

EDUCATION, TRAINING AND INFORMATION

[Environmental Education, Awareness & Training, Forestry Education, Training & Extension, Wildlife Education & Training, NMNH Fellowships and Awards, Centres of Excellence, Environmental Information, NGO Cell and Information & Facilitation Counter (IFC)]

Introduction

Education and training helps to broaden the horizon of the management practitioners and facilitates the movement of Services in consonance with scientific principles. Forestry and Environmental Education is of paramount importance and should be comprehensive and practical, embracing all the facts of the numerous problems faced.

Environmental Education, Awareness and Training

The Environment Education and Training Scheme of the Ministry is meant for creating environmental awareness. Under this scheme, various programmes are conducted every year for creating environmental awareness both through non-formal activities as well as through formal education system. While the programmes like National Environment Awareness Campaign (NEAC), National Green Corps (NGC), use of electronic media

etc. fall in the non-formal sector, the Ministry's initiative of taking up a pilot project for strengthening environmental concepts in the school curriculum and the linked Global Learning and Observation to Benefit the Environment (GLOBE) programme use the formal education system for conveying the message.

Formal Environmental Education

The Ministry interacts actively with the University Grants Commission (UGC), National Council of Educational Research and Training (NCERT) and the Ministry of Human Resource Development (MHRD) for introducing and expanding environmental concepts, themes, issues etc. in the curricula of schools and colleges. The two Centre of Excellence, on Environmental Education of the Ministry are also involved in the activities of the UGC, NCERT and MHRD related to formal environmental education.

Though formal education is the mandate of the

Ministry of Human Resource Development (MHRD), the Ministry of Environment & Forests has been interacting with the MHRD, NCERT, State Departments of Education etc. to ensure that environmental components are adequately covered at the school level and the UGC at the college level. Since the adoption of the National Policy on Education, 1986, Environment Education (EE) has received a sharper focus in the school curriculum framework.

Besides this, the Ministry has also included “Environment Education in School System” as a sub-component under the World Bank assisted Environmental Management Capacity Building Project. Under this project, a survey has been conducted by Bharati Vidyapeeth Institute of Environment Education & Research (BVIEER), Pune, to assess the extent of infusion of environmental concepts in the school curriculum and the effectiveness of its delivery. As a part of this study a National Consultation on EE was organized, which was of the view that instead of teaching Environment as a separate subject, a separate space/forum should be created within the School System for integrating the various environmental concepts infused / introduced in other subjects. Based on these recommendations and the outcome of the EE study carried out by the BVIEER, Pune, these recommendations have already been implemented in eight States namely Andhra Pradesh, Assam, Goa, J&K, Maharashtra, Orissa, Punjab and Uttaranchal on pilot basis, hundred schools in each State were selected for pilot implementation. During the pilot implementation, the textbooks of Science, Social Studies and Languages of standards VI to VIII in the selected schools of the project States were modified to strengthen infusion of Environment Education on the basis of findings of Phase-I study. This exercise was also accompanied by development of other educational materials like teachers’ handbooks / guides/manuals, classroom material etc. Subsequently the concerned teachers (about five in Number) from each project school were also trained for effectively teaching the environmental concepts infused in the modified / greened textbooks. The modified textbooks were introduced in all the project schools during

the last academic session. Refresher Training Programme for teachers besides other activities were also conducted during the academic session.

This project also stresses on hands-on activities. Environmental learning experiments have, therefore, been included under this, which are to be carried out by students of the project schools. Since a well-structured international Hands-on Environmental Learning Programme was already being implemented in selected Indian schools, it was decided to use this Environment (GLOBE) for hands –on activities under EESS project. GLOBE (Global Learning and Observation to Benefit the Environment) is an international environmental science and education programme, which has a worldwide research team comprising of students, teachers and scientists. GLOBE provides a unique opportunity to its students to carry out various measurements to that they can learn about scientific protocols and environmental learning activities, which have already been introduced as theory in the greened textbooks developed for EESS project. Therefore, these experiments and measurements were included as a part of new curriculum so that the students can gain a better understanding of the infused environmental contents by taking measurements and doing practicals. This would not only help them to appreciate the contents of the textbooks through better understanding but also assist them in gaining complete knowledge of Environment. Thus, Hands-on Environmental Learning Programme is an integral competent of EESS project and is being implemented in all the project schools.

In view of the success of this project, the World Bank has agreed to extend this project to ten more States namely Chattisgarh, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu, Tripura, Sikkim and West Bengal. Hundred schools from each of these States will now implement the project on pilot basis as done previously for the eight States. Activities like development and printing of educational materials including textbooks, training master trainers, training of the teachers, introduction of greened textbooks in the project schools etc. will be taken up in the ten States

selected for implementation of EESS project this year.

It is proposed to continue this endeavour of greening the education during the next year 2004-2005 to cover the remaining States. The funds for this would be provided from the Environment Education & Training Scheme.

Strengthening Environment Education in Indian Management Schools

The Ministry had included this project also as a sub-component under the World Bank assisted EMCBP. An initiative has been taken to introduce environmental concepts and issues in the Management Education Syllabi of various professional Management courses. The course content was examined and workshops have been conducted to develop new curriculum and also to develop resource base for teaching material. Workshops were also conducted to sensitize the faculty of management colleges towards environmental issues.

Environment Appreciation Courses

In order to provide interested persons, opportunity to learn in detail about specific environmental issues, the Ministry has already got a course module developed from Indira Gandhi National Open University (IGNOU) for Environmental Appreciation Courses. It is proposed to start delivery of these courses through distance education mode by IGNOU. About two courses will be organized during the year.

Non Formal Environment Education and Awareness

Environmental Education, Awareness and Training plays a significant role in encouraging and enhancing people's participation in activities aimed at conservation, protection and management of the environment, essential for achieving sustainable development. The Ministry, therefore, accords priority to the promotion of non-formal environment education and creation of awareness among all sections of the society through diverse activities using

traditional and modern media of communication. Some of the major activities undertaken in this regard during the year are as follows :

National Environment Awareness Campaign (NEAC)

The NEAC started in 1986 for creating environmental awareness at all levels of the society, was continued during the year with the main theme as "Water-Elixir of Life". A workshop was organised to streamline the activities of NEAC and on its recommendations, an action oriented component were considered for financial grants :

- Vermi-composting
- Waste paper recycling
- Water testing in neighboring area
- Demonstration of roof water harvesting
- Cleaning of Water bodies

Twenty nine organisations were designated by the Ministry as Regional Resource Agencies (RRAs) located in different parts of the country, physically monitored and evaluated the activities conducted by various participating organisations under NEAC in their areas of jurisdiction.

Nearly 14,052 proposals were received from NGO's schools, colleges, universities research institutions, women and youth organisations etc. from all over the country. Out of these, about 7,515 organisations were provided financial assistance for organizing awareness, creating activities such as padyataras, rallies, public meetings, exhibitions, folk dances, street theatres, essay / debate, painting/poster competitions for schools children, seminars, workshops, training courses, etc. for preparation and distribution of environmental education resource materials and for following these with action oriented activities. Diverse target groups ranging from students / youth/ teachers to tribal, rural population, professionals, etc. were covered under the campaign.

National Green Corps (Eco-clubs)

To impart environmental education and to encourage and mobilize participation of school children in various environmental conservation activities in their localities, the Ministry has been providing financial assistance to setting up of Eco-clubs in the schools. These clubs are established in the schools and each club has 30-50 members taken from among the students of Class VI to X.

The Ministry intensified the Eco clubs programme to increase coverage and activity with the intention of mobilizing youth for environmental action. The student members of the Eco-clubs constitute the National Green Corps (NGC). As per the Coimbatore Charter of January, 2001, the Ministry intensified the programme during the year. The programme aims to establish Eco clubs in at least 100 schools in each District of the country thereby covering around 72,000 schools.

The above programme addresses various issues concerning protection and improvement of environment, e.g. solid waste management, pollution control, afforestation, maintenance of parks and open spaces, dissemination of information and creation of awareness.

The State and Union Territory Governments have been assigned the responsibility of identifying schools, teachers and Nodal Agencies. The Nodal Agencies are responsible for implementing, supervising and monitoring the programme.

The response of State Governments to the programme has been very overwhelming. All the States and Union Territories are implementing the programme. By the end of this academic year, it is expected that more than 70,000 Eco-clubs would be funded in the country. During 2003-04 by December, 2003 Rs. 6.87 crore were spent on the programme.

The Central Government is providing financial assistance to the State Nodal Agencies for organizing training of Master Trainers and in-charge teachers and

for printing and distribution of locally relevant resource material. Besides, an annual financial assistance of Rs. 1000/- per Eco club is also given by the Ministry. A set of resource material in the form of books, posters, booklets etc. is also provided to each Eco-club by the Ministry. Prominent Non-governmental Organizations working in the area of environment education are associated as the Resource Agencies to assist the State Nodal Agencies in implementing the programme. It has also been decided to extend the programme to colleges.

Mass Awareness

Despite great efforts to spread environmental awareness by the Ministry through several schemes, it is felt that a large population especially in rural areas are still left out. The best way to reach out to them and make them aware of the environmental problems, is through media, particularly the electronic media. "Mass Awareness" has therefore, been identified as one of the thrust areas of the Ministry, not only to intensify the efforts already being made in this direction but also to launch new initiatives. It is proposed to launch a "Mass Awareness Campaign" during the Tenth Plan with the following objectives :

- Spreading wide awareness about environmental issues and sensitizing people, institutions and industry to the necessity of preserving a good environment, and providing visibility to the work of Ministry.
- To publicise successful efforts by individuals / NGOs in the field of environment conservation.

Seminars / Symposia/Workshops / Conference

The objective of the scheme is to provide a common forum to professionals for sharing up to date knowledge and information or various technical aspects of environment and to create environmental awareness about specific issues. Under this scheme, financial assistance is provided to Universities / Academic Institutions / Non-governmental Organisations for

organizing seminars / symposia / conferences / workshops on environment related issues. During the year, 104 proposals were supported for financial assistance under this scheme.

Global Learning and Observation to Benefit the Environment (GLOBE)

The Global Learning and Observation to Benefit the Environment (GLOBE) Programme – an international Science and Education Programme – which was started in 1995 by USA and is presently being conducted in about 102 countries is doing quite well in India. India, which joined this programme in August, 2000 and has so far trained about 1000 GLOBE teachers in the country, has already included this programme under the “Environment Education in School System” programme for Hands-on activities. The GLOBE programme is proposed to be expanded next year to extend its coverage to other States which have been left uncovered so far.

Library

The Library is the document repository of the Ministry for dissemination of information in the field of environment and its associated areas. It has a collection of over 25,000 books and technical reports etc. Besides the library also receives more than 70 national/international journals covering diverse areas of environment. Apart from the technical books, journals, proceedings etc. a wide range of general books both in Hindi and English were also procured.

The library performs an important role in the planning, promotion, implementation and coordination of the Ministry's objectives by providing timely access to relevant and comprehensive information to its users-officials of the Ministry, external organisations (both government and non governmental) research students and decision makers. In order to provide online access to the users, the library records were computerized.

Forestry Education, Training and Extension

Forestry education and training in India began in the early part of the 20th century and the present system of forestry education and training is well tailored in produce skilled forest managers so as to manage, protect and conserve the forest in consonance with the National Forest Policy, 1988 and the National Forestry Action Programme.

Indian Council of Forestry, Research and Education (ICFRE), Dehradun

The Indian Council of Forestry, Research and Education, Dehradun organizes and manages research, education and extension in the field of forestry. Details of its activities, related to forestry research are given in Chapter Seven. To disseminate latest findings in forestry research, a number of training courses of different duration's were conducted in ICFRE institutes.

Forest Research Institute (FRI), Dehradun

The Forest Research Institute (FRI), (Deemed University) is actively engaged in conducting regular courses of M.Sc & PG Diploma in various disciplines i.e. Plantation Technology, Pulp and Paper Technology, Biodiversity Conservation, Forest (Economics and Management) Wood Science and Technology etc. Apart from this FRI conducted refresher course in forestry from 10th to 30th September 2003 in which lecturers & associate professors of forestry of various Universities / colleges in 14 states participated.

Indira Gandhi National Forest Academy (IGNFA), Dehradun,

Indira Gandhi National Forest Academy (IGNFA) was constituted in the year 1987 by renaming the erstwhile Indian Forest College.

The Academy has the mandate to impart initial in-service professional training to the IFS (Probationers)

and Professional skill upgradation courses for the officers promoted from the State Forest Service (SFS) to the Indian Forest Service.

The brief activities of the Academy during the year are as follows :

Initial in service professional courses

- Twenty five (IFS) (P) including seven lady officers of 2000-2003 batch completed advanced phase of training
- Twenty two IFS (P) of 2001-2004 batch (including nine lady officers) are undergoing ‘On-the-Job Training’ (OJT) in different states and UTs before completing the advanced phase of training at IGNFA.
- Twenty seven IFS (P) of 2002-2005 batch (including five lady officers) and two Foreign trainees from Bhutan are undergoing professional phase training.
- Thirty two IFS (P) of 2003-2006 batch (including six lady officers) and two Foreign trainees from Bhutan are undergoing professional phase of training after completion of Foundation Course.

Professional skills upgradation course

- One 10 week course was organized for 13 officers promoted from SFS to IFS.

In service refresher courses

- During the year, one refresher course was conducted on “Policy and Legal Issues” in which 21 IFS Officers participated.

Advanced Forest Management Courses for Officers having 10, 17 & 21 years of Service.

- Organised three two-week training programmes for the officers of 1982 batch.

- Conducted five two-week training programmes for the officers of 1986 batch.
- Organised two three week training programme for the officers of 1993 batch, one was held in May, 2003 and the other in December, 2003-January 04. Seventh Senior Foresters Workshop was organized for officers of 1978 batch in which 25 Officers participated. The issues deliberated upon were National Forestry Commission, ‘State Level Cadre Management for IFS-Officers – Gaps and Needs’, ‘Training thrusts and need for IFS (Probation) and Review and ‘Eco-tourism-Policy and Guidelines’.

A consultative workshop was organized to discuss the format to be used in developing case studies related to the Gender Issues in Forestry and Participatory Forest Management.

Dr. Brain Ganguly Lecture & Shri P. Srinivas, IFS Memorial Lectures were organized.

Forest Survey of India (FSI)

Training unit of FSI has been imparting training since 1981 to forestry personnel with the objective of disseminating knowledge and information on the modern techniques being employed in forestry survey to enable efficient planning, management, scientific and sustained exploitation of the nations forest resources. Forestry personnel of various levels, working in the State Forest Departments are provided training in various disciplines like Application of Remote Sensing (RS) and GIS in Forestry, Application of Geographical Information systems (GIS) in forest Resource Management, Application of GIS and Inventory in Forestry and Global Positioning Systems (GPS) Applications in forest Survey and Demarcation, during in-house training courses of varying duration ranging from one to three weeks organized throughout the year having a judicious mix of theoretical and practical orientation. In addition, the technical staff

of FSI is also trained frequently for refurbishing and upgradation of their technical skills to strive to keep pace with the rapid advancements in technology.

The Training Unit has imparted training to 1609 forestry personnel till October 2003. The annual target for training personnel during 2003-04 was the target achieved is 102, with three training courses yet to be organized. The training calendar for the year 2003-04 is in Table-20.

During 2004-05, it is proposed to organize in-house training courses for 100 forestry personnel including two compulsory training courses for IFS officers in addition to organizing training courses at the specific request of the SFD's at their choice of location and duration, catering specifically to their needs.

Extension

Extension is an important activity, wherein activities

to users achievements and, stakeholders and others are demonstrated FSI broadcasts its Publications. The extension Unit at FSI is engaged in printing and publication of State of Forest Report, Inventory Reports, Quarterly Newsletters, Training Calendar, Annual Reports and other informative material generated by FSI. Publicity and liaison works, organizing workshops / conferences and conducting visits of officers, trainees and dignitaries from different organizations from India and abroad also form a part of the extension activities of FSI.

Expertise of FSI has been recognized by FAO in the field of assessment of trees outside forests. In this connection, a consultancy was awarded by FAO to FSI to prepare a "training manual" for South Asian countries. The training manual demonstrated various survey methods for inventory of TOF used in India and elsewhere. Technical, theoretical and practical aspects of assessment of TOF were described in the report.

Table - 20
Training Calender 2003-2004

Theme	No. of courses	Level of Partici-pants	Duration (Weeks)	May 2003	June 2003	Aug 2003	Sept 2003	Oct 2003	Nov 2003	Dec 2003	Jan 2004	Feb 2004
Application of Remote Sensing	2	IFS	1		16-20		15-19					
Application of GIS in Forest Resource Management	2	DCF / ACF	2			4-14					12-23	
Application of in GIS & Inventory Forestry	2	RFO	3						3-21	8-26		
GPS Applications in Forest	1	CF / DCF	1				1-5					
Survey & Demarcation	3	ACF / RFO	1	26-30				13-17				9- 13

Directorate of Forest Education

The Directorate of Forest Education has been functioning directly under the Ministry since 1991 to cater to the training needs of the SFS officers and Range Forest Officers of the states and union territories in the country.

The forestry training institutes under the direct administrative control of the Directorate of Forest Education are

- State Forest Service College, Dehradun (Uttaranchal)
- State Forest Service College, Coimbatore (Tamil Nadu)
- State Forest Service College, Burnihat (Assam Meghalaya)
- Eastern Forest Rangers College, Kurseong (West Bengal)

Details of the activities undertaken by the Directorate during the year include :

- Induction training in the form of “Two years diploma and certificate courses” for newly recruited SFS and Range Forest Officers of the states and UTs.
- In-service training of SFS and Range Forest Officers through short-term refresher and theme based courses. Seven courses have been organized during the year.
- Six capacity building training courses (computer application-basic and advanced and theme based) have been organized during the year.
- Promotion-linked skill upgradation courses for SFS and Range Forest Officers.
- Courses on basic training skills (TOT). Two courses have been organized during the year.

- Training of front line cadres (forest guards, foresters and deputy range officers) in the forestry schools run by the state governments, which are under the technical control of the Directorate.
- Refresher and theme based courses have also been started since December 2003 in the constituent colleges under the direct administrative control to further enhance capabilities of the front-line cadres viz., deputy. Rangers, foresters and forest guards. This would be regular feature from the next financial year 2004-05. Three such courses have been organised during the year 2003-2004.

Refresher and theme-based courses

In order to update the knowledge and skills of the forestry professionals deployed all over the country, the Directorate conducts general refresher courses, theme - based courses and computer application courses which also include brief exposure to remote sensing and geographical information system applications. The duration of the courses is two weeks for officers of the rank of Divisional Forest Officers and Assistant Conservators of Forests. The courses were conducted in the following areas :

- Computer Applications in Forestry (Basic)
- Computer Applications in Forestry (Advanced)
- General Refresher Courses

Theme Based Courses

- Joint Forest Management and Sustainable Development
- Biodiversity Conservation and Watershed Management
- Project Formulation and Environmental Impact Assessment

- Policies and Legal Issues and International Conventions
- Special course in forestry for the senior executives of the National Thermal Power Corporation.

Other activities include

The Syllabus Committee constituted by the Board of Forestry Education and Training has completed the task of revision of “Rules and Syllabus for the State Forest Service officers and Range Forest Officers Training Courses and Syllabus for the Foresters and Forest Guards Training Courses”. The newly proposed syllabus has been approved by the Board of Forestry Education and Training of the Government of India and it has been circulated to the Principal Chief Conservators of Forests of states and UTs for their comments before the same notified. These rules are proposed to be made applicable from the academic sessions starting 2005.

A Component of the Forestry Training Project has been implemented to assist the government’s effort to reform the systems and practices of training in India with a view to raise the quality of training imparted at various levels. The Project includes Capacity Building of SFS colleges and rangers training colleges as “DFE Component “along with establishing a national network for exchange of training material and practices covering over 54 Forestry Training Institutes (FTIs) run by both the GOI and the states/ UTs

Under the DFID Project, 12 Faculty members from the Directorate of Forest Education underwent Competency Based Training (CBT) in United Kingdom.

Indian Plywood Industries Research and Training Institute, (IPIRTI) Bangalore

The Institute organizes training in forest products utilisation for the personnel of plywood and allied industries. It also imparts technical education and training

at the undergraduate & postgraduate levels in technology for forest products.

The activities performed by the institute during the year are as follows :

- Twenty two post-graduate course students passed out this year got placements in various wood based industries through campus interviews organised by the institute. Besides a number of short-term training courses for the candidates sponsored by the various industries were also organised.
- The institute also conducted three special one week training courses for IFS officers to make them aware of with latest technological developments in innovative industrial products from bamboo for poverty alleviation.

The institute continues to host two web sites namely www.bamboocomposites.com and www.ipirti.com

Indian Institute of Forest Management, Bhopal

The Indian Institute of Forest Management (IIFM) provides training in forest management and related subjects to officers from IFS, State Forest Departments, Forest Development Corporation and Forest Based Industries with a view to inculcating professionalism in forestry management.

The activities performed by the institute during the year are as follows :

- The two-year Post Graduate Diploma in Forestry Management (PGDFM) was started in July, 1988. So far 14 batches consisting of 396 students have passed out. 15th batch (2002-2004) consisting of 42 students (2 SAARC students) and 16th batch (2003-05) consisting of 42 students (4 SAARC students) will be passing out in March, 2004 and 2005 respectively.

- M.Phil level Course on ‘Resource Management’ was launched in 1994 for developing professional skills of resource managers, practicing professionals and others involved in efficient and effective resource management. So far nine batches consisting of eighty five candidates have undergone this course. Tenth batch (2003-04) of 20 participants will be completing the course in May 2004.
- One student was awarded Ph.D. degree in October 2002 by the FRI Deemed University, which recognizes IIFM as a research centre. Fourteen other students are currently registered for pursuing their doctoral work at IIFM.
- Under the Management Development Programme, the institute continued to impart training to personnel from the government and non-government organizations. Thirty two training programmes and workshops were organised during the year.

The institutional node of the Environmental Information System for collection and dissemination of information on Grassland Ecosystems and Agroforestry to researchers, policy makers and persons interested in the subject areas was established in 2002-03. A dedicated website has been created for ENVIS, which contains reference materials on the subject.

Capacity building of IFS officers

The thrust of this scheme is on capacity building of the Indian Forest Service Officers through organising mid-career short term refresher courses. During the year, the Ministry sponsored 56 courses in the premier training / management institutions in the country on a wide range of disciplines including human resource development, financial management, gender issues in forestry, joint forest management, project identification, formulation, monitoring and appraisal, GIS, multilateral environmental and forestry agreements, policy and legal issues, EIA, effective leadership, organizational behavior,

management of change and conflict resolution etc. The details of the courses have been put on webpage of the Research and Training Division linked to the website of the ministry. The officers are allowed to indicate their preference for participating in a particular course based on the job requirements.

During the year an amount of rupees one crore has been utilised under ‘Plan’ for organising courses for the officers borne on various cadres in the country including sponsoring two IFS officers for the Advanced Professional Programme in Public Administration at IIPA, New Delhi.

WILDLIFE EDUCATION & TRAINING

WildLife Institute of India, (WII), Dehradun

The Wildlife Institute of India (WII) is an autonomous institute under the Ministry of Environment and Forests. The mandate of this Institute is to impart training to government and non-government personnel, to carry out research and advise on matter of conservation and management of wildlife. Details of WII’s research activities are given in Chapter 7.

During the year, the following regular long term and short term training courses, workshops and seminars were organized by WII.

- **VIII M.Sc (Wildlife Science)** was completed successfully.
- **IX M.Sc (Wildlife Science)** course commenced on 15th July, 2003.
- **XXIV P.G. Diploma Course in Wildlife Management, September 1, 2002 to May 31, 2003.** The nine-month XXIV P.G. Diploma Course commenced on September 1, 2002 with 20 officer trainees from different States within the country and from Sri Lanka, Nepal and Bhutan.

- **XXV Post Graduate Diploma Course Commenced**, *September 1, 2003-May 31, 2004*. The course commenced from September 1, 2003 for the duration of nine months at WII. In all 18 officer trainees joined the course. In addition, seven foreign nationals, four under SAARC fellowship scheme *viz.* one each from Nepal, Bhutan, Maldives and Sri Lanka, and one each from Cambodia and Lao PDR have been sponsored by the Global Tiger Forum, New Delhi under its capacity building program for tiger conservation. PA Manager and Wildlife Conservation Project, Sri Lanka has sponsored one candidate.
- **XIX Certificate Course in Wildlife Management**, *November 1, 2003 to January 31, 2004*. The 3-month XIX certificate course in wildlife management commenced on November 1, 2003 with 20 officer trainees including four foreign candidates under the Global Tiger Forum sponsorship are Bhutan 2, Nepal 1, Vietnam 1).
- **Asia Regional Workshop on ‘Mainstreaming Biodiversity and Climate Change’** *April 6-11, 2003*. The workshop organized by the Institute was sponsored by the IUCN-Regional Biodiversity Programme, Asia, United Nations Development Programme and the Ministry. Forty-one participants representing countries such as Bangladesh, Bhutan, Laos PDR, Nepal, Sri Lanka, Vietnam, Thailand, Germany, Switzerland and India attended the workshop.
- **Six Training Workshops/Courses was conducted on Wildlife Protection, Law & Forensic Science for the Inspectors of Central Excise and Customs** during the year.
- **A Workshop on “Healthcare Management of Wild Animals in Zoos”, New Delhi, May 7-9, 2003**. This workshop was jointly organized by Central Zoo Authority and Wildlife Institute of India Delhi. The purpose and goal of the workshop was to identify critical areas related to health management of zoos animals, prioritize important health needs and develop strategies for meeting these needs.
- **Vacation Training Programme on Bioresources for School Children, May 8–June 4, 2003**. The II Vacation Training Programme on Bioresources for School Children was organized by the Wildlife Institute of India in collaboration with the Institute of Himalayan Bioresource Technology (IHBT), Palampur (H.P). The training programme was sponsored by the National Bioresource Development Board, Department of Biotechnology, Government of India.
- **One-week Capsule Course in Wildlife Management for IFS Officers, June 23-27, 2003**. One-week capsule course in Wildlife Management for IFS officers was held at this Institute as a part of compulsory training for in-service officers.
- **A Workshop on Development of Strategic Action Plan for Wildlife Management and *ex situ* Conservation in Himachal Pradesh, Shimla** August 8, 2003 was organised.
- **“Development of *ex-situ* Conservation Strategy and Action Plan for Himachal Pradesh”, August 8-9, 2003**. The Institute has availed a short-term consultancy assignment entrusted by the Himachal Pradesh Forest Department. The assignment envisage the formulation of following two conservation projects for Himachal Pradesh: Project-I: Conservation of flora and fauna in the Great Himalayan Conservation Landscape, Project-II: Conservation of endangered wildlife in Himachal Pradesh. As a part of the assignment, a 2-day workshop was organized in consultation with the Additional PCCF (Wildlife), Himachal Pradesh.

- **Terai Arc Tiger Conservation Landscape Workshop, November 6-7, 2003.** In 2001, the Wildlife Institute of India submitted a proposal to SAVE THE TIGER FUND and NATIONAL FISH AND WILDLIFE FOUNDATION to carry out a survey of the Terai Arc Landscape (TAL) on the Indian side. An 18-month project was initiated in July 2002 with the following objectives: (i) Prepare tiger distribution and habitat maps for the Indian side of the TAL, (ii) Establish a comprehensive spatial data base using Geographical Information System (GIS), (iii) Train and motivate forest and wildlife staff working with the TAL Survey Team, and (iv) Present the information collected in a two-day workshop. A workshop was held on November 6-7, 2003 at Wildlife Institute of India.
- **Five ‘two days training workshops on identifying species and marking wildlife items was conducted during the year.**
- **A Two day training course on Wildlife Protection, Law and Forensics for IC&CES officers (Group “A”- Promoted)** was conducted.
- **XVII Annual Research Seminar, December 8-9, 2003.** Shri R. Rajamani, Chairman TRAC, chaired the XII Annual Research Seminar. A total of 25 papers were presented by the Researchers, Post Graduate Interns, Collaborators, Faculty Members including one presentation from Dr. Barry R. Noon, Visiting Professor from USA under US-INDIA ‘Fulbright Scholarship Programme’. About 165 delegates from all over the country including few delegates from foreign countries: 20 from Govt. & Academic Institutions, 10 from State Forest Departments, 15 from NGOs, about 20 prominent Scientists, Conservationists & Wildlife Experts and other agencies attended the ARS. About 100 internal participants (Faculty Members, Researchers and Post-Graduate Interns officer trainees and M.Sc. students) from the Institute also attended the ARS.
- **Study tour of Officers from Department of Wildlife Conservation, Sri Lanka, December 20, 2003 to January 21, 2004.** A group of 24 officers from Department of Wildlife Conservation, Sri Lanka visited the WII on a study tour for developing capabilities on Wildlife Conservation and Protected Area Management. As a part of this programme the officers were given one-week classroom lectures on the current wildlife conservation scenario. Subsequently, they were taken to major Protected Areas of India with special wildlife management interest such as Keoladeo National Park, Sariska Tiger Reserve, Bandipur Tiger Reserve, Mudumalai National Park and Annamalai Wildlife Sanctuary and Periyar Tiger Reserve, Vedanthangal Bird Sanctuary, Guindy National Park, National Zoo, New Delhi, Chamaraja Zoo, Mysore and Vandalur Zoo, Chennai. The main objective of the field visit was to provide first-hand management experience ranging from species specific interest, ecological concerns, socioeconomic aspects and other values associated with these areas. This programme was well accepted by the visiting officers. The valedictory function for the visiting officers was held in Vedanthangal Bird Sanctuary, which is one of the oldest Protected Areas of India.
- **A Three-week Special Training Course in Wildlife Management for Forest Range Officers of Northeastern States/UTs Kaziranga National Park, Assam,** was conducted.
- **A Planning Workshop on National Natural Resource Management System (NNRMS) Project ‘Mapping of National Parks and Wildlife Sanctuaries was conducted from February 19-20, 2004.** A total of 27 participants representing Park Managers and Scientists from various organizations attended the workshop, which was organised by the Institute. The objectives of the workshop were to: (i) Refine the methodology

for mapping of National Parks and Wildlife Sanctuaries on 1:25000 scale, and (ii) Develop a project implementation plan.

- **The Training Workshops on “Health Monitoring of Free Ranging Wild Animals” and “Wildlife Immobilization & Restraint”, February 23-25, 2004 and March 8-10, 2004** were held during the year.
- **The 7th Special Short Term Course on Wildlife Protection, Law and Forensics for the probationers of Indian Customs & Central Excise Service, Group “A” (55th Batch),** was also conducted from *February 23 –March 5, 2004*).

Meetings, Workshops and Conferences

The following Meetings, Workshops and Conferences held during the year

- International training course, *Economic Tools for Ecosystem Conservation*, Ben Lomond, California, *June 1-14, 2003*.
- IUCN-WCPA-South Asia preparatory workshop for the World Parks Congress, Dhaka, Bangladesh, *June 18-21, 2003*.
- First International Conference on Acoustic Communication by Animals, University of Maryland, College Park, USA, *July 27-30, 2003*.
- XIX International BioAcoustics congress, Belem, Para, Brazil, *August 10-15, 2003*.
- “Linking mountain diversity with fire, grazing and erosion”, II GMBA Symposium, La Paz, Bolivia, *August 20-23, 2003*.
- XII World Forestry Congress, Quebec City, Canada, *September 21-28, 2003*.

- Course on Recent advances in cold water aquaculture, Palampur, H.P., *September 21–October 2, 2003*.
- 9th meeting of Expert Group on Eastern and Western Ghats, New Delhi, *21-22 October 2003*.
- 9th meeting of the Project Elephant Steering Committee, New Delhi, *December 22, 2003*.
- Meeting on Monitoring of Illegal Killing of Elephant (MIKE), New Delhi, *December 23, 2003*.
- 3rd International Wildlife Management Congress, Christchurch, New Zealand, *December 1-5, 2003*.
- 49th All India conference of Indian Library Association (ILA), Jhansi, U.P., *Dec. 29, 2003 to Jan. 1, 2004*.
- XXIV All India conference of Indian Association of Special Libraries and Information Centres (IASLIC), Dehradun, Uttaranchal, *December 15-18, 2003*.
- Workshop on ‘Methods in Behavioural Ecology’, Bangalore, *January 12-24, 2004*.
- Vulture Recovery Plan Workshop, Parwanoo, H.P., *February 12-14, 2004*.
- VII World Bamboo Congress, Hotel Ashoka, New Delhi, *February 28-March 4, 2004*.
- International workshop on Webometrics, Infometrics and Scientometrics, Roorkee, *March 2-5, 2004*.
- Training Workshop on Management and Conservation of World Heritage Sites, Hiroshima, Japan, *March 8-12, 2004*.
- Workshop on Wildlife Rehabilitation, *March 23-25, 2004*.

- Meeting of the Expert Committee, *March 25, 2004.*

Facilities

Training: The Computer/GIS Cell of WII conducted computer-training courses for the students, researchers, staff and officer-trainees of the PG Diploma Course and Certificate Course in wildlife management.

Upgradation of Internet Connectivity: The institute upgraded the Internet bandwidth to 512Kbps on leased line physical loop system in order to provide a steady and reliable Internet connectivity. This upgradation was done through Videsh Sanchar Nigam Limited (VSNL) for Internet services and Bharat Sanchar Nigam Limited (BSNL) for physical loop system.

National Wildlife Database Cell : During 2003-2004, the main thrust of the activities was on the compilation of reports/ bibliographies and modification of website besides the collection & input of data and its validation as a regular activity. The Protected Area Database was updated further. Species Database was corrected and updated by adding information on the distribution of mammalian species in various protected areas. Bibliographic Database was updated by addition of current literatures published on Indian wildlife in the various issues of journals & periodicals received during the said period. Trainees Database have information on 470 Diploma and 345 Certificate officers trained in the various Diploma and Certificate courses including 94 foreign nationals besides information on various short courses. Website of the National Wildlife Database has been modified and updated further by incorporating the latest information.

Research Laboratory

The laboratory extends technical inputs in conducting various teaching & training courses of the Institute and provides analytical support to research projects. Teaching classes followed by practical for on going courses were conducted at the laboratory on various

instrumentation & analytical techniques, taxidermy, herbivore pellet and carnivore scat analysis and age and sex determination of animals. The laboratory staff provided technical inputs in capturing and handling live animals and birds in field, demonstration of camera traps, small mammal traps, electric fencing, radio telemetry and taxidermy to various training programmes. The laboratory staff recorded meteorological data from Chandrabani campus during the year reporting. The maximum and minimum temperature recorded were 41°C (June 2003) and 2°C (January 2004) respectively. Total annual rainfall recorded was 1802.3 mm.

Herbarium

During the reporting period the staff of WII herbarium identified 2075 specimens from areas like Bandipur National Park, Rajaji National Park, Corbett National Park, Chamba District, Himachal Pradesh, Pakhui Wildlife Sanctuary, Trishna Wildlife Sanctuary, Dudhwa National Park.

Native grass species like *Arundo donax*; *Phragmites karka*, *Saccharum benghalensis* and *Saccharum spontaneum* were introduced in the campus with the help of herbarium staff. The accessioning of herbarium sheets and labeling in being carried out. The teaching inputs on herbarium preparation and its uses were made to Certificate Course trainees, M.Sc. Students and several visiting classes by herbarium section.

National Museum of Natural History (NMNH)

The National Museum of Natural History (NMNH) is a subordinate organization of the Ministry with its main objective to promote non-formal environmental education and nature conservation awareness among people.

The NMNH and its Regional Museums of Natural History (RMNH) at Mysore, Bhopal and Bhubaneswar observed yet another eventful and activity-packed year during which new permanent gallery exhibits were

fabricated and new facilities set up. Year round activities for all the sections of society were organized to enhance public awareness on environment and conservation and to develop scientific temper in the society.

Collection of Specimens

Field trips were undertaken to Gopalpur, Berhampur, Chilika Lake, for collection of marine animals and photo-documentation of flora and fauna on largest brackish water lagoon of the world. Specimens in the form of skin and skeletons were collected from the Nandankanan Zoological Park, Bhubaneswar for displays and reserve collections. Similarly, specimens of insects, shells, crabs, fishes etc. were also collected. The biggest achievement through the Regional Museum of Natural History, Mysore was made in successful negotiations with M/s Van Ingen & Van Ingen- the British time taxidermists, who gifted their entire lifetime osteological collection of around

4000 specimens including skulls, skeletons, bones etc. to the museum. Various stuffed animals and birds were also received as gifts from various other institutions. These specimens were purposefully shared in between the National Museum of Natural History and its Regional Museums of Natural History to enrich their collection base for display, education and research purposes.

Documentation of Exhibits/Specimens

Documentation of photographs on flora and fauna collected from various wildlife photographers was done and the herpetological collections made during the joint collaborative research projects in between NMNH and Field Museum of Natural History, Chicago and the Carnegie Museum of Natural History, Pittsburgh were shifted to the Regional Museum of Natural History, Bhubaneswar for proper documentation and study with the help of Utkal University, Bhubaneswar.



Fig 73. School children participating in the “On-the-spot Painting Competition” organized by the National Museum of Natural History during the Wildlife Week

Fabrication of Exhibits

Artificial specimens were prepared with the help of specimens collected from the market as well as field for the galleries at the Regional Museum of Natural History, Bhubaneswar. A huge banyan tree of 14 ft. height for its Discovery Centre was also fabricated. Structural frameworks and fabrication of permanent 25 showcases and five dioramas were got done. Landscaping work of RMNH, Bhubaneswar campus is also undertaken. The 1st Phase of the museum is ready for inauguration.

The planning and preparation of Bio-resource Garden for the Visually Challenged was initiated at the Regional Museum of Natural History, Mysore. This is a Department of Bio-Technology (DBT) sponsored programme.

Exhibitions

Exhibitions on 'Freedom from Tobacco', 'Sustainable Village Life' and 'Extinct and Threatened Animals of India' were organized at the Regional Museum of Natural History, Bhopal for the benefit of rural areas and for urban people. The exhibition on 'Sustainable Village Life' was mounted on the Mobile Museum and was flagged off on 13th May, 2003 by the Hon'ble Union Minister of State for Environment & Forests at the Regional Museum of Natural History, Bhopal. It was taken to the villages of Madhya Pradesh, Chhattisgarh, Maharashtra, Jharkhand and Orissa. Now the same Mobile Museum is ready for launch to reach the rural areas of the state of Orissa and Jharkhand with changed exhibits.

The National Museum of Natural History also organized temporary exhibition of the "Wildlife Photographer of the Year" based on the winning entries of the international competition held at the British Museum of Natural History, London and sponsored by the British Gas- India.

Publication

NMNH and its Regional Centre published about 20

publications in English, Hindi and Kannada on the topics related to animals, plants, biodiversity etc.

Educational Activities

NMNH and with its Regional Museums of Natural History organized a number of in-house and outreach programmes for the benefit of school children, college students, teachers, challenged children and general public. Various national and international days of scientific relevance like the World Wetland Day, World Day for Water, World Forestry Day, International Ozone Day, Conservation Day, Earth Day & National Environment Awareness Campaign programme were observed for school children and challenged children. The museum organized different educational activities and competitions like Quiz, Declamation, on-the-spot Painting, Poster, Essay Writing, Bird Watching, Tree-spotting, Model making for the participating students on these occasions. Special programme to commemorate the 25th Foundation Day as the Silver Jubilee Year of NMNH and World Environment Day was organised in the Vigyan Bhawan, New Delhi. Hon'ble Vice President of India graced the Occasion. A set of publications was also released by him.

Workshops

Workshop on Water Conservation and Management, on "Paryavaran ke Nanhe Prahari" and "Teacher Orientation Workshops" were organized at the Regional Museum of Natural History.

Nature Trips

Nature camps were organized during summer and winter vacations for students, teachers, rural school dropout children and winner children of various competitions. The students were taken to Sariska Tiger Reserve in Rajasthan and to Pachmarhi in Madhya Pradesh.

Collaboration with Universities/Other Institutions

– NMNH continued its academic collaboration with



Fig 74. Summer Programme participants in the galleries of the Regional Museum of Natural History, Mysore

the University of Delhi and assisted its Department of Environmental Biology for field studies by the students.

Professional Enrichment, participation in Seminars/ Workshop etc.

- NMNH and its Regional Museums participated in the Annual General Conference of the Museums Association of India held at Shillong (Meghalaya) from 14th to 16th June, 2003 on the theme ‘Museums and Research’ and at National Museum Institute, New Delhi from 13th to 15th February, 2004 on the theme of “Museum Evaluation”.

IT Upgradation of the Library

The NMNH library has been upgraded with specialised fixtures & furniture, air-conditioning, computer hardware and software and internet connectivity.

The Library has more than 12,000 titles of books on environment, natural, wildlife, ecology etc. Which are in the process of retroconversion into a digital format onto specialised Library software. This would enable it to connect to DELNET for better access by users. All these has been made possible by a special IT grant given by the Ministry.

Fellowship and Awards

Indira Gandhi Parayavaran Puraskar (IGPP)

In recognition of significant contribution at Individual and Organisational level for the cause of environmental protection, the Ministry had instituted a National Award in reverential memory of the former Prime Minister late Shrimati Indira Gandhi called, ‘Indira Gandhi Parayavaran Puraskar’. Awards are given every year to an individual and an organisation those who are recognised as having

been made or have the potential to make measurable and major impact on the protection of Environment. The award consists of one silver lotus trophy, cash prize of rupees five lakh, a scroll and a citation.

Citizen of India or Organisation working in India engaged in Scientific Work/Field Work for the cause of protection of Environment are eligible for the award. The selection for the award is done by the Environmental Award Committee under the chairmanship of the Hon'ble Vice President of India.

The Environment being multi disciplinary subject, while considering for the award the term "Environment" is interpreted in the broadest sense possible. Illustrative areas of work taken for consideration are as follows :

- Prevention of Pollution
- Conservation of Natural Resources
- Rational utilisation of depletable resources
- Environmental Planning and Management
- Environmental Impact Assessment
- Outstanding field work (innovative research work) for enrichment of environment e.g. afforestation, land reclamation, water treatment, air purification etc.
- Environment Education
- Crating awareness of environmental issues

Awards had been conferred upto the year 1999 in both the Individual and Organisation categories. Selection of awardees for the year 2000 and 2001 has been done. Selection of awardees for the year 2002 is under process. The advertisement had been issued inviting nominations for the year 2003. The nominations have been received and being scrutinized.

Indira Priyadarshini Vriksha Mitra (IPVM) Award

For the Indira Priyadarshini Vriksha Mitra (IPVM) Awards for the year 2001 about 140 applications had been received. Field verification of the works of the short-listed nominations has been completed and the awardees in different categories for IPVM 2001 will be finalized shortly.

Notice inviting nominations for IPVM awards for the years 2002 and 2003 have already been issued and nominations are being received.

Pitamber Pant National Environment Fellowship Award

The fellowship, which is awarded annually, is in recognition of significantly important research and development contributions and is also intended to encourage talented individuals to devote themselves to R&D pursuits in the field of environmental sciences. The duration of each fellowship is for 2 years. So far 25 fellowships have been conferred to various scientists throughout the country.

For the Pitambar Pant National environment Fellowship Award for 2003, the Advisory committee has shortlisted three proposals for selection of the Award.

B.P. Pal National Environment Fellowship Award for Biodiversity

The fellowship is in recognition of significantly important research and development contributions and is also intended to encourage talented individuals to devote themselves to R & D pursuits in the field of Bio-diversity. The fellowship is awarded annually for a duration of 2 years. So far 8 fellowships have been conferred to different scientists throughout the country.

The B.P. Pal National Environment Fellowship Award for 2003 has been conferred Dr. C. Sathish Kumar of TBGRI, Trivendrum. He will work on "Red Data Book of Indian Orchids".

Advisory Committees for Pitamber Pant and B.P.Pal Fellowships were also reconstituted during the year.

National Award for Prevention of Pollution and Rajiv Gandhi Environment Award for Clean Technology

The National Awards for Prevention of Pollution and Rajiv Gandhi Environment Awards for Clean Technology 2002-2003 were given to 5 categories of highly polluting industries in the large scale sector : (i) M/s Gujarat Ambuja Cements Ltd., Roper, Punjab (Cement) (ii) M/s Tata International Ltd., Dewas. M.P. (Tanneries) (iii) M/s Chemtech Processors, Kancheevaram, Tamil Nadu (Textile Dyeing), (iv) M/s Shriram Alkali & Chemicals, Bharaucho, Gujarat (Caustic Soda) and (v) Hirakud Power Plant of M/s Indian Aluminium Company Ltd., Hirakud, Orissa (Thermal Power Plants).

Centres of Excellence

The following 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 :

- Centre for Environment Education (CEE), Ahmedabad (linked with Nehru Foundation for Development, Ahmedabad)
- CPR Environmental Education Centre (CPREEC), Chennai (linked with Sir C.P. Ramaswamy Aiyar Foundation, Chennai)
- Centre for Ecological Sciences (CES), Bangalore (linked with the Indian Institute of Science, Bangalore)
- Centre of Mining Environment (CME), Dhanbad (linked with Indian School of Mines, Dhanbad)
- Salim Ali Centre for Ornithology and Natural History

(SACON), Coimbatore (linked with the Bombay Natural History Society, Mumbai)

- Centre for Environmental Management of Degraded Ecosystem (CEMDE), Delhi (linked with Department of Environmental Biology, South Delhi Campus, Delhi University)
- The tropical Botanic Garden and Research Institute (TBGRI), Thiruvananthapuram (linked with the State Government of Kerala)
- Centre of Excellence in Environmental Economics at Madras School of Economics (linked with Madras University, Chennai)
- Foundation for Revitalization of Local Health Traditions (FRLHT), Bangalore.

Centre for Environment Education (CEE), Ahmedabad

EE through Children and Schools

Centre for Environment Education (CEE) is assisting Ministry in implementing the project 'Environmental Education in School System' in the country. While in the Phase II of the project eight states were covered, during Phase III, ten more states have been identified to implement the greening process. As part of Phase II, a 'Central Workshop for Orientation of NGOs' for implementing the co-curricular EE programmes in schools was organized at Ahmedabad in May, 2003. A Teacher's Manual and Ecomaps were also developed for the eight states during the period. Several Training Module Development (TMD) review workshop were organized during the period in participating states. For Phase III, State Orientation Workshops for state education departments and other stakeholders were held during the period. The greening of textbooks for science, social science and language for classes 6-8 was completed. Teacher training and Master Trainer workshops were held in several of the states.

CEE is the State Resource Agency for 15 States and two Union Territories for the National Green Corps (NGC) scheme of the Ministry during the period Master Trainer Workshops were organized in several states. CEE West is also contributing to the 'Paryavaran Setu' newsletter brought by the GEER Foundation, the Gujarat nodal agency for NGC. A two day CEE national review meeting for NGC was held at Raipur during April 2003 to review progress and plan for future activities.

CEE is the coordinating agency for Global Learning and Observation to Benefit the Environment (GLOBE) for 66 schools in India. During this period, the focus has been on continuing to support the existing CEE GLOBE schools in conducting GLOBE protocols and activities in their respective schools. Twenty-eight CEE schools are recording and reporting data on the website. St. Edmund School in Shillong has reported over 2500 readings and is the only GLOBE school in India to have made it to the Chief Scientists Honor Roll.

Under the Centrally implemented scheme of Environmental Orientation to School Education (EOSE) of MHRD, monitoring activities for the 14 projects sanctioned for the period of January, 2003 to February, 2004 are in progress in the states of Manipur, West Bengal, Maharashtra, Rajasthan, Uttar Pradesh, J&K and Goa. Twenty five projects sanctioned for the period of January 2002 to July 2003 were successfully completed and final report was submitted to the Ministry. The development of an Interactive CD by the Resource Centre at CEE, is in progress.

CEE has undertaken a collaborative project titled 'Anandshala', which aims to facilitate the development of model sustainable schools in Dang, Valsad and Chhota Udepur districts of Gujarat. With regard to the infrastructure six important components were approved for each school, these are sanitation unit, drinking water unit including roof water harvesting, common meeting place, paved areas, fencing and greening activities. Educationally, an important event during the period was

a nine-day integrated exposure tour for the Anandshala teachers to visit various educational institutions, eminent educationists, popular places of Gujarat etc.

The school programme on science and environment is being implemented in Tumkur and Bijapur district of Karnataka covering 50 and 100 schools respectively to capacity build the school teachers to teach basic subjects – science, social science and mathematics effectively through EE activities. Training and orientation programmes were organized for the teachers of these schools and relevant educational material was distributed during the period.

CEE in collaboration with Gujarat Energy Development Agency (GEDA) and Gujarat Electricity Board (GEB) organized Urja Utsav, 2003 during 4-6 Dec. at Ahmedabad with the theme of 'Energy Skills as Life Skills' for school children. The event included more than 15 competitions including state level competitions on poster-making, elocution, pledge writing etc. More than 1000 schools and 10,000 children participated in the activities of the Urja Utsav.

The Asia/Pacific Cultural Centre for UNESCO (ACCU) and CEE jointly organized the Production Workshop on PLANET 3 package on 'Waste Management' in CEE Ahmedabad, from 26 to 30 August 2003. The 'PLANET' package is designed to raise awareness and encourage children and communities to take action for and environmental protection and sustainable development. Two participants each from Bangladesh, Cambodia, Lao PDR, Nepal, Philippines and Thailand, one from Japan and three from Indonesia attended the workshop. The learning material that has been developed as a part of the PLANET. Three package will later be adapted and translated for use in South East Asian countries.

Under the project on development and dissemination of education materials on biodiversity for students, during the period, four CEE books viz., Ocean Omnibus, 'Forest

Tales', 'Amazing Mammals' and 'Exploring a tree' have been adapted and translated into four South Indian languages. One Biodiversity Information Kit (both print and transparency) has also been developed targeting high school teachers and teacher trainers.

CEE developed a publication – 'Guide to Green Citizenship: Workbook on Environmental Education' for vocational education students on a request by Pandit Sunderlal Sharma Central Institute of Vocational education (PSSCIVE), subsidiary unit of NCERT. The book would help the vocational education students to learn identify and evaluate the effects of their work on the environment and the risks to the environment that may result from performing in one's occupation.

CEE collaborated with several other institutions to bring out a series of Snow Leopard posters and a booklet focusing on information, activities and ideas for educators engaged in snow leopard conservation.

Other publications brought out during the period include a Sikkim Bird Book in Nepalese and trans-adopted language versions of Elephant Manual in major elephant bearing states of the country.

EE through Higher Education / Youth

CEE has developed a pilot course entitled "Environment and Development : An introduction to sustainability and innovative strategies", which was offered as a five-credit, postgraduate course at the University of Pune (UoP) from July 1 to 13 in partnership with Department of Environmental Sciences, UoP. Fifteen people enrolled for the course – 12 M.Sc II year students of the Department of Environmental Sciences, and three NGO participants. To support the programme, a special page called the "E&D Classroom" was set up on the Envirodebate web site. This was meant to enable the students to seek information and clarifications and continue to interact with the speakers even after the classroom sessions.

The Asia Regional Workshop on Youth for Environment was organised from 11-14 August 2003 at CEE Ahmedabad by the Commonwealth Youth Programme Asia's Regional Youth Caucus Representative of India with support from CEE and Commonwealth Youth Caucus Representative of India with support from CEE and Commonwealth Youth Programme Asia Centre. Twenty five representatives from youth organisations and government from Bangladesh, Brunel Darussalam, India, Malaysia, Maldives, Singapore and Sri Lanka participated in the workshop. The objective of the workshop was to create awareness among the participants and help them develop an action plan on projects / activities related to the key concern in their respective countries.

EE through Interpretation

CEE has been appointed by the Kanha National Park Authorities, Government of Madhya Pradesh for the upgradation of the existing interpretation centre and to develop new interpretive materials for the Kanha National Park. The present project includes adding to the pioneering interpretive project developed by CEE for Kanha in the eighties. The new project involves development of new exhibits, models, diagrams etc., like Night Scene in Kanha, Conservation History of Tiger, Modern technologies, touch screens etc. will be used in these displays.

CEE has signed an MoU to develop an Interpretive programme for the Bhoj wetland, Bhopal. Different kinds of exhibits / dioramas based on themes like riverine systems of M.P., Bhoj wetlands, geology and ecology of lake, flora and fauna, conservation measures etc. have been made. Several touch screens have also been developed for the Interpretation Centre.

The components of Phase-II of the Chilika Interpretation Programme were installed on site at the Chilika Visitor Centre – Satapada. The Phase II components are the Communities' Room, a Hydrology section, a scale working model of the Nalaban Bird

Sanctuary with the birds and their habitats. The Visitor gallery has a dolphin exhibit with an audio-visual and photo panels. A touch screen on the Chilika Lagoon containing 100 pages with animation, audio visuals, bird calls etc was also completed.

The project involves developing interpretative exhibits in the Reptile House of the Delhi Zoo supported by Central Zoo Authority. During the period, exhibit themes were discussed with experts and tentative layout plans and exhibit drawings as well as write-ups were prepared. The implementation of the project at the site has begun and would be completed soon.

An Educational plan was submitted to Zoo Authority of Karnataka (ZAK) to set up EE facility at the Binkadakatti Zoo premises in northern interior region of Karnataka. The objective of the educational facility is to create environmental awareness about zoo related issues and wildlife conservation in general to the visitors and also to develop a self-sustainable model for Zoo education and wild life conservation.

EE in Urban Context

AmdaVadma is a forum which provides platforms for discussing environmentally significant issue of Ahmedabad. During the period, three panel discussions were organized focusing on vehicular pollution, condition of lakes, heritage conservation in the city. Experts in the field and various stakeholders participated in the discussions. Recommendations were made towards solving the problems through involvement of different stakeholders.

Under the Ward Adoption Project at Tirupur, more wards were added to the ongoing activity of waste management in different municipal wards of Tirupur. The wastes from different wards are segregated at the source and the biodegradable portion is directed to the centralised compost yard. The commercial establishments yield a lot of non-degradable waste that mainly contains paper and plastic. This waste is sent to the recycling unit (CEE-

ERU) having handmade paper recycling unit for the paper waste and plastic weaving unit for the plastic carry bags waste.

Several types of programmes are being implemented by CEE all across the country towards proper hospital waste management. Under the Health Care Establishment Waste Management and Education Programme (HEWMEP) in Gulbarga city, a common treatment facility for treatment of bio medical waste is being installed. The facility will take care of the entire biomedical waste generated from all the HCEs (Health Care Establishments) in Gulbarga city. The project also covers the training of the hospital staff of all the HCEs from Gulbarga city.

A Workshop on “Safe and sound management of Hospital Waste” was organized by CEE at Kodagu with support from Coorg foundation, Indian Medicin Association, Kodagu and KSPCB (Karnataka pollution control Board). About 85 participants attended the workshop including staff of Hospitals, Clinics, Health Care Centres, NGOs and local people in Kodagu.

A Workshop on ‘Integrated Approach to Plastic Waste Management’ at Kodagu to create awareness about all the aspects of appropriate management of plastic and solid waste. About 60 participants from public organizations, NGO, Hotels, Restaurants, Homestays, Shop keepers, Members of the Gram panchayats, attended the workshop.

EE for industry

CEE in collaboration with UNEP is involved in developing the framework for the national strategy for phasing out of Ozone depleting solvents in India, mainly in small and medium enterprises. Intensive interactions with SMEs in textile destaining sector in Tirupur, electronics defluxing and refrigeration and air-conditioning servicing in Gujarat and metal cleaning operations in Maharashtra helped identify barriers integration of substitutes.

CEE has devised an implementation plan for the global awareness strategy framework for phase out of ozone depleting substances (ODS). During the period, the implementation plan was embodied as guidelines for action in the form of a document that was reviewed by UNEP, Paris. CEE was invited to moderate the discussions and help evolve in action schedule involving developing country signatories.

As part of the eco-industrial networking activities at Naroda, a roundtable on the implications of WTO conditionalities for the SMEs (small and medium enterprises) was organized. Characterisation of waste streams continued with additional focus on ozone depleting solvents.

A community industrial disaster preparedness project was carried out at the Vatva Industrial Estate, Ahmedabad. The project involved working with schools around the estate and through them reaching out to communities to prepare them for industrial disasters like gas leakage, fire, chemical spills.

EE through Experiencing Nature

As part of the outreach programmes of Sundarvan, snake shows were organised in schools of Ahmedabad and in the adjoining rural school of Ahmedabad. More than 20 Nature Camps were organised at Mt. Abu, Makore, Kheda, Sitamata and at Sundarvan, Ahmedabad, attended by more than 500 children, youth and adults. The camp coordinator was also involved in Training of Trainees programme organised at Sitamata Sanctuary by Rajasthan Forest Department. A "Sarus Watch" programme was organised in the wetlands of Kheda district, Puppet and snake shows were also regularly conducted on Sundays at Sundarvan.

EE for Natural Resource Management

The Samvardhan project involves working in 24 tribal villages of the eastern tribal belt of Gujarat, on issues of safe drinking water, natural resource productivity, animal husbandry practices, etc. towards sustainable development. During the period, twelve youth from the tribal community villages were trained as Community Entrepreneurs. These youth were sent out to the field to carry out project activities.

CEE is the Environment Agency for the Andhra Pradesh District Poverty Initiatives Project (APDPIP). It is responsible for developing and implementing the Environment Management Framework. During the period, training programmes on Environmental management Framework baseline reports were completed. Based on the APDPIP experience, similar activities are being organized for the Andhra Pradesh Rural Poverty Reduction Project (APRPRP) scheme. An inception workshop introduced the Environmental Management Framework to the staff members from the 16 APRPRP District Project Management Units (DPMUs) and to the District Livelihoods Resource Group (DLRG) members.

Under the 'Rebuilding Hope' programme initiated after the earthquake, CEE has been involved in earthquake rehabilitation including natural resource management and other village development activities besides constructing shelters in 20 villages of Halvad taluka of Surendranagar district and in Vavaniya village of Rajkot. During the period, in Halvad, model Community Centres were constructed having 40,000 lit. capacity tank built for harvesting roof rainwater for use throughout the year. A Perspective Plan has been prepared for future interventions at Halvad in the next five years. In Vavaniya, the PHC and the two school buildings were completed. Through another project the social infrastructure development of the village is being targeted which includes providing water and sanitation facilities and livelihood opportunities.

CEE has been working with 28 villages of Talaja block of Bhavnagar District, Gujarat for capacity building the Pani Samities to take charge of the project processes under the Ghogha Regional Water Supply and Sanitation Project (GRWSSP). A water care, sanitation and hygiene campaign was conducted for the 28 villages. Mobile shops have been developed which will provide watsan information and tips to the communities.

EE through Mass Media

CEE is a Video Research Centre of TVE (Television of Environment), London. Part of its mandate as a Resource Centre is the wider dissemination of TVE productions. Kairalli TV, a popular Malayalam channel in

Kerala telecasted Malayalam version of videos developed under the Truth Talking series of TVE during June and July. These Truth Talking videos were also screened at Kerala film festival organised by TVE Asia Pacific in close collaboration with CEE at the International Video Festival (iV Fest 2003) at Thiruvananthapuram, Kerala.

EE for Environment and Development

CEE is working with Environmental Law Institute (ELI), Washington DC on sensitization of judiciary in Uttar Pradesh. To facilitate this, a three day, workshop on Judicial Enforcement of Environmental law in U.P. was organized in October 2003 at Lucknow. The objective of the workshop was to build the capacity of the judiciary in Uttar Pradesh, to equip the judges to protect the environment by advancing their understanding of environmental law. ELI and CEE are also developing a “Bench Book” that judges can use as reference materials following the course.

CEE in collaboration with the People’s Commission on Environment and Development (PCED) organized two public hearings on Environment and Development at Nainital and Allahabad in May and October respectively. The Nainital hearing deliberated significant issues related to mountains, while the Allahabad hearing discussed issues related to Ganga Action Plan, water supply and sanitation etc. Over 200 people each from NGOs, educational institutions, Government, local bodies, and general public participated in the events.

Under the Environment and Development book series project, a book on rainwater harvesting was brought out, while drafts of several other books were developed. The online discussion website www.envirodebate.net was revamped and several new debates were added for discussion.

EE through Training

CEE conducted the two week Asia component of the SIDA (Swedish International Development Agency) supported international training programme in EE Processes in the Formal System during 28 July-8 August 2003. 11 participants from 6 countries namely Bangladesh, Cambodia, China, India, Lao PDR and Vietnam attended the programme. All the participants at

the training are involved in school programmes and most of them are from government set-ups. The main purpose of the two week Asia programme was to help the Asian participants contextualize their project and project products to their work areas and situations.

A workshop to share the findings of study of hospital waste management practices in Pune and Pimpri was organized under TALEEM. Over 45 representative from hospitals, nursing homes, NGO’s, government departments and educational institutions, as well as doctors and healthcare personnel attended the workshop were oriented about various hospital waste management practices.

CEE organized a Training Programme on Website Development and Database Management for ENVIS nodes in April 2003. It was a residential training and was attended by 25 ENVIS nodes on different topics, from all over the country. This training covered the training of software required to develop, maintain and update any website and would help in dissemination of information of the ENVIS Nodes.

The eighth Certificate Course in Environmental Education was completed during the period, attended by 6 participants from Nepal, Mexico and India.

The 6 month internship Training and Librarianship and Documentation programme (TLD) started in December came to an end during the period. During April-May the interns visited some of the well-managed libraries of Ahmedabad to get acquainted with the systems, tools and techniques being used there.

EE through Networking

CEE has signed an MoU with Water Supply and Sanitation Collaborative Council (WSSCC), Geneva for being the South Asian focal point for Education and Communication for the WASH (Water, Sanitation, Hygiene) campaign. WSSCC is an international organisation within the UN system that enhances collaboration in the water supply and sanitation sector. CEE is helping to disseminate knowledge and information on WASH issues in schools, among youth, local media and to mainstream WASH issues in government through communication material and advocacy.

As part of the South and South-East Asia Network in Environmental Education (SASEANEE) two issues of newsletter were brought out and disseminated widely, while the website was regularly updated.

Special Projects

GEF-SGP

SGP National Steering Committee meeting and Regional Committee meetings to screen proposals were organised during the period. Besides, biennial review meetings for the review of the Country Strategy Program of FEF SGP were organised at Bangalore, Pune and Ahmedabad to take the opinion from the staff and coordinators of NHI's Regional Cells, Grantees, Communities and other partners about SGP towards further improvements. The review, monitoring and evaluation activities in different regions for the projects sanctioned continued.

Events

Seminar on Water Conservation

Under the aegis of CEE, Ministry, WASH and WASMO a seminar was organised on 'Water Conservation – Role of Civil Society' on 24 July at CEE, Ahmedabad. The month of July was observed as the 'Water Month' throughout the country. The seminar had three major themes related to water conservation and experiences of various organisations related to it.

WPC Preparatory Workshop

As an India preparatory activity for the World Parks congress, CEE with support from Wildlife Institute of India and Ministry organized a Preparatory workshop at New Delhi on August 21. Different themes related to the Congress were discussed through three panel discussions. An e-mail forum created after the event further facilitated the dialogue and sharing of perspectives among Indian delegates.

International Biodiversity Day, WED and Ozone Day

The International Biodiversity Day on 22nd May, the World Environment Day on 5 June, Ozone Day of 16

September was observed with different types of programmes and activities in different offices of the country. Various biodiversity related events like camps, exposure tours etc were organized as part of the Biodiversity day celebrations. During the World Environment Day several awareness and outreach programmes were conducted. The theme for this year's WED was 'Water – 2 billion people are dying for it' and hence many of the programmes focused on water related activities. These included programmes in schools and colleges, workshops, film shows etc. At some places, a whole environment week was observed to mark WED. For the Ozone day seminars, workshops and awareness activities were organized with different stakeholders at several places.

CPR Environmental Education Centre (CPREEC), Chennai

The C. P. R. Environmental Education Centre (CPREEC) was established in 1989 to increase consciousness and knowledge about the environment and the major environmental problems facing India today, and to spread the message of conservation of the environment through both the formal and non-formal sectors.

CPREEC is also the Nodal Agency and Resource Centre for the Ministry of Human Resource Development, Government of India for implementing the scheme of Environmental Orientation to School Education in the states of Andhra Pradesh, Karnataka, Kerala, Orissa, Pondicherry and Tamilnadu.

Training Teachers to Integrate Environmental Education in the School Curriculum

CPREEC has been working in the states of Andhra Pradesh, Goa, Karnataka, Kerala, Maharashtra, Orissa, Pondicherry, Tamilnadu and the Andaman and Nicobar Islands to integrate environmental education (EE) in the school curriculum. Teachers are selected from four educational districts in each state every year in order to achieve total environmental literacy, and undergo orientation programmes in collaboration with the SCERTs, DIETs and the Chief Educational Officer of the district, who deputes the teachers. CPREEC's efforts have

resulted in the introduction of environmental education as a subject at the primary level (standards first to fifth) in the states of Andhra Pradesh, Karnataka, Kerala and Tamilnadu and integrated into the curriculum from standards six to eight. Today, CPREEC has an army of trained teachers who are imparting EE to a whole generation of young people.

To assess the participants, inter-school competitions were organized at District Headquarters.

Biodiversity Conservation Education

Biodiversity conservation is essential for motivating the student community to protect the reserve forests and national parks. Training programmes were conducted in Andhra Pradesh, Karnataka, Kerala, Pondicherry and Tamilnadu for teachers who are taken on a field visit to a nearby national park or reserve forest to obtain hands-on experience of the importance of biodiversity conservation.

Training Programmes in Ecological Fragile Areas

Nilgiri Biosphere Reserve : CPREEC's field office set up in this ecologically fragile area has been conducting several training programmes for teachers, NGOs, women, students and tribals. The NGO Network of CPREEC is actively engaged in protecting the Biosphere Reserve. The gene pool of medicinal plants established by CPREEC at Thambattu, with more than 183 medicinal species, is used as a demonstration plot to educate local farmers and tribals in herbal farming. Teachers and students are brought to the herbal garden to understand the importance of indigenous plants and their medicinal value. An exhibition on "Waste Management" was conducted at the Botanical Garden and Sim's Park during the Annual Summer Festival.

Andaman and Nicobar Islands : In the ecologically fragile area of the Andaman & Nicobar Islands, CPREEC has been imparting environmental education to school teachers and students, women and villagers on the importance of the marine ecosystem. Film shows were organized for students to make the programmes interesting and interactive. An exhibition on "Coastal Ecology" was organized during the Annual Island Tourism Festival at Port Blair.

Exhibitions

Three new exhibitions were organized on

- Coastal Ecosystems
- Energy – Renewable and Non-renewable Sources
- Traditional Water Harvesting Systems of India

Quiz and elocution competitions on the themes of the exhibitions were organized for school students, while video films were screened for visitors. Panels and models of earlier exhibitions conducted by CPREEC were sent to several interested schools for display in their annual exhibitions.

Environmental Law Education : CPREEC was the first organization to introduce training in environmental law in 1990. This has been formalized into the Centre for Environmental Law Education, where law students, judiciary, advocates, academicians and NGOs are regularly trained on the various aspects of environmental law. Law Seminars were conducted in the states of Andhra Pradesh, Karnataka, Kerala and Tamilnadu.

Conservation and Restoration of Sacred Groves : Sacred groves represent an ancient Indian conservation tradition, protected by local people out of reverence and respect, fear and sentiment. They are the home of the local flora and fauna, a veritable gene pool and a mini biosphere reserve. These groves consist of a shrine with a water reservoir, the whole surrounded by a forest or thicket of trees

CPREEC took up ten sacred groves for restoration in the states of Andhra Pradesh, Karnataka and Tamilnadu. Soil and water conservation measures were implemented in the sites after analyzing their quality.

Training programmes on the importance of sacred grove conservation were organized for stakeholders, including school teachers and students, women, villagers, priests and NGOs through folk media. Saplings were distributed to school students and women for rear in their schools and residence respectively.

Women and Eco-development : Women are the greatest sufferers of environmental degradation and

training them in energy conservation, plantation and maintenance of ecological traditions has resulted in positive change in several places. Women of four districts each in the states of Andhra Pradesh, Karnataka, Kerala and Tamilnadu were taught to collect seeds, raise a nursery and plantation, conservation of fuelwood and production of smokeless chulhas and manufacture of paper bags to increase their earning capacity and protect the environment by restricting the usage of plastic bags. Women's melas were organized in the states of Andhra Pradesh, Karnataka and Kerala.

Income generation programmes were conducted for the women of Dindigul district in Tamilnadu in collaboration with the Gandhigram Deemed University, Gandhigram. Community smokeless chulhas were installed in each village. The women were given tree saplings and seeds for raising kitchen gardens.

Eco Model Village : CPREEC's eco village at Nenmeli, Kanchipuram district, Tamilnadu, is used as a training centre for school teachers and students, farmers, women, NGOs and government officials, as it serves as a model village for watershed management, biodiversity conservation, sacred groves, organic farming and a gene pool of medicinal plants with more than 82 species. Rainwater harvesting structures and vermicompost were introduced in the school.

Rural Water Managers : CPREEC has sponsored the education of 25 students from Nenmeli village in Kanchipuram district of Tamilnadu as Rural Water Managers by training them in Water Management for Crop Protection, and registering them for the certificate exam of the National Institute of Open Schooling.

Audio Visual Campaign using the video van : The video van supplemented the environmental education efforts by visiting the schools during the day and the same villages at night in order to increase local awareness. Audio visual shows and a lecture on the importance of environment was conducted for students. Informative and attractive posters on various environmental themes were displayed at prominent locations in the village. The video van travelled to remote villages in Orissa, Andhra Pradesh, Kerala and the Nilgiri Biosphere Reserve.

Publications : Educational aids are important in conducting training programmes. To supplement the environmental education efforts of CPREEC, several resource materials are published and distributed to teachers and students participating in the training programmes. The following papers and publications were published during the year.

- Four issues of the quarterly Newsletter ECONews
- Two issues of the EMCBTAP - ENVIS newsletter ecoheritage.com and two special issues were brought out for the workshops held at Bangalore and Bhubaneswar
- Annual issue of the Journal of Environmental Education
- New pamphlets on Coastal Ecosystems in Tamil and English, Energy – Renewable and Non-renewable Sources in Tamil and English, Traditional Water Harvesting Systems of India in Tamil and English
- Translation of protect our Sacred Groves into Kannada, Muthu and the Mangroves into Malayalam, Kannada and Telugu, Pallavi and the Coral Reefs into Malayalam, Kannada and Telugu, Women and Environment translated into Kannada, Fun at the Beach into Kannada
- New publications
- Sustainable Development
- Sacred Tanks of Chennai
- Water the Elixir of Life
- Environmental Kit for National Museum of Natural History, New Delhi comprising of following 12 publications:

Fact Sheet

- Environmental Education – A Teacher's Kit

Books

- Environmental Concerns of India, Understanding Animals

- Tree – A book of facts and activities in Hindi
- Water - A book of facts and activities in Hindi
- Biodiversity
- Pallavi and the Coral Reefs

Pamphlets on

- Environmental Concerns of India
- Reduce, Reuse, Recycle in Hindi
- Harvesting Rainwater
- Eco Zones of India
- Sustainable Development
- Save Water

Research and Surveys

Study on saltwater intrusion in coastal aquifers of Chennai city

The study carried out by CPREEC's Environmental Laboratory on Salt Water Intrusion along the city since 1996 was completed and the results revealed an alarming rate of saltwater intrusion in the coastal areas in Chennai city from Injambakkam village in the south to Ennore town in the north on the East Coast Road.

The laboratory has been actively engaged in analyzing water and soil samples. It also periodically monitors the ambient air quality in the city of Chennai. The laboratory has designed a dissolved oxygen kit.

Heavy metal analysis in aerated soft drinks marketed in Chennai city was also carried out this year. CPREEC's water testing kits were distributed to school students for analyzing their water for potability.

Intensive course on water analysis

An intensive course on water analysis for basic parameters of physical, chemical and bacteriological water analysis was conducted for industries and college students.

Rainwater harvesting

CPREEC took a major initiative of establishing rainwater harvesting structures in Chennai city and parts of Tamilnadu. Over 100 rainwater harvesting structures were established for institutions and private residents besides providing consultation to interested individuals and organizations. CPREEC was designated the Rainwater Harvesting Consultant of the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) and Tamilnadu Water and Drainage (TWAD) Board.

Seminars

Two seminars one on "Coastal Ecology" and other on "Implementation of Environmental Laws" were organised during the year.

CPREEC has been appointed as the Resource Agency for implementing the National Green Corps in the southern states and Union Territories of Andhra Pradesh, Karnataka, Kerala, Orissa, Goa, Tamilnadu and Pondicherry, Andaman & Nicobar Islands, Lakshadweep & Minicoy Islands. A 5-day district-level convenors' programme was organized in Hyderabad.

CPREEC published and printed a book titled Water the Elixir of Life for distribution to Eco-clubs functioning all over the country.

CPREEC has set up an I.T. Node on "Conservation of Ecological Heritage and Sacred Sites of India" under the World Bank-aided EMCBTAP-ENVIS project of the Ministry of Environment and Forests. A newsletter ECOHERITAGE is published under this project.

CPREEC organized the following workshops in collaboration with the Ministry:

- "Performance Evaluation of ENVIS Nodes" from June 13 to 16, 2003 at Bangalore
- "2nd Training cum Performance Evaluation Workshop of ENVIS Nodes" from November 6 to 8, 2003 at Bhubaneswar, Orissa

CPREEC's trainers were the resource persons at the GLOBE teachers' training workshops, sponsored by

the Ministry in the states of Andhra Pradesh and Maharashtra. The GLOBE trainers also participated in the GLOBE Refresher Training Workshop held at New Delhi in December.

As part of Biological Diversity Day, 25 students were taken to the Guindy National Park on a field trip. Competitions like 'Making of leaf Zoo' and painting was organized for school students.

The third C.P.R. Environmental Education Centre Annual Award for Environmental education was given to Shri. J. Lakshminarayanan, Headmaster, Government High School, Kallakorai, Nilgiris District, Tamilnadu.

Centre for Ecological Sciences, Indian Institute of Science, Bangalore

The Centre for Ecological Sciences combines basic ecological research, applied environmental problems and extensions work, with particular reference to the Western Ghats. During the year the Centre carried out 27 projects in the broad areas of Biodiversity of India. Highlights of important projects are as follows :

Acoustic sampling of cricket communities in tropical evergreen forests of the Western Ghats was assessed in three sites, Kundremukh National Park, Mookambika wildlife Sanctuary and Sharavathi Valley Wildlife Sanctuary, using acoustic spot sampling.

Flexible and adaptive nursing behaviour in social wasps *Ropalidia marginata* exhibits a remarkably well-developed honeybee like age polyethism. Individuals perform different tasks sequentially as they age, starting with intranidal tasks (nursing and building in that order) and ending with extranidal tasks (foraging for pulp and food in that order). As in the case of honey Bees such age polyethism is rather flexible; in the absence of old individuals (in young-cohort colonies), precocious foragers forage at abnormally young ages.

Western Ghat Biodiversity Information System has been designed adapting the state-of-the-art database technology and the information related to Western Ghats biodiversity. Sahyadri equipped with the biodiversity database and information technology tools enable users

to navigate and put to use the totality of the inherited variation of all forms of life.

A study on the performance of JFM was carried out by the Centre for Ecological Sciences in six states (Andhra Pradesh, Gujarat, Karnataka, Rajasthan, Tripura and West Bengal) in collaboration with research and academic institutions, and NGOs in the respective states. The overall performance of JFM as perceived by the village communities indicate; 29% as good, 49% moderate and 22% perceived as no change.

Annual variation in non-timber forest product yield in the Western Ghats were monitored for yield and yield attributes.

Centre for Mining Environment, Indian School of Mines, Dhanbad

The "Centre of Mining Environment" at the Indian School of Mines, Dhanbad was established as Centre of Excellence in 1987. The objective of the Centre is as follows:

- To impart training to in-service field personnel in environmental science and technology with particular reference to environmental management in mining areas
- To carry out research in the field of mining environment
- Initiation of regular academic programs leading to M.Tech. degree in Environmental Science and Engineering and
- To undertake consultancy and testing work to help mining and mineral industries in the neighbouring areas in solving environmental pollution problems

During the year, various academic, human resources development and R&D activities carried out by the Centre.

- The following R&D projects were continued
 - An assessment of Overburden Dump rehabilitation Technologies adopted in CCL, NCL, MCL and SECL Mines.

- Investigation into the Air Quality status and its impact on Social spectrum in the industrial Belt of Korba coalfield, Chattisgarh.
- Impact of Mining on the pattern of land use changes in mines and their neighbourhood in selected mining are as of Jharkhand.
- Investigating into the noise status of some selected non-coal mining complex with a view to developing Abatement and control Measures.

The other R & D Projects are as follows

- Environmental Assessment of Coal Combustion Residues from Thermal Power Stations
- Environmental Evaluation of Coal Combustion Residues from a few Thermal Power Plants
- Environmental Research in priority areas of Mining Environment (Task 4, Activity IIA EMCBTA Project : Mining Subcomponent)
- Setting up EMCB-ENVIS Node on Environmental Problems of Mining

Modules Executive Development Programmes for in-service personnel of Mining Mineral industry were conducted during the year are as follows

- Thirteen-weeks EDP on “Environmental Management in Mining Areas”. (considered as eligibility criteria for environmental cadre in CIL)
- Six-weeks EDP on “Environmental Management”.
- Two-weeks EDP on “Environmental Assessment”.
- Two-weeks EDP on “Water Management”.
- Two-weeks EDP on “Land Management”.
- Two-weeks EDP on “Air and Noise Pollution Management”.
- One weeks EDP on “Noise and Human Response”.
- One-weeks EDP on Environmental Economics”.
- Two-weeks EDP on “Socio-economics and Mitigation of Social Impacts”.

- Two-weeks EDP on “Environmental Legislations and their Implications”.

(About 800 manpower from various organizations has already been imparted environmental training over 70 such Executive Development Programmes).

Under Academic Activities, the Centre offers post-graduate academic programmes of M. Tech. (Env. Sc & Engg.) and Ph. D. (Env. Sc. & Engg.) Over 110 students successfully completed these programs and have been well received by various industrial, research, regulatory and consultancy organizations.

During the year the following Environmental Conferences/ Seminars were Organised

- Interactive Workshop (S) on Strengthening of Institutions Under Tasks 2,3 & 5 Activity IIA EMCBTA (Environment Management Capacity Building Technical Assistance Project) : Mining Sub-component, organized by Centre of Mining Environment, Indian School of Mines, Dhanbad July 17-19 2003,
- National Seminar on Environmental Engineering with special emphasis on Mining Environment by Centre of Mining Environment, ISM during 19-20 March, 2004

The Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore

The Centre was established in June, 1990 as a Non-Governmental Organisation under Societies Registration Act, on the basis on a project proposal prepared by BHNS Bombay. The Centre is financially supported under the scheme “Centres of Excellence” operated by the Ministry.

The mission of SACON is to “help conserve India’s biodiversity and its sustainable use through research, education and peoples’ participation”. Objectives of the Centre are to :

- design and conduct research in Ornithology covering all aspects of bio-diversity and Natural History,

- develop and conduct regular courses in Ornithology and Natural History for M.Sc, M.Phil, Ph.D. and also, short-term orientation courses in the above subjects.,
- create data bank on Indian Ornithology and Natural History,
- disseminate knowledge relating to Ornithology and Natural History for the benefit of the entire community, and
- confer honorary awards and other distinctions to persons who have rendered outstanding services in the fields of Ornithology and Natural History.

The Centre is functioning under the overall supervision of the SACON society currently headed by Ministry. A Governing council headed by Secretary, MoEF is vested with overall responsibility of Governance and financial management. A Research Advisory Committee advises the Centre on Scientific matters.

The Centre was officially inaugurated on 5th June, 1990 at Bombay. Regular activities of the Centre started from a rented building at Coimbatore after the appointment of Director in November, 1991. Fifty five acres of land was purchased at Anailatty, about 24 km. Away from Coimbatore where permanent buildings have been constructed at an estimated cost of Rs. 1.52 crores. The Centre started functioning from the new campus with effect from May, 1998.

- Habitat monitoring by SACON in Keoladeo National Park, Bharatpur was helpful in framing appropriate strategies for protecting the Siberian Crane habitats.
- State Governments of Rajasthan, Tamil Nadu, Andaman & Nicobar Islands, Uttar Pradesh, Gujarat and Madhya Pradesh have made use of the expertise of SACON.
- SACON's demonstration of people's participation in the conservation of elephant corridors in the Nilgiris, in one of the major output will go a long way in the conservation of protected area.
- SACON has discussed the bird mediated dispersal of tree seeds based on which the forest department

has started raising appropriate three species for afforestation programme.

- A long term programme has been executed for the conservation of Lesser Floricam, one of the endangered species.
- SACON has established a toxicological laboratory to study the impacts of pesticides and industrial effluents on birds and mammals.
- Expertise of SACON is being used for EIA by various agencies. Some important reports include Mayar Ultimate State Hydroelectric project in Tamil Nadu, Haxira / Okho / Kandla / Delhi LPG pipeline and Pooyamkutty Hydroelectric project, Kerala.
- The Centre has published 146 articles, four books, 64 reports, 39 popular articles and conducted 101 training and extension programmes. Four students



Fig 75. Egret



Fig 76. Pied Kingfisher waiting for its prey

worked under the supervision of scientists of SACON were awarded Ph.D degree of Bharthiar University.

- The Centre organised the first PAN Asian Ornithological congress which was attended by 450 delegates from 38 countries. This gave an opportunity to the ornithology of the Asian countries to meet and show their expressions.

Wetland Conservation Programme

One of a major activities of SACON during the year was the programme on wetlands. A project sponsored by the UNDP-GOI on “Inland Wetlands of India”, mapped the wetlands of 72 districts and studied about 500 wetlands selected from 25 States. The project involves the various Regional Remote Sensing Agencies for mapping and around 600 persons from all over the country with 15 State Coordinators for field work. The study collected information on the status of waterfowl, aquatic vegetation, socio-economics of selected wetlands and also fishes for analysis of pesticides and metals. The study has produced various maps showing the major wetlands in the country and the salient features and the threats being faced by each of them.

Wetlands were prioritised using the occurrence of endangered, endemic species of both plants and animals and also the contamination levels. All available publications on wetlands were consulted. It is proposed to prepare a Protected Area Network for the wetlands in the country

analogous to that of Protected Area Network for the forests and wildlife. A national and state-wise directory of major wetlands are being prepared under the project.

Nature Education Programme

The Salim Ali Nature Club Programme of SACON for the schools had 52 schools during the year. Around 1100 students attended the programmes. SACON also launched a Nature Club for the colleges during the year.

ENVIS Centre in Wetland – Ecosystem

The Ministry towards the end of the year has recognized SACON for setting up ENVIS Node for Wetland Ecosystem. The enormous data collected under the Inland Wetlands of India project and maps brought out on the wetlands of various districts are all being made user-friendly for access through Internet.

Centre for Environmental Management of Degraded Ecosystem, (CEMDE) Delhi

The Centre for Environmental Management of Degraded Ecosystems (CEMDE), under the aegis School of Environmental Studies, Delhi University, New Delhi, has been functioning as the one of the Centres of Excellence of the Ministry since 1997. Following are the major objectives and activities of the Centre:

- Ecological rehabilitation of degraded lands
 - Identification, inventory, mapping of degraded regions
 - Development of data base
- Combating desertification and ecosystem degradation
 - Development of restoration technologies
- Bioremediation of polluted soils and water
- Maintenance of ecological services
 - Identification of biological, economic and social indicators for assessing ecosystem health
 - Technology application

- Conservation and sustainable utilization of biodiversity.

During the 2002-03 an amount of Rs 12.0 lakh was released to the CEMDE.

Tropical Botanic Garden and Research Institute (TBGRI), Thiruvananthapuram

Tropical Botanic Garden & Research Institute (TBGRI) with its mandate of conservation and sustainable utilization of tropical plant diversity and recognized as a National Centre of Excellence in ex-situ conservation of tropical plants is actively pursuing its goal through various R &D programmes. During the year, the institute carried out the following activities.

Ex-situ conservation

Over 300 accessions of trees, medicinal plants, palms, bamboos, orchids, ferns etc. were introduced to the Garden during 2003. Beautiful collections of Medicinal

and Aromatic plants from Andaman and Nicobar Islands and orchid and bamboo collection from North-eastern states are worth mentioning.

TBGRI maintains a well established conservatory garden with functional units such The Arboretum to which 18 species of trees are added this year. The Arboretum now holds 830 species flourishing well in the captivity. Eight native palm species of the Western Ghats are added during the report period of the Palmetum.

Sixty seven saplings were added to the Bambusetum spread in 15 Acre land, during the report period. Macro-proliferation trials were conducted on nine species and 12,000 saplings were produced, of which 11,000 saplings were distributed to various GO's and NGO's.

Twenty five species of orchids were added to the orchid collection during the report period thereby enriching the orchid germplasm. Enrichment of the existing Vanilla collection continued with the introduction of Vanilla



Fig 77. 'Velvette Apple' (*Diospyros discolor*) Wild. growing at arboreum at Tropical Botanical Garden Research Institute, Thiruvananthapuram

grandiflora from America. All the flowers of *V. planifolia* were pollinated and fruits were produced. A small processing unit is also established.

Herbal garden now harbours about 750 species, representing primary and secondary gene pool of medicinal plant species. This garden is maintained along with the National Gene Bank for Medicinal and Aromatic Plants, through the project sponsored by Department of Biotechnology, Government of India, which has been extended up to 2007 (10th Plan Period) commencing from November 2002 with a total outlay of Rs. 89.39 lakhs.

Gymnosperm collection at TBGRI represents 36 species in 15 genera, belonging to seven families. Living fossils (Cycads) are the main attraction of this group. *Zamia fischeri*, a vulnerable cycad has been newly added to the existing collection.

R&D Achievements

A new variety of balsam 'Queen of balsams' (INGR No. 03040) and a new orchid hybrid, *Dendrobium* 'A. Abraham' (INGR. No. 03094) developed at the Institute have been registered by the Plant Germplasm Registration Committee of Indian Council of Agricultural Research, New Delhi.

Ten species of fungi and five species of flowering plants have been described as new to Science.

Study on the amphibian ecology in relation to plant community led to the finding of a very interesting new species of frog from the Western Ghats. This research communication has been published in the prestigious journal "Nature".

Intra-specific variability and distribution of the species of *Piper* and *Curcuma* of the Western Ghats are well characterized and analysed. Taxonomic and intraspecific variability studies were also carried out on *Cinnamomum*, *Acrotrema* and *Pellionia* species.

A new Index Seminum 2003, with 897 seed types is published.

Protocols have been standardised for the mass multiplication of Rattan species such as *Calamus thwaitesii*, *C. andamaicus*, *C. brandisii*, *C. nagabettai*, *C. rotang*, *C. hookerianus*, *C. travancoricus* and Bamboos such as *Bambusa arundinacea*, *Bambusa vulgaris*, *Dendrocalamus strictus* and *Ochlandra travancorica*.

Bioinformatics DIC (DBT) of the Institute is focussing on the development of tools and techniques for biodiversity data management, to enable conservation and sustainable utilization.

The Unit has developed software "Garden Info" for the documentation and analysis of germplasm collection and maintenance data of botanic gardens, "Seed pack", which offers computational tools for the management of seed bank data and "Bio lit", for the documentation and cataloguing of the publications of TBGRI.

The Centre has also re-designed the Website of Department of Biotechnology, Government of India.

DNA fingerprinting and genetic diversity evaluation of six species of the genus *Agaricus* were done and the fingerprint profile using different primers was analysed. The distance between each species was established. Isozyme analysis of these six species using Esterase, Peroxidase, Malate Dehydrogenase and Superoxide dismutase was also undertaken.

"TBGRI model for benefit sharing" with Kani tribes based on the technology transfer of "Jeevani", received the Equator Initiative Award 2002 at the Earth Summit in Johannesburg, in recognition of the outstanding achievements in the conservation of biodiversity and reduction of poverty in the equatorial belt.

As lead / coordinating centre for Nilgiri and Gulf of Mannar Biosphere Reserves, the Institute has been engaged in the development of a comprehensive database on both these Biosphere Reserves. A compendium on the Nilgiri Biosphere has been published.

Fifty Six field trips were conducted to different forest types, resulting in the collection of 7700 specimens for herbarium and documentation. A total of 900



Fig 78. 'Queen of balsams', a new variety of balsam developed at Tropical Botanical Garden Research Institute, Thiruvananthapuram

specimens were critically studied, their identity determined and incorporated with the existing collection in the herbarium.

Centre of Excellence in Environmental Economics

The Ministry recognized the Madras School for Economics (MSE), Chennai as a Centre of Excellence in the area of Environmental Economics for a period of five years from April 1, 2002. The Ministry has agreed to collaborate with the Centre in the following subject areas

- Development of Economic Instruments,
- Trade and Environment,
- Cost Benefit Analysis,
- Applied aspects of Environmental Economics of the Ministry's policy decision making and

- Development and maintenance of website on issues related to Environmental Economics.

Under the Scheme of Centre of Excellence studies so far entrusted to MSE include

- Study on Eco-Taxes,
- Trade and Environment – Study on Leather Industry, and
- Study on Fly ash utilisation by Brick manufacturers.

MSE had also organised a three day training programme in Cost Benefit Analysis. During the financial year 2003-04, an amount of Rs. 22.79 lakhs was released to MSE for various activities.

Foundation for Revitalization of Local Health Traditions (FRLHT), Bangalore

The Centre of Excellence on Medicinal Plants & Traditional Knowledge was established in October 2002

at Foundation for Revitalisation of Local Health Tradition. It continued its work on six major projects, which were initiated in 2002-03. The Steering committee, which scrutinizes the work progress of the Centre and approves the annual plans with detailed project activities and the estimated budget costs, met under the Chairpersonship of Additional Secretary of Ministry on 23.1.2004. A brief outline of the progress on different projects undertaken by the Center of Excellence is given below:

Bio cultural Repository of Herbarium & Raw Drugs

During the year, 225 additional medicinal plant species have been added to the Herbarium along with digitized photographs. 1500 Herbarium records have also been digitized in order to contribute to the development of a National Herbarium of the medicinal plants of the country. Seventy five raw drug samples have been accessed from primary sources for the raw drug repository. Cultural information from Sanskrit medical texts has also been collated for selected species.

Developing of Educational Materials

During the year, a database on plants used in Siddha medicine, using “visual-basic” & “MS-access” in which bilingual fonts are used to display Tamil & English data together, has been created. A Homeopathic medicinal plants database has also been initiated & information on 75 out of the 490 plants used in homeopathy has been computerized in the form of a database. ACD-ROM on traded medicinal plants of India has been developed with information on plant morphology, distribution, trade & propagation. A co-curricular education material on the medicinal plants, which form a part of the medicinal curriculum of Ayurveda has been initiated. This will provide information on 370 species covering fields like pharmacognosy, botany & traditional knowledge.

Training to Village Botanist

Seventy Village botanists from Karnataka & Maharashtra were trained in identification of medicinal plants, bio-cultural documentation & vegetation monitoring. A standard curriculum in para-taxonomy is also being developed for this purpose.

Ethno-Medicinal Garden & Nursery

An Ethno-Medicinal garden & nursery has been established in the FRLHT campus. 529 species have been planted, including 35 Red Listed plants.

Genetic Diversity Studies

A molecular biology laboratory has been established & started operating procedures have been developed for DNA extraction, isolation & finger printing.

Developing GIS system

A GIS has been developed and utilised for eco-distribution mapping of medicinal plant species of conservation concern.

Environmental Information

Information is a vital tool for any decision making process more so for environmental management. The Environment Information division in the Ministry coordinates the Environmental Information System (ENVIS) Scheme, the National Natural Resources Management System (NNRMS) Program and the NGO cell.

The Environment Management Capacity Building Technical Assistance (EMCBTA) Project – ENVIS Sub-component funded by the World Bank is also implemented by ENVIS.

The division maintains the Ministry’s web site at <http://envfor.nic.in>, the sustainable development gateway website at <http://sdnp.delhi.nic.in> launched under the Sustainable Development Network Programme (SDNP) supported by UNDP, IDRC, Canada which concluded in December 2001 and the new website <http://www.envis.nic.in> which was launched for networking of ENVIS Centres & Nodes on 5th June, 2003, World Environment Day by His Excellency the Vice President of India.

The division also publishes ‘Paryavaran Abstract’, an abstracting journal, a quarterly Newsletter “ENVIRO NEWS” and the Annual Report of the Ministry.

Environmental Information System (ENVIS)

Environmental Information System (ENVIS) of the Ministry of Environment and Forests was initiated in December 1982, as a plan program and envisages setting up of a comprehensive network of repositories of information in institutions & organisations called ENVIS Centres for collection, collation, storage, retrieval and dissemination of information on varying subject areas of Environment. The focal point of ENVIS, located in the Ministry coordinates the activities of all the 25 Centres, set up on specific subject areas related to environment. A list of ENVIS Centres along with subject-areas, web-sites address, contact & e-mail addresses is given in Annexure-II. Fig.-79 depicts the establishment of ENVIS Centre from 1980 -2002.

During the year the focal point and the ENVIS centers focused on the development of home page and e-news letters which were accomplished and laid stress on the strengthening of the databases

Major activities of the ENVIS focal point and the ENVIS Centres during the year are as follows:

ENVIS Focal Point

- The ENVIS focal point responded 266 to queries and the ENVIS Centres over 14,700 Queries. A histogram showing the number of queries processed and responded to by the ENVIS Network and ENVIS Focal Point during the last five years are given in Figure 80 and 81. Efforts were made by the network to provide substantive information as far as possible. In cases, where the information was not readily available, the network provided "Referral Service" to the users. The major subject areas on which the queries were responded to pertain to laws, waste management, CRZ, environmental education and awareness, air and water pollution, wetlands, etc.
- = The Ministry's website <http://envfor.nic.in> (Fig. 82), developed by the ENVIS Focal Point was updated regularly during the year. Information has been arranged under the heads; Current Events, Data Bank, Clearances, Legislations, Parliament Q

& As, ENVIS, Citizen Information, NGO Directory, GEF Cell, Funding Schemes, Treaties / Conventions / Declarations etc Details regarding various Divisions, Subordinate Offices, Autonomous Institutions and Public Sector Undertakings and also publications of the Ministry namely: Enviro News, Paryavaran Abstracts, Annual Report, State of Environment Reports, etc. are available on the website. The website records approximately 5.5 lakh hits every month. Fig. 83 depicts hits during the month of March, 2004, Fig. 84 depicts hits for the last three months and Fig. 85 hits country-wise for March 2003.

- The Sustainable Development Networking Programme (SDNP), website, URL: <http://sdnp.delhi.nic.in> (Fig. 86), developed under the SDNP programme, provides information on 27 thematic areas. The site was scrutinized and updated. Only "Developments Today" service was provided by SDNP containing information on sustainable development issues scanned from nearly 40 national and international news papers during the year.
- The ENVIS Focal Point implements the World Bank assisted Environment Management Capacity Building Technical Assistance Project (EMCBTAP), which aims to strengthen the ENVIS scheme of the Ministry. The ENVIS sub-component of the EMCBTA Project slated to close on 30th June, 2003 was extended further for a period of one year i.e. till 30th June, 2004. The project aims at broadening the ambit of ENVIS to include varying subject areas, and status of information / data pertaining to environment and has been achieved through participation of academic institutions, organizations, State Governments and NGO's. The participating institutions, called ENVIS - Nodes have been assigned specific subject area in the field of environment and are responsible for collection, collation and dissemination of relevant information through web.
- Ninety ENVIS Nodes, have now become functional (Annexure-VIII). The Monitoring Committee set up to advise and guide the implementation of the

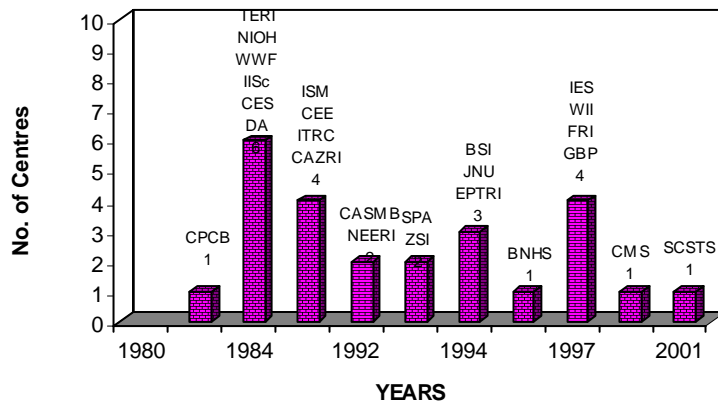


Fig 79. Spread of establishment of ENVIS Centres

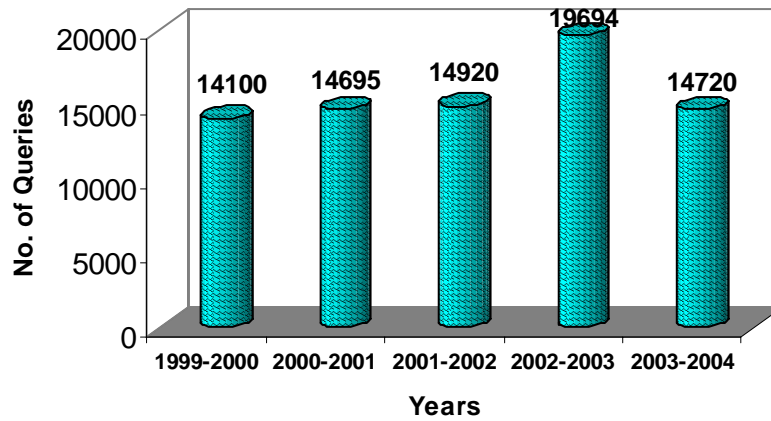


Fig. 80. Number of queries responded to by ENVIS network

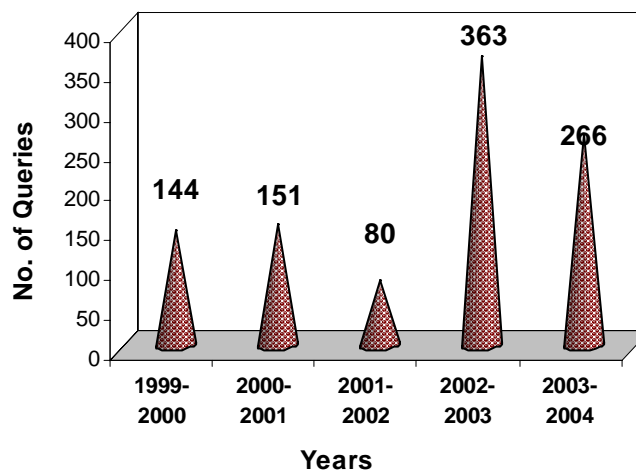


Fig 81. Number of queries responded to by ENVIS Focal Point



Fig 82. Homepage of the Ministry website (<http://envfor.nic.in>)

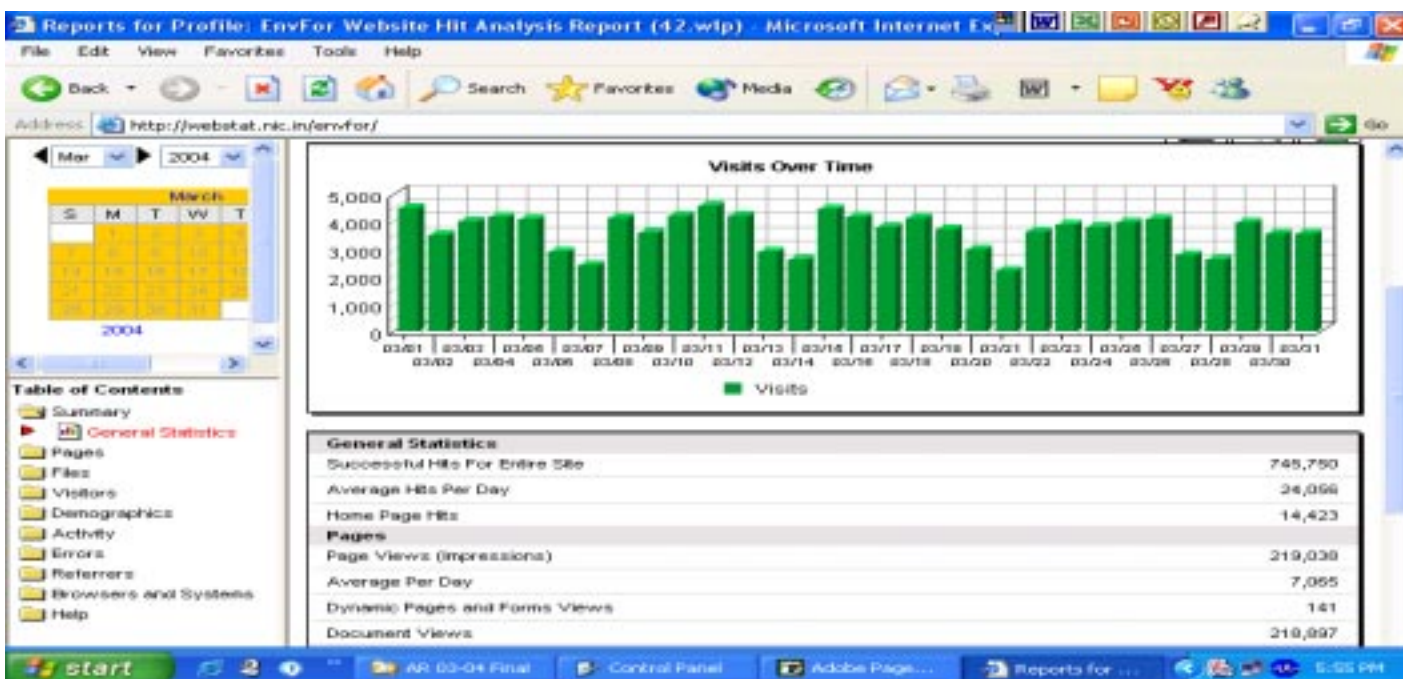


Fig 83. Web hits of Ministry's website for the month of March, 2004

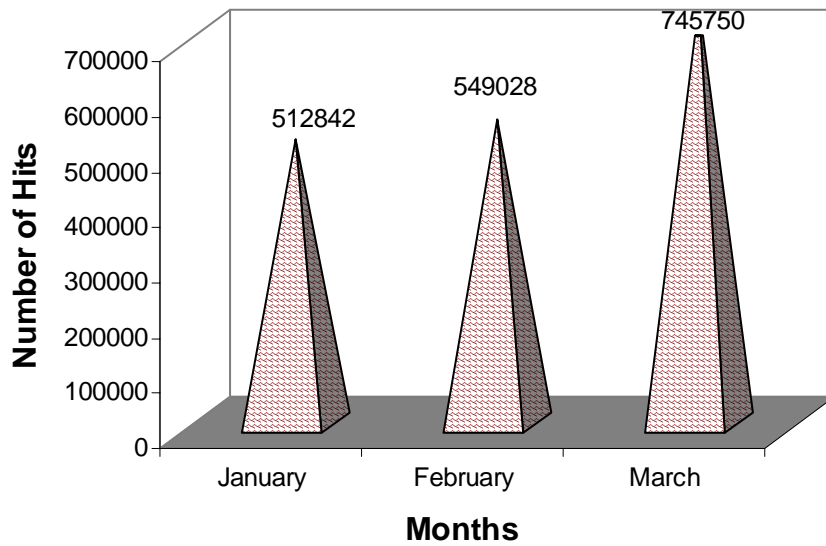


Fig 84. Hits of Ministry's website for the last three months of 2004.



Fig 85. Country-wise web hits of Ministry's website, March, 2004.



Fig 86. Homepage of the SDNP website (<http://sdnp.delhi.nic.in>)

EMCBTA Project has been merged with the ENVIS Advisory Committee and two meetings of the Committee were held during the year. 3 trainings and 2 performance evaluation workshops were held during the year. Fig.87 indicates setting up of ENVIS Nodes from Jan.2002 till date.

- = A portal on Environmental Information System at <http://www.envis.nic.in> (Fig.88) launched under the ECBTA Project connecting all the 90 ENVIS Nodes including Centres was regularly updated. The portal acts as a catalyst for inter nodal interaction and for information on seven broad categories of subjects related to environment, under which the Centres and Nodes have been grouped. The websites of the ENVIS Centres and Nodes can be directly accessed from the home page of the portal. Information on major events, activities and current updates of the entire ENVIS Network is available on the click of a mouse. Through “Contact Us” one can reach the ENVIS Secretariat. This feature has an added advantage that any subject specific query would be directed to all the Centres and/ or Nodes categorized under that subject for better and faster response automatically.

The portal links to other ENVIS related sites like DELNET, INSDOC, BTISnet. Details of the Committees setup to advice and monitor the project are also made available. The other important features of the portal are details of the ENVIS related publications including ENVIS Newsletters brought out by the ENVIS Nodes, subscription to the e-version of the ENVIRO NEWS. An opinion poll and Open Forum makes the site interactive.

- 20 subject Areas and institutions were approved for setting up of ENVIS Nodes through out the country under the project. Of the 20 areas identified 15 ENVIS-Nodes have been set up.
- 5 New subject areas and institutions are being identified namely, Aviation and Environment, Bhoomi modeling etc. where Nodes will be setup.
- ENVIS functions as a National Focal Point (NFP) and a Regional Service Centre (RSC) for South-Asia Sub-Region Countries for INFOTERRA network, a Global Information Network of the United Nations Environment Programme (UNEP). As NFP and RSC of INFOTERRA, the ENVIS

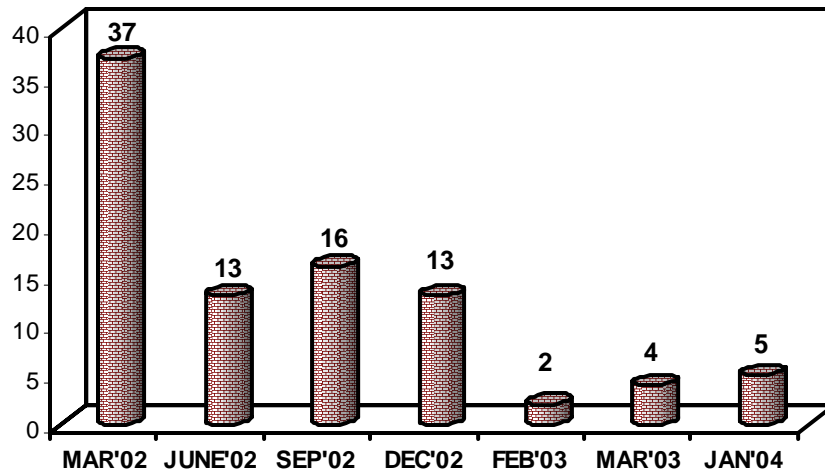


Fig 87. Spread of establishment of ENVIS Nodes



Fig 88. Homepage of the ENVIS website (<http://www.envis.nic.in>)

network provides information to queries received from the countries in the sub-regions.

- ENVIS also continued close liaison with various other national information systems in the country like National Information System on Science & Technology (NISSAT), Bio-Technological Information System (BTIS), etc., for exchange of environmental information and to avoid duplication of efforts in the field of environment and related areas.
- Two Issues of “Paryavaran Abstracts”, reporting information on environmental research in Indian context was brought out during the year. About 300 national and international environment-related journals are referred to for compilation of the relevant abstracts. The abstracts are arranged under major categories like air pollution, water pollution, noise pollution, environmental management, ecology, health and toxicology, forestry, wildlife, etc. A subject-keyword index for retrieval is also available. The journal is distributed to about 3000 users. All Issues of “Paryavaran Abstracts” are available on the Ministry’s website.
- Four issues of “ENVIRO NEWS”, a quarterly news letter was brought out by the division with the objective of disseminating information on important policies, programmes, legislations and amendment to existing legislations, new sanctioned projects and other important decisions taken and events hosted by the Ministry from time to time to a wide cross-section of the society including administrators, policymakers, planners, scientists, environmentalists, students, NGOs, voluntary bodies and the general public

Activities of the ENVIS Centres

The 25 ENVIS centres as network partners collect, collate, store, retrieve and disseminate information on the assigned subject areas. In addition to bringing out Newsletters, and Abstracts a number of publications are also brought out besides strengthening the databases and responding to various national and international queries. All the ENVIS Centres augmented their home-pages

and websites.. Highlights of some of the major activities of the ENVIS Centres during the year are as follows:

- The ENVIS Centre on “**Air, Water and Noise Pollution**” at the Central Pollution Control Board, New Delhi continued to publish its quarterly newsletter ‘Parivesh’ to disseminate information related to pollution and its control under various themes like, R & D for pollution Control CPCB initiatives, Inspection / Maintenance & Certification systems in-use vehicles, Odour Pollution and its Control, etc. The website of the Centre can be accessed at URL <http://www.cpcb.nic.in>.
- The ENVIS Centre on “**Toxic Chemicals**” at Industrial Toxicology Research Centre, Lucknow prepares and maintains data base on toxic chemicals. A CDROM databank of pesticides, food additives and 500 industrial chemicals is under preparation. The Centre also updated information on 12 Persistent Organic Pollutants. A Report on “Agrobiotechnology : Consumer & Environmental Safety” has been prepared. The Centre regularly brought out the ENVIS Newsletter which provides information on one toxic chemical each issues and ‘Abstracts of Current literature in Toxicology’. The Centre has developed a website for the ENVIS Centre which can be accessed at URL <http://www.envisitrc.com>.
- The ENVIS Centre on “**Environmentally Sound and Appropriate Technology**” located at Development Alternatives, New Delhi implemented a new software namely, ‘Alice for Windows’ for managing an automated resource centre of disseminate information. The Centre conducted joint studies with network partners in data communication and standardization techniques. It also designed and developed a customized database management system and generated wide array of information products and services for the users. The Centre published its newsletter, “Development Alternatives”. Detailed information is available at URL: <http://www.devalt.org/envis.htm>
- The ENVIS Centre on “**Bio-degradation of Wastes and Environmental Impact**

- Assessment**” at Centre for Environmental Studies, Anna University, Chennai continued to biannually publish the ‘Abstracting Service’ listing of current literature on Environmental Impact Assessment and Bio-degradation of waste. The Centre maintains a website which could be browsed at URL: <http://www.annauniv.edu/envis> and publishes a newsletter “CESENVISION” in the two specific subject areas to disseminate information to all concerned.
- The ENVIS Centre on “**Energy and Environment**” at Tata Energy Research Institute, New Delhi maintained and updated its website at URL: <http://www.teriin.org/envis>. The Centre maintains an on-line databases on renewable energy and Environment. The Centre publishes “TIDEE” (TERI information Digest on Energy and Environment) covering a survey of current literature and information about research and development on various environmental issues on energy, environment and sustainable development.
 - The ENVIS Centre on “**Western Ghats and Biological Diversity**” at the Centre for Ecological Sciences, Indian Institute of Science, Bangalore continued to develop data bases on basic ecological research areas in animal and plant ecology, biodiversity, conservation biology and environmental problems of the Western Ghats. The Centre has a collection of over 8,300 books and has access to over, 1,70,000 books and 1,400 journals at the Indian Institute of Science Library. The Centre also has a collection of large number of reprints and responds to a number of queries both national and International. Detailed information is available at URL : <http://ces.iisc.ernet.in/hpg/envis>
 - The ENVIS Centre on “**NGOs, Media and Parliament Matters related to Environment**” at World Wide Fund for Nature-India, New Delhi continued to compare and analyse the data related to parliament questions , queries related to environment and monitoring and classification of environment related news and feature items in the print media. The Centre has launched an on-line database on NGO’s. A digital map of Delhi has been prepared which is integrated with a database of 270 NGOs in Delhi using, GIS technology. Detailed information is available at URL : <http://www.wwfenvis.org>.
 - The ENVIS Centre on “**Occupational Health**” at the National Institute of Occupational Health, Ahmedabad brought out its first e-newsletter on occupational and environmental health. The centre prepares abstracts on environmental pollution and occupational health and translates brochures published by international organisations like WHO and NIOH etc in Hindi and Gujarati. was continued. A website of the ENVIS Centre was launched during the year and can be accessed at URL: <http://www.envisnioh.org>.
 - The ENVIS Centre on “**Desertification**” at Central Arid Zone Research Institute, Jodhpur made available on its website the Bibliographical database on desertification. The quarterly newsletter ‘DEN News’ containing information on desertification and soil conservation was published. The Centre celebrated ‘Environment Day and organised training courses for scientists. Detailed information is available at URL: <http://cazri.raj.nic.in/envis.htm>
 - The ENVIS Centre on “**Mangroves, Coral Reefs, Estuaries and Lagoons**” at Centre for Advanced studies in Marine Biology, Parangipettai, Annamalai University updated status reports on Mangroves ,Coral Reefs and Lagoons. . The Coral Reefs Ecosystem covers Gulf of Kutch, Lakshadweep Island, Palk Bay, Gulf of Manner, A&N Islands, Kerala and Goa. . Bibliographies on Coral Reefs, Indian Lagoons Indian Estuarie sand Indian Mangroves were also brought out. Besides, the Centre brought out the bi-annual newsletter “seshaiyana” containing articles and various aspects on the related subject areas. Detailed information is available at URL: <http://aucasmbenvis.org>.
 - The ENVIS Centre on “**Environment Education**” at the Centre for Environment Education, Ahmedabad continued to publish its bimonthly ENVIS Newsletter entitled, ‘News EE’. The Centre continued its activities for the environmental

- educators and developed locale specific EE Programmes and materials during the year. Detailed information is available at URL: <http://www.greenteacher.org>.
- The ENVIS Centre on “**Faunal Biodiversity**” located at the Zoological survey of India, Kolkata collated information on habitat and species diversity, endemic biota, threats and conservation measures pertaining to different ecosystem and bio-geographic zones. About 10,000 data on voucher species belonging to animal groups Reptilia and Birds have been electronically stored for preparing database on animal species diversity. The Centre maintains a website at URL: <http://www.enviszi.org>. A yearly ENVIS Newsletter containing information on faunal biodiversity emphasizing current status of endangered animal species. The Centre also prepared a document on Indian ecosystem and their diversity which includes 18 articles on selected Indian ecosystem. A CDROM on wetlands was also released recently.
 - The ENVIS Centre on “**Environmental Problems of Mining**” at the Centre of Mining Environment, Indian School of Mines, Dhanbad developed its website (URL: http://www.geocities.com/envis_ism) on the subject area. The centre published two monographs ‘Community development in Coal mining complex and ‘A Framework of EIA for Environmental sustainability’ besides its regular newsletter ‘MINENVIS’. The Centre also compiled the research publications (2000-2001) as published and presented by the Centre of Mining Environment’.
 - The ENVIS Centre on “**Hazardous Wastes**” located at National Environmental Engineering Research Institute, Nagpur maintains the status report on Hazardous Waste management in India. The Centre completed a bibliographic database on list of books, journals/periodicals and thesis available at the centre on the specified subject area. The Centre has developed a database ‘HAZINFO’ giving information on various issues of hazardous wastes and a compilation of international data bases related to the subject area. The Newsletter published on Solid Wastes including Hazardous Wastes is now available on-line. Detailed information is available at URL: <http://www.geocities.com/envisneeri/index.html>
 - The ENVIS Centre on “**Himalayan Ecology**” at the G.B. Pant Institute of Himalayan Environment & Development, Almora continued to update its data base on the subject area to facilitate and disseminate scientific research results to improve production, management and conservation of natural resources. The centre extended its network with other data collectors/bases covering 12 Himalayan States in India. The website on GIS information on Indian Himalayan region. Detailed information is available at URL: <http://gbpihed.nic.in/envis/envis>.
 - The ENVIS Centre on “**Human Settlements**” at the Centre for Environmental Studies’, School of Planning and Architecture, New Delhi continued to publish the quarterly ‘ENVIS Journal of Human Settlement’ with special emphasis on Environmental Planning for urban areas and sustainable Human settlement. The Centre continued to create database on specific areas related to Human Settlement. Detailed information is available at URL: <http://www.spaenvis.nic.in>.
 - The ENVIS Centre on “**Biogeochemistry**” located in the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi brought out Abstract book of the workshop on “Freshwater related issues” and on Discussions on “National River Linking Plan” during the year. In order to provide web users with better access, the Bibliographic database is now available in the internet and intranet. The Centre is now operating a new website <http://www.envisjnu.net>. The Centre also continued to publish its quarterly newsletter in the assigned subject area during the year.
 - The ENVIS Centre on “**Floral Bio-diversity**” at Botanical Survey of India, Kolkata continued to collect data on medicinal plants in Western Ghats and some indigenous medicinal plants in India. It continued to update data on Rare and Endangered

- Plants in India by using COBMAN software for creating database along with maps and diagrams. The Centre continued to publish its yearly Newsletter on floral diversity, emphasizing current status of endangered species. Detailed information is available at URL: <http://www.envisbsi.org>.
- The ENVIS Centre on “**Eastern Ghats Ecology**” located at Environment Protection Training and Research Institute, Hyderabad published the newsletter “Eastern Ghats”. The Centre continued the updation of its website <http://www.envis-eptri.org> and the bibliographic database and database on experts available online with search facility by title, author and year.
 - The ENVIS Centre on “**Avian Ecology and Inland Wetlands**” located at Bombay Natural History Society, Mumbai continued to publish three issues of its ENVIS Newsletter, namely, ‘Buceros’ during the year. The database on Avian Ecology and Inland Wetlands is also being continuously updated. Information on the assigned subject area could be browsed at URL: <http://www.envisbnhs.org>.
 - The ENVIS Centre on “**Forestry**” at Forest Research Institute, Indian Council of Forestry Research Education, Dehradun prepared an annotated bibliography on *Prosopis juliflora* containing about 700 references along with abstracts on *Prosopis juliflora*. The Centre continued to publish the monthly ‘News Digest’, containing the clippings of diverse areas of forestry. Besides, the newsletter ENVIS Forestry Bulletin’ was continued to be published. A good number of documents on gray literature on Indian Forestry were collected and processed. Detailed information is available at URL: <http://www.icfre.org>.
 - The ENVIS Centre on “**Panchayati Raj and Environment**” at Indian Environmental Society, New Delhi continued to publish its quarterly Newsletter ‘Panchayat’ during the year. A e-version is also made available to users. The Centre compiled information on panchayats in Uttar Pradesh, Himachal Pradesh and Rajasthan. Detailed information is available at URL: <http://www.iespanchayat.org>.
 - The ENVIS Centre on “**Wildlife and Protected Areas**” located at Wildlife Institute of India (WII), Dehradun published the biannual ENVIS Bulletin on Non-Human primates of India and updated their web-site URL : <http://www.wii.gov.in/envis>.
 - The ENVIS Centre on “**Communication and Electronic Media**” located at Centre for Media Studies, New Delhi organised ‘Vatavaran 2003’ — India’s National Environment and Wildlife Film Festival on 8th and 9th November 2003 at New Delhi to encourage concerns and excellence in environment and wildlife productions. The centre conducted a survey of print media to find out percentage of coverage of information on environment, health and hygiene compared to others. Detailed information is available at URL: <http://www.cmsindia.org/envis>
 - The ENVIS Centre on “**Ecotourism**” located at the State Council of Science and Technology, Government of Sikkim, Gangtok continued to publish its abstracting service and newsletter on Eco-tourism which is available online. The Centre has developed a comprehensive and interactive website on Eco-tourism, especially, in the states pertaining to North-Eastern region of the country. Detailed information is available at URL: <http://sdnp.delhi.nic.in/envisikkim/index.html>.

NGO Cell and Information & Facilitation Counter (IFC)

A database on NGOs involved in environmental activity is being maintained on the Ministry’s website. NGOs are also being guided in seeking assistance under various funding schemes of the Ministry. A scheme for Non-Governmental Organisations the ‘Grants-in-aids to Professional Societies and Institutions’ after review has been merged with a similar scheme being operated to fund Workshops/Seminar/Symposium. The Information and Facilitation Counter (IFC) kept operational by the division is a window for information pertaining to the Ministry for the general public and others including NGOs.