

CHAPTER II A
REVIEW OF OVERALL PERFORMANCE DURING 1993-94
FORESTRY AND WILDLIFE

FORESTRY EDUCATION AND TRAINING
LINDIRA GANDHI NATIONAL FOREST ACADEMY DEHRADUN

- 63 IFS Probationers (1992-94 batch) continued their training.
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II.STATE FOREST SERVICE AND RANGERS COLLEGES

- 77 State Forest Service Officers successfully completed the two years Diploma Course.
- 57 Rangers passed out during the year from Eastern Forest Rangers College, Kurseong.
- 150 State Forest Service officers participated in 2 Week Refresher courses in State Forest Service Colleges and IIFM, Bhopal.

III.INDIAN INSTITUTE OF FOREST MANAGEMENT, BHOPAL

- 27 students successfully completed the two years PGDFM course.
- 10 MDP's and 4 workshops/seminars were conducted.
- Residential quarters and other buildings were completed.
- A sum of Rs.74 lakhs has been spent on various research projects. Work on ongoing research projects was continued and 6 new research projects commenced.
- 1761 books, 268 journals and 9 films were procured at a cost of Rs.17.49 lakh. The library facilities were strengthened.

FORESTRY RESEARCH

INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION (ICFRE)

Annual action plan of the council for the financial year 1993-94 included:

1. Enriching the Library by adding 500 volumes of eminent scientific works and equal number of journals.
2. Classifying and cataloguing of 1000 volumes.
3. Sale of ICFRE publications amounting to Rs.1.5 lakhs.
4. Tie up for inter library loan facilities with anthropological Survey of India.
5. Preparation of 1500 reference sheets and 600 index cards from which 450 research publications received.
6. Compilation of bibliographies for Deodars, Gmelina arborea, Acacia catechu and Dalbergia latifolia.
7. Publications and distribution of the following brochures:

Bamboo, Poplar, Canes (Rattans), Eucalyptus, Casuarina, Neem, Albizia procera, Sesbanias, Madhuca, Acacia nilotica, Chir pine, Khejri, Khari, Sandal, Pongamia pinnata, Anogeissus pendula, Tamarind, Moringa, Jatropha, Acacia tortillis, Terminalia arjuna, Tecomella undulata.

8. Preparation of video film: 30 minutes video film on “Van Anusandhan” was telecast on national channel of Doordarshan on 7th February 1994 and 21st March ,1994.
9. Preparation of video film on “Alleviation of poverty and Socio-economic Upliftment of villagers by Increasing Productivity through Agro-forestry in Central India”,
10. Participation in 11th World Book fair at Pragati Maidan.

The achievements of the six Research Institutes and three centres under ICFRE were as under:

FORBST RESECH INSTITUE, DEHRADUN

1. Studies on timber properties, wood preservations and seasoning were continued.
2. Development of \laboratory process to manufacture synthetic lignusulphonate from soda pulpings spent liquor lignin.
3. Investigation conducted on sawing and seasoning of populus deltoides revealed that combination of saw dry rip (S.D.R.) process and high temp drying period produced best results.
4. Kiln drying scheduled for popular Deltoides, Prosopis juliflora and Accacia tortelis were developed.
5. Clonal propagation of Delbergia sissoo, Tectona grandis, Eucalyptus hybrid and Bamboos was initiated.
6. Extraction of Biopesticides from some forest plants was initiated.
7. Studies of geographic variation in seed and seedling in Accacia nilotica, Accacia Indica, Pinus roxburghii and Pinus Wallichiana were continued.
8. Reclamation and ecological monitoring of abandoned lime-stone mine areas continued.
9. Japanese Mushroom, ‘Shiitake’ was successfully cultivated on Ban Oak logs.
10. Forest insect Pest Surveys in Nursery and plantation of social Forestry tree species carried out.

II. INSTITUTE OF WOOD SCIENCE AND TECHNOLOGY, BANGALORE.

1. Anatomy of 14 Andaman Timbers studied.
2. Indigenous timber for aircraft propellers studied and was suggested to H.A.L Bangalore.
3. Study of resistance of Hevea brasiliensis against beetles and termite on pressure with insecticides.
4. 47 timber spp. tested for their durability in Marine conditions.
5. Investigations op the biology of wood destroying organism under marine conditions.
6. Study of control of bio-deterioration with wood preservatives, plant derivaties in marine conditions.

III. INSTITUTE OF FOREST GENETICS AND TREE BREEDING, COIMBATORE.

1. Extensive survey of seven district of Tamil Nadu for selection of plus trees of Azadirachta indica casurina equistifolia and Tectona grandis.
2. Provenance trial of Accacia nilotica, Albizzia lebbeck, casurina eqluisitifolia, Eucalyptus camaldulansis initiated.

3. Macro propagation rooting protocol for *Accacia nilotica* *Albizzia lebbeck* and *Gliricidia sepium* without the use of mist chamber successfully standardised.
4. Isozyme polymorphism studies in different provenances of *Casuarina*, *Acacia*, *Albizzia* *Azadirachta* initiated.

IV. TROPICAL FOREST RESEARCH INSTITUTE JABALPUR

1. Standardisation of cultivation of *Bixa-orellena* extraction of chemicals.
2. Study of spacing on the growth and berry production of *Bursera penicillata*.
3. Germ-plasm collection of 550 medicinal and exotic plants for Ex-sit-u conservation of rare and endangered plants.
4. Studies on nursery technology of *Diospyros melanoxylon*.
5. Studies of oil content of *Jatropha* from different localities.
6. Studies of silvipastoral models for rainfed areas.
7. Study of growth and development of some tree species on inoculation of seedlings with VAM fungi and *Rhizohium*.

V. ARID ZONE FOREST RESEARCH INSTITUTE, JODHPUR

1. Study of growth of *Ailanthus exelsa* by application of phosphatic fertilizers.
2. Study of Moisture management in stress sites by rain water harvesting and mulching.
3. Evaluation of suitability of some exotics in Rajasthan conditions.
4. Collection and evaluation of provenances of *Neem*.
5. Eco-stabilisation studies of *INdeserts* with special emphasis on sand- dunes fixation.

VI. INSTITUTE OF RAIN AND MOIST DEICIDUOUS FORESTS, JORHAT.

1. Establishment of *Bamboo* germ-plasm nursery.
2. Initiate ethnobotanical studies in North-Eastern region.
3. Studies on microhizal associations with the rain forest tree species.
4. Studies on suitable fast growing tree species for rehabilitating *Jhum* areas.

VII. TEMPERATE FOREST RESEARCH CENTRE, SHIMLA

1. Seed germination and Biomass studies in *Rosa webbiana* *Capparis spinosa* and *Ephedra gerardiana*.
2. Provenance trials of *Populus ciliata* and *Populus deltroides* continued.
3. Nursery technology development of *Wood fordia fruticosa*.
4. Demonstration of planting technology of *Populus Deltroides* on farmers lands.

VIII. CENTRE FOR SOCIAL FORESTRY AND ECO-REHABILITATION, ALLAHABAD.

1. Biological rejuvenation of saline and sodic soils.
2. Demonstration of agro-forestry models in gangetic plains.
3. Rehabilitation of stone mined areas near *Shankargarh*.

IX. CENTRE OF FOREST PRODUCTIVITY, RANCHI.

1. Demonstration of improved method of lac cultivation to the 30,000 lac cultivators of the region. And distribution of improved breed lac to the cultivators.
2. Demonstration of silvi-agriculture practice cultivation.
3. Demonstration of farm bund plantation of trees to check damage due to hail storm.

INDIAN PLYWOOD INDUSTRIES RESEARCH AND TRAINING INSTITUTE (IPIRTI),BANGALORE

- Out of 36 ongoing projects, 9 projects were completed and 6 new projects were added.
- 47 candidates were trained in the 6 short term courses in the area of plywood manufacturing, testing of wood based panel, saw milling, timber grading and saw doctoring.
- 22 candidates passed out in the one year certificate course in mechanical wood industries technology. 30 trainees were admitted in the next course. ;
- Test for conformity to relevant Indian standards were carried out on 47 samples.
- 9 research reports, 4 technical notes and 12 technical information service bulletins were brought out.
- 113 books, 16 specifications, 17 trade catalogues, 125 reports and reprints and 16 annual reports were added to Library.
- 57 technical inquiries were attended.

SURVEY AND UTILISATION OF FORESTS RESOURCES FOR THE SURVEY OF INDIA

Forest Survey of India (FSI) carries out a comprehensive forest resource survey on regular intervals and documents information in a suitable form for planning at national, state and local levels including evaluation through re-inventory to facilitate scientific forestry planning. The achievements of FSI during 1993-94 were as under:

S. No	Item of Work	Unit	Target	Achievements
1.	Forest Inventory	Forest area in sq.km	26,422	32,355
2	Data processing	- do -	20,000	29,365
3	Thematic mapping	Sheets of 1:50,000	260	271
4	Vegetation mapping	Sheets of 1:2,50,000	182	223
5	Training	Persons trained	90	73
6	Wood consumption	No. of areas	3	1

FOREST CONSERVATION

As per Annual Action Plan 1993-94, monitoring of 900 cases under Forest(Conservation) Act and 400 Environmental Clearance projects/cases were to be done by the Regional Offices. The Regional Offices monitored 846 cases approved under Forest (Conservation) Act and 512

environmental clearance projects/cases during 1993-94. During 1993-94, an amount of Rs.1.50 crores was allotted under the schemes which was further enhanced and the total expenditure under the scheme was Rs.1.56 crores.

FOREST PROTECTION AND REGENERATION

Under the Scheme "Association of Scheduled Tribes and Rural Poor in Regeneration of Degraded Forest on Usufructs Sharing Basis", the project were sanctioned to the States of Madhya Pradesh, West Bengal, Maharashtra, Orissa and Gujarat and central assistance of Rs.1.86 crores was released to the State Governments.

Under the Scheme "Introduction of Modern forest Fire Control Methods in India" assistance of Rs.1.24 crore was provided to 11 states.

FOREST POLICY

With the announcement of the National Forest Policy, 1988, it became necessary to orient all on-going forestry programmes to meet the objectives set by it. With this objective in mind, an FAQ/National Action Plan has been initiated. With this programme, it is proposed to formulate a comprehensive forestry action programme with long, medium and short-term perspective plans and to facilitate identification and quantification of assistance and technical assistance proposals for financial assistance. The project document was signed in June, 1993. Apart from the Government of India's contribution of Rs.65.00 lakhs to the scheme, US\$ 7,16,000 have been provided as UNDP assistance. This project is likely to come to an end by the end of 1995.

WILDLIFE

During 1993-94 central assistance of Rs.760 lakhs was provided for the development and maintenance of 19 Tiger Reserves. Two new areas- Bhandavgarh in Madhya Pradesh and Tadoba in Andheri in Maharashtra were declared as Tiger Reserves. All India Tiger/Leopard Census 1993 was held to estimate the population of tiger/leopard in various parts of the country. A meeting of tiger range countries was held in March 1994 for formation of Global Tiger Forum for necessary international Cooperation.

India also participated in the Scientific Counselor meeting of the Convention of Migratory species held at Nairobi in June, 1994. A meeting of the Asian Rhino Specialist Group was held in Jaldapara wildlife sanctuary, West Bengal from 6-10 December, 1993. The UNDP-FAO sponsored training programme for eco-development planning and Protected area Management training was initiated during 1993 and as a result 9 eco-development and 7 management planning units have been set up. A sum of Rs.9.36 lakhs was released during 93-94.

The achievements of various centrally sponsored schemes on wildlife preservation were as under;

	Scheme	Achievements
1	Assistance for development of National Parks & Sanctuaries	240 National Parks and Sanctuaries
2	Project Tiger	19 Tiger Reserves.
3	Eco-development in and around National Parks & Sanctuaries	45 Protected areas
4	Project Elephant	10 States

CENTRAL ZOO AUTHORITY

Para 38H of the Wildlife (Protection) Act provides that no Zoo shall be operated without being recognised by the Central Zoo Authority. In all, 351 applications for recognition were received. The most important activities of the Zoo Authority during 1993-94 was the evaluation of zoos for the purpose of granting recognition. Evaluation work of all 15 large zoos, 3 medium zoos and 4 small zoos was completed. Conditional recognition for 2 years has been granted to these zoos.

Assistance was granted to different zoos for improving the upkeep and management of zoos and bringing it in conformity with Recognition of Zoo Rules, 1992. In all, an amount of Rs.147.49 lakhs was released as assistance to 27 zoos.

ANIMAL WELFARE BOARD

Animal Welfare Board of India received grant in aid from this Ministry of Rs.108.00 lacs under plan and Rs.20.00 under non-plan to meet the funds requirement of various animal welfare organisations (AWO)/Societies for the prevention of cruelty to animals (SPCAs) programmes. During 1993-94, 116 organisations were assisted by the Animal Welfare Board.

COMMITTEE FOR PURPOSE OF CONTROLLING AND SUPERVISION OF EXPERIMENTS ON ANIMALS (CPCSEA)

The Administrative and secretariat support for the committee is provided by the Animal welfare Divisions of the Ministry. The committee was mainly involved in preparation of the status report on the use of animals by various organisations.

NATIONAL ZOOLOGICAL PARK

- | | |
|--|-------------------|
| 1. Providing of interpretative sinages | Partly completed. |
| 2. Improvement of moats for steady flow of water. | Partly completed |
| 3. Enlargement of feeding cubicles of Panther enclosure. | Completed |

WILDLIFE INSTITUTE OF INDIA

	SCHEME	PERSONS TRAINED (1993 94)
1	M.Sc course in Biology	10 (Candidates)
2	P.G. Diploma in Wildlife Management	30 (WS managers)

3	Certificate course in Wildlife Management	30 (Range Officers)
4	Field workshop/short courses	9 numbers

NATIONAL AFFORESTATION AND ECO-DEVELOPMENT BOARD (NAEB)

20 POINT PROGRAMME

The NAEB is the nodal agency at the Central level for (Afforestation & Tree planting) activities under the 20 -Point Programme for monitoring the overall national targets for afforestation/tree planting in consultation with the State Governmentst who are the main implementing agencies.

Targets for afforestation and tree planting activities carried out under the 20-Point Programme are fixed in terms of seedling distribution for planting on private lands and plantation on public lands including forestlands.

The annual targets of the States/UTs are fixed in two stages. In the first stage, tentative targets fixed on the basis of the targets and achievements of the last three years are communicated to the State/UTs. The States/UTs are requested to send their comments regarding tentative targets and the financial provisions under various afforestation schemes.

In the second stage, the targets are finalised taking into account the response of States/UTs and the financial outlays available with them.

The targets and achievements under point No.16 of the 20 Point Programme during 1993-94 are as follows:

S. No.	Scheme/Activity	Physical Targets for 1983-94	Physical Achievement for 1983-94
1	Integrated Afforestation and Eco-Development Projects Scheme.	64,000 ha	60,691 ha
2	Fuelwood/Fodder Projects Scheme	60,000 ha	78,000 ha
3	Raising of Minor Forests Produce including Medicinal Plants Scheme	28,000 ha	25,104 ha
3	Seed Development Scheme	23 States to be assited	11 States assited
5	Aerial Seeding Scheme	25,000 ha	10,000 ha
6	Grants-in-Aid Scheme (for Voluntary Agencies)	30 Projects to be sanctioned	25 Projects sanctioned

The targets under 20 Point Programme for the year 1994-95 and achievements upto 31st December, 1994 are as given below:

	Seedlings distribution Area (in lakhs)	(in ha.)
Targets	14140.60	1240692 ha
Achievements	4011.93	662853 ha

ECOLOGY AND ENVIRONMENT

BOTANICAL SURVEY OF INDIA

EXPLORATION AND SURVEY

Nineteen survey tours were undertaken in certain areas of Terai region and Bundelkhand, Uttar Pradesh, Satpura and Vindhya ranges and Bastar District of Madhya Pradesh, Eastern Aravalli Hills of Rajasthan and Araku valley of Andhra Pradesh.

STATE FLORA

Taxonomic description of 255 specimens of Orchidaceae and Poaceae for State Flora of Mizoram was completed; State Flora of Manipur, Vol.I (Rarunculaceae to Asterceae) covering 420 species and taxonomic description of 328 species for Vol.II were also completed; proof checking of Flora of M.P. Vol.I has also been completed; compilation of 170 species for Vol.II has also been completed. Taxonomic description of 35 monocot species of Flora of Cold Desert has also been completed. Compilation of 200 species of Andaman & Nicobar Islands has been completed and manuscripts of Flora of West Bengal, Vol. I has been edited. Compilation of 240 species of Vol.II of Flora of West Bengal has been completed.

ENDANGERED SPECIES

Compilation of 200 Red Data Sheets of rare and endangered plants has been completed.

NATURAL FLORA/FLORA OF INDIA

Flora of India, Vol.I-III completed and published; work on Vol.V and XIII completed and in the process of editing.

USEFUL PLANTS

Evaluation of five useful plants has been completed.

NATIONAL DATA BASE

Work on inventorization of cultivated palms in India has been completed and final manuscripts with photographs edited for publication.

GEO-BOTANICAL STUDIES

Work relating to studies of geobotany of Singhbhum Distt. (Bihar) has ben completed in collaboration with Geological Survey of India. The study has revealed interesting findings in regard to plant indicators.

ETHNOBOTANICAL STUDY

Ethnobotanical study on Sunderbans area completed.

CAPTIVE BREEDING

Work relating to multiplication of some of the orchid species of coelogyme, cynoxdium and horticultural showy flora of hedychium species completed.

PUBLICATION

During 1993-94, 10 publiations were brought out.

ENVIRONMENTAL IMPACT ASSESSMENT

Reports in regard to environmental impact assessment of following projects were completed during 1993-94:

1. Tapaimukh Dam Project, Assam.
2. Seruvani Small Hydel Project.
3. Kameng Hydro Electric Project, Arunachal Pradesh.
4. Purulia Pumped Storages Scheme, West Bengal.
5. Goriganga - Dhauliganga Hydro-electric Project Phase IIIA III B, in Uttar Pradesh.
6. Murshidabad TPS, West Bengal.
7. Govupur TPS, West Bengal.

ZOOLOGICAL SURVEY OF INDIA

Exploration and survey of faunal resources

A total of 92 surveys were carried out during the year to cover different states ecosystems and conservation areas as follows:

- Himalayan Ecosystem:
 - 4 surveys to Arunachal Pradesh and 6 surveys to Sikkir conducted.
- Desert Ecosystem:
 - 5 surveys to Gujarat and 1 survey to Rajasthan carried out.
- Tropical Rainforest Ecosystem A total of 20 surveys undertaken in Nagaland, Mizoram, Tripura, Kerala, Maharashtra and Goa.
- Estuarine Ecosystem:
 - 6 surveys, 3 each in Godavari delta and Sundarban mangroves undertaken.
- Freshwater Ecosystem:

5 surveys (3 surveys in Kollerulake, Andhra Pradesh and 2 surveys in Sukhna lake, Chandigarh) conducted.

Marine Ecosystem:

25 surveys. (1 in Great Nicobar Coast and 24 in Digha coast) undertaken.

Conservation Area:

A total of 8 surveys conducted in 5 conservation areas, namely, Balmiki Tiger Reserve, Melghat Tiger Reserve, Eravikulam National Park, Gobinda Pashu Bihar (UP) and Gulf of Mannar Biosphere Reserve.

State Faunal Survey:

12 surveys undertaken in 5 states, namely, Andhra Pradesh, Bihar, Delhi, Madhya Pradesh and Tamil Nadu covering 17 districts.

Status survey of Endangered species:

4 surveys were conducted to study the status of Satyr & Western Tragopan, Gazelle and Desert Cat and Capped Langur and Hoolock Gibbon.

Taxonomic Studies:

Fauna of Meghalaya:	30 manuscripts received and processed for sending to press.
Fauna of Sikkim:	Manuscripts on Amphibia and Plant Nematodes submitted for publication; rest under preparation.
Fauna of Tripura:	12 manuscripts submitted for publication, rest under preparation.
Fauna of Nanda Devi Bio-sphere Reserve:	Invertebrate Collections identified; manuscripts under preparation.
Fauna of Nilgiri Bio-sphere Reserve:	25 manuscripts ready for publication, introductory chapter being written.
Fauna of Palamau & Manas Tiger Reserve:	Manuscript on Manas and Palamau Tiger Reserve made ready for publication

Publications:

Fauna of India:	Fauna of Aphidoidea Pt.VI.published.
Records of ZSI	Vol.92 in page proof stage
Annual Reports of ZSI	1989 published.
Bibliography of Indian Zoology	Vol.27 published.
State Fauna of West Bengal (Pts.4-12)	Six parts published, rests are in final stage of printing
State Fauna of Orissa	Pt.4 published.
State Fauna of Andhra Pradesh	Part I published
Fauna of Chilka Lake	This is in page proof stage.
Fauna of Hugli-Matla Estuary - Matla	This is in galley proof stage.
Red Data Book (Vertebrate)	In final page proof stage.
State fauna of Meghalaya:	Manuscripts being made ready for sending to press.
Miscellaneous publications:	Four occasional papers and one book on Earthworms and Vermiculture were published.

Computerisation of collection Data

Data of about 5000 registered general collections computerised. Environmental Information System (ENVIS) on Animal Ecology:

- Application software for the storage, retrieval and disseminating data on Animal ecology has been developed.
- One issue of Newsletter on ENVIS (Animal Ecology) published and the second issue under preparation.

Renovation of Zoological Galleries and Regional Museum

- Background painting and modelling of 7 show cases in Fish Gallery completed.
- In Southern Regional Station, Madras, High Altitude Zoology Field Station, Solan (Himachal Pradesh) and Eastern Regional Station, Shillong exhibits of birds and small mammals prepared and added to the gallery.

Environmental Impact Assessment

Surveys conducted to following places and reports submitted.

- Chhotanagpur Coalfield, Bihar.
- Purulia Pumped Storage Scheme, West Bengal.
- Remodelling of Gorewada Tank, Nagpur.
- Tultuli Irrigation Project for Vidarbha.
- Revised Urmodi Irrigation Project, Satara. Upper Tapi Project Stage II.
- Surya River Project. Tuirial Hydroelectric Project, Manipur.
- Roygoda District for Boxite. Goriganga Stage II, III A & B, Uttar Pradesh.

- Tehri Dam. Gopalpur Hydro Electric Project (2.times).
- Mangra Irrigation Project at Madhya Pradesh.
- Binod Pumped Storage Scheme, Mara Pumped Storage, Burshingpur pumped Storage, Bansagar Thermal Project; all from Madhya Pradesh.

Marine Aquarium-Cum-Research Centre, Digha

- Work for the start of the aquaria progressing satisfactorily. Corals, Shells and drift Wood brought from Andaman Islands were utilised for decoration. Local Field survey continued.
- Two collaborative research projects viz. (i) 'Conservation and biology of certain marine fauna of Digha coast' with Indian. Statistical Institute, Calcutta and (ii) 'Studies on Indian marine poisonous fishes' with PG Institute of Medical Science, Calcutta are being carried out by the Scientists of Digha Centre.

Identification and Advisory Services

- 113 enquiries pertaining to identification of Zoological material and other technical matters were attended by ZSI Scientists during the year.
- 37,388 identified specimens pertaining to 1178 species were added to the National Zoological collection during the year.

Training and Extension Programme:

- Wildlife week 1993 celebrated.
- A refresher course on the collection and preservation techniques for the staff of Regional Stations of ZSI undertaken at Headquarters, Calcutta.
- 8th Training course on the collection and identification of insects and mites of economic importance taken up in March, 1994 at Calcutta.
- A meeting of the experts, jointly organised by the Desert Regional Station of ZSI and INSA (local chapter) was held in Jodhpur on 16th and 17th March, 1994 to discuss 'Gaps in Researches on the Biodiversity of the Thar Desert'. About 40 experts took part in the discussion.

Biological Diversity (Ad-hoc)

- A total of 40 manuscripts (about 470 pages) on the biodiversity of different animal groups (from protozoa to Mammalia) and diversity of ecosystems have been prepared and sent to the Indian Institute of Public Administration, New Delhi.
- A Status report on the Biodiversity of Andaman and Nicobar Islands has been prepared and sent to the Ministry of Environment and Forests as per its requirement.

Exhibition (ad-hoc)

ZSI participated in International Trade Fair held in New Delhi and displayed biodiversity of animals, both terrestrial and marine, dead and alive.

ENVIRONMENTAL EDUCATION, AWARENESS AND TRAINING

Targets and achievements during the year 1993-94 under various schemes of EE Division are as follows:

Item		Target for the year 1993-94	Achievements
(a)	ENVIRONMENTAL EDUCATION, AWARENES AND TRAINING		
(i)	Establishment of Eco/Environmental Clubs in Schools	250 6	1000 6
(ii)	Production of Environmental Education Resource Material		
(iii)	Production of films (completed)	40	24
(iv)	Advertisement on Bus Panels	5	3
(v)	Advertisement through magazine	4	2
(vi)	Newspaper advertisement	2	2
(vii)	Radio Programmes	4	4
(viii)	Printing of poster/poster calendar	5	4
(b)	GRANTS IN AID TO PROFESSIONAL SOCIETIES	3	10

(c) PARYAVARAN VAHINI: A total of Rs.46,80,000/- was released for expenditure on Paryavaran Vahinis. Against a target of 40 districts, 72 districts were selected during the year for constitution of Paryavaran Vahinis.

Environmental Information System (ENVIS)

The ENVIS Network continued its activities of collection, collation, storage, retrieval and dissemination of environment related information to all concerned. During 1993-94, it responded to 5662 queries - 4815 national and 847 international. The major areas on which queries were received pertained to subjects such as pollution control, renewable energy, bio-degradation of wastes, soil conservation, mining environment, environmental management etc.

Paryavaran Abstracts:

ENVIS continued to publish the quarterly journal entitled 'Paryavaran Abstracts' listing Indian research inputs on environment related areas. Issues of the journal were circulated amongst scientific institutions, universities, engineers etc.

The ENVIS Focal Point at the Ministry continued to function as the National Focal Point (NFP), India and Regional Service Centre (RSC) for the South Asian sub-region countries of UNEP's INFOTERRA. The NFP updated information on more than 250 Indian sources engaged in environmental activities for inclusion in the International INFOTERRA Directory of environmental sources which was later published by the UNEP.

Activities of the other ENVIS Centres:

All the ENVIS Centres continued their activities in information collection, collation, retrieval, storage and dissemination in the subject areas allotted to them during the year. Apart from strengthening the information base and responding to various national and international queries in their respective subject areas, the ENVIS Centres undertook various activities such as publication of Newsletters, monographs, ENVIS bulletins etc., aimed at disseminating information to a wide range of users. Almost all the Centres have developed various data-bases in their respective subject areas.

Library

During the year, the Library enriched its collection through the procurement of substantive information resources in the various fields of environment and its associated disciplines. The collection of the library at the end of March, 1994, was over 19,000 including books, scientific and technical reports. It received nearly 200 national/international scientific journals. Apart from the scientific and technical books and journals, a wide range of general books, magazines and newspapers, both in English and Hindi had also been procured by the Library for use of the officials of the Ministry.

Indira Gandhi Paryavaran Puraskar:

More than 300 nominations from various organisations and individuals were received for consideration of the award for the year 1993-94.

NATIONAL MUSEUM OF NATURAL HISTORY (NMNH)

The achievements and overall performance of the NMNH during the year 1993-94 were as follows:

- (a). Completion of the Second Phase of development of the 'BIO-SCIENCE COMPUTER ROOM' and 'COMPUTERISED DOCUMENTATION' of museum collections at the NMNH.
- (b). Educational activities including outreach programmes through Mobile Museum and School Loan Service, Summer Programme and National Environment Awareness Campaign activities.
- (c) Partial completion of the galleries at the Regional Museum of Natural History, Mysore.
- (d) Completion of the architectural designs and buildings plans for the Regional Museums of Natural History at Bhopal and Bhubaneswar and partial completion of the buildings.
- (e) A major new project undertaken during the year 1992 on behalf of the Ministry of Environment and Forests was a nation-wide "Care for the Environment Contest" involving six categories of environment related contests in 15 languages, in which more than 2 lakhs of entries were received, was successfully completed. A special office was set up for sorting, classifying and judging of the entries. The selection was completed and an award function organised on 5th June, 1993. The entries will now be used for Environment education and exhibitions.

- (f) The NMNH organised a number of temporary exhibitions including 'The Forest Ecosystems of India' on the occasion of the International Forestry Conference of Developing countries in September 1993 and 'Environment and Development' at the India International Trade Fair, 1993.

In terms of the targets set for the year and achievements made, there has been a shortfall in respect of establishing the NMNH, New Delhi at a permanent premises of its own. This is because of the difficulties faced in acquiring a suitable piece of land for the purpose. Efforts were revitalized in this respect.

CENTRES OF EXCELLENCE

Centre for Environment Education. Ahmedabad.

The Centre for Environment Education, Ahmedabad, continued to develop and carry out nation-wide environmental education programmes and activities. The activities of the Centre during the year 1993-94 were as under:

- The fourth batch of trainees of the 8 month intensive training programme in Environment Education (TEE) being regularly conducted by CEE passed out during the year. The fifth batch commenced in December, 1993, with 14 participants, including 2 from abroad.
- TALEEM (Teach and Learn Environmental Education Modules), a programme of short, theme-specific training programmes commenced during the year. These programmes are intended as an on-going activity tailored to the needs of distinctly defined audiences. Programmes held during the year included environmental education for museum staff and programmes on various aspects of the environment including biodiversity, energy efficiency, environmental standards for industries. A permanent exhibition on the life of Gandhiji in Ahmedabad was installed at the Gandhi Ashram at Sabarmati, Ahmedabad.
- An interpretive plan was developed for the Madras Crocodile Bank during the year.
- The field offices set up at Sawai Madhopur, Rajasthan and Jasdan, Gujarat, continued eco-development programmes in villages around the protected areas of Ranthambore and Hingolghadh respectively.
- In addition to the fortnightly publication in English and Hindi the CEE-NFS, the News and Features Service of CEE, carried out a newspaper campaign on the denotification of the Narayansarovar Wildlife Sanctuary in Kachch, (Gujarat). This contributed significantly to heighten awareness about the issue, which resulted in the decision given by the Gujarat High Court reversing the denotification and restoring the status quo ante.
- Sundarbans continued to attract thousands of visitors including organised school groups. These visits provide a good opportunity for nature education. Permanent camp sites established by Sundarbans were used by school groups for camping and provided an opportunity for experiencing nature.
- CEE's Urban programme took a new direction with more intense involvement at the local level to build forums for interaction between official and non-official agencies on civic issues of public concerns. An important initiative featured a Presentation by the

- Municipal Corporation of its new development plan at a consultation organised by CEE, in partnership with Vastu-Shilpa Foundation.
- The South and South-East Asia Network on Environmental Education (SASEANEE), which was established at an international workshop held at ~CEE in February, 1993, has been moving from strength to strength. The network spans 16 countries in the region. Two issues of the newsletters of the network were brought out during the year. Four issues of 'Sampark', the Hindi edition of the UNESCO - UNEP EE newsletter 'CONNECT' were brought out.
 - Industry and environment was taken up as a new area of concentration by the Centre. Training programmes and workshops were held on the..subject, both at Ahmedabad and Guwahati.
 - The Centre put up an exhibition as part of the pavilion on Environment and Development at the Trade Fair in Pragati Maidan in New Delhi. The theme of the exhibit-ion was 'Act Now' and through interactive exhxbits and informative posters, the exhibition aimed to motivate people to act in an environment friendly way.
 - The Southern Regional Cell in Bangalore has completed five years. Its area of coverage includes Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Goa, Pondicherry and Lakshadweep. The Cell is involved in a wide variety of activities in these States, as well as in the city of Bangalore. In the school programme area, the Cell has integrated the development of local specific environmental education through the Ministry of Human Resources Scheme and the Environmental Education Bank ProJect with the teacher training programme under the National Environmental Awareness Campaign. It has also launched a programme of environmental quality monitoring involving students of high schools and colleges, in the districts of Dakshina Kannada, Hassan and Tumkur. CEE-South has initiated several community based action programmes. These include a solid waste management programme for Bangalore city which involves segregation of garbage and production of compost through vermicomposting, a programme for production of fuel from human solid waste in slums. A campaign to clear the District of Coorg of non-biodegr,adable waste was also carried out involving local schools. A number of CEE's publications were brought out in Kannada through the interaction of CEE-South with various government and non government agencies.
 - The North-Eastern Region Cell of CEE was inaugurated in Guwahati, through a workshop 'Environment and Education: Initatives for the North-East', attended participants from the region. A number of various topics including Solid Waste Environmental issues of paper and pulp Environmental Education in Schools have been the Cell.
 - EDUTECH, the educational products division continued to produce and disseminate environmental education material.

C.P.R. EnvirQnmenatal Education Centre, Madras:

The Centre continued its activities relating to creating and increasing conciousness and knowledge about the environment among the people and to generate resource materials and educational packages on environmental conservation. The Centre expanded its activities to spread awareness and interest among the public, including voluntary workers, educators, women, farmers, youth and children on all aspects of environment and ecology with the purpose of

promoting conservation of nature and natural resources. The Centre also initiated the following new activities during the year 1993-94:

- Training programmes were conducted for NGOs rural workers and teachers in Andhra Pradesh, Tamil Nadu, Karnataka, Kerala and Gujarat.
- The Centre has set up an Environment Law Cell which conducted several training programmes on environment, wildlife, people and the law, to familiarise NGOs with environmental legislation. The Centre has also been providing free consultancy services for NGOs on the utilisation of the existing environmental laws to fight cases of environmental degradation.
- The Centre has taken up awareness-through-action programmes to educate rural communities on the role of sacred groves in ecological conservation, besides taking up six sites for restoration of sacred groves.
- Environmental education programmes such as nature camps, eco-clubs, essay, quiz, painting and oratory competitions are regularly conducted for children.
- Several teacher's training programmes on integrating environmental education into the school curriculum have been organised in Tamil Nadu and Andhra Pradesh.
- Exhibitions have been arranged on "Animal Welfare" and "Waste Management", besides a major exhibition on "Habitats on the World" at the Vandalur Zoo. Exhibitions were also held at the Global Forum for Environmental Education at New Delhi and the Congress on Traditional Sciences and Technologies of India at the Indian Institute of Technology (IIT), Bombay.

Regular awareness-raising programmes for NGOs, teachers and children were organised in the Nilgiri Biosphere Reserve. Bokkapuram, adjoining Mudumalai, is being developed as an eco-model village with ecologically sustainable development programmes for the tribals. This has led to considerable reduction in grazing in the forest areas.

The project on Women in Wasteland Development which had been undertaken by the Centre in the district of Trichy, Salem, Periyar, Dindigul, Madurai, Dharmapuri and North Arcot was extended to Thirunelveli and Pasumpon Muthuramalinga Thevar districts in Tamil Nadu and Chittoor district in Andhra Pradesh. Plantation programmes by the participating women have commenced in Trichy and Dindigul districts.

The Centre has analysed soils from the various wasteland sites to check the suitability of tree species to be planted. A comprehensive report has been published. This facility is also extended to private farmers and individuals.

A project was taken up on Sthala Vrikshas of Tamil Nadu, wherein the association of trees and religious sites, the origin of their association and their development is being documented and analysed.

The Centre is functioning as a nodal agency for the Ministry of Human Resource Development on Innovative Programmes for environmental education in schools in Tamil Nadu and Andhra Pradesh. 13 NGOs have been selected for this project and the Centre has been conducting trainer's training programmes, besides monitoring the development of the project.

The Centre has taken up a project in Environmental Education for Eco-Restoration of Coastal Areas in Tamil Nadu through the Ministry of Human Resource Development, in which connection school teachers and students along the east coast are exposed to the coastal environmental problems and the necessity for ecological conservation.

Publications, posters and pamphlets have been brought out on the subject for distribution.

Publications like “Priya - The Parrot”, in English and Tamil (on urban waste management and clean environment), Water Resources Management (in English and Tamil), on Wasteland Development (in Telugu), the Nilgiri Biosphere Reserve and Animal Welfare (in English and Tamil) were brought out by the Centre.

The Centre developed a Teacher’s Environmental Education Kit (in English and Tamil) for use in schools and in the projects on Eco-restoration of the Coastal areas of Tamil Nadu and Andhra Pradesh, and innovative programmes on Environmental Education. Pamphlets on Save Water, Save Energy, Think Green, Eco Clubs, Sacred Groves and Waste Management, stickers on the environment, posters on sacred Groves, Animal Welfare and Waste Management, were also produced by the Centre.

Centre for Mining Environment. Dhanbad:

Work on the following Research Projects were initiated during the year:

- Biological reclamation of mined out areas and spoil dumps through water management and nutrient cycling (jointly with BCCL).
- Monitoring environmental impacts of iron ore, limestone and china clay mining in Singhbhum district of Bihar using remotely sensed data.
- Studies on the disposal of spoils and tailings from the mines and their management.
- Investigation into the environmental sustainability of opencast coalfield in India. Haul road dust control and Noamundi Iron Ore Mine using dust control chemical Filset-50.

The following three short courses have been organised by the Centre:

- Environmental Management in Mining Areas (7th to 19th June, 1993)
- Management of Spoil and tailings in Mining and other areas (21st to 26th June, 1993).
- An off-campus, course on Environmental Pollution in Mining Areas was held between 3rd and 4th July, 1993, at Chugus Chandrapur.

These courses were attended by senior level officers from Government Departments, private and public sector organisations.

Centre for Ecological Science Bangalore:

This Centre initiated work on the following basic research projects:

- Monitoring ecological changes at the scale of individual communities/landsCapes. Monitoring ecological change on a sub-regional scale.
- Monitoring ecological change on a national scale.
- Solid access to biological resources.
- Multipurpose indigenous plant resources.

Three projects under Action Research were also initiated as follows:

- Ecologically sustainable development.
- Community based resource management systems.
- Reviving traditions of nature conservation.

Besides these, two more projects on networking have also been undertaken:

- Interaction with State Science and Technology Councils.
- Networking with voluntary agencies involved in eco-development efforts.

Seminars/Symposia/Conference:

Under this Scheme financial assistance was provided to a number of NGOs and academic institutions for organising seminars/conferences on various environmental topics of interest and importance to the country.

NATIONAL NATURAL RESOURCE MANAGEMENT SYSTEM (NNRMS)

Two new research projects were sanctioned during 1993-94 under this scheme. Out of 17 research projects sanctioned so far, 9 projects have already been completed and the remaining are at different stages of completion.

WETLANDS

- During the financial year 1993-94, management action plans in regard to Bhoj, Kanjli, Harike and Renuka were sanctioned.
- An amount of Rs.150 lakhs was released against the total allocation of Rs.150 lakhs. - Four research projects were sanctioned.

MANGROVES AND CORAL REEFS

- During the financial year 1993-94, Management Action Plans in regard to Coondapur, Pichavaram, Sunderbans, Muthupet, Achra, Ratnagiri, Goa, Andaman & Nicobar were sanctioned.
- An amount of Rs.150 lakhs was released against the allocation of Rs.150 lakhs. Three research projects were sanctioned.

BIOSPHERE RESERVES

During 1993-94, a National Biosphere Reserve Committee was constituted. Based upon the recommendations of the Committee the following amount was released:

Sl. No.	Name of BR	Management Action Plan
(i)	Nokrek	3,77,000
(ii)	Great Nicobar	11,30,000
(iii)	Nanda Devi	48,26,000
(iv)	Sunderbans	99,00,000
(v)	Gulf of Mannar	31,75,000
(vi)	Nilgiris	
(a)	Karnataka	70,80,000
(b)	Kerala	45,92,000
(c)	Tamil Nadu	29,51,000
(vii)	Manas	NIL
		3,40,31,000

As per the discussions held in the National Biosphere Reserve Committee meeting, a Scientific Advisory Committee was formulated in which various research projects sent by State Governments were discussed for financial assistance. Six projects in different areas were approved by the Committee at a total cost of Rs. 26,62,926/- out of which an amount of Rs. 15,65,200/- was released.

BIODIVERSITY CONSERVATION

The process of consultations at various levels initiated following the signing of the Convention on Biological Diversity in June 1992, was continued. For the 50 priority action points identified from the Convention, leading organisations/experts in specific areas were identified for preparing reports. A series of regional level consultations involving the State Government officials, scientists, experts and NGOs, were organised through the six Regional offices of the Ministry from January-March 1994. Consultations with the prominent NGOs on the Convention on Biological Diversity and Framework Convention on Climate Change were also held in January 1994 under the chairmanship of the Minister (Environment & Forests). The work for coordinating the preparation of the Status Report on Biodiversity Conservation started earlier, was continued. The first draft of Vol.I of the report was prepared, whereas the work on Vol.II continued. Following the approval by the Cabinet, the Convention on Biological Diversity was ratified by India on 18.2.94.

Keeping in view the provisions of the Convention, the existing Central Acts relevant to biodiversity were examined to identify the gaps in the legal framework on biodiversity. Deliberations to this effect were held with the concerned Ministries/Departments and government and non-government institutions. An exercise was initiated to formulate a National Action Plan on Biodiversity for which a Core Group has been set up under the Chairmanship of Additional Secretary (S). Meetings of the Core Group were held to debate on the various issues involved.

An Indian delegation participated in the first meeting of the Inter-governmental Committee for the Convention on Biological Diversity (ICCBD) held in Geneva in October 1993. India chaired the deliberations of the Asian group and was also elected the Vice Chairman for one of the Working Groups.

A project was sanctioned for compiling a monograph on tree species of India.

ASSISTANCE TO BOTANIC GARDENS

During the year 1993-94, the project proposals received were examined and evaluated. Subsequently, funds were released to Vikram University Ujjain; South Gujarat University, Surat; Guru Nanak Dev University, Amritsar; BSI Northern Circle Dehradun; BSI Eastern Circle, Shillong; BSI Southern Circle Coimbatore; National Botanical Research Institute, Lucknow; Tropical Botanic Garden and Research Institute, Trivandrum and Indian Botanic Garden Howrah. The total expenditure under the scheme was Rs.119.47 lakhs as against the budget provision of Rs.100 lakhs.

RESEARCH AND DEVELOPMENT

During 1993-94, 157 projects remained operational under Environment Research Programme, Man and the Biosphere Programme and Action Oriented Research Programme for Eastern and Western Ghats. Ninety two new projects were sanctioned against the target of 43. All India Coordinated Project on Aero-bic allergens was launched during 1993-94. All 157 projects were reviewed for their progress through Expert Committees. Executive Summaries of completed projects (Vol.II) were printed for wider dissemination. An expenditure of Rs.328 lakhs was made against an allocation of Rs.350 lakhs.

PITAMBER PANT FELLOWSHIP

Dr. Sriramachari of Institute of Pathology, Safdarjung Hospital Campus, New Delhi was awarded Pitamber Pant National Environment Fellowship award to work on "Trace element analysis of human tissue samples for bio-environmental monitoring".

G.B. PANT INSTITUTE OF HIMALAYAN ENVIRONMENT & DEVELOPMENT

In the G.B. Pant Institute of Himalayan Environment and Development, plans for construction of office and residential complex at Kullu were prepared and financial estimates worked out.

PREVENTION & CONTROL OF POLLUTION

CENTRAL POLLUTION CONTROL BOARD(CPCB)

- (i) Industrial survey work for Bihar, West Bengal, Rajasthan, Haryana, NCR Delhi and Tamil Nadu has been completed.
- (ii) Time targetted action plan for restoration of environmental quality was being implemented through concerned State Pollution Control Boards.

- (iii) River basin studies have been completed for Narmada, Tapi, Godavari and Mahanadi and report prepared.
- (iv) Out of 37 identified polluted river stretches, 27 stretches have been surveyed and report prepared.
- (v) Under Indo-Dutch Biomonitoring programme, sampling and analysis of river Tungabhadra and Cheliyar has been carried out.
- (vi) Standards have been evolved for petroleum and plastic (Emission), Rubber (Synthetic) products, Battery and soda ash.
- (vii) Under the Ecomark Scheme, Central Pollution Control Board developed draft criteria in respect of 15 categories of products out of which for 3 products, final Notifications have been issued by MOEF. A National Seminar on Ecolabelling was organised by Central Pollution Control Board jointly with Bureau of Indian Standards & Confederation of Indian Industry which was attended by various consumer forums and industries.
- (viii) Training courses on sampling and analysis of effluent from sugar industries, food industries, Environment Management and Law, pollution control technology in pesticide industries, hazardous waste management (characteristics and laboratory analysis), identification of dumping sites for disposal of hazardous waste and personnel management and administration.
- (ix) A total number of 1551 highly polluting 17 categories of industries have been identified for ensuring pollution control. Notices have been issued by State Pollution Control Boards to defaulting units for its closures provided they have not shown intention to provide pollution control devices till.
- (x) At the instance of MOEF, a NGO cell has been set-up in Central Pollution Control Board to identify and recognize them in the field of pollution control and to identify their role in participating various pollution control schemes. Central Pollution Control Board participated in the India International Trade Fair (IITE) organised at New Delhi and put an exhibition under the theme "Environment and Development". In this exhibition, Mobile laboratory and various relating to pollution assessment and control were displayed.
- (xi) A "Pollution Information Centre" has been set up in the Central Pollution Control Board which was inaugurated by Austrian Minister along with Hon'ble Minister of Environment & Forests, Government of India.
- (xii) Inventory of Hazardous waste generating industries has been taken up for the States of Gujarat, Rajasthan, Orissa, Punjab, West Bengal, Maharashtra, Bihar, Himachal Pradesh, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Jammu & Kashmir and Madhya Pradesh.

ASSISTANCE FOR ABATEMENT OF POLLUTION

The Scheme meets the need to strengthen the SPCBs and State Environment Departments for enforcing the statutory provisions for taking up pollution abatement measures. The Central Government has been funding the State Pollution Control Boards and State Environment Departments and other national research institutes. The purpose of funding is to strengthen the State Department of Environment through additional technical manpowers and State Pollution Control Boards through technical manpower and scientific analytic equipment that are expensive and hence can not be procured on State Government's own funds. (Funding for manpower has

however been discontinued w.e.f.1.4.1993 to the State Environment Departments and State Pollution Control Boards). The equipment is also required to be handled by trained technical personnel. Funds to the State Boards and released for equipment and specific studies of projects which would need to be completed within a specific time frame to meet the objective of Policy Statement for Abatement of Pollution.

An outlay of Rs. 7.0 crores has been provided during VIII Five Year Plan. This is a continuing scheme since VII Plan and has been amended to shift the emphasis from supporting manpower requirement to supporting equipment, studies and projects to meet the objective of the policy Statement. For 1992-93, Budget Estimate was Rs. 1.20 crores and during 1993-94, Rs. 2.0 crores, and during the current year, i.e. 1994-95, an amount of Rs. 2.0 crores has been provided. An amount of Rs.250 lakhs has been proposed for the financial year 1995-96.

ENVIRONMENTAL AUDIT

The Gazette Notification on Environmental Audit issued under the Environment (Protection) Act, 1986 has been amended.

- The environmental statements received by the Maharashtra State Pollution Control Board have been analysed to assess the efficiency of the statements.
- Model environmental statement reports for the following industries have been prepared and sent to the concerned SPCBs:
 - ◆ Sugar
 - ◆ Distillery
 - ◆ Aluminium
 - ◆ Copper and Zinc Smelters
 - ◆ Sulphuric Acid Plant
 - ◆ Cement
- Training Programmes on Environmental Audit and waste minimisation were organised through the Confederation of Indian Industry (CII) and the CPCB for the personnel of Central and State Pollution Control Boards.
- A project "Development of Industrial Production-Pollution Inventory Based on Waste Audit" has been sanctioned to IIT, Bombay which involves development of formats, data structures and data base management system for computerization of the data in the environmental statements for better waste management practices and decision making.
- A booklet "Environmental Statement (as part of environmental audit) describing the Concept, methods of conducting, preparation and the benefits accruing from the environmental statements has been prepared.

ENVIRONMENTAL STATISTICS AND MAPPING

A project "Environmental Statistics and Mapping using Geographic Information System (GIS) and remote sensing with specific refinements to abatement of pollution" has been sponsored to the

National Institute for Science, Technology and Development Studies (NISTADS), CSIR, New Delhi at a total cost of Rs.34.0 lakhs for a period of five years.

Under the project, base thematic maps on 1:6M scale for the country have been prepared. The main themes include:

- major river basins and drains and drainage network;
- administrative decisions
- designated best use classification of streams;
- location of water and air quality monitoring stations;
- location of critically polluted areas; and
- major cities of India (above one lakhs population).

These maps have also been digitized and the related attribute data entered using ARC/INFO GIS Package.

A project on preparation of river water Quality Atlas has been sponsored to CPCB at a cost of Rs.7 lakhs and the same been prepared.

ADOPTION OF CLEAN TECHNOLOGIES IN SMALL SCALE INDUSTRIES

A project has been sponsored to National Productivity Council to prepare a general guideline manual as waste minimisation and sector specific manuals in respect of the identified small scale industry sectors. The general guideline manual on waste minimisation has been prepared.

A project on assessment of waste minimisation and demonstration of best practice techniques in Electroplating units in Tamil Nadu has been sponsored to NPC.

A project "Studies on waste minimisation and demonstration of best practice techniques in SSIs in H.P. has been sponsored to H.P. Pollution Control Board.

Training and awareness on pollution control and prevention have been organised through DC: SSI for personnel in SIDO through SSIs.

WORLD BANK AIDED INDUSTRIAL POLLUTION CONTROL PROJECT

The Industrial Pollution Control Project had been prepared by the Ministry of E&F to utilise the support of the World Bank to prevent and alleviate environmental degradation caused by industrial operations. The project involves a line of credit of US \$ 155.6 million and counterpart fund of US \$ 108 million to be provided by GOI, State Governments, Financial institutions (IDBI & ICICI) and by industrial units availing the loan. The agreement of the project was signed on 8.7.1991 and is expected to be completed during the end of 8th Five-Year Plan. The components of the projects are:

Investment component:

- a) IDBI has sanctioned 29 projects to large and medium scale industries worth US \$ 50 million. Most of the projects have been fully commissioned, while ICICI has approved 29 projects for US \$ 42.31 million and the other projects for US \$ 8 million are in pipeline.
- b) CETP component:

Till date 11 CETPs obtained loan from IDBI. The implementation of these CETPs have already started and two CETPs have already been commissioned.

Institutional development component

- a) During the period 1992-94 a sum of Rs.1.5 crore had been released to 16 institutions for providing training to the Central and State Pollution Control Board staff. Till date about 33 programmes have been completed and 600 members have participated in the training programmes.
- b) Further a sum of Rs.2.8 crores has been released to UP and Maharashtra State Pollution Control Boards for taking up civil constructions for upgrading the Central and Regional Laboratories.

HAZARDOUS SVBSTANCES MANAGEMENT

1. The Redbook for Crisis Management was revised incorporating all suggestions received and published.
2. Money was released for establishment of Emergency Response Centres at Bhopal, Manali and Baroda.
3. Industry-wise Hazard Analysis of Alwar, Chembur and Dhanbad were completed. 11 more areas namely; Vapi, Ankleshwar, Delhi, Raigarh, Mettur, Manali, Udyogmandal, Patalganga, Rishra, Hoogli and Howrah.
4. Off-Site Emergency Plans for 8 districts namely; Durgapur, Moradabad, Mangalore, Vishakhapatanam, Tuticorin & Cuddalore, Thane, Kota and Raigarh were completed.
5. A guide to Safe Road Transport of Hazardous Chemicals was prepared and finalised for publication.
6. Training Programme for various categories of personnel for enhancement on safety in industry and management on chemical accidents was started in 92-93 and this was continued during 93-94. Two institutions, namely, Disaster Management Institute and National Productivity Council, Delhi conducted these courses.
7. A training programme on Data-base was held in New Delhi with the help of UNITAR for which experts from IRPTC, IPCL and ILO were invited.
8. A study of H-acid and other Nephthal based dye intermediates was initiated.
9. Amendments to the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 were finalised.
10. Amendments to the Hazardous Wastes (Management & Handling) Rules, 1989 have been drafted.
11. Financial assistance has been released to 17 cities for conduct of surveys on urban municipal solid waste.
12. Two meetings of the Advisory Committee on Public Liability Insurance were organised to discuss various issues connected with the Act in the Rules.

IMPACT ASSESSMENT

Apraisal of	projects		Monitoring of	Projects
	Target	Achievement	Target	Achievement
Mining	50	47	120	80
Industry	60	40	100	43
Thermal	30	15	30	49
RV/HE	60	51	200	150
Atomic	8	1	8	5
Others	60	50	40	28

INTERNATIONAL COOPERATION

(i). The Ministry of Environment and Forests is the nodal agency in the country for United Nations Environment Programme (UNEP), South Asia Cooperative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD), and the International Union for Conseryation of Nature and Nateral Resources (IUCN). Annual Contributions are made to these Organisations. The Ministry also functions as the nodal agency for particiaption in International agreements such as the Convention on International Trade in Endangered Species on Wetlands and the Basel Convention on Trans Boundary Movement of Hazardous Substances.

(ii) The Rio Agreements were actively discussed and translated into action programmes. India's report for the Commission on Sustainable Development (CSD)'1994 covering the implementation of Agenda 21 in respect of Cross-sectoral issues like financial resources and mechanisms, transfer of environmentally sound technologies, role of major groups, etc., as well as specific themes of health, human settlements, fresh water, toxic chemicals and hazardous wastes, was prepared for the presentation to to the Second Session of CSD. 'India ratified the Convention on Bin-logical Diversity on 18.2.94 and the UN Fxamework Convention Climate Change on 1.11.93. The Convention to Combae Desertification was signed on 14th November, 1994.

(iii) Ozone Layer Protection: A series of sectoral workshops, followed by country programmes workshops were organised during June-August, 1993 to finalise India' 8 country programme on the phasing out of Ozone Depleting Substances (ODS) which has since been approved by the Montreal Protocol Executive Committee in November, 1993. India chaired the preparatory meeting to the 5th meeting of the parties to the Montreal Protocol held in Bangkok in November, 1993 and has been elected to the Montreal Protocol Executive Committee. India has access to the multilateral fund set up under the Montreal Protocol and 15 projects were approved.

(iv) An Environment Action Programme, which is the first document of its kind, has been brought out in December, 1993. It attempts to integrate the concerns for conservation, sustainable development and human welfare with a quest for a dynamic economy exemplified in the on-growing process of the economic reforms.

(v) Functioning of the Global Environment Facility (GEF)

An inter-ministerial cell was constituted under the chairmanship of Secretary (E&F) and a workshop was held in December, 1993 in which experts of UNDP and World Bank participated. A large number of proposals were discussed at this workshop and a few were identified for further refinement and presentation to GEF. So far, four proposals have been accepted under GEF pilot phase.

(vi) India-Canada Environment Facility

The India-Canada Environment Facility was registered as a Society in March, 1994. An amount of Rs .19.18 crores was released to the society in 1993 - 94.

GANGA ACTION PLAN

GANGA ACTION PLAN PHASE-I

As on April 1, 1993, 206 Schemes, out of 261 Schemes sanctioned were completed. During 1993-94, 24 schemes were completed raising the total number of schemes completed to 230. Eighteen Sewage Treatment Plants (STPs), out of the total 35 Sewage Treatment Plants (STPs) to be established, had become operational. The schemes for sewage interception and diversion were accorded priority under the Ganga Action Plan. In all, 88 schemes were sanctioned in the three States which involved laying of 370 Kms. of sewers (including force-mains) and installation/renovation of 129 sewage pumping stations. Seventy eight schemes were completed. As a result, 543 mld of waste water flowing into the river was diverted out of which 297 mld was taken to the sewage treatment plants for treatment. The schemes when completed, will intercept/divert 873 mld waste water and have a capacity to-treat 894 mld waste water.

Under the low cost sanitation programme, 43 schemes were taken up in the three States. 42 schemes involving construction of 2,757 public toilet complexes and 47,705 individual pour flush latrines were completed. This had enabled tourists and the people living near the river bank to use these toilets, and in turn helped in reducing pollution of the river.

A number of research projects on scheme specific and site specific thrust areas such as Pollution Monitoring, Resource Recovery, Bio-monitoring and Bio-conservation and Impact Assessment of Ganga Action Plan on health and public health were continued. The projects on 'treated sewage for irrigation,' non-point pollution monitoring of pesticides' and 'rehabilitation of soft shelled turtles in and around Varanasi' were completed. Low cost and unconventional technologies for sewage treatment through plantation and aquaculture with a view to find alternatives for sewage treatment were continued during the year besides research project on bio-monitoring and bio-conservation and pollution monitoring. The water quality monitoring of river Ganga was reviewed and revamped by reducing the number of parameters from 42 to 21 by involving the research institutes and universities situated along river Ganga. Water quality monitoring was also started in the rivers Gomti, Hindon and Western Yamuna Canal. Possibilities of initiating available technological options using chlorination, ultra violet radiation and gamma radiation were explored.

At the instance of Planning, Commission, completed works under Ganga Action Plan Phase I, were evaluated by 4 university experts, namely Prof. R.P. Mathur, Roorkee University, Prof. I.C. Aggarwal, Moti Lal Nehru Regional Engineering College,, Prof. Nilay Chaudhary, Jadavpur University, Dr. R.K. Sinha, Fatma University. The evaluation concluded that the programme was well received and the water quality has significantly improved wherever the works had been completed. The evaluation also made important recommendation for replication in future programmes which were incorporated in the proposals of Ganga Action Plan Phase II and National River Action Plan wherever feasible.

Of the 68 identified, gross polluting industrial units, monitored for pollution abatement, 49 units have been set up Effluent Treatment Plants and the 16 units have been closed down. Effluent treatment plants were under construction in 2 industrial units and one unit changed the process and did not require the effluent treatment plant. A capacity to treat 229 mld of industrial effluent out of estimated quantity of 260 mld had been set up.

GANGA ACTION PLAN PHASE II

The second phase of Ganga Action Plan would cover the following works:

1. Works required but not included in the 1st Phase in 25 class I towns;
2. Pollution abatement works in Class II and Class III towns identified on the main river;
3. Pollution abatement works on the grossly polluted stretches of tributaries of the Ganga (Yamuna, Gomti and Damodar Action Plans).

Under the Yamuna component of Ganga Action Plan Phase II, pollution abatement works are to be taken up in 15 towns - 8 in Uttar Pradesh, 6 in Haryana, besides Delhi. The estimated cost of the Yamuna component is Rs.357 crores for which external assistance from Government of Japan is available. Under the Gomati component works are to be taken up in 3 towns of UP namely: Lucknow, Sultanpur and Jaunpur. The estimated cost of the works is Rs.64 crores. The implementation period of both Yamuna Action Plan and Gomti Action Plan is six years.

The pre-feasibility reports in respect of towns included in Yamuna Action Plan in Haryana and UP and for some of the projects in Delhi were approved during 1993-94. At the same time Survey and studies for Pollution Abatement Programme for river Damodar were in progress. Prefeasibility reports for towns covered under Ganga Action Plan Phase II on the main river were also received in respect of Uttar Pradesh and Bihar.

NATIONAL RIVER ACTION PLAN (NRAP)

Based on the survey of pollution load in various National rivers undertaken by Central Pollution Control Board, the Planning Commission had directed formulation of National River Action Plan to formulate NRAP as a new Centrally Sponsored Scheme on the basis of equal sharing of capital cost between the Centre and the State Governments concerned. The Union Government approved, in principle, NRAP on 12.1.1994. The proposal from the State Government of Gujarat in respect of river Sabarmati; Madhya Pradesh in respect of rivers Betwa, Khan, Shipra, Tapti and Wainganga; Orissa in respect of rivers Baitarni and, Brahmani; Punjab in respect of river Satluz and Karnataka in respect of river Cauveri were received.

CIVIL CONSTRUCTION UNIT (CCU)

Major Works completed In 1993-94

- (i). Construction of 32 staff q-quarters for Botanical Survey of India at Dehradun.
- (ii). Construction of 37 residential quarters for ZSI at Digha.
- (iii) Regional Museum of Natural History, Mysore.
- (iv) Construction of 24 residential quarters (Phase-I) at Coimbatore.
- (v) Construction 108 residential quarters for Regional Forest Research Centre, Jabalpur.
- (vi) Institute of Northern Peninsular Deciduous Forests, Jabalpur.