Chapter – 11

Environmental Information

Environmental Information System (ENVIS)

Introduction

– Environmental information plays a paramount role not only in formulating environmental management policies, but also in the decision-making process aiming at environmental protection and sustaining good quality of life for the living beings. Realizing the need of appropriate environmental information, the Ministry set up an Environmental Information System (ENVIS) as a plan programme and as a comprehensive network in environmental information collection, collation, storage, retrieval and dissemination to varying users, which include decision-makers, researchers, academicians, policy planners, research scientists, etc.

– ENVIS has been conceived as a distributed information network with the subject-specific centres to carryout the mandates and to provide the relevant and timely information to all concerned. Association of the various State Governments/UTs was also felt necessary in promoting the ENVIS network to cover a wide range of disciplines of subjects and the cooperation of the various State/UT Governments. Keeping this in view, the network was expanded gradually with the involvement of thematic subject-areas and State Government departments to make it a more comprehensive environmental information network.

– ENVIS network at present consists of a chain of 76 network partners out of which 46 are on subject-specific and 30 are on State related issues. These network partners are called ENVIS Centres and are located in the notable organizations/institutions/State/UT Government Departments/Universities throughout the country. The Focal Point of ENVIS is located in the Ministry and coordinates the activities of all the ENVIS network partners to make ENVIS a web-enabled comprehensive information system. The list of ENVIS network partners is given at Annexure-X.

Objective

– There are two objectives one is "Long term" and the other is "Short term objectives". These are as follows

Long Term Objectives

• To build up a repository and dissemination centre in Environmental Science and Engineering

• To gear up the modern technologies of information acquisition, processing, storage, retrieval and dissemination of environmental nature;

• To support and promote research, development and innovation in environmental information technology.

Short Term Objectives

• To provide national environmental information service relevant to present needs and capable of development to meet the future needs of the users originators processors and disseminators of information.

• To build up storage, retrieval and dissemination capabilities, with the ultimate objective of disseminating information speedily to the users.

• To promote national and international cooperation and liaison for exchange of environment related information.

• To promote, support and assist education and personnel training programmes designed to enhance environmental information processing and utilizing capabilities.

• To promote and exchange of information amongst developing countries.

Progress of Activities Undertaken

– The ENVIS network continued its information-related activities, database development, publication of requisite information packages through newsletters, abstracting services, etc. and the Query-Response-Services during the year. Details of these activities are as follows

- ENVIS Focal Point in the Ministry is responsible for maintenance and updation of the website of the Ministry (URL: http://envfor.nic.in) and disseminating information through the website to all concerned. Information in the Ministry's website was continuously updated by ENVIS throughout the year. The website (Figure 74) has also been linked with the various Divisions of the Ministry in order to have up-to-date information on the subject concerned. Besides, the website is also regularly providing information on the new updates of the Ministry, response to media reports and other important issues of the Ministry from time to time with the objective of disseminating such information to all concerned. Information has also been arranged in various heads which include current events, clearances, legislation, Parliament matters, Treaties/Conventions, Publications, etc. The website recorded approximately 1.75 lakh hits per month reflecting the usage of website by various national and international users.

Fig.74 Ministry's website (http://www.moef.gov.in)

– Query answer service is one of the major responsibilities of ENVIS Network. The ENVIS focal point and all its partners responded to more than 17800 queries during the year and provided substantive information as far as possible. Wherever information was not readily available, the network provided 'Referral Services' to the concerned users. The major subject-areas on which the queries were responded to pertain to environmental education and awareness, standards, environmental conservation, waste management, air and water pollution, environmental laws, etc.

– ENVIS, with the assistance of Indo-Canada Environment Fund, implemented strengthening of Sustainable Development Networking Programme (SDNP) on the identified 20 thematic areas. Twenty two thematic-area ENVIS Centres were selected for implementing the programme for 20 identified thematic areas. All the ENVIS Centre partners developed an additional website on this thematic area with a linkage to their subject-specific websites for accessing detailed information in the concerned thematic areas by the users. The thematic-area Centres also disseminated information in their concerned areas in the print form in the assigned subject-specific area. The project was completed successfully in June, 2007 and final report to ICEF, New Delhi was submitted.

– The activities of all the ENVIS Network Partners were monitored and evaluated by various "Expert Evaluation Committees" through Regional Evaluation Workshops held during the year at Lucknow, Mumbai, Kolkata, Dehradun, and Hyderabad respectively. The Workshops were organised to evaluate the activities of the ENVIS Centres to meet the objectives of ENVIS and necessary guidelines as well as mid-term corrections, wherever necessary were provided to the Centres.

– The Regional Evaluation Workshops for the ENVIS Centres set up at State/UT Government Departments was organized in association with Directorate of Environment, Government of Uttar Pradesh Lucknow during 19-20 September, 2007 to evaluate the functioning of these ENVIS Centres not only to decide about their continuance but also to provide them the necessary guidance in performing their activities to meet the objectives of the concerned ENVIS Centres as well ENVIS scheme. This was followed by the Training programme for three days (21-23rd September, 2007).

– The subject-specific Regional Evaluation Workshops for the ENVIS Centres of Western Region, Eastern Region, Northern Region and Southern Region were organized at International Institute of Population Studies (IIPS), Mumbai during 9-10 October, 2007 followed by Training Programme from 11-13 October, 2007; at Zoological Survey of India (ZSI), Kolkata, during 7-8 November, and Training programme from 5-6 November, 2007); at Forest Research Institute (FRI), Dehradun, during 22-23 November, 2007 followed by Training programme from 19-21 November, 2007); and at Indian Institute of Chemical Technology (IICT), Hyderabad, during 2-3 January, 2008 followed by Training programme from 4-5 January, 2008) respectively. The main emphasis was to review and evaluate the functioning of the ENVIS Centres in the assigned subject areas and their performance as per the objectives of the ENVIS scheme for which they have been established. The Expert Committee constituted for this purpose reviewed the

Fig.75 Participants at performance evaluation workshop of Northern Region ENVIS Centres

functioning of the ENVIS Centres including its dissemination methodology aimed at the user clientele on basis of the presentation by the Centre and offered suggestions for better functioning of the Centre. Various technical and administrative problems faced by the Centre were discussed and possible solutions were offered to mitigate them.

– The Training Programme was aimed at the personnels working in the ENVIS Centres to get themselves acquainted with the functioning of the ENVIS programme. The training focused mainly on database development, web site maintenance and publications brought out by the ENVIS Centres. Discussions with the ENVIS staffs were held on one to one basis for to overcome the problems faced by them. Based on the evaluation and training, the Expert Committee recommended a series of suggestions for better performance of

the ENVIS Centre.

– A Training Programme was organized for staff working in the ENVIS Centres to provide guidance about various issues relating to Indian State Level Basic Environmental Information Database (ISBEID), with GIS Interface, Data Base Development, Experts Database, Abstracting Database, structure, Modules, Publications, Newsletters, Monographs, State of Art Report, etc. and Website Management of Information System, Website development, Content Management, Linkages, Updation structure, Dynamicity & VPN Facility etc.

– The ENVIS Focal Point, developed a database, namely, India State Level Basic Environmental Information Database (ISBEID) with 23 modules and GIS interface was added in association with NIC, to assist the State Government ENVIS Centres to collect, collate and disseminate environmental information concerning

their States. The objective of the database is

- Building up of a repository of Environment time series data
- Centralization
- One Single Database
  - ▲ Immediate Update
  - ▲ Immediate Availability
- Utilizing web as a tool for collection and dissemination of information effectively and efficiently

- Modules of ISBEID database with GIS interface were
  - Administrative Profile
  - Environment
  - Bio-Diversity
  - Industry
  - Economics
  - Natural Resources
  - Forest Resources
  - Water Pollution
  - Hazardous Waste
  - Agriculture
  - Health
  - Demography
  - Institutional Framework
  - Energy
  - Surface Water
  - Disaster Management
  - Ecology
  - Ground Water
  - Climate
  - Infrastructure
  - Tourism

  - Air Pollution
  - Waste Disposal

- The GIS interface in the database with six modules was implemented on pilot basis for the States of Madhya Pradesh and Orissa and with seven more modules in the North-Eastern States and the State of Maharashtra for the implementation of ISBEID. The Remaining States have been planned to be taken in a phased manner. It is a Web based GIS application for efficient management. The database acts as one stop information repository on various parameters with interactive maps capable of handling operations like zoom in/out, pan, print, measure etc. as well as Querying the database to provide critical information.

- The feedback from these States in implementing the module will assist the ENVIS Focal Point to change the environmental parameters if required for its successful implementation in all the States. The ISBEID database would not only help the State ENVIS Centres to collate environmental information concerning their States but also would assist them to provide the requisite data to develop the State of Environment Report (SOER) of the concerned State regularly.

- A portal of ENVIS at url: http://www.envis.nic.in, was connected to all the ENVIS network partners and updated regularly by the focal point. The portal acts as a catalyst for inter-Centre interaction and for information on several broad categories of subject related to environment under which the Centres have been grouped. The websites of all the ENVIS network partners could be directly accessed from the homepage of the portal information on major events, activities and current updates of the entire network.

- MoU was signed to set up a new State

ENVIS Centre on "Status of Environment & Related Issues" with State Pollution Control Board, Government of Haryana.

–   ENVIS Focal Point continued to publish 'Paryavaran Abstracts', reporting information on environmental research in Indian context during the year. About 350 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. The journal was distributed to about more than 3000 users throughout the country. The evaluation of the journal is being made from its users as directed by the ENVIS Advisory Committee to decide its continuance. All issues of the journal are also available in the ENVIS website.

–   Four issues of ENVIRONEWS, a quarterly newsletter, was published by the focal point with the objective of disseminating information on important policies, programmes, legislations, amendments to the existing Acts, new sanctioned projects and other important decisions taken by the Ministry from time to time to a wide cross-section of the society including administrators, policy makers, planners, scientists, environmentalists, students, NGOs, voluntary bodies and the general public.

–   ENVIS Focal Point coordinated and published the Annual Report 2006-2007 of the Ministry and got it distributed to various Central and State Government Departments, professional institutions, universities, research organizations, Embassies/ High Commissions of India abroad and those of various countries in India, NGOs, voluntary bodies and the

concerned general public in order to disseminate the information package containing the activities of the Ministry during 2006-07. The contents of the Annual Report are also available in the website of the Ministry.

–   ENVIS Focal Point published a directory of Environmental Experts in India titled "Database of Environmental Experts in India: 2007". The database was developed to provide comprehensive profile of environmental experts/ professionals in several disciplines in environmental sciences in the country so as to utilize the services of these experts for research projects, for their evaluation and to associate them as members of different committees etc. The database contains 557 entries and is divided into two parts viz., Experts and Professionals who meet the criteria as laid down by the Ministry. The biographical notes in the database cover all important information/ description of the environmental experts/professionals. The database is also available on website of the Ministry.

–   The ENVIS has been representing the Ministry in various Committees of the Government, especially those constituted by Ministry of Programme Implementation and Statistics. It also provided necessary information for publication of Compendium of Environmental Statistics, report on Millennium Development Goal, Statistical Abstracts, etc., periodically. ENVIS also provided necessary information to Ministry of Information and Broadcasting to publish their annual document namely, "India-a Reference Annual, 2007".

–   ENVIS also continued to function as a National Focal Point of the Global

Information Network, INFOTERA of UNEP, and provided the necessary inputs from the Ministry as and when required.

– ENVIS maintained a close liaison with various national information systems like Bio-Technological Information System (BTIS), Delhi Library Network (DELNET), etc., for exchange of environmental information and to avoid duplication of efforts in the field of environment and related areas.

– All the ENVIS network partners both in thematic areas as well as State subject-areas continued their activities in information collection, collation, storage, retrieval and dissemination to all concerned. All the ENVIS network partners continued to publish information packages in the print form like newsletters, monographs state-of-art, etc., in their specific subject-areas for dissemination of information to the users concerned. These publications have also been uploaded in their respective websites to access electronically by the concerned users. Each network partner also published the newsletter in their concerned subject-area in a regional language in order to create awareness among the people of the region regarding availability of environmental information in the concerned subject-area among the users.

– All network partners developed their home-pages and websites in their specific subject-areas for electronic accession of information by the users. The network partners were also directed to implement the recommendations made by the Expert Evaluation Committee during the Regional workshops held during the year to achieve the objectives.

Information and Facilitation Counter (IFC)

– As per the directives of the Government, the Ministry set up an Information and Facilitation Counter (IFC) in the ground floor outside the security zone of the Ministry's premises in order to provide information to all concerned and especially to various voluntary agencies, non-governmental organizations and such other bodies who are in need of special descriptive information of the Ministry from time to time.

– The IFC has been equipped with the necessary hardware facilities to access Division-wise information by the users who are in need of specific information of the Ministry.

– The functioning of the IFC has been outsourced by the Ministry to the Centre of Environment Education, Delhi Desk, to run it administratively. ENVIS caters the need of IFC and coordinates its day to day functions, which is a single window clearance of information and acts as an interface between the public and the Ministry. It also assists to retrieve information to the users in regard to RTI Act as and when required. All RTI applications with necessary amount in cash under the RTI Act are received by IFC for further processing. All printed information package published by the Ministry are distributed through IFC to the users regularly.

NGO Cell

– A Non-Governmental Organisation Cell (NGO Cell) has been set up in the Ministry to handle various matters relating to NGOs working in diverse field of environment. The basic functions of the Cell are :

• Collection and dissemination of information to various NGOs.

• Liaison with the Planning Commission

and other Govt. Ministry to create a database of various NGOs working in the field of environment and its associated areas.

– 'A Directory of Environmental NGOs in India – 2007' was published by the ENVIS Centre at WWF India in consultation with the Ministry during the year. This directory, takes into account NGOs in all the States and Union Territories working towards environmental protection, conservation and awareness. It provides critical information about the groups engaged in the cultivation and nurturing of interest in environmental protection, conservation of nature & natural resources and safeguarding the greens. The Directory covers all relevant and useful information catalogued under various appropriate heads including minute details like and the total strength of permanent as well as part-time staff, number of members and geographical coverage in addition to the general information comprising the Name, Address, Status (registered /non-registered, trust/society/group), Nature (Nonprofit/rural oriented) and the Commencement of activities. The latest edition of the directory is an expansion and updation of the Eighth edition (of 2004). It includes a larger number of NGOs working in the field of environment and more useful and detailed information by giving NGO profile, activities as well as major publications.

– This directory could be used for bringing active NGOs, involved in the field of conservation

and environmental management activities whenever required as a planning, organizing, networking and community empowerment tool. It could also enhance the communication among the NGOs themselves, between NGOs and other related professional institutions, between the NGOs and Governmental institutions and communication between NGOs and the general public.

State of Environment (SoE) Reporting

Introduction and objectives

– The scheme of preparation of State of Environment Reporting in each State/UT was launched during the Tenth Five Year Plan with the objective of highlighting the upstream and downstream linkages with environmental issues besides creating a baseline document in the form of SoE Reports.

– Following Institutions (as Nodal Host Institutions) are assisting the States/UTs in bringing out their respective SoEs:

- Development Alternatives (DA), B-33/2, Institutional Area, Tara Crescent, New Mehrauli Road, New Delhi.

- The Energy & Research Institute (TERI),

Fig.76 Participants in National Conference on State of Environment Report

Darbari Seth Block, Habitat Centre, New Delhi.

- Environment Protection, Training and Research Institute (EPTRI), 91/4, Gachibowli, Hyderabad.

- Administrative Staff college of India (ASCI), Bella Vista, Hyderabad.

– The primary goal of the SoE Report is to design and operationalise a participatory and scientifically rigorous SOE reporting system in India that enables informed database, policy/strategy formulation, decision making and follow up action. Beside data collection, the SOE Report suggests solutions to dovetail with policy and strategy formulation.

– At the end of 10th Plan, all the States/UTs except Uttar Pradesh, Tripura, Delhi, Jammu & Kashmir and Arunachal Pradesh have brought out the State of Environment Report. Initiative have been taken for preparation of State of Environment Report of these State during the year.

– In addition, some of the responsive States/UTs viz: Punjab, Nagaland, Kerala, Gujarat, Tamil Nadu, Uttarakhand and Assam have also initiated SoE Plus Process which include preparation of other static and interactive products from among SoE Atlas, SoE Photo Catalogue, SoE Video, SoE CD and SoE Website.

– Having realized, during the preparation of State of Environment Reports, the importance for a national atlas on brown, green and blue issues, development of an Interactive Atlas for India has also been completed as a part of the process of preparation of State of Environment Reports with a total outlay of Rs. 34.72 lakhs. The Atlas will be useful for evolving national strategies on brown, green and blue issues. State of Environment Reporting has become an excellent management tool to ascertain the extent of problem and corrective action required to be taken in a particular state within a given geo-physical region. The Reporting system has provided the public, government, non-government organizations and decision makers with accurate, timely and accessible information on the state of current environment and future outlook for a region's environment.

– In order to sharing views amongst stakeholders in preparation of SoE Reports, the Ministry organized a National workshop at Delhi on 29th August, 2007 to deliberate on the following issues

- Sharing experiences of the achievements and weaknesses of the exercise of the SoE Reporting

- Dissemination of SoE Reports and Products produced so far

- Discussion on how could SoE reports be used as a tool to mainstream the environment vis-à-vis sustainable development

- Capacity building on the SoE reporting system

- Preparation of National SoE Report

- The way forward for SoE reporting in the 11th Five Year Plan

– Major recommendations of the National Workshop

- State of Environment (SOE) Reports may be prepared twice in a Plan period, once at the time of formulation and the other at the time of mid-term appraisal.

- In the 11th Plan period, preparation of SOE report may be jointly funded by the Centre and State.

- Efforts will be made to bring out the State of Environment (SOE) Reports in

the regional language concerned.

- State of Environment (SOE) Reports for all the States/UTs may be prepared for the common reference year and with the common & comparable data sources as far as possible.

National State of Environment Report

- Initiatives were taken to prepare National State of Environment Report with the objective that the State of Environment Reports (SOE) at national and regional level are required as a tool of Planning, mainstreaming environment in the decision making as so creation of data bases on the various topics for policy formulation containing primary and secondary data on the concerned subjects is very important. SOE would focus on identifying issues for policy directions taking into consideration the physical stock of natural resources and behavioural aspects of the population vis-à-vis the environmental conditions. The primary data may be collected through Spot verification, Field observations, Designed Sample Surveys, The canvassing of questionnaires in selected households, Conducting interviews with the concerned population, Participatory representative appraisal, Case studies etc.

- Main contents of state of environment reports would be such that it would provide information on the various aspects for the various years providing reasons for increase/decrease and improvement/deterioration in quality over time. It should also provide perspective for the future for different parameters and provide specific indicators about the trends in the quality of environment. Further, it should also include the sensitivity analyses about the prospective situation under different conditions of implementation of various improvement schemes with regard to afforestation, control of pollution,

treatment of Industrial effluents, appropriate disposal of household and hazardous waste, conservation of river water and various efforts to contain the climate change and global warming. The main parts of state of environment report should contain information regarding:-

- The State of Environment Report would be divided into four parts viz

  - Part I: Natural resource base.

  - Part II: Utilisation of natural resources.

  - Part III: Socio-economic aspects of population.

  - Part IV: Special administrative measures taken to conserve environment.

- **Part I: Natural resource base**

  With regard to the inventory of Natural resources, the data on following aspects would be collected, compiled and presented state wise and district wise wherever feasible.

  - **Geographic profile**

    Under this item, the area, the soil types, the conditions of climate in terms of average temperature, the average rainfall, height from the sea level, density of population, human settlement and drainage, the broad aspects of terrain, rivers, hills, may be provided along with further details on each aspect.

  - **Land use**

    Under this topic, the proportion of land use for different economic activities and the degraded land etc., may be provided along with the various measures for land management, sources of irrigation, land under forests of different type, shift in the land use pattern over the years may be

provided.

- **Mineral resources**

  The information on current stock and non-potential of natural resources of different type e.g. metal, petroleum, coal etc., and exploration and development may be given. The mineral based industries, their location, production, technology and use of energy may be given. The details about environmental issues vis-à-vis mining and zoological aspects may be included under this.

- **Forest resources**

  The area under different types of forests, plantations, Joint Forest Management and common property resources may be given under this heading. Production of non-timber forest products, demand of wood, the production of small scale industries based on forest products and employment, income generated in forestry may be given. The information on loss due to forest fires, income due to ecotourism may also be completed and presented.

- **Wildlife**

  The items related to population of different types of wildlife area wise under various sanctuaries and parks, the expenditure on wildlife conservation may be covered under this. The aspects related to habitat management, receipts from zoological parks and eco-tourism in wildlife sanctuaries and parks may be covered under this section.

- **Water Resources**

  The ground water recharging, level of under ground water, level of water in reservoirs, volume of glaciers, river water quality monitoring and traditional water management under major and minor irrigation schemes along with potential for use and demand of water for different types of uses like drinking, irrigation and house hold purposes, industrial purposes may be included under this section.

- **Wetlands**

  The area and location of natural wetlands development of fisheries, dams, multi-purpose river projects and other aspects about management of wetlands, condition of water and the dependent bird life may be covered under this.

- **Animal husbandry**

  Information regarding No. with age, classification and sex, use about different types of livestock and poultry may be compiled and information on productivity in terms to milk, meat production or for drought along with demand and supply to processing units may also be provided state wise and district wise if possible. The information about the infrastructure of veterinary treatment in some cases vaccination, etc., may also be collected and provided.

- **Grazing land and pastures**

  Information on area under different types of Common Property Resources (CPR), grazing land, area under social forestry and posture development and the output in terms of fodder and fuel wood from such CPRs may be collected and presented under this heading.

- **Part II: Utilisation of natural resources**

The utilisation of natural resources in the various economic activities and the related issues may be compiled and presented under

the different heads as below

- **Agriculture**

  The area under different types of agricultural crops, floral and faunal communities multi-cropping and mixed cropping, total gross sown area, net sown area, area under irrigation, fodder production and area under organic farming may be collected and compiled. The use of fertilizers, pesticides, compost and green manure, productivity, crop rotation, agricultural technology, may be covered and area under wastelands and the water shed MAY ALSO BE COMPILED. The distribution of crops over the years into food grains, pulses, oil seeds, fibre crops sugarcane and floriculture etc., may be provided along with productivity. Use of technology in agro processing, supply to agro based industries and demand, utilisation of a by products and technology for storing and post harvesting treatment of produce may also be compiled.

- **Horticulture**

  Horticulture is a growing area and it is concentrated in certain areas near big cities and water resources. As such, the area under orchards for vegetables, fruits, tea, coffee, spices and other plantation crops and flowers may be separately collected the area under Bio-technologically modified crops, horticulture and forestry may also be separately collected. The information on soil management, status organic farming, use of bio-fertilisers, bio-pesticides, and the demand and consumption of processing industries and technology in use may also be covered under this heading.

- **Industrial development**

  The distribution of industries state wise and district wise by sector considering their potential for pollution and affluent generation may be collected. The data on production, technology, use of raw material, energy, other natural resources, affluent treatment and environmental management may be collected, from all industries, small as well as large. The information specially for 17 major polluting industries may be specifically provided with investment under pollution control and affluent treatment. Efforts in environmental improvement, recycling of water and treating the emissions may be separately compiled and provided.

- **Energy**

  The information on production, potential by type, supply and demand by location and productivity may be collected for different uses like agricultural, industrial, commercial and domestic by city and district may be compiled. The use of different types of energy like electricity, coal, petroleum, diesel, bio-fuel, non conventional energy like solar wind may also be collected and compiled. The information on energy produced by sugar factories and other industries by co- generation method may be separately provided and similarly the information of bio-fuel generated and supplied like ethanol etc., may be separately compiled.

- **Bio-diversity**

  The information on the floral and faunal variety, agro-climatic region-wise and state wise along with the endangered and likely to be extinct

plants, animal/birds species may be separately listed. The information on the medicinal plants produced and used for economic purposes may be compiled district wise and efforts for conserving the medicinal plants and traditional knowledge and use of herbs and medicinal plants for treatment for skin care etc, may also be collected and compiled.

• **Pollution**

The time series and location wise information on air quality, water quality, sound pollution, production and disposal of household and hazardous waste, bio medical and hospital waste may be monitored and provided. The efforts made in control of pollution and required regulation of pollutants and preventive action for conserving water quality may be provided. The efforts in controlling misuse of chemicals and other materials on edible and other agro products may also be compiled and provided.

• **Transportation**

The No. of mechanised and non mechanised transport for passenger, goods, traffic, use of different types of energy like diesel, petroleum, CNG, LPG may be collected. The data on other transport equipments e.g., man and animal driven by state, district and the number of transport equipments by district and states may be collected. Use of bio fuel, road quality, road width and traffic mechanics may be compiled along with the different measures to control traffic and regulation of movement, provision fly overs, under bridges road geo-matrics, median, foot paths, etc., may also be collected and presented.

– **Part III: Socio-economic aspects**

Several socio-economic aspects may be covered as follows

• **Culture and Archiology**

Information on use of CPRs for Social purposes like yoga, meditation, traditional use of natural resources, fares and festivals, ancient sites, animals and other monuments may be collected and compiled. The information on places of historical importance and archaeological interests like forests, peaks, lakes, Memorials, important religious cites may be collected and compiled. Efforts on conservation of cultural and archaeologically important buildings may also be documented and presented.

• **Housing**

Information on the stock of housing, the facilities, housing conditions, population living in slums, the availability of bath-rooms and latrines, access to hospitals and road connectivity, clean drinking water, availability of fresh air, ventilation, parks may also be provided. The technology of house construction, the facility of rain water harvesting, etc., information on house design considering the earth quake intensity may also be collected and compiled.

• **Transportation**

Information on distribution of population fertility, mortality, morbidity, occupational classification, availability of drinking water and quality, treatment of water, spread of environmental diseases, different types of deficiencies disabilities and health infrastructure may be provided. The

information with respect to fertility rate by age and sex, infant mortality rate, maternal mortality rate may also be provided.

- **Tourism**

  Information on tourists by origin-destination, purpose, sex, age and income class along with nationality may be collected, the key features about share of eco-tourism, agri-tourism, the expenditure of lodging and boarding for site seeing, tracking, mountaineering, etc., may be separately collected.

- Women and Environment

  Participation of women in economic activities, their awareness about hygiene, use of energy and their level of education, health, vocational training, occupational distribution, desirability and involvement in decision making may be compiled and presented. The role of Women in agriculture, forestry, collection of fuel wood and fodder etc., may be separately presented.

- Environmental Education

  Information about Environment Education in the different levels of institutions from primary to professional level, the availability of skilled and trained manpower, institutional mechanisms may be provided. Compilation of NGOs, the experts in environment, conservation of natural resources mode and role of communication in awareness and control of misuse of forests and animals may be compiled under this heading.

- Natural disaster

  The information on natural and man made reasons and hazards like chemical accidents, treatment of bio medical and hazardous waste, nuclear and other petroleum installations, locations, the capacity of production, population within the area under high risk, the natural resource like water and forests in the nearby areas, loss of property due to natural disaster like forest fire, earthquakes, cyclones and land slides, mining accidents may be collected and compiled state-wise and district-wise on time series basis.

- **Part IV: Administration and Legal measures**

  The special administrative and legal measures to be taken to conserve environment as follows may be included in this part.

  - Environment and Judiciary

    Various legislations, acts at the National level and for specific states related to control of pollution, treatment of wastes, acquiring forests land for civilian purposes, various regulatory measures on urbanisation, cutting of trees, etc., may be compiled and presented. The leading important judgements related to environmental aspects may also be compiled and NGOs and experts in the field of judicial intervention related to environment may also be presented.

  - Environment and Parliament

    Information/questions asked in Parliament and Legislatures on various issues related to environment and forests, wildlife, the matters of common interest, special mention and special discussions related to environment and forests may be compiled. The special measures by Parliament through its committees to improve environment should also be covered under this and presented.

  - Community Participation and Panchayat

The access to forests and other natural resources for the tribal communities land reforms, control of likely loss to environment, forests and wildlife, Mal treatment of animals for amusement or R&D purposes and use of animal data on and awareness regarding that same may be compiled and presented. The various measures for legal, awareness and community efforts in controlling such violation, may also be presented.

– Based on the different legislative judicial administrative, communication related efforts a sensitivity analysis could be done to project the future scenario. The different scenario for air pollution, water pollution, volume of glaciers, temperature, noise level, green house gas emission and carbon generation could also be presented for future years in the alternative scenario. The State of Environment Report could also be prepared in the form of Atlas for different states with use of GIS map. The above items of information may be adequately covered in all the state of the environment reports and some of these items which are more important for specific state may be covered in more details and similarly for a particular year certain type may be given higher importance considering the international priority. More details of information on such topics may be provided as per the National or international requirement from time to time. Appropriate infrastructure and training facilities for manpower involvement could also be provided for preparation of state of environment report in the states and regular coordination may be done to monitor the progress of compilation of state of environment report.

Statistical Cell

Introduction and Objectives

– Discussions were held with Directorates of Economics and Statistics in the various State Governments and Union Territory Administrations to provide information about establishment of Environment Statistics Cell as per the recommendation of the National Statistical Commission (NSC). Except seven States, other States and Union Territories have not established Economic Statistics Cell and have submitted that Union Government may provide financial support for additional manpower and equipment for setting up such separate Units.

– The offices of Principal Chief Conservators of Forests/Chief Conservators of Forests in the State Governments and Union Territory Administrations were also requested to inform about existence of Environment Statistics Cells in their offices. It has been conveyed that most of these offices have Statistical Units but they lack internet facility and Statistical software to provide online data communication to the Ministry and as such there is significant delay in provision of Forests Statistics from the State Forest Departments.

– As per the recommendations of National Statistical Commission (NSC) the Subordinate Offices and the autonomous organizations under the Ministry were requested to provide information about separate Environment Statistics Units in their organizations. Forest Survey of India and Central Pollution Control Board have submitted proposals to establish Statistical Units in their organizations and to augment manpower and equipments for effective compilation, collation, analysis and dissemination of Statistical information. In other organizations separate Statistical Units are not

functioning and it is necessary to have appropriate Statistical Units in all the organizations under the Ministry.

Progress of Activities Undertaken

− Data gaps for Environment and Forests Statistics have been identified and it was proposed to conduct two nation wide surveys by National Sample Survey Organization (NSSO) one in regard to estimation of generation of income and employment from animal grazing, collection of fuelwood and other non-timber forest products, fodder from forests and common proper resources and another in survey on state of awareness among the population about use of natural resources and concern for pollution, conservation of natural resources. Though the NSSO expressed their inability to take up these surveys due to their survey programme but recommended that these surveys would be useful and may be conducted by the Ministry with their own resources.

− Schemes are therefore being formulated to conduct the surveys and to strengthen Statistical Cell in the Ministry with manpower and equipments to collect primary and secondary data, compile, analyse and disseminate desired statistical information related to the Ministry.