydrology, Soil, Land Cover and Atmospheric Temperature/Rainfall under this project.

NATIONAL MUSEUM OF NATURAL HISTORY

The National Museum of National History (NMNH), a subordinate organization of the Ministry, was opened to public in 1978 to create public awareness in preservation and conservation of environment and nature. Over the years, the Museum has extended its activities in different regions of the country and set up three Regional Museums one each at Mysore (Karnataka), Bhopal (Madhya Pradesh) and Bhubaneswar (Orissa). These museums have been established to depict flora, fauna, forests, wildlife and other environmental aspects of the respective regions.

- A month long exhibition of the Models was held in the temporary exhibition hall of NMNH, New Delhi. The Models were prepared by the school students for 'Model making Competition' held on 29.10.07 on the occasion of "International Day for the Preservation of Ozone Layer".
- The travelling exhibition on the theme "Forest Wealth" was taken to eight Schools at different districts of Orissa. The exhibition was accompanied by screening of films on nature & wildlife. About 7,800 students participated in the exhibition and the film show.
- An exhibition on theme "Extinct and Threatened Animals of India" was organised during 17-18, November, 2007 at Indira Gandhi Rashtriya manav Sangrahalaya, Bhopal on the occasion of "National Ban Rang". More than 10,000 students and teachers visited this exhibition.
- The World Environment Day and NMNH Foundation Day celebrations were organised by NMNH in India Habitat Centre, Lodhi Road, New Delhi on 5th June, 2007. Hon'ble Minister for External Affairs inaugurated the function as Chief Guest. A small skit on environmental problems based on this years UNEP theme "Melting Ice - A Hot Topic" was presented by the participants of Summer Programme 2007.
- Possession of a piece of land measuring 7.42 Acres has been taken over from the State Government of Rajasthan for Rajiv Gandhi Regional Museum of Natural History (RG-RMNH), Sawai Madhopur, Rajasthan. The foundation stone laying ceremony was held on 23rd December by the Hon'ble Vice President of India Shri M.. Hamid Ansari.
- The Ministry has approved the proposal for setting up the fifth Regional Museum of Natural History at Gangtok, Sikkim and it is included in the 11th Five Year Plan. This museum will cover the North Eastern region which is a hot spot of biodiversity.

FORESTRY EDUCATION, TRAINING AND EXTENSION

The present system of forestry education and training is tailored to produce skilled forest managers so is to manage, protect and conserve the forests in consonance with National Forest Policy, 1988, National Forestry Action Programme, 1999 etc. The activities related to forestry education, training and extension are performed by the different institute of the Ministry like Indira Gandhi National Forest Academy (IGNFA), Dehradun, Directorate of Forest Education (DFE), Dehradun, Indian Council of Forestry Reserarch and Education (ICFRE), Dehradun, Forest Survey of India (FSI),

Dehradun; Indian Institute of Forest Management (IIFM), Bhopal and Indian Plywood Industries Research and Training Institute (IPIRTI), Bangaluru etc.

- Twenty one IFS Probationers and two Foreign Trainees from Bhutan of 2004-2007 Course and twenty nine IFS probationers and two Foreign Trainees from Bhutan of 2005-2007 course have passed from the Indira Gandhi National Forest Academy, Dehradun after completing their training. So far twenty two batches of IFS officers have undergone training in this academy since 1987.
- Twenty four IFS Probationers and two Foreign Trainees of 2007-2009 Course joined the Academy on December 1, 2007 for Professional Training after completing the Foundational Course at the Lal Bahadur Shastri National Academy of Administration, Mussoorie.
- XX Skill Upgradation Course during August - October, 2007 was conducted, in which 62 officers of various cadres participated.
- Eight advanced Forest Management (AFM) courses for the IFS officers of the 1997, 1990 and 1986 batches have been organized.
- One-week refresher training programme on 'Policy and Legal Issues' was organized during October, 2007 in which 24 IFS officers from various states participated.
- Induction training in the form of 'Two years diploma and certificate courses' for the newly recruited SFS and "Eighteen months certificate course" for Range Forest Officers have been undertaken by Directorate of Forest Education.

WILDLIFE EDUCATION AND TRAINING

Wildlife education and training is primarily looked after by the Wildlife Institute of India, an autonomous institute of the Ministry for imparting training to government and non-government personnel to carry out research and training activities and advice on matters of conservation and management of wildlife resources.

- Institute runs three regular courses viz., 2-year M.Sc, degree programme in Wildlife Sciences, 9-month Post Graduate Diploma in Wildlife Management, and 3-month Certificate Course in Wildlife Management.
- The Institute has trained 457 Indian and 77 foreign nationals in 28 Diploma courses while 351 and 52 foreign nationals in 27 Certificate Courses.
- The Institute conducts master's Degree Programme in Wildlife Sciences every alternate year and 84 students have enrolled in 10 courses conducted so far.

CENTERS OF EXCELLENCE

The Ministry started the scheme in 1983 to strengthen awareness, research and training in priority areas of Environmental science and management.

Nine Centres of Excellence have been set up so far by the Ministry with a view to strengthening awareness, research and training in priority area of environmental science and management are as under:

- Centre for Environment Education (CEE), Ahmedabad
- CPR Environmental Education Centre (CPREEC), Chennai
- Centre for Ecological Sciences (CES) Bangaluru
- Centre of Mining Environment (CME) Dhanbad
- Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore

- Centre for Environment Management of Degraded Ecosystem (CEMDE), Delhi
- Centre of Excellence in Environmental Economics at Madras School of Economics, Chennai.
- Foundation for Revitalization of Local Health Traditions (FRLHT), Bangaluru.
- The Tropical Botanic Garden and Research Institute (TBGRI), Thiruvananthapuram.
- Centre for Environment Education (CEE) hosted the 4th International Conference on Environmental Education (ICEE), organised by Government of India and cosponsored by UNESCO and UNEP, from 24 to 28 November, 2007 at Ahmedabad. A particular significance was attached to this Conference in light of it being held in the third of the on-going United Nations Decade of Education for Sustainable Development (DESD 2005-2014). Towards this, the Conference was organized with the objective to review the status of EE in the context of DESD, reformulate EE to support Education for Sustainable Development (ESD) and help bridge gaps, share good practices and experiences in ESD, and develop strategies for progressing ESD in the world. The Conference had over 1500 participants, of which about 650 were women and 150 were youth, from 97 countries across the globe.
- CEE has been the Resource Agency (RA) in 15 states and two UTs and covers around 40,000 schools through this countrywide awareness programme initiated and funded by Ministry. National Green Corps (NGC) aims at spreading environmental awareness among school children through eco-club activities, and through children in society at large. Various activities including training of master trainers, developing and distributing educational material, observing environment days, conducting workshops and celebrating events like *Eco-Balmela* and *Mowgli Utsav* were undertaken.
- During 2007-08, C.P.R.Environmental Education Centre (CPREEC) focused its training programmes to the specific needs of stakeholders. Training programmes on Disaster Management were conducted for coastal community and NGOs. These programmes were conducted in the southern state of Tamilnadu, Andhra Pradesh, Karnataka and Kerala. Other training programmes organized were. Training Programmes on Waste management and Training programmes for teachers, advocates and students.
- In order to make the environment programmes more effective, women were trained on health-care and nutrition, vermi-composting techniques, construction of smokeless chulha, etc. Seeds and saplings were distributed to women's groups for developing kitchen garden. The programmes were conducted in collaboration with NGOs in the states of Andhra Pradesh, Karnataka Tamilnadu and Piducherry.
- The Centre for Ecological Science (CES), Indian Institute of Science Bangalore carried out 30 research projects during the year under the broad themes of Biodiversity and Conservation, Behaviour and Evolution, Climate Change and its impact, and Eco-development. In addition, it offered several courses to Ph.D. students, hosted visiting scientists and students from other institutions, and conducted several workshops/training programmes for stakeholders, particularly for the Forest Department.
- CES has initiated new programmes in the field of molecular ecology. This

includes a study of the molecular phylogeny and a survey of Hanuman langur morphotypes and genetics in Karnataka. One interesting result that has emerged from these studies is that large mammal populations in the Western Ghats show genetic differentiation across the Palghat Gap that has acted as a biogeographic barrier.

- A new shrub-frog taxon related to the anuran family Rhacophoridae was described from the Sharavathi River basin of central Western Ghats. The new frog possesses the characteristic features of rhacophorids (dilated digit tips with differentiated pads circumscribed by a complete groove, intercalary cartilages on digits, T-shaped terminal phalanges and granular belly, the adaptive characters for arboreal life forms). But also a suite of unique features that distinguish it from all known congeners in the Central Western Ghats region.
- The Centre of Mining Environment (CME), completed three research and development projects and continued six on-going projects during the year.
- The avian species specific studies undertaken by Salim Ali Centre for Ornithology and Natural History (SACON), include a study to identify and map Lesser Florican breeding sites to develop a fodder-producing grassland network in western India', 'Ecology and Conservation of the Spot-billed Pelican in Andhra Pradesh', and study of Ecology of Indian Grey Hombill (*Ocyrceros Birostris*) with special reference to its role in southern Eastern Ghats'.
- The grassland developed by Centre for Environmental Management of Degraded Ecosystems (CEMDE) at the Fine Ore Dump (Deposit 5,10, 11A) of the Bailadilla Iron Ore Project of National Mineral Development Corporation at Bachelu has 90% grass cover and the substrate is enriched with litter and organic matter and microbial activity. The grassland developed has not only enhanced the biological productivity but also processed the habitat. The grassland also harbours plantlets of woody species such as *Alstonia scholaris*, *Macaranga*, *Trema*, *wild Mangifera*, *Woodfordia* and *Atylosia* - The early successional species of native moist semi evergreen forest.
- Botanical surveys were carried out in different regions of the country namely Manipur, Himachal Pradesh, Rajasthan, Orissa, Tamilnadu and Karnataka by Foundation for Revitalisation of Local Health Traditions. (FRLHT). More than 2100 plant specimens have been collected during these botanical expeditions. A total of around 200 plant species will get added to the accessions of the Herbarium after the processing and final identification of the specimen.
- More than 800 Medicinal Plant species have been planted in the garden of Centre of Excellence located at the FRLHT campus. During the year 60 additional medicinal plant species have been added to this garden and the layout of the garden has been improved with the addition of four new themes which include wild edible and medicinal flowers as well as sacred medicinal plants.

FELLOWSHIPS AND AWARDS

INDIRA GANDHI PARYAVARAN PURASKAR (IGPP)

- The awardees for the Indira Gandhi Paryavaran Puraskar for the Year 2003 and 2004 were selected by the Prize Committee under the Chairmanship of Hon'ble Vice President of India. The awards were given away in the Award ceremony held on 5th June 2007.

INDIRA PRIYADARSHINI VRIKSHA MITRA (IPVM) AWARDS

- The Awards up to the year 2005 have been conferred. It is proposed to restructure the Awards to significantly improve the profile of the awardees so that they become long-time role models, which is required in view of longer management cycle of tree plantation activity.

PITAMBER PANT NATIONAL ENVIRONMENT FELLOWSHIP

- Fellowship for the year 2006 was being processed. During the year, guidelines & norms for award of fellowship were revised; restricting the age of the applicant to 60 years.

B.P. PAL NATIONAL ENVIRONMENT FELLOWSHIP FOR BIODIVERSITY

- Fellowship for the year 2005 was awarded to Dr. R. Sukumar, Centre for Ecological Science. Indian Institute of Science (IISc). Bangalore and fellowship for the year 2006 was awarded to Dr. K.s. Bangarva from the CCS Haryana Agricultural University, Hisar, Haryana.

MEDINI PURASKAR YOJANA

- The entries received for the award year 2006 are being evaluated by the Evaluation Committee of the Ministry.

ENVIRONMENTAL INFORMATION

ENVIRONMENTAL INFORMATION SYSTEM (ENVIS)

Environmental information plays a paramount role not only in formulating environmental management policies, but also in the decision-making process aiming at environmental protection and sustaining good quality of life for the living beings. Realizing the need of appropriate environmental information, the Ministry set up an Environmental Information System (ENVIS) as a plan programme and as a comprehensive network in environmental information collection, collation, storage, retrieval and dissemination to varying users, which include decision-makers, researchers, academicians, policy planners, research scientists, etc. ENVIS network at present consists of a chain of 76 network partners out of which 45 are on subject-specific and 30 are on State related issues. These network partners are called ENVIS Centres and are located in the notable organizations/institutions/State/UT Government Department/Universities throughout the country. The Focal Point of ENVIS is located in the Ministry and coordinates the activities of all the ENVIS partners to make ENVIS a web-enabled comprehensive information system.

- The ENVIS network continued its information-related activities, database development,, publication of requisite information packages through newsletters. abstracting services, etc and the Query-Response-Services during the year.
- ENVIS Focal Point in the Ministry is responsible for maintenance and updation of the website of the Ministry (URL. <http://envfor.nic.in>). and disseminating information through the website to all concerned. The website recorded approximately 1.75 lakh hits per month reflecting the usage of website by various national and international users.
- The ENVIS focal point and all its partners responded to more than 17,800 queries during 2007-08 and provided substantive information as far as possible.
- The activities of all the ENVIS Network Partners were monitored and evaluated

by various 'Expert Evaluation Committees' through Regional Evaluation Workshops held during the year at Lucknow, Mumbai, Kolkata Dehradun; and Hyderabad respectively.

- ENVIS Focal Point published a directory of Environmental Experts in India titled "Database of Environmental Experts in India. 2007". The database was developed to provide comprehensive profile of environmental experts/ professionals in several disciplines in environmental sciences in the country so as to utilize the services of these experts for research projects, for their evaluation and to associate them as members of different committees etc.
- A Directory of Environmental NGOs in India - 2007 was published by the ENVIS Centre at WWF India in consultation with the Ministry during the year. This directory, takes into account NGOs in all the States and Union Territories working towards environmental protection, conservation and awareness.
- In order to sharing views amongst stakeholders in preparation of SoE Reports, the Ministry organized a National workshop at Delhi on 29th August 2007 to deliberate on various concerned issues of SOE Reporting.

LEGISLATION AND INSTITUTIONAL SUPPORT

The Policy and Law Division of the Ministry is partly implementing the schemes 'Assistance for Abatement of Pollution, Environment Policy & Law and 'Establishment of Environment Commission and Tribunal' and Providing legislative and institutional support to other thematic divisions whenever need for any amendment to existing legislation/notification or enactment of new legislation arises. In addition, the division is specifically looking after the implementation of the National Environment Policy, 2006. recommendation of the Law Commission in its 186th report and the Ecomark Scheme.

- The National Environment Policy has been widely circulated and is available on Ministry's website www.envfor.nic.in in the Ministry has written to Central Ministries/Departments and State Governments/UT Administrations to ensure that the environment concerns expressed in NEP 2006 are appropriately integrated and mainstreamed in the Sectoral/State development plans during the 11th Plan period.
- The Ministry has decided to implement the recommendation of the Law Commission given in its 186th report and the draft proposal has been sent to Legislative Department, Ministry of Law & Justice for formulation of Bill.
- The Eco-Mark Scheme is presently under review in order to expand the coverage of products and its adoption and for popularizing the same among the consumers and manufacturers.

INTERNATIONAL CO-OPERATION AND SUSTAINABLE DEVELOPMENT

The Ministry of Environment and Forest is the nodal Ministry in the Government of India for all Multilateral Environmental Agreements. These include Vienna Convention for the Protection of the Ozone Layer, Montreal Protocol on substances that deplete the Ozone Layer. UN Conventions on Biological Diversity, UN Framework convention on climate Change. UN Convention to Combat Desertification, Kyoto Protocol, the Basel Convention on Trans-boundary Movement of Hazardous Substances. Stockholm Convention on Persistent Organic Pollutants, Rotterdam

Conventions, Ramsar Convention etc. International Co-operation & Sustainable Development Division is the nodal point within the Ministry to coordinate all international environmental cooperation and sustainable development issues. It is the nodal Division for United National Environment Programme (UNEP), UNCP, World Bank, UNIDO, UN Commission for Sustainable Development (CSD), Global Environment Facility (GEF) and regional bodies like Economic & Social Commission for Asia & Pacific ((ESCAP), South Asian Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Programme (SACEP), ADB and European Union (EU). The Division also handles bilateral country to country co-operation in the areas of environment protection and sustainable development.

- The Fifteenth session of the Commission on Sustainable Development (CSD) was held from April 30 to May 11, 2007 in New York, which considered the thematic areas of energy for sustainable development, climate change, air pollution/atmosphere and industrial development. The Indian delegation was led by Shri Namo Narain Meena, Hon'ble Minister of State. The proceedings of the 15th CSD are available at <http://www.un.org/esa/sustdev/csd/csd15/csd15.htm>.
- The 10th Special Session of UNEP's Governing Council/Global Ministerial Environmental Forum was held on 20-22 February, 2008 in Monaco. The session focused on issues like globalization and the Environment'. 'Mobilizing Finance to meet challenges' and developing UNEP's Medium-term Strategy. The Indian delegation was led by Hon'ble Minister of State (Environment).
- The 8th Delhi Sustainable Development Summit organized by TERI from 7-9 February, 2008 at Vigyan Bhawan, New Delhi was inaugurated by the Prime Minister of India. This time 'Sustainable Development and Climate Change' has been taken up as the theme of the event with an aim to make a significant contribution to the global debate on climate change and sustainable development issues.
- Secretary, Ministry of Environment & Forests is the South Asia Cooperative Environment Programme (SACEP) Focal Point for India. The SACEP holds its Governing Council (GC) meetings, which concentrate on current regional issues as well as global concerns. The 10th Governing Council of SACEP was held on 25th January 2007 in Kathmandu. The meeting deliberated on institutional matters, project status and work programme.
- One of the important achievements during 2007-08 is the establishment of South Asian Association for Regional Cooperation (SAARC) Forestry Centre in Bhutan. India is the current Chair of SAARC and is taking a lead in operationalising the declarations of various SAARC forums and proposing regional cooperation projects in capacity building and technical support.

CLIMATE CHANGE

Climate Change is one of the most important global environmental problems. The Fourth Assessment Report of Intergovernmental Panel on Climate Change brought out in 2007, has projected a serious picture of the earth's future. The Report has stated that global warming may have a devastating impact on the climate of the earth. It is very likely that climate change can slow down the pace of progress towards sustainable development either directly through increased exposure to adverse impact or indirectly

through erosion of the capacity to adapt. To give more concrete action plan to combat climate change, Parties to the United National Frame Work Convention on Climate Change in 1997 adopted the Kyoto Protocol in recognition of necessity for strengthening developed country commitments under the convention in furtherance to the objectives of the Convention. The Kyoto Protocol commits the developed countries, including economies in transition, to reduce emissions of greenhouse gases by an average of 5.2% below 1990 levels during 2008-2012. The Kyoto Protocol came into force on 16 February 2005. India is a party to the Kyoto Protocol.

- Meetings of National Clean Development Mechanism (CDM) Authority were held periodically to consider the CDM Projects for grant of Host Country approval. Till December 2007, the National CDM authority has approved 772 projects in the field of Biomass based Cogeneration, Energy efficiency, Municipal Solid Waster, Renewable such as Wind, Small Hydro projects etc. These projects would generate 433 million certified emission reductions (CERs) by the year 2012. If all these projects successfully get registered with the CDM Executive Board.
- In pursuance of the announcement made by the Hon'ble Finance Minister while presenting the Union Budget 2007-08, the Government set up the Expert Committee on Impacts of Climate Change on 7th of May 2007 under the Chairmanship of Dr. R. Chidambaram, Principal Scientific Adviser to Government of India. The Terms of Reference of the committee are to study the impacts of anthropogenic climate change on India and to identify the measures that we may have to take in the future in relation to addressing vulnerability to anthropogenic climate change impacts. The Expert Committee includes eminent persons from academia, science and also from various Ministries and Departments concerned.
- A coordination committee chaired by Prime Minister called prime Minister's Council on Climate change was constituted in June. 2007 to coordinate national action for assessment, adaptation and mitigation of climate change. The first meeting of the Council was held in July, 2007 and the second meeting of the Council was held in November 2007. One of the important decisions, among many other decisions, has been to prepare a National Document compiling action taken by India for addressing the challenge of climate change and the action that it proposes to take, be prepared as India's National Report on Climate Change.
- The Inter-governmental Panel on climate change (IPCC) has brought out the Fourth Assessment Report on climate Change in November 2007. It is based on the three working group reports released during the year; the first on science of climate change, the second on Impacts, Adaptation and Vulnerability to Climate and the third on mitigation of climate change.
- The Phase-II of Indo-UK collaborative research on climate change under the aegis of Structured Dialogue on Climate change was initiated. The Ministry of Environment and Forests (MOEF), India and the UK Department of Environment. Food and rural Affairs (DEFRA) have jointly devised a three year research programme on the impacts and adaptation to climate change in India. The project has been built on India's existing expertise to assess the sectoral impacts of climate change; reduce the uncertainties in current climate change prediction models; and contribute to the science of climate change.

OZONE LAYER PROTECTION

The Government of India has entrusted the work relating the ozone layer protection and implementation of Montreal Protocol to the Ministry. The Ministry has set up the Ozone Cell as a National Unit to look after and to render necessary services to implement the Protocol and its (ODS) phase-out programme in India. The Ministry has established an Empowered Steering Committee (ESC) chaired by the Secretary (E & F) which is supported by the Standing Committees. These Committees are responsible for the implementation of the Montreal Protocol provisions. Review of various policy and implementation options, project approvals and project monitoring.

India has met the following compliance dates as per the control schedule of the Montreal Protocol:-

- Freeze of CFC production and consumption in July, 1999 at 22588 ODP tons and 6681 ODP tons respectively
- Freeze of Halon production and consumption on 1.1.2002
- Total phase-out of halon production and consumption in 2003.
- 50% reduction of CFC production and consumption in 2005 (production from 22588 MT to 11240 MT and consumption from 6681 MT to 1640 MT)
- 85% reduction of CTC production and consumption in 2005 (production from 11525 MT to 1508 MT and consumption from 11537 MT to 1493 MT)
- The Thirteenth International Day for the Preservation of the Ozone Layer was celebrated in Delhi on 16th September, 2007. The theme of this year's International Ozone Day was 'Celebrating 20 Years of Progress'. Around 500 school children attended the function organized at Sri Satya Sai Auditorium, New Delhi. On this occasion poster, painting, skit competitions were organized among school children. Prizes for best 3 in each competition were given. Ozone Cell publication 'Montreal Protocol India's Success Story', was released and distributed to the participants.