4. Environment and Forests

Ecology and Environment

Environmental Conservation is the need of the hour. As an integral part of economic development, various environmental schemes with the main objectives of environmental conservation, abatement of pollution and the importance of sustainable development are being implemented.

Department of Environment

The Department of Environment was created in the year 1995 as the nodal Department for dealing with Environmental Management of the State. The Department is entrusted with the implementation of major projects like pollution abatement in Cauvery System, Pollution abatement in Chennai City waterways, National River Conservation Programme, National Lake Conservation Programme and all aspects of Environment other than those dealt with by Tamil Nadu Pollution Control Board. The Directorate started functioning in Chennai from March 1996.

Tamil Nadu Pollution Control Board

The Tamil Nadu Pollution Control Board (TNPCB) was constituted in pursuance of the Water (Prevention and Control of Pollution) Act, 1974 and started functioning from 27th February 1982. The objective of TNPCB is to control, prevent and abate pollution of streams, wells, land and atmosphere in the State to protect the environment from any degradation by effective monitoring and implementation of pollution control legislations.

The TNPCB is implementing the Pollution Control Legislations and Rules and Notifications framed therein. In discharging the duties entrusted to it, the Board investigates, collects and disseminates data relating to water, air and land pollution, lays down standards for sewage/ trade effluent and emissions. The field Officers of the Board periodically inspect every industry under their jurisdiction to assess the adequacy of treatment measures provided to treat the effluent and gaseous emissions. The TNPCB implements its programmes with its own resources.
The Ministry of Environment & Forests, Government of India has revised the air quality standards since 18.9.2009. In order to meet the requirement of monitoring capabilities due to the revised standards, the Board has approved the proposal to upgrade all its 13 Air Monitoring Laboratories by providing PM10 & PM2.5 samplers at a cost of Rs.2.53 crore.

The TNPCB is monitoring the Cauvery and its tributaries river water quality at 29 locations under Monitoring of Indian National Aquatic Resources (MINARS) programme and 4 locations under the Global Environmental Monitoring System (GEMS). Apart from this, under MINARS programme, the rivers Thamiraparani, Palar and Vaigai and lakes such as Udhagamandalam lake, Kodaikanal lake, Yercaud lake, Veeranam lake, Poondi lake, Red hills, Porur and Pulicat lake are being monitored. The water quality of River Cauvery, Thamiraparani, Palar and Vaigai are categorized for the designated best use of outdoor bathing and drinking water source with conventional treatment followed by disinfection. Further, the Cauvery water is used for fish culture and wildlife propagation. The water quality of the Udhagamandalam, Kodaikanal, Yercaud, Veeranam, Poondi, Redhills, Pulicat and Porur lakes are categorized for the designated best use of drinking water with conventional treatment followed by disinfection and fish culture and wild life propagation. Water ways of Adyar, Cooum, Buckingham Canal and Otteri Nullah are being monitored at 34 river stations and 24 industrial outlets.

**Twelfth Five Year Plan – Objectives, Strategies and Outlay**

The guiding principles for the Twelfth Five Year Plan period for the sector would be (a) Equity and gender sensitivity; (b) Green Lens; (c) Co-ordination of various Departments; (d) Facilitating agencies; (e) Capacity building and technology inputs and (f) Monitoring, Evaluation and learning. While Tamil Nadu focuses on Industrial development at a pace faster than the national average, it will not lose sight of the need to preserve the environment and its heritage. Efforts will be made to ensure that the environmental protection regulations are on par with the best in the world and deliberate and focused efforts will be made to ensure that the environment is protected. Preserving, and wherever possible, improving the quality of the environment and nurturing the cultural heritage of the State would be an essential ingredient of Vision
Tamil Nadu 2023. An amount of Rs.236.50 crore has been proposed for the sector “Environment & Climate Change” in Twelfth Five Year Plan.

**Performance during Annual Plan 2012-13**

Environmental awareness is done through Eco-clubs and National Green Corps with a view to help students to know about their immediate environment and to make them understand the reasons for environmental degradation and to sensitize the students in finding out possible solution for various problems relating to environment. Environmental awareness competitions in districts are conducted among the members of eco-clubs/National Green Corps. In Tamil Nadu, 8000 school eco-clubs at the rate of 250 schools per district in all 32 districts have been started under the National Green Corps (NGC) programme with the financial assistance from Government of India. About 40 to 50 students are enrolled in each school under a teacher co-ordinator. The Department of Environment is functioning as the Nodal Agency of NGC. The Government of India has released a grant of Rs.2500/- per school every year. State level steering committee and district level monitoring committees have been formed to monitor the implementation of this programme. Environmental awareness under this programme is organized through thematic campaigns, tree planting, competitions and eco-camps. There are also 1869 Eco Clubs functioning in the State with the financial assistance from the State Government. A sum of Rs.46.73 lakh has been sanctioned to 1869 schools during the year 2012-2013.

The department conducts environmental awareness camps for the students who participated in the environmental awareness competitions and teacher coordinators for three days. The students are exposed to various environmental problems through awareness camps. The activity included visits to polluted hotspots and to areas abounding with wildlife and forest growth for a firsthand experience.

A three-day awareness campaign is organized by the Department of Environment throughout Chennai City to create awareness about the ill effects of burning of tyres, plastics and other materials on the eve of Bhogi by requesting the public to refrain from burning tyres etc. The Eco-clubs throughout the State are also
organizing similar campaigns in their areas every year. Because of this campaign, there has been significant reduction in the burning of plastics and tyres in the urban areas.

An Environmental Information System (ENVIS) Centre has been commissioned in the Department of Environment under the World Bank supported project called Environment Management Capacity Building Technical Assistant Project (EMCB-TAP) of Government of India. Department of Environment has been identified as a centre for the Environmental Information System (ENVIS). This ENVIS centre provides web based database (www.tnenvis.nic.in) on State of Environment and related issues and answers environmental related queries for the policy makers and the user groups.

The preparation of State of Environment (SoE) Report was undertaken with financial assistance from the Government of India. A SoE Atlas, SoE Photo Catalogues, Video film on State of Environment and an interactive website have been prepared under this.

To provide details on the current status of the main environmental issues viz., human settlements, atmosphere, land, water, biodiversity to ecological sustainable development etc., of the Chennai Metropolitan Area, the Government of India have released Rs.2.20 lakh for the preparation of State of Environment Report for Chennai Metropolitan Area. The draft report has been sent to the Ministry of Environment & Forest, GOI for approval. Besides this, the State has its own report published at regular intervals.

The State Government have instituted environmental awards to honour the outstanding Non-Governmental Organizations, experts and individuals in recognition of their excellent contribution in the areas of Environmental Education, Environmental Management, Environmental Protection and Environmental Research.

To create awareness among the students and general public, seminars and workshops are being conducted. This scheme will be continued during the year 2013-14 also and will be taken up as a regular activity during plan period.
The Department of Environment has been designated as the nodal department for the development of State Action Plan on Climate Change for Tamil Nadu (SAPCC). German Technical Co-operation (GTZ), now renamed as GIZ is identified as a technical partner. The funding is by Ministry of Environment & Forest, Government of India. To initiate the preparation of SAPCC, inception workshop was organised in Chennai. The draft report is under preparation.

The Government of Tamil Nadu have created an "Environment Protection and Renewable Energy Development fund" in July 2010 for implementing schemes for the protection of the environment and promotion of clean energy in the State. The Fund is utilised for promotional, project-based activities, activities of greening of Tamil Nadu through planting of trees outside the forest areas, the initiatives and interventions in the field of renewable energy and prevention of environmental degradation.

A mass drive for clearing the accumulated plastics was conducted during the year 2011-12. Plastic collection centers were established at a cost of Rs.4 crore. To sensitize the public to eschew non-degradable plastics, various awareness activities such as rallies, walkathon, competitions etc., were conducted at a cost of Rs.1 crore during 2011-12.

The plastic accumulated were used for relaying of roads and it was implemented at a cost of Rs.50 crore during the year 2011-12 and plastic roads were laid at a total length of 446.5 kms. For the year 2012-13, an amount of Rs.100 Crore has been budgeted for relaying of roads using plastic waste collected in the local bodies.

Under World Bank assisted Emergency Tsunami Reconstruction Project (ETRP), the following programmes are being implemented: (1) Demarcation of HTL along the coast of Tamil Nadu from Palar River mouth to Thengapattinam in Kanyakumari District (2) Erection of Stone Pillars on High Tide Line (HTL) reference points (3) Preparation of Integrated Coastal Zone Management Plan, Coastal Vulnerability Maps & Preparation of training modules and (4) Formation of GIS Cell and (5) Capacity building and Awareness programme in Environment related issues.
The other Schemes implemented under the Centrally Sponsored Schemes are (a) Development of Sathyamangalam Wild Life Sanctuary, (b) Thirupudaimaruthur Bird Conservation Reserve and (b) Conservation and management of Pallikaranai Wetland.

An amount of Rs.100.00 crore has been budgeted for the ‘Ecology and Environment’ for the year 2012-13. It is expected that this amount would be fully utilized.

**Annual Plan 2013-14**

The following major schemes are proposed to be taken up by the Department of Environment:

(a) **Financial assistance to the existing eco-clubs:** For carrying out more environmental activities, it is proposed to strengthen the state funded eco-clubs by sanctioning a sum of Rs.46.73 lakh (Rs.2500/- per school for 1869 schools) for the year 2013-2014.

(b) **Formation of Environment information dissemination centers (EIDC):** To disseminate environmental information among the school children and the general public on pollution, climate change, global warming etc., it is proposed to form EIDC in 10 more educational districts of the State at a cost of Rs.20.00 lakh.

(c) **District Environmental Profiles of Tamil Nadu:** Tamil Nadu requires comprehensive environmental information and reporting system for developing policy framework for environment. Hence, it is proposed to prepare Environmental Profile for the Eco-Sensitive areas at a cost of Rs.30.00 lakh.

(d) **Restoration of Eco-sensitive areas:** An amount of Rs.50.00 crore has been proposed for the restoration of Eco-sensitive areas in the State.

(e) **Relaying of roads:** The State is taking special initiatives like relaying of roads with accumulated plastic waste. Further awareness programmes are being conducted to reduce the use of non-degradable plastics. An amount of Rs.50.00 crore has been proposed for the above purpose.

(f) **Restoration of Chennai Rivers and Waterways:** The eco-restoration of Cooum, Adyar and Kosasthalaiyar rivers, the Buckingham Canal along with
other smaller canals for a total length of 214 kilometres (kms) and 42 water bodies in the Chennai Metropolitan Area involves upstream treatment, desiltation, plugging of polluting outfalls, sewage treatment, scientific solid waste management, embankment protection and development of walkways and parks. This project will be implemented under the aegis of the Chennai Rivers Restoration Trust (CRRT).

**Plan Outlay for 2013-14**

For the year 2013-14, a sum of Rs.101.65 crore is proposed for the sector "Ecology & Environment".

**Forestry and Wildlife**

Trees are one of the most magnificent expressions of plant life. The role of forests in relation to life on earth is vital. They exert considerable influence on the wind, temperature, humidity, soil and water. They have most beneficial regulatory effect on water catchment areas in preventing soil erosion and stabilizing sand dunes in desert areas. Many plants have to depend on certain kinds of animals for their multiplication and survival. Both wood and non-wood products from forests are valuable so are environmental services and flora and fauna.

Tamil Nadu has a rich tradition of forest management, forest protection practices, legislations and policies. The unique geographic location of the State enables it to host a wide range of forest biomes across the breadth and length of the state. The forests and vegetation types in the Western Ghats, Eastern Ghats and the coastal plains are unique and have evolved over millions of years.

Tamil Nadu has a moderate forest area of 22,877 sq kms, which is about 18% of the geographical area. The State's Forest policy envisages ecological stabilization, protection of forests, wildlife conservation, conserving genetic resources, maintenance of natural forest, enhancing forest productivity, enrichment of the forests water resources and increasing the forest and tree cover. The National Forest Policy, 1988 has also laid down guidelines for preventing damage to forests from encroachment,
fires and grazing, and issues related to tribal forest interface, shifting cultivation, forest extension, education, research, personnel management, etc. The principal aim of the National Forest Policy, 1988 and the State Forest Policy is maintenance of environmental stability and restoration of ecological balance through conservation, upgradation and increase in the tree cover.

As per the 2011 FSI report, the State has registered a net increase of 287 sq.km. of forest cover as compared to the previous assessment report of 2009. To increase the green cover outside forests, programmes like Tree cultivation in private lands, Raising Teak plantation in Padugai lands and Free distribution of seedlings to institutions and individual households are being implemented. The recently launched Tamil Nadu Biodiversity Conservation and Greening Project will also help in covering private lands with green cover.

Protection of forests will help to conserve our rich biodiversity, promote wildlife and ensure the welfare of the Scheduled Tribes and other forest dwellers. The promotion of tree cover outside forest areas will help to increase green cover, provide raw materials for industries and control pollution. The combination of these two approaches will make Tamil Nadu the foremost State in our country in nature conservation and economic development.

Twelfth Five Year Plan – Objectives, Strategies and Outlay

New programmes and projects are being drawn up in line with the National Forest Policy for the Twelfth Five Year Plan period. Most of the ongoing programmes are to be continued as these have shown tremendous impact on forest conservation and improved the eco-system health to a large extent. Forests in Tamil Nadu are managed with the following objectives: (a) Biodiversity and genetic resource conservation by protection of forests and wildlife; (b) Augmentation of water resources in forest areas; (c) Rehabilitation and restoration of degraded forests for improvement of forest cover; (d) Enhancing tree cover outside forests for livelihood security and climate change mitigation; and (e) Welfare of tribal and forest fringe communities to ensure economic prosperity and ecological stability. In meeting the above objectives, Forest
policy plans to chart out new paths, develop new relationships and adopt to the rapidly changing societal demands for forest goods and services by adopting the following strategies that will promote a comprehensive forest based development of the State: (a) Biodiversity and Genetic Resource Conservation; (b) Catchment Area Protection and Watershed Management; (c) Enhancing Climatic Resilience in moderately dense and open forests; (d) Forest resource protection; (e) Increasing Tree Cover Outside Forests; (f) Socio-Economic Development of Forest fringe villages; (g) Tribal Development; (h) Eco-tourism for sustainable livelihood; (i) Research, Transfer of Technology, Extension and Technology support for scientific forest and wildlife management; and (j) Infrastructure Development and Human Resource Management for efficient delivery mechanism. An amount of Rs.2145.91 crore has been proposed in the Twelfth Five Year Plan for the forestry sector.

**Performance of Annual Plan 2012-13**

Under "Tamil Nadu Biodiversity Conservation and Greening Project" during 2012-13, 1.00 crore seedlings were planted in the private lands of farmers in 1000 villages in 31 districts besides undertaking the activities related to biodiversity conservation, forestry research, development of infrastructure and capacity development at an outlay of Rs.68.34 crore.

Tamil Nadu Afforestation Project (TAP) was implemented from 1997-98 in two phases and will be completed by 2012-13 with financial assistance from JICA. During 2012-13, maintenance works over an extent of 47,500 ha. and village development works in 230 villages have been carried out at a cost of Rs.54.94 crore.

Under the 13th Finance Commission for the development of forests and preservation of forest wealth, activities like mitigating man-wildlife conflict, provision of communication and protection equipments, improvement of roads, research and awareness creation are being undertaken at a cost of Rs.37.64 crore during 2012-13.

Under raising teak plantations on padugai lands, during 2012-13, maintenance works have been carried out for the plantations raised earlier at a cost of Rs.3.06 crore.
Under Community Waste land development programme, during 2012-13, community forestry activities were being implemented at a cost of Rs.15.18 crore covering an extent of 4000 ha.

Under Hill Area development programme, during 2012-13, to develop the shola and other forest cover in the Nilgiris developmental activities were being implemented at a cost of Rs.5.28 crore.

To improve the eco-system of the Western Ghat hill forests, during 2012-13, works on identification of watersheds with an outlay of Rs.3.59 crore including establishment costs were carried out.

During 2012-13, an amount of Rs.0.65 crore was incurred to maintain and carry out development works in various wildlife sanctuaries.

An amount of Rs.3.85 crore was spent on research activities on innovative approaches for tree cultivation in private lands through SFRI, Kolapakkam and other research centers in the state during 2012-2013.

During 2012-13, ecological restoration works under the scheme “Eco-restoration and conservation of Pallikaranai wetland”is being carried out at a cost of Rs.5.00 crore.

Thus, an amount of Rs.141.20 crore has been budgeted for the ‘Forests’ for the year 2012-13. Against this an amount of Rs.291.04 crore is expected to be spent on implementation of various state and centrally sponsored forestry programmes during 2012-2013.

**Annual Plan 2013-14**

The objective of the JICA assisted externally aided project "Tamil Nadu Biodiversity Conservation and Greening Project" is to strengthen biodiversity conservation as well as to undertake tree planting outside the forest areas to increase tree cover, The project is being implemented for a period of 8 years from 2011-12 to 2018-19 at a total cost of Rs.686.28 crore through a Project Management Unit. It is proposed to plant 2.00 crore seedlings in private lands of farmers in 2000 villages
spread over 30 districts and to continue the other works covered under the project at a
cost of Rs.53.30 crore during 2013-14.

A massive Afforestation Programme captioned Tamil Nadu Afforestation Project
(TAP) and with active co-operation of the people was implemented from 1997-98 in two
phases and will be completed by 2012-13 with financial assistance from JICA. TAP
Phase-I was implemented at a cost of Rs.688 crore and Phase-II is continued to be
implemented at a cost of Rs.567.42 crore. Joint Forest Management concept was given
an unprecedented thrust in the project. Due to the successful implementation of the
project, 6.58 lakh ha. of degraded forests were restored besides construction of water
harvesting structures like 28,326 check dams and 3,829 percolation ponds resulting in
increase of water table level. 2167 forest fringe villages including 150 tribal villages
were benefitted by community assets creation and employment generation at their
doorsteps. A two year plan from 2013-14 to 2014-15 for Rs.105.60 crore is prepared to
ensure sustainability of the project activities by utilizing the balance loan amount
available under TAP Phase-II. During 2013-14, it has been proposed to carry out the
maintenance works and village development works at a cost of Rs.62.39 crore.

To increase the green cover of the State and to promote soil and moisture
conservation in dry areas, 65 lakh tree saplings will be planted during 2013-2014 at a
cost of Rs.12.00 crore in the State.

The 13th Finance Commission has allocated an amount of Rs.142.48 crore for
Tamil Nadu towards Grants-in-aid for development of forests and preservation of forest
wealth for the period 2010-2011 to 2014-2015. During 2013-14, it is proposed to take up
this scheme with activities like mitigating man-wildlife conflict, provision of
communication and protection equipments, improvement of roads and research and
awareness creation at a cost of Rs.35.62 crore.

A comprehensive scheme to raise teak plantations on canal and river banks and
padugais of Dindigul, Madurai, Sivaganga, Thanjavur, Tiruvarur, Trichy, and Villupuram
districts at a total cost of Rs.35.31 crore has been under implementation for a period of
6 years from 2008-2009 to 2013-2014. The objective of the scheme is to create timber
resources in the State by planting hardwood species and also to raise teak plantations in the riverbeds to upgrade environment, to increase tree cover outside the Reserve Forests and prevent soil erosion in the riverbeds. Teak plantations have been raised over an area of 19,986 ha. During 2013-14, it is proposed to carry out maintenance works for the plantations raised earlier at a cost of Rs.1.50 crore.

To meet the demands of the local community and to augment the tree cover outside the forest areas, Community Forestry activities will be taken up in tanks, foreshore areas, community lands, poramboke and wastelands with the support of the local communities and local institutions. Raising of karuvel trees in the lakes and tank foreshores is the major component under this scheme. During 2013-14, it is proposed to implement this scheme at a cost of Rs.9.64 crore.

The objective of the Hill area Development Programme is to enlarge the permanent green cover and to regulate biotic interference in the forest so as to preserve, protect and develop the ecological condition through afforestation and soil conservation and other developmental activities. Soil and moisture conservation works, fencing shola forests, fire prevention measures, anti-poaching measures and improving wildlife habitats are the major works implemented under the programme. This will reduce the pressure on eco-system & help to improve the already diminishing shola & other forest cover in the Nilgiris. During 2013-2014, it is proposed to implement this scheme at a cost of Rs.6.83 crore.

The forests of Western Ghats harbour a unique assemblage of species both flora and fauna that have to be protected and conserved, owing to their antiquity, diversity and utility value. To avoid the degradation of forest eco-system and to improve the existing status of forests with the enriched fauna and flora of Western Ghats, works like planting, fire prevention works, soil and moisture conservation works and anti-poaching measures have been carried out. This will improve the eco-system of the Western Ghat hill forests and provide life support to the people. It is proposed to implement this scheme during 2013-2014 with an outlay of Rs.4.28 crore.
The wildlife habitats and bird sanctuaries in the State are maintained scientifically and systematically. The wildlife sanctuary areas are treated with various soil & water conservation measures so that the habitat in the area gets improved. Engaging wildlife protection watchers, maintenance of rest house in such area are also carried out besides driving back the strayed animals and undertaking rescue operation of the animals that are in distress. It is proposed to implement the scheme at a cost of Rs.0.71 crore during 2013-2014. It is proposed to create fodder tree plantations in Forest areas and to improve the wildlife habitats at a cost of Rs.5.46 crore during 2013-2014. It is also proposed to establish Advanced Institute for Wildlife Conservation at a cost of Rs.24.00 crore.

An Elephant rescue programme and management is proposed to take up in the State at a cost of Rs.10.44 crore.

State Forestry Research Institute, Kolapakkam and other research centres in the State are adopting many innovative approaches for tree cultivation in private lands. During 2012-13, an amount of Rs.3.85 crore has been provided for Research activities. It is proposed to continue this scheme at a cost of Rs.4.10 crore during 2013-14.

Pallikaranai marsh land is the home of 112 species of birds, 21 species of reptiles, 9 species of amphibians, 46 species of fishes and 7 species of butterflies. In order to take up ecological restoration and conservation of Pallikaranai wetland, an amount of Rs.15.75 crore has been proposed for a period of five years from 2011-12 to 2015-16. It is proposed to implement the scheme at a cost of Rs.6.05 crore during 2013-2014.

It is proposed to take up Water conservation and Canopy improvement project at a cost of Rs.50.00 crore during 2013-2014.

The Thane cyclone that hit the coastal districts of Cuddalore and Villupuram on 30.12.2011 had caused extensive damage of tree assets created along the river/canal banks and on the coastal belts. A scheme to take up restocking of the affected areas
with 37.25 lakh seedlings of tree species like teak, casuarina, eucalyptus etc., besides raising of 300 ha. of shelterbelt plantations over a period of four years commencing from 2012-13 has been contemplated at a cost of Rs.14.96 crore with an outlay of Rs.7.48 crore for the year 2012-13. During 2013-14, it is proposed to implement the scheme at an outlay of Rs.5.63 crore.

**Centrally sponsored schemes**

31 schemes are proposed for implementation during the year 2013-2014 at an outlay of Rs.18.55 crore. These schemes are centrally sponsored, with 100% central assistance. Developmental activities for various wildlife sanctuaries / national parks have been undertaken. Project Tiger, Project Elephant, Gulf of Mannar Biosphere reserve, Development of Grizzled Giant Squirrel Wildlife Sanctuary, Conservation and management of mangroves, Conservation and management of Point Calimere wetland complex in Tamil Nadu, Conservation and Management of Agasthiarmalai Biosphere Reserve and action plan for Nilgiris biosphere reserve are some of the major schemes implemented.

There are three Tiger Reserves in Tamil Nadu i.e., Project Tiger is implemented in Kalakad Mundanthurai Tiger Reserve of Tirunelveli District, Anamalai Tiger Reserve in Coimbatore district and Mudumalai Tiger Reserve in Nilgiris district. The Recurring costs of the amount is shared on a 50:50 basis between the Government of India and the Government of Tamil Nadu and the remaining Non Recurring cost of the scheme is 100% assistance from Government of India. Habitat conservation, eco-development activities, protection, fire protection measures, improvement of water source, tourism development, controlling of man-animal conflict and improvement of infrastructure facilities are some of the schemes being carried out. An outlay of Rs.4.68 crore is proposed to be spent during 2012-13 and Rs.2.56 crore during 2013-2014.

Project Elephant scheme is implemented in four elephant reserves i.e. Nilgiris elephant reserve, Coimbatore elephant reserve, Periyar elephant reserve and Anamalai elephant reserve. Out of 24,000 elephants estimated in India, this State has a population of 4015 elephants. 100% Central assistance received every year from
Government of India under this scheme. The scheme is being implemented to protect the elephants and improve their habitats, fire protection measures, water facilities to elephants, payment of compensation to the damages caused to crops and loss of human lives caused by elephant and erection of solar fence to control Man-animal conflict are some of the schemes being carried out at an outlay of Rs.5.44 crore during 2012-2013. During 2013-2014, it is proposed to implement Project Elephant at Anamalai and Mudumalai at a cost of Rs.2.87 crore.

The Gulf of Mannar Biosphere Reserve is known for its rich bio-diversity and endemism. There are around 3600 species of Marine Organisms found in this area. There are 17 species of Mangroves, 11 species of sea grasses, 147 species of sea algae, 450 species of fishes, 108 species of sponges, 260 species of molluscs, 100 species of echinoderms, the highly endangered Dugong, 4 species of Dolphins, 6 species of Whales, all 5 species of Turtles found in Indian water, highly endangered Porpoise and 117 species of Corals found in Gulf of Mannar Biosphere Reserve. This scheme envisages reducing biotic pressure on the sensitive marine eco-system and for its protection, to create alternate livelihood options for the local people who are directly depending on the marine resources. Eco-development works, protection and conservation of natural resources, education and awareness programme, etc. are the main activities of the scheme. During 2012-13, it is being implemented at an outlay of Rs.4.43 crore. During 2013-2014, the proposed outlay is Rs.2.10 crore.

Mangrove ecosystem constitutes a bridge between terrestrial and marine ecosystems. The objective of the scheme is to protect the most threatened habitat which contributes significantly to marine ecosystem, to enrich the coastal wetland habitat for marine avi-fauna visiting the area, to create awareness among the public, to obtain their cooperation in Mangrove ecosystem conservation and to improve the skill and capacity of the field staffs in scientifically managing the mangrove ecosystem with eco-development approach. Tamil Nadu is having four mangrove formations, viz., Muthupet in Tiruvarur district, Pitchavaram in Cuddalore district, Kazhuveli in Villupuram district and Ramnad in Ramnad district. During 2012-13, conservation and regeneration of existing mangroves along the coast is being undertaken at an outlay of Rs.4.37 crore.
During 2013-2014, it is proposed to implement this scheme at a cost of Rs.2.79 crore. The wildlife and birds sanctuaries in Tamil Nadu are the last remnant areas for the conservation of flora and fauna. They provide considerable attraction for tourists, nature lovers and wildlife enthusiasts and are primarily maintained to provide a refuge to wild animals, birds and reptiles. Habitat improvement works have been carried out in the 6 Wildlife Sanctuaries i.e., Grizzled Giant Squirrel Wildlife Sanctuary, Point Calimere Wildlife Sanctuary, Vallanadu Black buck Sanctuary, Kanyakumari Wildlife Sanctuary, Sathyamangalam Wildlife Sanctuary and Megamalai Wildlife Sanctuary are being carried out. An outlay of Rs.1.21 crore has been approved during 2012-13 and an amount of Rs.1.41 crore during 2013-14.

Developmental activities like eco-development works, employing anti-poaching watchers, awareness camps, census, providing and improving signages, etc. in 13 Birds Sanctuaries, i.e., Vedanthangal Bird Sanctuary, Karikili Bird Sanctuary, Pulicat Bird Sanctuary, Udayamarthandapuram Bird Sanctuary, Vaduvoor Bird Sanctuary, Vettangudi Bird Sanctuary, Vellode Bird Sanctuary, Karaivetti Bird Sanctuary, Koonthankulam Bird Sanctuary, Kanjirankulam Bird Sanctuary, Chithrangudi Bird Sanctuary, Melaselvanoor-Keelaselvanoor Bird Sanctuary and Therthangal Bird Sanctuary are being carried out. An outlay of Rs.1.30 crore has been approved during 2012-13 and an amount of Rs.1.64 crore during 2013-14.

**Shared schemes**

The Integrated Forest Protection scheme is shared between Government of India and the State in the ratio of 75:25. This scheme aims at protecting the forest resource by strengthening protection measures to control forest fires. Demarcation of forest boundaries to prevent encroachment by construction of cairns, carrying out fire protection works, improvement of roads, provision of better communication facilities are some of the works being undertaken. The amount for 2012-13 is Rs.4.00 crore and during 2013-14, it is proposed to implement this scheme at an outlay of Rs.4.19 crore.

Recognizing that the establishment of permanent water storage structures like percolation ponds and check dams and formation of in situ water harvesting structures
like catch water pits within and immediate vicinity of the forest areas are expected to improve the soil moisture regime, recharge ground water aquifer and result in overall improvement in the availability of water for cultivation activities, a comprehensive scheme to undertake extensive water harvesting works in the forest and adjacent non-forest areas covering 50,000 ha. during 2012-13 at an outlay of Rs.50 crore has been sent to NABARD for funding assistance for implementation. The project will be implemented in 10 districts of Tamil Nadu viz. Coimbatore, Dharmapuri, Dindigul, Kanyakumari, Madurai, Namakkal, Salem, Tiruvallur, Vellore and Villupuram.

**Plan Outlay for 2013-14**

For the year 2013-14 a sum of Rs.341.14 crore is proposed for Forestry sector.