

# Environment and Forests

14.1 The Tenth Plan had recognized that environmental sustainability “is not an option but an imperative”. Clean air, pure water, conservation of forests and wild life and generation of greenery are the essentials for a healthy environment. Prevention of degradation of land, controlling floods and droughts, preventing desertification, conservation of fragile eco-system, prevention of deforestation, conserving bio-diversity and mitigating water and air pollution all present challenges for planners and policy makers.

14.2 The Tenth plan, while emphasizing the need for balanced and sustainable economic development along with sustainability of the environment for healthy living, also established the following quantitative targets for the Environment and Forest sector:

- Increase in forest and tree cover to 25 per cent by 2007 and 33 per cent by 2012 as against the baseline cover of 23.03 per cent in 2001.
- Cleaning of major polluted rivers by 2007 and other notified stretches by 2012.

14.3 However, in spite of 1.1 million hectares (ha) being covered under afforestation programmes annually, the total forest cover remains inadequate, which is largely on account of inadequate resources made available.

14.4 Though the National River Conservation Programme has covered 157 towns along the polluted stretches of 31 rivers in 18 States, 1234 million litres per day (MLD) of sewage treatment capacity had been created till October 2004 and the figure is likely to increase to 1588 MLD by the end of the Tenth Plan, which will be 30 per cent of the required 5331 MLD. The water quality in most of the rivers has reasonably improved. The Biological

Oxygen Demand (BOD), a cardinal measure of presence of sewage in water, is within the prescribed standard at most major cities along the Ganges. However, the water quality of Yamuna at Delhi remains well below the standard, and given the large increase in the population of Delhi and other cities along the river, significant additional resources are needed to address this problem.

14.5 Air and Water quality monitoring programmes are confined to a limited number of towns and cities mainly on account of limited resources. The results invariably show higher level of suspended particulate matter in the air than standard norms, which again is largely attributed to the natural dust augmented by fly ash from the thermal power plants and other industrial emission. The level of sulphur dioxide has stabilized well within limit and nitrogen dioxide level in major metro areas is now within the standards. Efforts for conservation of mangroves, coral reefs, bio-diversity etc. need to be intensified. Enhanced efforts also need to be made for development of lakes and wetlands.

## PROGRESS IN TENTH PLAN

14.6 The Tenth Plan outlay for programmes related to environmental concerns, forestry development, wild life protection, river and lake conservation and animal welfare was Rs.5,945 crores. Of this, Rs.1,200 crore was earmarked for the environment sector, Rs.2,100 crore for forestry and eco-development, Rs.800 crore for wildlife protection and Rs.1,670 crore for river and lake conservation, and Rs.175 crore for animal welfare

14.7 Table 14.1 provides Central Sector scheme-wise data on Ninth Plan realization and outlays and expenditure at 2001-02 prices, incurred in the first three years of Tenth Plan.

The expenditure during the first two years (2002-03 and 2003-04) was Rs.1,746.57 crore and the revised estimates for 2004-05 put expenditure at Rs.925.93 crore. Thus, it is expected that 45 per cent of the outlay would be utilized during the first three years if the current year's outlay is fully utilized, leaving a balance of 55 per cent of outlay to be utilized in the remaining two years. This represents 91.2 per cent of the BEs for the first three years. The financial performance was, therefore, below expectation in relation to BEs. A comparative picture of State-level outlays and expenditure for the Ninth Plan and Tenth Plan at 2001-02 prices is given in **Annexure 14.1 and 14.2.**

#### AIR AND WATER

14.8 The Central Pollution Control Board (CPCB) has been monitoring the quality of water in rivers and lakes and in the coastal belts in 870 locations. A total of 86 polluted stretches have been identified and action plans for improving the water quality are being prepared. The ambient air quality, including significant parameters like benzene and poly

aromatic hydrocarbons has been measured at 315 locations in 113 cities/towns. The level of suspended particulate matter (SPM) has been found to be high in most of the metro-cities as well as in some Class-I cities. The annual average value of SPM ranges between 200 mg/m<sup>3</sup> and 600 mg/m<sup>3</sup> as against standard norms of 360 mg./m<sup>3</sup>. Particular attention needs to be given to 72 non-attainment cities, which are perpetually above standard norms. However, interventions for SPM are difficult for India, on account of high levels of suspended natural dust. Other parameters like levels of sulphur dioxide, nitrogen dioxide etc. have stabilized within the norms in all metro areas. Sanitation status reports on Class-I and II towns have been prepared and it was found that only 38 per cent of the sewage water is treated while the remaining is discharged without any treatment. Additional resources are necessary to cover the balance and the likely increase on account of increase in urban population along the rivers.

14.9 The CPCB also prepares action plans for pollution control, which is implemented by the State Pollution Control Boards

**Table 14.1**  
Expenditure in Ninth and Tenth Five Year Plans (Central Sector)  
(in Rs Crore at 2001-02 prices)

Sector	Ninth Plan		Tenth Plan Outlay (2002-07)	2002-03 Actual	2003-04 Actual	2004-05 RE	2005-06 BE	Total of four years in Tenth Plan	per- centage of Col. (9) to Col. (4)
	Outlay	Realisation							
1	2	3	4	5	6	7	8	9	10
F and WL	1089.82	924.29	1600.00	235.57	179.98	238.96	218.90	873.42	54.59
NAEB*	686.54	496.13	1300.00	180.59	182.52	236.02	269.46	868.59	66.81
Animal Welfare	20.00	4.01	175.00	14.04	11.12	12.35	15.96	53.47	30.55
NRCD#	989.60	783.46	1670.00	285.04	228.54	280.32	356.93	1150.83	68.91
Environment	1103.37	677.59	1200.00	198.96	143.32	158.28	175.87	676.43	56.37
Lumpsum for North East		60.00			86.89			86.89	
<b>Total</b>	<b>3889.33</b>	<b>2945.48</b>	<b>5945.00</b>	<b>914.20</b>	<b>832.37</b>	<b>925.93</b>	<b>1037.13</b>	<b>3709.63</b>	<b>62.40</b>

\*National Afforestation and Eco-development Board.

#National River Conservation Directorate

(SPCBs). Some State Boards are quite competent and active while others need to be activated and strengthened. The CPCB should also undertake following activities on priority basis:

- Setting up of facilities for auto monitoring of air qualities in cities and towns with population of one million and above during the next 2-3 years.
- Bio-monitoring/bio mapping of rivers.
- Enzymatic removal of traces of aromatic compounds from drinking water
- Inspections of Gen-sets manufacturing facilities.
- Efficiency tests of auto-claves for treating bio-medical waste by spore testing.
- Evolving microbiological standards for sewage treatment Plants.
- Formulation of strategy for management of e-wastes and waste-batteries.
- Developing models of Eco-cities.
- Developing models of de-centralized cost-effective sewage treatment facilities for smaller communities.
- Implementation of Plastic Waste Rules.
- Performance evaluation of Common Effluent Treatment Plants (CETPs).
- Setting up of facilities for monitoring of asbestos fibres.

#### ENVIRONMENTAL CLEARANCE

14.10 The process of environmental clearance of various development projects frequently takes a long time due to process deficiencies and inadequate due diligence by project proponents; leading to time and cost over-runs. The revision of the existing Environmental Clearance Process by the Ministry of Environment and Forests in consultation with stake-holders including States is at an advanced stage.

#### NATIONAL ENVIRONMENT POLICY

14.11 Similarly, formulation of a new National Environment Policy is also in an

advanced stage, after consultation with all stake-holders including the private sector, non-government organizations (NGOs) and educational institutions.

#### COASTAL REGULATION ZONE

14.12 Action on the report of the Committee under Dr. M.S. Swaminathan to review Coastal Regulation Zone Notification 1991, submitted in February 2005, should be finalized at the earliest.

#### BIO-MEDICAL WASTE MANAGEMENT

14.13 The Bio-medical Waste (Management and Handling) Rules, 1998, were amended in 2003 to further streamline the management of bio-medical waste, but their implementation needs to be made effective.

#### ECO-CLUB

14.14 The environmental education and awareness programme should be expanded throughout the country, with special attention to rural areas. The coverage of rural schools coverage under the Eco-club programme should be expanded.

#### KYOTO PROTOCOL

14.15 Following its ratification by Russia, the Kyoto Protocol has come into force from 16 February 2005. Although, the Designated National Authority (DNA) for the host country's endorsement of proposals seeking benefits under the Clean Development Mechanism (CDM) has been established and a National Action Plan for operationalising CDM in India has been put in place, wide publicity needs to be given to these facilities so that industry can avail trading opportunities. Since this is a new concept and the procedure for availing of the CDM benefit rather complicated, the beneficiaries and the supporting mechanism (NGOs, banks and financial institutions, insurance agencies, civil societies, etc.) need to know the mechanism to be followed for project identification and formulation, baseline definition, quantification of emission reductions, international marketing, etc. A series of CDM capacity Building Workshops, involving the

stakeholders, should be organized at national, regional and State levels in association with industry associations and NGOs. All necessary steps must be taken to attract CDM benefit from the countries with obligation to reduce emissions to or below 1990 levels.

#### TAJ PROTECTION MISSION

14.16 Under the orders dated 4-9-1996 of the Supreme Court of India in writ petition (civil) 13381/84, Planning Commission has agreed to

share equally, with the Government of Uttar Pradesh the estimated cost of RS. 600 crores for various schemes relating to the protection of the Taj Mahal. The Government of India released Rs.130 crore during the Ninth Plan and a provision for the balance of Rs.170 crore was made for the Tenth Plan.

14.17 According to information available with Planning Commission, various works involving a total cost of Rs.220.21 crore were undertaken in the first phase of the project.

#### Box 14.1 Kyoto Protocol

The challenge of climate change is a global one. The Government of India has demonstrated its continuing commitments to global efforts to address the issue of climate change by acceding to the Kyoto protocol of the United Nations Framework Convention on Climate Change (UNFCCC).

Although the countries of the developing world are more vulnerable to climate change, their contribution to the green house problem has been relatively smaller than that of the developed ones. Historically, developed countries have been responsible for more than 60 per cent of green house gases (GHGs) added in the last 100 years. According to UNFCCC, since the largest share of historical and current global emission of GHGs has originated in developed countries, they are required to take the lead combating these emissions, which are also the main causes of global warming.

Under UNFCCC and its Kyoto protocol, several innovative mechanisms are available for enabling countries to meet their targets of GHGs emission in the first commitment period 2008-2012 at lowest cost. These mechanisms are market based and called “cooperative implementation mechanism”.

One of these mechanisms is known as Clean Development Mechanism (CDM) in which the government or a company in one of the developed nations with a GHG reduction target can invest in a project developed by an entity in a developing country. “Unilateral CDM” project by which an entity in a developing country may also invest in a CDM Project and sell the CER are also entitled to the CDM mechanism. The investors receive certified emission reduction (CERs) verified by an independent operational entity. The CERs can be credited towards the investor’s target. The developing nations called “Host Countries (HC)” have to set up a process of approval of these projects. The Host Country’s approval ensures that the project meets sustainable development criteria decided by the government of that country.

India is emerging as a leader among developing nations in adopting climate change measures. A portfolio of 71 projects with a projected investment of Rs.6000 crore has been endorsed for the consideration of the Multi-lateral Executive Board. Potential benefit from carbon trading is likely to progressively increase as the first commitment period comes nearer. Although there are many initial bottlenecks in bringing CDM effectively in the developing world, such as the complexity and ambiguity regarding the baseline of the CDM projects, additionality criteria for qualifying CDM benefits, the present low price of CERs and higher transactions cost in obtaining Executive Boards’s approval etc., these are expected to improve as the market progressively settles.

These related to improvement in electric supply at Agra, and in the surrounding rural areas including Fatehpur Sikri, water supply, construction of a barrage, solid waste management, storm water drainage system, construction of a bye-pass and improvement of master plan of roads at Agra city etc. The second phase, comprising of six projects at an estimated cost of Rs.220.10 crore, was also approved by Expenditure Finance Committee (EFC) in 2001. However, this was subsequently modified in a review meeting and the cost reduced to Rs.90.23 crore.

14.18 The Planning Commission wanted the impact of the implementation of these two phases to be evaluated before the third phase - comprising seven projects at a cost of Rs.240.78 crore - is taken up. However, no such evaluation has been conducted so far and the implementation of the third phase of the project was initiated by the state Govt. without the necessary approval of the Government of India, which has not released the necessary funds.

#### CENTRE FOR EXCELLENCE

14.19 In order to strengthen awareness, research and training in the priorities areas of environmental science and management, a Centre for Excellence scheme was started in 1983. So far, 9 Centres for Excellence have been set up/supported in various areas of environmental science and management. Some of them are: the Centre for Environment Education (CEE), Ahmedabad, CPR Environmental Education Center, Chennai, Salim Ali Center for Ornithology and Natural History, Coimbatore, Centre for Ecological Sciences at Indian Institute of Science, Bangalore. Since the Centres for Excellence supported by Ministry of Environment & Forests are fairly well established and self sustained, any further support to such centers should be programme based.

#### HAZARDOUS WASTE MANAGEMENT

14.20 A total of 13,011 units spread over 373 districts are generating close to 4.4 million tonnes of hazardous wastes. Maharashtra, Gujarat and Tamil Nadu account for over 63 per cent of the

total hazardous wastes generated in the country. According to Hazardous Wastes (Management and Handling) Rules, 1989/2000 and 2003, all hazardous wastes are required to be treated and disposed off in the manner prescribed. In the absence of common disposal facilities in the country, small scale units generating hazardous waste have been granted permission to store their wastes temporarily in a secure, lined pit/facility within their premises. It was decided to focus on setting up of 15 common TSDFs (Treatment, Storage and Disposal Facilities) in the Tenth Plan period for the safe management of industrial hazardous waste. Five TSDFs have already been commissioned and are working satisfactorily. Four more are in an advanced stage of commissioning in West Bengal, Karnataka, Haryana and Punjab.

#### GANGA ACTION PLAN

14.21 The cleaning of the Ganga river, which started about 20 years ago, remains an unfinished task. Under the Ganga Action Plan Phase-I, pollution abatement works were taken up in 1985 in 25 Class-I towns in Uttar Pradesh, Bihar and West Bengal and sewage treatment capacity of 865 MLD was created. Though this phase has been declared complete on 31<sup>st</sup> March, 2000 at a total cost of Rs.451.70 crore, only about 35 per cent of the pollution load of the river Ganga has been tackled. Nevertheless, the BOD levels at major cities located on the Ganga are within the standard.

14.22 The Ganga Action Plan Phase-II, approved in 1993 for pollution abatement in Ganga's tributaries (Yamuna, Damodar and Gomti), was merged with National River Conservation Plan (NRCP) in 1996 and it covers pollution abatement works in 95 towns located along the River Ganga and its tributaries in seven States. It is estimated that another 30 per cent of the pollution load of Ganga would be covered on completion of on-going works under the NRCP. However, there will still be a gap of nearly 35 per cent of the pollution load to be addressed in future.

14.23 Though fairly large capacity has been created under the Ganga Action Plan/NRCP for sewage treatment, there are no precise

estimates on the capacity being operated satisfactorily. Taking a proper inventory of the assets created under various River Action Plans and ascertaining the state of their operation is essential. An independent evaluation would be useful for such stock taking. The latest MIS report of November 2004 indicates a reasonable improvement in quality of Ganga water.

#### POLLUTION IN RIVER YAMUNA

14.24 Pollution in the Yamuna is a matter of grave concern. The 22 km stretch in Delhi, between Wazirabad and Okhla, is critically polluted. The average Bio-chemical Oxygen Demand (BOD) of the river is about 25 mg per litre as against the desirable standard of maximum 3 mg per litre. The Dissolved Oxygen (DO) in the stretch is generally 'Nil' as against the minimum of 5 mg per litre. Generation of waste water in Delhi is presently about 3,300 MLD while even the planned treatment capacity is 2,335 MLD. The Sewage treatment Plants (STPs) in Delhi cannot handle the entire discharge load and even the capacity created is not fully utilized. The Nazafgarh drain is responsible for nearly 70 per cent of the pollution load, but adequate tapping facilities have not been created along it and a substantial part of the sewage is discharged untreated. The increased load of sewerage discharge in the Yamuna is causing serious concern as the water is below the required quality at Delhi and to some extent beyond Agra. Adequate treatment capacity needs to be created and utilization of the full capacity must be ensured to cleanse the River. Additional funds are needed to create additional sewage treatment capacity both for the current shortfall and for projected increase in urban population.

#### PHYSICAL PROGRESS OF NRCP AND NLCP

14.25 Close to 421 MLD of sewage treatment plant capacities have been created in 2002-03 and 2003-04 under the NRCP. Three major river cleaning projects have been sanctioned in 2003-04: Gomti River in Uttar Pradesh costing Rs.263.04 crore; Musi River at Hyderabad costing Rs.344.08 crore; and Pamba River in Kerala costing Rs.18.44 crore. The Externally

Aided Project (EAP) of the Yamuna River Action Plan-II with Rs.624 crore assistance from the Japan Bank of International Cooperation (JBIC) was also approved. The Indian Institute of Technology (IIT), Roorkee completed a review of additional proposals for inclusion in National River Conservation Plan (NRCP) for Tenth and Eleventh Plans.

14.26 Many States are not able to provide funds for Operation and Maintenance (O&M) costs for sewage treatment plants and CETPs created under the NRCP. Shortage of power to run these plants is another constraint. Under the circumstances, innovative methods like treating domestic/industrial waste first with micro-organisms to tackle the pollution problem at source followed by conventional treatment in sewage treatment plants/CETPs could be considered to reduce power consumption. Simultaneously, state government should ensure timely payment of electricity bills to avoid disconnection of power supply

14.27 Rejuvenation works of three lakes out of 23 proposals approved have been completed under National Lake Conservation Plan (NLCP). Five conservation projects for Nainital and other lakes in Uttaraanchal costing Rs.65 cr. were approved. Planning Commission granted 'in principle' approval for the Dal Lake conservation project in Jammu and Kashmir at a Cost of Rs.237 crore in July 2004. The Ministry of Environment and Forests accorded Expenditure Finance Committee (EFC) approval on 2<sup>nd</sup> March, 2005. Further steps should be taken to expedite the process of implementation.

14.28 The process of approval for both river conservation and lake conservation programmes is slow partly because State Governments take a long time to prepare detailed project reports and other documents and partly because of lack of priorities to be worked out by the participating States. Water Quality Assessment Authority (WQAA), a joint body of the MOEF, and the Ministry of Water Resources has now institutionalized the process of project identification and prioritization by the States. This process needs to be expedited both for NRCP and NLCP.

### **PUBLIC PRIVATE PARTNERSHIP (PPP)**

14.29 The state government must ensure efficient operation and maintenance of such assets to make them effective. Public Private Partnership (PPP) efforts could be considered to bring improvements in the scheme. While the government will make the investment in creating assets, the responsibility for operation and maintenance could be entrusted to private agencies. The necessary revenue could either be generated with appropriate user charges levied on the households in the command area or leasing out vacant land for conversion into Public Park. Improving the finances of the urban local bodies (ULBs) through collection of appropriate user charges and other measures is essential for the sustainability of the programme. This may call for greater coordination between the municipal bodies and the environmental departments of the state government. The Ministry of Environment & Forests should coordinate with Ministry of Urban Development and a proper policy framework should be put in place. It may be necessary to link the Central assistance to a reforms platform meant for improving urban governance.

### **RIVER WATER QUALITY**

14.30 River water quality parameters like BOD, DO, total coliform, faecal coliform etc. should be monitored for all the rivers covered under the NRCP and regular assessment made on whether river water quality is getting restored to Bathing Class standards as prescribed for projects under the programme. Currently, the monitoring is being done at a few places along major rivers. Although some improvement in water quality has been achieved, the results are not up to the required standards, primarily due to increased sewage inflow. Installation of effluent treatment plants and Water quality monitoring need to be stepped up at all the major habitations along the rivers covered under the NRCP.

14.31 Harvesting of rainwater, de-silting existing ponds and other initiatives have been suggested to improve the availability of drinking water. Successful implementation and operation

of projects on cleaning of rivers, lakes and other water bodies would go a long way in providing clean sources of drinking water.

### **WETLANDS**

14.32 A large number of wetlands can provide livelihood to millions of people residing in the periphery. An Effective action plan needs to be worked out both for conservation of such wetlands and their use for livelihood programme.

### **BIO-DIVERSITY ACT**

14.33 Under the Biological Diversity Act, 2002, a National Biodiversity Authority at Chennai and respective State Biodiversity Boards at State capitals have been established. Now it is time to ensure effective implementation of the act; which restricts the transfer of biological resources or of traditional knowledge without the permission of the Authority. In additional, Biodiversity heritage sites are protected under the Act. The Constitution of Biodiversity Management Committees at the local level needs to be completed at the earliest and care should be taken to establish Biodiversity Funds at all levels; which would support the activities of Biodiversity Management Committees.

### **FORESTRY**

14.34 The combined outlay of the Centre and States in forestry and wildlife for the Tenth Plan is Rs.14,344.34 crore. These resources need to be judiciously used to maximize to increase in forest & tree cover. Programmes are initiated to launch a national mission on Bamboo Technology and Trade Development, a national mission on Bio-diesel and introduction of community forest development by Panchayati Raj Institutions. Problems of gregarious flowering of Muli Bamboo will be addressed and peoples' involovement ensured for greening areas and rationalising forest laws. Urban development Planning has to have inbuilt greening programme and forest development plan will be integrated with tribal development Projects for ensuring development of fringe villages.

**Table 14.2**  
**Forest cover Estimates from 1987**

Year of SFR*	Data Period	Forest/tree cover (sq. km)	per cent of geographical area**	Dense forest (per cent)
1987	81-83	6,40,819	19.49	59.06
1989	85-87	6,38,804	19.43	60.27
1991	87-89	6,39,364	19.45	60.31
1993	89-91	6,39,386	19.45	60.30
1995	91-93	6,38,879	19.43	60.27
1997	93-95	6,33,397	19.27	57.98
1999	96-98	6,37,293	19.39	59.21
2001				
Forest	98-2000	6,75,538	20.55	61.70
Tree cover@	2000-01	81,472	02.48	
Total 2001		7,57,010	23.03	

\*SFR State of Forest Report.

\*\* Geographical area (32,87,263 sq km); @ Assessment attempted for the first time.

## STATE OF FORESTS REPORT

14.35 The Forest Survey of India (FSI) undertakes the assessment of forest cover based on digital interpretation of satellite imageries and ground verification on a two-year cycle. The State of Forests Report of 2001 was published in early 2003 and indicated a forest/tree cover of 23.03 per cent. Estimates of the forest/ tree cover of the country since 1987 are as follows:

14.36 The difference between the forest cover of 1999 and 2001 appears to be the result of the application of more advanced technology (fully digital analysis and at higher scale) in the assessment of forest cover. A comparable assessment of change in forest cover since 2001 has not been possible as the *State of Forest Report (SFR) 2003*, which was expected by December 2004 - two years after *State of Forest Report 2001*, is still being processed. However, a preliminary estimate of *State of Forest Report 2003* provided by the Ministry of Environment & Forests suggests the forest and tree cover to have marginally increased to 23.68 per cent. At this rate it will not be possible to achieve the

target of 25 per cent forest cover by 2007 and 33 per cent by 2012.

## JOINT FOREST MANAGEMENT (JFM)

14.37 Joint Forest Management (JFM) strategy for management of forests with participation of communities was started in 1990. It involves empowering communities to plan and implement forest protection and conservation programmes. Sharing of benefits is the basis of participation and mechanisms differ from State to State. Participation of women and poorer sections of society has to be ensured. Andhra Pradesh, Madhya Pradesh and Chhatisgarh have been able to demonstrate benefits of sharing forest resources through empowerment of communities.

14.38 Joint Forest Management (JFM) is one of the thrust areas of the Tenth Plan and communities in all the 1.73 lakh villages situated near forests were to be involved in managing them. Twenty-eight States have adopted JFM so far. Till January 2004, 17.33 million ha forest area had been brought under 84,632 JFM committees.



14.39 It will not be possible to meet the target of 33 per cent forest cover by 2012 unless the Ministry of Environment & Forests streamlines the procedure to bring all forest fringe villages under the ambit of the JFM scheme. Ministry of Environment & Forests provides assistance for afforestation activities through JFM under the centrally sponsored scheme, National Afforestation Programme (NAP), which includes formation of new JFMCs as one of its components. However, this strategy is not adopted in some other afforestation programmes of the states. JFM needs to be adopted for all afforestation programmes in addition to the NAP. Community participation in afforestation with right on the produce will help increasing forest cover and generating income for the participants. The design of the programme may be reviewed to ensure democratic participation of the communities, proper linkage with PRIs and to generate a sense of responsible ownership among the communities over the forest resources.

#### **NON-TIMBER FOREST PRODUCE (NTFP) INCLUDING MEDICINAL PLANTS**

14.40 Non-timber forest produce (NTFP) has emerged as a potentially significant source of income of the tribal people. Under the 73rd amendment of the Constitution, NTFP has been allocated to the PRIs. Sustainable management of this resource, with the development of value addition chains, will improve the income of the PRIs as well as that of the primary collectors. Medicinal plants constitute an important component of NTFP. Use of medicinal value of wild plants caters to the rural health needs of most of the forest dwellers. While the Department of AYUSH in the Ministry of Health and Family Welfare deals with the cultivation and propagation of medicinal plants in modern medicines, conservation of wild resources for ensuring availability of seed stock/mother tissues for nurseries and harvesting of available wild material on a sustainable basis should be the primary concern of forest management.

#### **TRIBALS AND FOREST VILLAGES**

14.41 Ministry of Environment & Forests has issued guidelines for converting the forest villages into revenue villages. It is important to ensure that, along with this, specific development programmes are undertaken for economic upliftment of the tribals and other people living in forest villages. Such plans should be treated as an activity ancillary to the forest management and allocation should be made accordingly.

#### **WILDLIFE AND BIODIVERSITY CONSERVATION**

14.42 Development of Sanctuaries and National Parks, is a Centrally Sponsored Scheme under which Central assistance is provided to 269 out of 592 protected areas.

14.43 However, delay in preparation of management plans has impeded the progress of the scheme. Only 207 protected areas are reported to have approved management plans. There has not been much success in relocation of habitations from the protected areas. Issues like religious events, traditional rights and practices, man-animal conflict, among other things, need to be addressed while preparing the management plans.

14.44 Considering that Central assistance is limited, an evaluation of its impact on habitat development needs to be done before it is continued. The grants for development works should be given for new protected areas, linking them to the formulation of management plans.

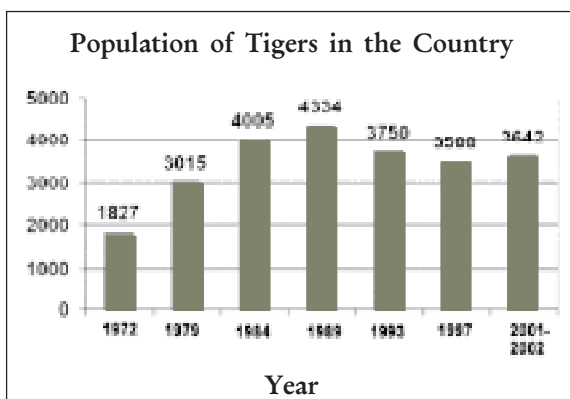
14.45 The livelihood concerns has led to diversion of release of water from Panchana Dam creating serious problem for the Keoladev National Park in Bharatpur. This has consequently reduced the sanctuaries main tourist attraction.

14.46 The National Board for Wildlife in its meeting held on 17<sup>th</sup> March 2005 has decided to constitute a Task Force on trans-boundary Protected Areas for identification of ecosystems along the international borders. The task force will comprise representatives of the concerned

state governments and reputed international NGOs with whom collaboration is envisaged.

14.47 The Board also decided on an action plan for protection of Gyps vulture by phasing out of the veterinary medicine, diclofenac, believed to be the principal cause of large scale mortality of Indian vultures, within next six months on a priority basis. It also decided to continue with the present ban on the export of captive bred exotic birds.

14.48 **Project Tiger:** Project Tiger is a Centrally Sponsored Scheme launched in 1973. At present there are 28 tiger reserves in the country covering an area of 37,761 sq. km. Project Tiger was expected to address the problem of extinction of the tiger. The population of tigers in the country, including those in the reserves, is estimated to have increased to 3,642 in 2001-02 from 1,827 in 1973. However, recent controversies about non-sighting of the animals in sanctuaries like Sariska and Ranthambore have raised widespread concerns. The matter was discussed at the meeting of the National Board for Wildlife on 17<sup>th</sup> March 2005 and it was decided to constitute a task force to review the management of tiger reserves and submit a report within three months. Close monitoring of the status of tiger population must be made a concurrent activity in protected areas. The precise status of wildlife populations needs to be established and the monitoring system strengthened.



## RESEARCH AND EDUCATION

14.49 **Indian Council of Forestry Research and Education :** The Indian Council of Forestry Research and Education (ICFRE), with

its network of eight National Institutes and three advanced centers, caters to the forestry research needs of the country's different eco-climatic zones. The Council has established planting stock improvement programmes all over the country in close co-operation with State Governments. Other thrust areas are the utilization of forest produce, development of appropriate agro-forestry systems and their extension. As the forestry research program predominantly caters to the Government sector, budgetary support to ICFRE may have to be continued. However, the Institution should generate resources through consultancy and other technical services and progressively reduce its dependence on Government grants.

14.50 **Indian Plywood Industries Research And Training Institute (IPIRTI):** The Indian Plywood Industries Research and Training Institute (IPIRTI) has taken up applied research and training for manufacture of plywood, panels and other engineered/reconstituted products from ligno-cellulosic materials. It has established a bamboo development cell for popularizing bamboo as a raw material for wood products. The Institute needs to concentrate on developing processes and technology, preferably in association with industry, and disseminate the know-how among prospective entrepreneurs. It must take pro-active initiatives for transferring technology from the laboratory to commercial level and assist the industry in popularizing the products using new technologies.

14.51 **State Forest Service Colleges and Rangers' Training Institutes:** Educational Institutes like the State Forest Service Colleges and Rangers' Training Institutes are under-utilized due to progressive reduction in the intake of forestry personnel in the States. These institutions should be utilized for in-service refresher training programme of forestry personnel as well as for running courses for the private sector.

## RESOURCE ASSESSMENT AND INFORMATION BASE

14.52 The FSI's biennial forest cover assessments are based mainly on digital interpretation of satellite imageries. The report

Table-14.3  
Revised Outlays - Tenth Plan

(in Rs. Crore)

Sub-Sector	Original Tenth Plan Outlay	Revised Tenth Plan Outlay (Recommended)	
		At current price	At 2001-2002 Prices
Environment	1200.00	1120.24	987.87
Nrcd	1670.00	2123.00	1872.13
Forestry	800.00	1390.00	1225.75
Wildlife	800.00	760.48	670.62
Naeb	1300.00	1400.00	1234.57
Animal Welfare	175.00	100.00	88.18
<b>Grand Total</b>	<b>5945.00</b>	<b>6893.72</b>	<b>6079.12</b>

presents forest cover data for dense and open forests up to district level. A national database on the forestry sector needs to be created with a national forest management information system integrated with those of the States to ensure effective monitoring of the programme with universal access for all stakeholders.

#### ANIMAL WELFARE

14.53 The animal welfare scheme was transferred to Ministry of Environment & Forests from the Ministry of Statistics and Programme Implementation in the Tenth Plan period, with an outlay of Rs.175 crore. The schemes relating to the control of the population of stray animals, ambulance services to animals in distress, relief of animals during natural calamities and shelter houses for the animals are implemented in association with state level animal welfare societies and NGOs. A scheme for relocation of monkeys from urban areas was mooted in 2002-03, which has not been implemented yet by the concerned local bodies. The National Institute of Animal Welfare in Balabhgarh, Haryana needs to be made functional. The allocation for animal welfare programmes has been revised downwards from Rs.175 crore to Rs.100 crore due to reduced requirements from the State agencies and NGOs and downward revision in cost estimates of buildings for the NIAW.

#### REVISED ALLOCATIONS

14.54 Allocation for various programmes were revised or recommended for revision during the Tenth Plan. A revised outlay of Rs.1,825 crore has been recommended for NRCP against the original Tenth Plan outlay of Rs.1,417 crore in order to accommodate new projects such as Yamuna Action Plan-II, Gomti Action Plan, Musi River Project, to name a few, which were not envisaged when the Plan was formulated. A step-up of Rs.45 crore over the Tenth Plan outlay of Rs.220 crore for the NLCP has been recommended in order to provide for 100 per cent Government of India funding for Dal lake project.

14.55 In the forestry sector, a step-up has been provided for the National Afforestation Programme (NAP), the Directorate of Forestry Education and Project Elephant. A provision of Rs.85 crore has been recommended for a new scheme for Management of Gregarious Flowering of Bamboo. Adequate provision has also been recommended for another new scheme for afforestation through PRIs, suggested in the National Common Minimum Programme. Sector-wise details of Tenth Plan outlays and revised outlays recommended are given in Table 14.3.

## THE WAY FORWARD

- Conduct a series of CDM capacity Building Workshops at national, regional and State levels for popularizing the mechanism among stakeholders.
- Take an inventory of the assets created under various river action plans and their operational status.
- Link the Central assistance under the scheme to a reforms driven program for improving urban governance for efficient operation of treatment facilities created.
- Motivate the states to adopt JFM for all afforestation programmes in addition to the CSS National Afforestation Programme.
- Encourage sustainable management of Non Timber Forest Produce (NTFP) resources for improving the income of the primary collectors by development of value addition chains .
- Ensure that, apart from converting the forest villages into revenue villages, specific development programmes are undertaken for economic upliftment of the tribals and other people living in forest villages
- Undertake an evaluation of the impact of the central assistance provided regularly to the sanctuaries for development of habitats and link it with management plans preparation.
- Make close monitoring of the status of tiger population and habitats a concurrent activity in project tiger areas.
- Establish a national database on the forestry sector linking with the States for effective monitoring of the forestry related programmes
- Make the proposed National Institute of Animal Welfare in Balabgarh, Haryana, fully functional.
  - Following steps are proposed to trigger increase in the tree cover by establishing linkage of tree growing with the livelihood and economic growth in the country.
- **National Mission on Bamboo Technology and Trade Development:** Bamboo plays an important role in the rural economy. The National Mission on Bamboo Technology and Trade Development should be implemented for value added high volume products, which will benefit income generation in the rural base and substitute wood products. The programme should facilitate setting up of primary and secondary processing units for value addition of bamboo through adoption of appropriate technology.
- **National Bio-Diesel Mission:** Production of bio-diesel from non-edible oil can help in reclaiming large areas of waste land, create rural employment opportunities, substitute imported petroleum diesel and create greeneries entitled for carbon trading under Kyoto protocol. Efforts should be made for early implementation of the National Mission on Bio-diesel mooted by Planning Commission and expand the same to cover 20per cent of the diesel requirement of the country.
- **Afforestation through Panchayats:** To achieve the target of 33per cent coverage by 2012, greening of 28.87 million hectares area outside govt. forests, public lands, private lands, community lands and farmlands need to be targeted. In this context, it is proposed to revive the Social Forestry movement for development of common property resources at the village level. It is proposed to take up afforestation of 50 ha in each of the 2,34,676 village Panchayats in 31 States and UTs in addition to the traditional councils of Meghalaya, through social forestry wings of the States. A suitable project will be developed and launched involving resources for employment generation and development of land

resources. An outlay of Rs.500 crore is proposed for the remaining period of the tenth five-year Plan. Pending the introduction of a programme adequately backed by a Policy, no financial outlay has been earmarked for the year 2005-06.

- **Gregarious flowering of Muli Bamboo in North East:** The Ministry of Environment & Forests has proposed an action Plan of Rs.105 crore to deal with the problem of gregarious flowering of Muli Bamboo in the North East which is likely to occur shortly. The amount is to be utilized for extraction of bamboo before flowering, regeneration of flowered areas, rodent control and arrangements for strengthening Public Distribution System in view of expected rodent menace. Considering that the imminent decay of flowered bamboo has its impact in the forest areas, the action plan should be implemented in the forestry sector. Therefore, an additional allocation of Rs.84.8 crore has been made for the activities envisaged in the Action Plan during the Tenth Plan period.
- Create an enabling environment for people's involvement in growing trees. The following problems need to be addressed in this context:
  - Ensure that the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) is operationalised and that the funds available for Compensatory Afforestation under Forest (Conservation) Act are put to effective use.
  - The general perception that afforestation done outside the government forest lands will be either taken over or subjected to management plans for its exploitation under Forest (Conservation) Act, needs to be dispelled as this discourages efforts to increase the area under afforestation.
  - Ministry of Environment & Forests has issued guidelines for rationalization of the forest species felling and transit rules. As the State governments are to take action in this regard, it is essential to sensitize them, especially those where social forestry has significant scope.
  - Promote short rotation crops and fast growing species for farm forestry and in non-forestry areas to help increase income generation of the farmers as these forest produce are in demand for industrial use. Government forestlands should be used for conservation oriented ecologically suitable species.
- Ensure that urban Development Planning has an inbuilt component of greening. Greening efforts in cities like New Delhi, Bangalore etc. are examples of environmental and aesthetic considerations integrated in landscape development.
- Integrated and harmonious forest development programmes could be taken up on the lines of the Integrated Tribal Development Projects in order to ensure rational development planning in villages in the vicinity of forests including protected areas.

## Annexure 14.1

## Ecology and Environment (in Rs Crore at 2001-02 prices)

Sl. No.	States / UTs	Ninth Plan (1997-2002)		Tenth Plan Outlay	2002-03 Actual	2003-04 RE	2004-05 BE	2005-06 BE	Total of 3 years in Tenth Plan	percentage of Col 10 to Col (5)
		Outlay	Realisation							
1	2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	3.45	10.29	6.20	0.00	0.01	0.00		0.01	0.19
2	Arunachal Pradesh	0.65	0.48	0.42	0.10	0.09	1.46		1.65	393.75
3	Assam	5.81	2.86	0.65	0.03	0.14	0.13		0.27	41.97
4	Bihar	6.45	0.17	0.00	0.00	0.00	0.00		0.00	0.00
5	Chhatisgarh	0.00	0.57	7.83	0.71	1.17	1.10		2.98	38.11
6	Goa	1.99	0.86	3.00	0.95	0.92	2.06		3.86	128.60
7	Gujarat	33.55	30.30	27.66	1.63	4.71	3.92		10.26	37.08
8	Haryana	7.25	5.86	2.83	0.43	0.67	0.66		1.76	62.20
9	Himachal Pradesh	1.41	1.71	0.50	0.48	0.22	0.04		0.73	146.16
10	J and K	37.72	19.04	36.19	0.00	0.00	1.55		1.55	4.28
11	Jharkhand	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
12	Karnataka	19.36	15.05	12.85	6.15	11.10	8.25		19.34	150.51
13	Kerala	96.79	31.00	0.00	0.00	0.00	0.00		6.15	0.00
14	Madhya Pradesh	259.19	254.83	51.12	5.00	34.35	32.53		66.88	130.83
15	Maharashtra	5.61	6.89	12.00	0.00	0.00	0.00		49.97	416.45
16	Manipur	2.32	3.41	4.95	0.72	0.93	1.59		3.24	65.50
17	Meghalaya	3.61	2.50	2.75	0.32	0.47	0.49		1.28	46.44
18	Mizoram	0.41	0.34	0.19	0.04	0.04	0.04		0.11	58.55
19	Nagaland	1.29	0.25	1.00	0.05	2.38	0.04		2.48	247.59
20	Orissa	76.41	58.23	20.30	14.51	2.39	0.11		17.02	83.83
21	Punjab	9.15	3.79	5.72	0.21	0.07	0.75		1.03	17.96
22	Rajasthan	26.80	11.81	4.64	0.01	0.11	0.11		0.23	5.05
23	Sikkim	3.87	1.64	5.00	0.28	0.33	0.26		0.87	17.44
24	Tamilnadu	64.52	16.00	113.05	0.49	0.72	0.73		1.94	1.72
25	Tripura	1.29	0.15	4.46	0.07	0.07	0.11		0.25	4.91
26	Uttar Pradesh	2637.50	826.85	2355.25	14.42	0.74	36.84		52.00	46.00
27	Uttranchal	0.00	0.48	59.02	0.01	4.67	4.41		9.09	15.40
28	West Bengal	63.34	79.93	16.88	18.26	0.48	2.21		20.95	124.11
	<b>Total (States)</b>	<b>3369.75</b>	<b>1385.29</b>	<b>2754.46</b>	<b>109.77</b>	<b>66.78</b>	<b>99.38</b>		<b>275.93</b>	<b>11.72</b>
29	A and N Islands	3.87	0.32		0.07	0.09	0.00		0.16	0.27
30	Chandigarh	0.88	6.64	2.70	0.23	0.41	0.85		1.48	8.79
31	D and N Haveli	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
32	Daman and Diu	0.00	0.10	0.00	0.00	0.00	0.00		0.00	0.00
33	Delhi	144.34	41.21	48.00	2.34	2.81	4.72		7.06	14.70
34	Lakshadweep	0.00	1.40	4.00	0.22	0.46	0.35		1.03	25.72
35	Pondicherry	1.29	1.75	1.76	0.38	0.41	0.40		1.18	66.99
	<b>Total (UTs)</b>	<b>150.39</b>	<b>51.42</b>	<b>56.46</b>	<b>3.22</b>	<b>4.18</b>	<b>6.31</b>		<b>13.72</b>	<b>28.58</b>
	<b>Total (States + UTs)</b>	<b>3520.14</b>	<b>1436.71</b>	<b>2810.92</b>	<b>113.00</b>	<b>70.96</b>	<b>105.69</b>		<b>289.65</b>	<b>10.30</b>

## Annexure 14.2

## Forestry and Wildlife (in Rs Crore at 2001-02 prices)

Sl. No.	States / UTs	Ninth Plan (1997-2002)		Tenth Plan Outlay	2002-03 Actual	2003-04 RE	2004-05 BE	2005-06 BE	Total of 3 years in Tenth Plan	percentage of Col 10 to Col (5)
		Outlay	Realisation							
1	2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	231.40	454.24	1237.79	57.84	219.26	264.91		542.01	43.79
2	Arunachal Pradesh	87.25	170.58	77.00	9.57	11.12	9.15		29.84	38.76
3	Assam	245.19	170.13	77.36	26.36	26.01	22.71		75.09	97.06
4	Bihar	347.72	61.39	45.14	5.15	5.38	12.91		23.44	51.92
5	Chhatisgarh	0.00	37.94	327.18	46.49	65.53	61.72		173.74	53.10
6	Goa	21.94	14.29	25.00	3.47	4.53	5.76		13.76	55.02
7	Gujarat	1036.26	919.40	936.34	89.37	158.91	131.92		380.21	40.61
8	Haryana	282.23	186.40	127.33	26.43	32.72	54.76		113.91	89.46
9	Himachal Pradesh	471.03	368.17	423.77	69.03	42.77	43.49		155.29	36.65
10	J and K	450.50	244.60	363.58	53.79	61.07	39.92		154.78	42.57
11	Jharkhand	0.00	82.00	462.77	67.24	84.13	94.37		245.74	53.10
12	Karnataka	451.67	518.89	733.96	84.16	104.53	79.07		267.77	36.48
13	Kerala	181.96	276.00	175.00	43.69	50.14	35.27		129.11	73.77
14	Madhya Pradesh	576.96	504.82	352.75	94.96	106.95	121.33		323.24	91.63
15	Maharashtra	631.82	415.66	682.79	12.42	36.50	0.00		48.91	7.16
16	Manipur	53.43	19.82	17.44	4.77	3.24	4.34		12.35	70.83
17	Meghalaya	129.69	42.00	52.50	5.44	5.14	14.09		24.68	47.00
18	Mizoram	52.34	29.52	28.46	5.74	5.94	6.79		18.47	64.89
19	Nagaland	65.81	20.98	22.50	2.55	2.04	2.46		7.06	31.36
20	Orissa	158.41	133.62	694.46	18.68	3.92	1.43		24.03	3.46
21	Punjab	314.57	342.02	280.75	41.66	77.57	69.08		188.30	67.07
22	Rajasthan	709.58	493.33	1153.20	4.13	14.49	83.99		102.61	8.90
23	Sikkim	51.62	26.70	35.00	6.60	5.28	6.13		18.01	51.47
24	Tamilnadu	774.29	630.47	1348.10	108.93	98.77	83.11		290.81	21.57
25	Tripura	35.27	31.61	48.35	7.47	7.88	6.28		21.63	44.73
26	Uttar Pradesh	838.82	634.77	1208.00	54.01	49.06	62.40		165.47	13.70
27	Uttranchal	0.00	105.73	206.93	82.33	0.69	43.37		126.39	61.08
28	West Bengal	221.72	196.10	164.43	10.01	6.97	17.12		34.10	20.74
	<b>Total (States)</b>	<b>8421.25</b>	<b>7131.18</b>	<b>11307.88</b>	<b>1042.29</b>	<b>1290.52</b>	<b>1377.90</b>		<b>3710.72</b>	<b>32.82</b>
29	A and N Island	78.72	51.62	72.43	10.19	10.28	9.70		30.17	41.66
30	Chandigarh	6.46	19.98	17.33	4.33	4.29	3.88		12.50	72.13
31	D and N Haveli	19.10	11.57	12.00	3.24	2.78	2.72		8.74	72.87
32	Daman and Diu	2.88	1.69	2.78	0.25	0.30	0.33		0.88	31.66
33	Delhi	45.17	29.62	26.00	37.73	3.04	3.70		44.47	171.03
34	Lakshadweep	0.00	1.03	0.92	0.19	0.19	0.22		0.60	65.04
35	Pondicherry	7.21	5.50	5.00	0.88	1.12	1.10		3.10	61.99
	<b>Total (UTs)</b>	<b>159.54</b>	<b>121.02</b>	<b>136.46</b>	<b>56.82</b>	<b>21.99</b>	<b>21.66</b>		<b>100.47</b>	<b>73.62</b>
	<b>Total (States + UTs)</b>	<b>8580.79</b>	<b>7252.20</b>	<b>11444.34</b>	<b>1099.11</b>	<b>1312.52</b>	<b>1399.56</b>		<b>3811.19</b>	<b>33.30</b>