# Environment and Forests Department

**Policy Note 2008 – 2009**

**Demand No. 15**

## Forest Department

### 1. Introduction

Forests play an important role in the conservation of natural resources. Forests contribute significantly towards environmental upkeep, climatic balance and are mainly instrumental for the rainfall patterns. They are the source of rivers ensuring livelihood security for innumerable people who are dependent on them and also perform other vital functions such as providing protection from natural disasters, in the form of shelter belt plantations. They are the treasure chests of bio-diversity and home to most of world's vast array of life forms offering needed habitat for wildlife and wide diversity of medicinal plants while also ensuring livelihood support to the tribals living within the forest areas. Forests also prevent soil erosion besides serving as a foster mother for agriculture. Concerns about greenhouse gases, declining agricultural productivity and decreasing water availability and increasing pollution levels make forests more important than ever before.

### 2. Forest cover and green cover

The National Forest Policy has mandated that 33% of the land area should be under forest cover. This is however different in the different States because of the variations noticed in levels of urbanization and industrial growth. However in the present scenario it is increasingly important that every State takes efforts to increase the green cover. Besides an increase in forest cover, encouraging tree cultivation outside forests can result in increased green cover.

Tamil Nadu has been able to record landmark achievements in green cover increase, by increasing the forest cover and tree cover. The State of Forest Report published two months before has brought out the fact that in India, the forest cover has reduced by 728 sq. kms., while in Tamil Nadu it has increased by 41 sq. kms. The State is also well ahead in its efforts to increase green cover. The State of Forest Report has also reported that the tree cover outside forests has

reduced from 3.05% to 2.79% in the country, while there is a marked increase in the tree cover in Tamil Nadu from 3.66 % in the previous assessment to 4.26% now.

**3. Bio-diversity conservation**

Tamilnadu ranks 1st among all the States in the country with 5640 plant species. The Angiosperm diversity of India includes 17672 species. The plant diversity with 533 endemic species, 230 rare species, 1559 species of medicinal plants and 260 species of wild relatives of cultivated plant is the testimony to the bio-diversity richness of the State. The Pteridophytes diversity of India includes 1022 species of which Tamilnadu has 184 species.

The faunal diversity of Tamilnadu includes 165 species of fresh water Pisces, 76 species of Amphibians, 177 species of reptiles, 454 species of birds and 187 species of mammals.

The reserve forests and protected areas are repositories capturing wide array of bio-diversity in the State. The vegetation in Tamil Nadu varies depending upon climate, altitude and nature of soil. It can be broadly divided into four categories 1) The coastal vegetation 2) The island vegetation 3) Vegetation of interior plains 4) Vegetation of Hills and Mountains.

The coastal vegetation consists of estuarine forest and coastal tropical dry evergreen forests. The island vegetation consists of salt marshes and mangroves. The vegetation of interior plains includes the southern tropical thorn forests, the carnatic umbrella thorn forests, etc. The vegetation of hills and mountains include the following forest types namely dry deciduous forests, moist deciduous forests, semi evergreen forests and wet evergreen forests including the sholas. The grass lands, bamboo forests, reed forests are also other important forest types.

The Western Ghats is one of the 25 global hotspots and one of the 3 mega centers of bio-diversity in India. The forests of Kanyakumari, Kalakadu Mundanthurai Tiger Reserve, Kodaikanal, Annamalais, Mudhumalais, Mukkurthi, Srivilliputtur, owe their richness in flora and fauna due to their position in the Western ghats.

Forest management in Tamil Nadu is mainly conservation focused. Bio-diversity conservation has taken the center stage in forest management. In all the recent working plans of

Tamil Nadu, biodiversity conservation has been included as a chapter. Similarly, the management plans for protected areas in the State identifies local biodiversity, suggests strategies and directions to conserve biodiversity.

The management plans and working plans of the Forests Department have contributed significantly for protection, development and conservation of biodiversity in the State.

**4. Climate change and its impacts**

As a result of urbanization and industrial revolution, the natural resources of the world like coal, diesel and petrol are being excessively consumed by human beings, all over the world. This has resulted in the unabated annual rise in the levels of carbon-di-oxide, hydrocarbon, methane, nitrous oxide and carbon monoxide. The heat energy emitted from the solar radiation is therefore trapped within these gaseous elements spread in the atmospheric zone and have no way to escape from the earth surface. The increased vehicular flow, rapid industrialization, urbanization and the emissions on account of these developments are contributing to the destabilization and alterations of the hitherto stable climatic conditions. Climate change is known to result in melting of glaciers, leading to rise in sea levels and mankind is therefore vulnerable to the associated natural calamities and disasters.

Climate change has also induced changes in species diversity loss, increased incidence of diseases, water shortages, elimination of plant diversity and loss in agriculture outputs. In order to control the changes in climate and reduce the vulnerability due to high influx of carbon-di-oxide in the atmosphere, trees alone serve as the best bet.

It is assessed that in the 21$^{st}$ century the average atmospheric temperature will witness a steep rise and result in inconsistencies in the rainfall patterns.

**5. Forests and climate change control**

Forestry and tree cover offer an excellent option for offsetting emissions by carbon sequestration and its fixation as bio mass both in plants and in the soil. Forests by serving as an

excellent carbon sinks can assist in emission reduction and thereby prevent calamities that can affect the biota including the human kind in the earth.

**6. Forest policy**

The management of forests in Tamil Nadu is based on the National Forest Policy. The National Forest Policy, 1988 has outlined the management principles, concepts and approaches in forest management. Maintenance of environmental stability, restoration of ecological balance, conservation of the natural heritage i.e. the forests with the biological diversity and providing the habitats and sustainable environment for mankind are some of the important objectives of the National Forest Policy. The use of forests for providing natural resources for economic growth is only to be considered as a second option.

Against this background, the forests of Tamil Nadu are being managed with the following objectives:

- Ensuring environmental and ecological stability of the State.
- Biodiversity, wildlife and genetic resource conservation.
- Rehabilitation and restoration of degraded forests
- Coastal eco-system conservation and management.
- Forest protection for resource management and augmentation.
- Enhancing tree cover outside forests for livelihood security.
- Water augmentation through forest conservation and catchment area management.
- Tribal development to ensure economic prosperity and ecological stability.
- Technology support, research and development for scientific forest management.
- Forest extension for tree cover enhancement, outreach and conservation education for wildlife management support.
- Forestry for rural energy security.
- Eco tourism for supporting conservation.
- Human resource development for forestry management.
- Climate change mitigation.

Environmental stabilization, forest protection, wildlife, bio-diversity conservation and protection of genetics resources, increase productivity from forests, efficient management of

natural capital, water resources management, augmentation and increasing forest cover/tree cover are some of the significant functional objectives of the State Forest Policy.

## 7. Forest laws

To achieve the State's Forest Policy, legislations like Tamilnadu Forest Act, 1882, Tamilnadu Preservation of Private Forest Act, 1949, Tamilnadu Hill Areas (Preservation of Trees) Act, 1955, The Wildlife (Protection) Act, 1972, The Forest Conservation Act, 1980, The Biodiversity Act, 2002 and others are under implementation by the Forest Department.

## 8. Implementation Strategies

The various strategies that will be followed for implementing this Forest policy are discussed below.

### 8.1 Increasing green cover outside the forests

To increase the green cover outside forests, special programmes like tree cultivation in private lands, urban forestry scheme, raising teak plantation in Padugai lands and free distribution of seedlings are being implemented.

#### 8.1.1. Tree cultivation in private lands

In order to encourage tree cultivation outside forests, a new scheme was launched in the State in 2007-2008, which is the first effort of its kind in the country. This programme involves planting tree seedlings in wastelands and in the holdings of small and marginal farmers as inter crops and on bunds. This scheme not only ensures increased income to farmers but will provide the needed pulpwood for future industrial needs. The increased tree cover will also provide the needed environmental balance for the villages.

During 2007-08, Rs.10 crores was provided for this scheme wherein casuarina, teak, nelli, neem, Ailanthus and other economically important tree species were raised by the Forest Department and planted free of cost in the farmlands. An incentive of Rs. 3750/- was provided to the farmers where the seedlings were raised as block plantations and Rs. 2500/- provided as incentives for tree seedlings planted as inter crops. In all, 15,000 farmers got benefited by this scheme and one crore seedlings planted in private farmlands. During 2008-09, this scheme will

be implemented with increased magnitude by providing approximately 1.0 crore seedlings to be planted in private lands with needed subsidy support.

### 8.1.2. Urban forestry

Rapid population increase and urbanisation particularly in the six Corporations of the State have resulted in increased levels of pollution. Trees mitigate pollution and are effective carbon and methane sinks. Hence, an urban afforestation scheme has been initiated in 2007-08 with the objectives of controlling the adverse effects of air, water and noise pollution and improving the aesthetic appearance of the city.

Under this programme, species like Neem*, Pungan, Magizham,, Manja konnai, Sara konnai* and *Delonix regia* have been planted on the roadsides in colonies and important road stretches. The species planted have been selected based on site suitability and the tree architecture to offer appropriate and aesthetic landscape to the road. The tree seedlings have been provided with tree guards for effective protection. The programme has received a contribution of Rs.3 crores from Tamil Nadu Pollution Control Board. During 2007-08, 1,17,647 seedlings are being raised for planting in Chennai, Trichy, Madurai, Tirunelveli, Salem and Coimbatore corporations and their suburban areas.

During 2008-09, it is proposed to continue this programme and implement it with the same fervor.

### 8.1.3. Raising teak plantations on padugai lands

This scheme has been implemented with the objectives of meeting the timber needs of the State and consolidating the canal banks traversing through the districts of Thanjavur, Tiruchirappalli, Madurai, Erode, Salem and Villupuram. Quality teak seedlings were planted along the canal banks covering an area of 3160 ha. at a cost of Rs. 5.38 crores during 2007-08. Implementation of this scheme will provide appreciable economic returns at the end of the rotation period and offer rural employment during the planting and maintenance periods. A laudable achievement of this scheme is that annually an approximate amount of Rs. 10 crores is obtained as revenue by sale of teak raised on Padugai lands.

### 8.1.4. Free distribution of seedlings to local bodies and Government departments

Rapid urbanization and large scale migration have resulted in massive urban agglomerations. The exploitation of natural resources has resulted in pollution levels far exceeding the threshold levels. The obnoxious emissions from vehicles and industries are polluting the urban environment subjecting the inhabitants to increased health risks. During 2007-08, 108330 tall seedlings at a cost of Rs. 32.50 lakhs were raised and distributed to schools, colleges, health and educational institutions. Further, during 2008-09, this programme will be implemented in a larger scale by providing seedlings to all Government institutions and local bodies free of cost.

### 8.1.5. Forestry extension centres

Forestry extension services and technology support for raising tree seedlings are provided through 30 forestry extension centres in the State. The extension centres provide quality tree seedlings that can provide increased income like thornless Bamboo, Casuarina, Teak, Ailanthus, Neem, Melia dubia and other tree seedlings besides, grafted Tamarind and Nelli plants to the farmers. These seedlings are planted in private lands and serve as demonstration plots established in farmlands. The extension wing also provides the superior technology to support services including training support for those interested in nursery, tree cultivation and production of vermicompost.

## 8.2 Restoration of degraded forests through community participation to increase forest / tree cover inside the forests

This thrust area mainly aims at restoration of the original forest vegetation in the degraded forests, increasing density of trees, shrubs, herbs and other vegetation to restore the entire biodiversity, healthy watersheds, increasing productivity of the forests to meet livelihood needs of the forest dependents which are important issues on the agenda of the Forest Department. As forests serve as livelihood options for several forest dependents, it is necessary to uplift the quality of life of the forest dependents including poorer sections and to restore the degraded forests in Tamil Nadu through their participation. Hence, implementation of schemes like Tamil Nadu Afforestation Project and National Afforestation Programme have a significant role in increasing forest cover in the State.

### 8.2.1. Tamil Nadu Afforestation Project (Phase-II)

With the financial support from Japan Bank for International Co-operation, TAP (Phase I) was implemented from 1997-98 to 2004-05. Under this programme 4.8 lakhs ha. of degraded forests were restored in 27 districts at a cost of Rs. 688 crores.

In continuation of this, TAP Phase-II is now being implemented. This programme will be implemented till 2012-13 to restore 1.775 lakh ha. of degraded forests in 30 districts at a cost of Rs. 567.42 crores. Infrastructure development that aims to support livelihood security and upgradation of the rural people will be provided. The project aims to restore the ecological equilibrium through afforestation, provide alternate employment to the rural people and thereby increase income for their development. The poor women who are dependent on forests are identified for financial assistance through loans. During 2007-08, 51,500 ha. of degraded forests were restored and developmental activities were carried out in 230 forest fringe villages including 40 tribal villages at a cost of Rs. 115.22 crores.

During the year 2008-09, 37,500 ha. of forests with crown cover below 0.4 density, 10,000 ha. of forests with crown cover between 0.4 to 0.6 density and 4000 ha. of degraded forests surrounding tribal villages, i.e 51500 ha. of degraded forests which have poor tree cover will be restored by planting 96.50 lakhs seedlings. Species of tree seedlings like nelli, neem, pungan, ilandai, naval, vilvam, vila, iluppai and terminalia which are site specific usufruct yielding tree species will be planted for not only increasing the tree cover, but also for providing Minor Forest Produce and medicinal plants to the local people.

**8.2.2. National Afforestation Programme**

This scheme implemented by the Forest Department aims at generation of rural employment and forest protection. All the works identified have been implemented by formation of 1140 Village Forest Development Councils through 32 Forest Development Agencies. An amount of Rs. 74.06 crores has been spent under this programme which was launched during the previous plan period. During 2008-09, restoration of forests and associated development activities will be taken up for a sum of Rs. 17 crores.

### 8.2.3. Integrated forest protection

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 undertaken. The State Government has taken concerted efforts in protection and augmentation of natural resources. The intensive efforts taken in forest protection in the State have resulted in increased forest cover, density and augmentation of bio-diversity in the forests.

During 2008-09, it is proposed to implement this scheme at an outlay of Rs. 4.00 crores.

### 8.2.4 Forest Maintenance under the 12th Finance Commission's recommendations

Under the Scheme for Forest Maintenance under 12th Finance Commission's recommendations, covering the period from 2006-07 to 2009-10, it has been planned to restore the degraded Forest areas in the Nilgiris and Palani Hills, inorder to increase the Bio-diversity and nature of the Forest to develop the roads in Forest areas, to improve the infrastructure in Forest areas and to conserve the bio-diversity through protected area management at a cost of Rs.30.00 crores.

In 2007-08, development works were undertaken in the Forest areas of the State at a cost of Rs.5.37 Crores. It has been proposed to undertake development works at a cost of Rs.5.31 Crores during 2008-09.

### 8.3. Empowerment of women

The programmes of the Forest Department have ensured that rural women have a pivotal role in controlling decisions pertaining to restoration of forests, Joint Forest Management, resource sharing and employment generation. The guidelines established have provided for inclusion of 50% women in VFCs and 33% women representation in the executive committee. So far, 1937 VFCs have been established with 6,05,587 members including 2,88,998 women. Women also head 81 VFCs. The formation of women groups have paved way for economic liberation of the

women in the villages. The women have also developed skills to handle family budgets efficiently by virtue of their involvement in savings and micro-finance activities. One bright aspect of TAP programme is the continued creation formation of women groups year after year. From 1997-98 to 2007-08 around 6026 women groups have been formed and 90,227 women have been enrolled as beneficiary members. In 2008-09, this policy will be further strengthened by addition of 750 groups. These will be established in 230 villages in the forest fringe areas, out of which 40 villages are tribal villages.

**8.4. Tribal Welfare**

The Forest Department, which is involved in the management of the healthy forest eco-systems, has also the important responsibility of looking after the welfare of the tribal living in the forest areas. In order to render this service effectively, the Forest Department is involved in tribal education, employment generation and other welfare activities of the tribals.

Lakh of tribals in this State are dependent on forests. With an objective to undertake development activities in tribal areas, the Tamil Nadu Afforestation Project includes activities around tribal settlements in forests to the tune of Rs. 36.08 crores.

The Forest Department runs 19 schools for tribals in the State. Approximately, 5000 students are being educated in these schools. The students of these schools are provided drinking water facilities, laboratory equipment, separate toilet facilities for girl students, sports equipments, classroom facilities, teaching aids and books. Funds to the tune of Rs. 5.07 crores have been provided, under the Rural Infrastructure Development Funds (RIDF) to address infrastructure needs of Forest Department run tribal schools.

During 2007-08, an amount of Rs. 1.0142 crores have been spent under this scheme. During 2008-09, an amount of Rs. 2.0281 crores have been provided to undertake the works.

**8.4.1. The scheduled tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**

The Act was enacted to recognize and vest forest rights in forest land to Forest Dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for

generations but whose rights could not be recorded and to provide a framework for recording the Forest right so vested and the nature of evidence required for such recognition and vesting in respect of Forest land. This Act was declared in 2006. The Forest Department will render all co-operation needed for implementation of the law, declared with the intention of protecting the welfare of tribal and forest dwellers, within the stipulated time framework.

**8.5. Catchment Area Management**

The objective of catchment area management is to protect and conserve the soil, water and other natural resources including human resources and their prudent utilization to ensure development of inhabitants living within the watershed, by well designed schemes and its effective implementation. Schemes should be so conceived that when implemented will ensure that available natural resources within the forest are not destroyed but effectively conserved and developed for future generations. From 1997, Tamilnadu Afforestation Programme with this objective has been implementing developmental activities in forest areas within the watersheds. This programme is being implemented for the past 11 years with the complete co-operation, support and active participation of the people. Rainwater harvesting, good engineering structures like check dams and percolation ponds have been constructed in forests, with the intention of augmentation of water resources and to provide scope for increased level of underground water availability. Till date, 26615 check dams and 3035 percolation ponds have been constructed. These structures have the capacity to store 1378.46 million cu. feet of water. Such effective and useful catchment area development activities will also be undertaken during 2008-09. Approximately, 1000 check dams and 300 percolation ponds will be constructed at a cost of Rs. 24.27 crores.

**8.5.1. Hill Area Development Programme (HADP)**

This scheme is being implemented to improve and upgrade the ecological conditions exclusively in the Nilgiris district. Apart from afforestation, soil and moisture conservation works, fencing around shola forests are also carried out to reduce the pressure on eco-system and to

improve the degraded shola and forest cover in the Nilgiris. During the year 2007-2008, it is being implemented with an outlay of Rs.2.07 crores.

During 2008-2009, it is proposed to implement this scheme at a cost of Rs.2.99 crores.

### 8.5.2. Western Ghats Development Programme (WGDP)

This scheme aims at increasing the tree cover of the western ghat areas besides improving the eco-system of the western ghat hill forests and providing life support to the people. It is being implemented in Coimbatore, Dindigul, Madurai, Theni, Erode, Virudhunagar, Tirunelveli, Kanyakumari districts. Afforestation, soil conservation works, anti-poaching measures, communication improvement, medicinal plants conservation, solar fencing, etc. are some of the major activities carried out under this scheme. During 2007-08, it is being implemented in identified watersheds with an outlay of Rs.2.22.crore including establishment cost.

It is proposed to implement this scheme during 2008-2009 with an outlay of Rs.4.25 crores.

## 8.6. Sanctuaries and National Parks

Sanctuaries and National Parks have been established under this Wildlife Protection Act 1972. This act, by nature of its special provisions over the forest act gives distinctive protection to wildlife and also provides scope for declaration wildlife rich areas as sanctuaries.

In Tamil Nadu, 3840 sq. kms. of land area has been declared as Sanctuaries and National Parks. This includes, 8 sanctuaries, 5 National Parks and 12 Bird Sanctuaries. Tamil Nadu also has 9 Zoos for wildlife conservation besides serving as Eco-education, awareness and entertainment areas. Considering the wildlife richness, Nilgiris, Agasthiyar Malai and Gulf of Mannar have been declared as biosphere reserve. A conservation reserve has been declared in Thirupudaimarudur of Tirunelveli. The important schemes, which aim to conserve wildlife in the State, are as follows:

### 8.6.1. Project Tiger

The Forest Department has taken various measures to conserve tigers and their habitat. The Kalakadu Mundanthurai Tiger Reserve was declared in 1988 as Project Tiger area. During

2007, the Anamalai wildlife sanctuary and Mudumalai wildlife sanctuary were declared as two new project tiger areas. Project tiger areas are indicators of healthy eco-system wherein this flag ship species and the co-inhabitants are protected and conserved. Presently, Government of India provides 100% assistance for key activities in Project Tiger areas like tiger habitat conservation, ecological development, protection, forest fire, control measures, moisture conservation, eco-tourism, human-wild conflict resolution and infrastructure development. The efforts taken for declaration of two new project tiger areas have established the fact that this State is a forerunner in tiger conservation and confirms the priority placed for this cause.

The population of tiger which is our national animal has increased by 25% in Tamil Nadu. This has been confirmed in the wildlife census report of Wildlife Institute of India published in 2008. The report has also pointed out that the population of tigers in India has been reduced from 3642 to 1411. It can be stated with conviction that the focused attention and importance provided for forest protection and various actions taken for wildlife conservation in the State, have been instrumental for the conservation gains.

**8.6.2. Project Elephant**

With considerable population of elephants, Tamil Nadu is a leading State in Elephants and their habitat management. Out of the 24000 elephants estimated in India, this State has a population of 4015 elephants.

Elephant is a migratory mammalian species, that moves in herds. It is therefore essential that their migratory paths are bereft of encroachments. It is estimated that out of the 88 migratory elephant pathways in India, Tamil Nadu has 12 migratory pathways. Out of this, 2 most important tracts have been identified and action is being taken for acquisition of these pathways to establish corridors for undisturbed elephant movement. A committee headed by District Collector, Nilgiris has been constituted for acquisition and establishment of Jackanari, Kallar and Moyar tracts as corridors for elephant migration.

Project elephant is an excellent programme implemented in the State. During 2007-08, Rs.1.54 crore was spent on executing important works like engaging anti- poaching watchers, anti-

poaching camps, improving water sources along migratory routes of elephants. The works will continue to be implemented during 2008 - 2009.

### 8.6.3. Arignar Anna Zoological Park

The Arignar Anna Zoological Park in an area of 602 ha. is located in Vandalur, close to Chennai. The park exhibits 1369 animals, which includes 51 species of mammals, 66 species of birds, 30 species of reptiles in all numbering 147 species of wildlife. The zoological park attracts about 12 lakh visitors annually. An amount of Rs. 4.18 crore has been allocated during 2007, for the implementation of special programmes in the Zoological Park with the support of Government of India. With the fund provided, works like improvement of animal houses, exhibit areas, road works, pathways, visitor facilities and purchase of battery operated vehicles are being undertaken.

**Night Safari**

Orders have been issued for establishment of Night Safari at a cost of Rs.256.00 crores with the objective of enabling seeing wildlife in their own natural settings, at night. It will be a thrilling experience for the Tourists which will be conducted in vehicles to get an orientation to wildlife and also see the denizens in the twilight backdrop. Towards this effort, the Government have sanctioned Rs. 5 crores for the initial works. The night safari will have two components viz., an animal exhibit area and an entertainment area. All animals will be exhibited under artificial illumination in very naturalistic environment. The entertainment zone will have eat outs, plazas, souvenir / gift shops, interpretation centres and rest areas. The night safari is being established for those interested in watching and understanding the natural wildlife behaviour and activities in the night hours. The night safari in Singapore is the first of its kind in the world. Chennai with climate almost similar to Singapore is an ideal location to establish a night safari and will be the first of its kind in the country.

**Butterfly Park**

A Butterfly park is a facility created through careful choice of host plants and habitats so as to exhibit butterflies in their natural settings. Orders have been issued to create a butterfly park

at a cost of Rs.4.87 crores at the Arignar Anna Zoological Park, Vandalur, so that visiting tourists can see different species of butterflies in a single place.

**8.6.4. Mini zoos**

The following mini zoos are under operation in the State.

1. Chennai Snake Park
2. Children's Park, Guindy
3. Kurumbapatti Zoological Park, Salem
4. V.O.C. Park, Coimbatore
5. Crocodile Bank, Chennai
6. Mini Park, Sivaganga, Tanjavore
7. Amirthi Zoo, Vellore
8. Deer Park, Ooty

These mini zoos exhibit animals like hyena, nilgiri langur, wild dogs, Toddy cats, sambar, spotted deer, star tortoise, porcupine, parakeets, Rosy Pelican etc. To possess wildlife without permission is an offence under Wildlife Protection Act, 1972. Wildlife held in illegal captivity, on confiscation, will be exhibited in the Trichy Zoological Park which will be established.

**8.6.5. Prevention of animal intrusion into huma settlements and provision of compensation**

Population explosion and industrialization have resulted in reduction of animal habitats in the last century, as a result of which wildlife have now started straying out of the forests into human settlements. It is essential to bring about a solution to this crisis. Erection of solar powered fences is an effective method to prevent wild animals from straying out of the forests. These fences are erected by planting stone pillars at intervals of 8 metres, between which five strands of wire are stretched. With the help of solar panels, electricity is stored in batteries during day time. Wires are connected to these batteries. As electricity is discharged in pulses, the wild animals are repulsed when they come in contact with the wire fence. As the same time, this is not dangerous to wild animals, since the electrical pulse lests only for a split second. During 2007-08, solar fences were laid for an extent of 315.75 kms. at a cost of Rs.505.20 lakhs which is an all time high. The erection of solar fence along forest boundaries to prevent man-animal conflicts has brought large support from the people and therefore will be continued during 2008-09.

In this process of movement, wildlife have been entering cultivated field, human settlements and raiding crops during the night hours thereby destroying the belongings and properties. At times, it has also resulted in loss of human life. In order to make good for such losses, for the first time during 2006-07, an amount of Rs.50.00 lakhs was provided for payment of compensation to the victims. Similarly, during 2007-08, Rs. 50.00 lakhs was provided and compensation paid to the affected in full. This scheme has helped to provide timely relief to the families affected by effects of wild animals and hence will be continued during 2008-09.

**8.7. Infrastructure development, forestry research and staff welfare**

**8.7.1. Staff welfare**

In order to get all Government schemes implemented as per the perceived objectives, it is essential to provide the basic facilities required for staff involved in the scheme implementation. Taking into consideration this requirement, this State has constituted a State Forestry Commission as effort made for the first time in the country.

In G.O. Ms.No.87, Environment and Forests Department, dated 14.8.07, the State Forest Commission was established to examine the following issues:

1. To review the existing policy and legal framework of forestry in Tamil Nadu and their impact in holistic manner from ecological, economic, social and cultural view points.
2. To make recommendation for specific policy options for achieving sustainable forest management in production forestry, protection forestry, protected area management, social and extension forestry to bring 1/3 of the land area under tree cover as stipulated in National Forest Policy, 1988.
3. To examine the current status of Forest administration to meet the needs of civil society and to establish a meaningful relation between the forest department and the forest dwelling community.
4. To suggest technological innovations in communication, Information Technology enabled solutions to manage remote forest area and also research innovation activities to increase Forest Productivity and conserve forest areas.
5. To recommend capacity building measures needed to equip the officers and staff of Forest Department to improve their skills and meet new challenges.

6. To develop harmonious and meaningful partnership between the Forest personnel and local people especially tribals in achieving the goal of sustainable Forest Management.
7. To suggest measures to make forest administration more responsive to the public needs and establish mechanism for quick redressal of public grievances.
8. To study the existing service conditions (other than those relating to pay and allowances which come with in the purview of Pay Commission) and suggest ameliorative measures.

Often the forest field functionaries are stationed in very inhospitable environment and in remote areas in order to execute the responsibilities of forest protection. In such places it is the responsibility of the Government to provide housing facilities for staff like Forest Guard and Forest Watcher. Therefore, under the TAP (Phase II), this aspect has been given priority and housing facilities provided for 380 field functionaries. Similarly, 58 office buildings, 4 residence-cum-office building and 29 rest houses have been constructed. In order to increase this effort in a bigger way during the year 2008-09, 193 staff quarters and 3 office buildings are to be constructed at a cost of Rs. 5.41 crores. A modern Remote Sensing and Geographical Information System laboratory have been established in Chennai. Utilizing this facility, the forestry based information network for management has been digitalized ..

**8.7.2. Human Resource Development**

In order to facilitate better execution of the field activities with improved scientific approaches, forest staff and field functionaries have been provided the needed training in premier forestry institutes within the country and abroad during 2008-09, incurring an expenditure of Rs. 84.55 lakhs.

The forest staff have been provided with rifles and pistols to tighten forest protection. The staff also need to understand all the rules and regulations regarding use of weapons at appropriate time and also the facts, governing the possession of weapons. To develop the needed skill in use of weapons annually, Forest Rangers, Foresters, Forest Guards are given training in the Tamil Nadu Forest Academy at Coimbatore and also at the Forestry Training

College at Vaigai Dam in Theni District. During 2008-09, an amount of Rs. 10.00 lakhs has been provided for weapon training.

**8.7.3. Forest research**

Forest research has provided new thrust to latest dimensions of forest activities, research to support Tree Cultivation in Private Land, seed biology, medicinal plant conservation, MFP and post harvest technology are areas in which research is being taken up. The objective of the scheme is to enhance forest conservation, improve productivity and thereby produce more goods and services for the benefit of people through research experiments. Experiments are conducted to find out the best species and most suitable regeneration techniques for different climatic and soil conditions.

Some of the activities and studies of the research wing include:

1. Identification of elite trees of teak and other economically important tree species through extensive genetic combing, collection and distribution of quality seeds to farmers and for afforestation programmes of the department.

2. Casuarina junghuniana is a drought resistant, fast growing, economically remunerative tree species most suitable for dry tracts. As there are difficulties in propagation of the species through seeds, the research wing has perfected the technique for large-scale multiplication of the species through vegetative propagation.

3. Thornless fast growing bamboo species, most suitable for Tamil Nadu, have been identified and techniques standardised for mass multiplication.
4. The research wing has also shortlisted 20 species of medicinal plants of high demand and identified appropriate propagation techniques for cultivating them in farm lands.

State Forestry Research Institute, Kolapakkam and other Research centres in the State are adopting many innovative approaches for tree cultivation in private lands. Research activities

were implemented at a cost of Rs.4.93 crores during the year 2007-2008. During 2008-09, an amount of Rs. 5.14 crores have been provided for Research activities. The co-ordination between the Research and Extension wings have resulted in transfer of technology, large scale application of research findings and forest information, application of research findings and dissemination of forestry information for adoption of improved forestry and farm field practices.

**8.8. Transfer of forest land to other Departments for developmental activities**

The Forest Conservation Act stipulates that all Government lands declared as forests or private lands declared as forest by the Apex committee constituted by Supreme Court or those areas notified as forests in Government documents require clearance of Government of India in case such land are to be diverted for non-forestry purposes.

Diversion of areas in National Parks and Sanctuaries for non-forestry uses (other than for drinking water supply, provision of electricity, communication network) should not be permitted without prior permission of Supreme Court. The State Government has been empowered permission till 31.12.2008 under Forest Conservation Act, 1980 for diversion of forest lands upto 1 Ha. for notified essential developmental activities of various departments.

So far, 281 cases involving 10,800 acres of forest lands, have been diverted for various development activities. Taking into consideration the welfare of tribals and forest dependent communities, guidelines have been issued to the District Collectors for expanding these developmental works in forest areas.

**8.9. Coastal area management**

The State has a coastline of 1076 kms. The Coastline of the State is vulnerable to frequent cyclones. Hence, raising shelterbelt plantations as bio-shields in the coastal districts of Tamil Nadu to protect the people living in coastal areas from the natural disasters like Cyclone, Tsunami and other vagaries of nature is an important activity of Forest Department.

The experience during the Tsunami on 26.12.2004, has clearly revealed the importance of shelterbelts and mangroves. Under Emergency Tsunami Reconstruction Project (ETRP), 4778 ha. of shelterbelts and 2162 ha. of mangroves have been restored at a cost of Rs.21.82 crores. During

2008-09, necessary measures will be undertaken to raise shelterbelts over an extent of 1000 ha. at a cost of Rs.4.15 crores.

## 9. ACHIEVEMENTS OF 2007-08.

Some of the significant achievements during 2007-08 are as follows:

1. Orders have been issued for constitution of a State Forest Commission to examine the current status of forest administration and suggest ways to establish meaningful partnership and interface between forest administration and local communities, to provide recommendation for upgradation and skill development of forest staff and suggest ways to increase the forest cover as per the National Forest Policy, 1988. Tamil Nadu is the first State to have constituted the State Forest Commission.
2. Orders have been issued exempting payment of Royalties for teak and rosewood trees in Kannyakumari District and Shenkottah Taluk of Tirunelveli District.
3. Orders have been issued to abolish collection of cess for use of forest roads for which over the last 100 years, charges were collected for use. Forest roads can be used unhindered by farmers, tribals and forest dwellers and tourists who will now be benefited by this order.
4. Orders have been issued for the devolution of the share of local bodies from the social/farm forestry revenues earned for the period from 2000-2001 to 2003-2004, to the tune of Rs. 15.16 crores.
5. To establish effective monitoring of forestry development activities and strengthen conservation measures in all the districts of the State, two new forest divisions have been created in Perambalur and Thiruvarur Districts.
6. The Biological Diversity Act, 2002, provides for the constitution of a Bio-Diversity Board for every State. However in Tamilnadu, this was not constituted. Considering the importance of biodiversity conservation a State Biodiversity Board has been formed in the State consisting of experts from various scientific fields.
7. To reduce the impact of pollution which is increasing consequent to urbanisation and industrialisation and to promote tree cover, a new scheme which is the first of its kind in the country, was sanctioned at a cost of Rs.4 crore and more than 1 lakh tree saplings planted in the municipal corporation and their suburban areas.
8. To increase the green cover in private lands and to encourage tree cultivation outside forests, for the first time in India, a sum of Rs. 10.00 crores was sanctioned during 2007-2008 to launch a scheme for Tree cultivation in private lands which was implemented successfully. Through this, tree seedlings were produced by the forest

department and planted on farmer's fields. In addition, farmers were provided a subsidy to look after the farm protection operations. Besides these schemes, tree seedlings were distributed free of cost to the farmers for planting. Thus, more than 1 crore seedlings have been raised and planted in the farmer's fields during 2007-08.

9. During 2007-08, 1.57 crore seedlings have been planted in the forest areas over an extent of 58927 ha. under various schemes.
10. In order to counter human–animal conflicts,during 2007-2008, orders have been issued for erecting solar fences for a distance of 315 kms. and the work completed.
11. During 2007-2008, an amount of Rs.71.93 lakhs was disbursed for payment of compensation for loss of life and property caused by Wildlife. With the sanction of Rs. 50.00 lakhs received as special budget provision from 2006-2007, the backlog of compensation which accrued from earlier years was cleared. Tamil Nadu is the first State in the country to have provided funds from the State for granting compensation. This has resulted in establishing a harmonious relationship between forest fringe dwellers and the department and won the support for conservation efforts.
12. In order to enhance awareness among children on wildlife conservation, orders have been issued in 2007-2008, for all children to enter the Guindy Children's Park free of cost.
13. Orders have been issued for establishment of a Night Safari at Arignar Anna Zoological Park near Vandalur at a cost of Rs. 256 crores and works commenced. When it is completed, the night safari will attract national and international tourists in a big way and will be the first of its kind in India.
14. To protect forest areas from encroachments, 23,590 Cairns have been erected under various schemes along forest boundaries.
15. The washing allowance for forest Rangers, Foresters, Guards and Watchers has been raised from Rs. 30/- to Rs. 100/- per month, on par with police personnel.
16. Orders have been issued to provide Forest Department field staff like Rangers, Foresters, Forest Guards, Forest watchers involved in forest protection, with specially designed shoes to perform better field functions.
17. The wage settlement which has been pending in TANTEA for more than 5 years was vigorously pursued and successfully concluded in 2007. By this, workers of TANTEA are being paid higher wages as per the settlement reached with the trade unions.

## 10. FOREST REVENUE AND EXPENDITURE

## 10.1. Forest Revenue

Major sources of forest revenue are realised by sale of sandalwood and timber. The revenue details are as follows:

(Rs. in lakhs)

| Sl. No. | Source of revenue | 2007-2008 (Revised Estimate) | 2008-2009 (Budget Estimate) |
|---|---|---|---|
| a) | Sandalwood | 7810.66 | 7000.00 |
| b) | Timber | 1019.16 | 1119.79 |
| c) | Supply of raw materials to industries | 479.05 | 484.34 |
| d) | Other Minor Forest Produce | 11.21 | 13.31 |
| e) | Farm Forestry plantations | 700.00 | 750.00 |
| f) | Sale of Bamboo, Cashew and Softwood plantations | 13.83 | 14.27 |
| g) | Other receipts | 2183.52 | 2339.13 |
| | **Sub total** | **12167.43** | **11720.84** |
| | Deduct refunds (-) | 1628.99 | 665.22 |
| | **Total** | **10588.44** | **11055.62** |

## 10.2. Expenditure

Expenditure details of Forest Department are as follows:

(Rs. in lakhs)

| Name of the Scheme(s) | Budget Estimate 2007-08 | Revised Estimate 2007-08 | Budget Estimate 2008-2009 |
|---|---|---|---|
| State schemes | 29334.95 | 28071.73 | 30643.47 |
| Centrally Sponsored Schemes | 637.13 | 879.99 | 610.80 |
| Schemes shared between State and Centre | 660.14 | 667.08 | 590.37 |
| **Total** | **30632.22** | **29618.80** | **31844.64** |

### 10.3. Part-II schemes

During 2008-09, the following Part-II schemes will be implemented at a cost of Rs.4.69 crores.

| Sl. No | Name of the schemes | Amount Rs. in lakhs |
|---|---|---|
| 1 | Construction of Rest house with 3 suites at Perambalur | 20.00 |
| 2 | Proposal to tackle the problem of Elephants, Wild boar, Monkey and other wild animal menace in vulnerable areas | 20.00 |
| 3 | Raising 1,67,000 taller seedlings and supply to Government organizations and Private organizations | 50.00 |
| 4 | Improvement of Roads in forest areas | 125.00 |
| 5 | Erection of Solar fencing for 115.625 kms length in vulnerable areas in the state | 185.00 |
| 6 | Improvement to the office in Panagal Building | 9.00 |
| 7 | Improvements and Maintenance of 12 Medicinal Plants Conservation Areas & 8 Medicinal Plants Development Areas. | 10.00 |
| 8 | Habitat improvement for 4 bird sanctuaries | 8.00 |
| 9 | Training in HRD and Weapon Training to the officers in Forest Department. | 10.00 |
| 10 | Improvement works for Kurumbapatty Mini Zoo, Yercaud Deer Park, Guindy National Park and Amirthi Zoo. | 7.00 |
| 11 | Proposal to provide Drinking water facilities to the remote tribal settlements | 25.00 |
| | **Total** | **469.00** |

## 11. NEW PROJECTS PROPOSED TO BE IMPLEMENTED DURING 2008-09

### 11.1. Raising teak plantations on padugai lands

The objective of the scheme is planting teak on padugai lands specifically river and canal banks on a large scale all over the State to increase teak supplies and provide employment to

local people, to improve their standard of living and to improve the economy of the State. It is proposed to implement this scheme at a cost of Rs.35.41 crores for a period of five years from 2008-09 to 2012-13 by raising teak plantations over an extent of 20,700 ha.

**11.2. Coastal area plantations in private lands**

The coastal areas in Tamil Nadu face wide range of problems like sea level variations, shoreline erosions, salt water intrusion, degradation of mangroves and coastal forestry. Further, to prevent the people living in coastal areas from these problems, to increase the area under tree cover and to improve the social and economic condition of the coastal residents, afforestation activities are proposed to be taken up in the coastal areas over an extent of 1000 ha. at a cost of Rs.4.15 crores.

**11.3. Conservation and collection of medicinal plants resources in Tamil Nadu**

Over 600 species of medicinal plants that could be brought to commercial usage are found in Tamil Nadu and more than 90% of them occur in forest areas. Owing to increased demand for medicinal plant products in recent years, some of the species are facing the permanent loss. Hence, in order to conserve and augment medicinal plant resources in the State, proposals were submitted to the National Medicinal Plant Board, New Delhi and it has sanctioned Rs.3.21 crores for raising plantation of important species in select locations, facilitating value addition including processing and storage, and strengthening seed sources and knowledge base through improved inventory and database management. Works will be commenced during 2008-09.

**11.4. Eco-Tourism**

Realizing the potential for eco-tourism, proposal to the tune of Rs.47.00 crores has been prepared and posed to the Government of India for funding. Government of India have sanctioned funds for one circuit for an outlay of Rs.439.50 lakhs (Mudumalai - Anamalais) and will be initiated in 2008. Eco-tourism will be continued in the coming years covering the lesser-known wilderness trails in the State.

**11.5. Water resources management**

In Tamil Nadu, ground water resources are getting depleted due to excessive ground water usage. In order to change this condition, it proposed to construct checkdams and ponds in the watershed areas of Vaigai, Krishnagiri and Kodaganaru for a period of three years from 2008-09 to 2010-11. Hence, in order to recharge the ground water level it has been proposed to implement this scheme at a cost of Rs.1 crore during 2008-09.

## 12. FOREST CORPORATIONS

### 12.1.Tamil Nadu Tea Plantation Corporation Limited., Coonoor

The Tamil Nadu Tea Plantation Project was started in the year 1968 by the Government of Tamil Nadu and managed by the Forest department for the socio -economic rehabilitation and resettlement of the repatriates from Srilanka under the Shastri-Srimavo-Pact. Later, in the year 1975, the Tamil Nadu Tea Plantation Corporation Limited, often referred to as TANTEA, was registered as a Government undertaking under the Companies Act 1956. The Corporation has raised tea plantations in an area of 4431.92 hec. and produces annually around 120 lakh kgs. of made tea. The Corporation has 8 modern tea factories to produce quality tea. TANTEA provides permanent employment to 6250 labourers and temporary employment to 3000 labourers. The Corporation also provides housing facility, free drinking water, free medical aid and other facilities to the labourers. It also runs 3 hospitals and 7 schools. From 2006-07, the hospital also provides free medical facilities to the temporary labourers of the Corporation.

The prolonged wage settlement, due for 6 years from 01.01.2002 to 31.12.2007 which was under negotiation and not settled for many years to the labourers, was finally resolved and wage agreement reached by the Government. As per this agreement, besides payment of revised wages from July 2007, the arrears for the previous years are also being cleared in instalments. The daily wages of Rs.86.15, paid to the labourers of this Corporation up to 31.12.2007, were substantially higher than what was paid to the private tea labourers in Nilgiris and Anamalai tea

estates. As per Government orders, 20% bonus and exgratia payment of Rs.318 lakhs, due for the labourers for the year 2006-07 was paid to them in November 2007.

The present wage settlement has come to an end in 31.12.2007. The negotiations are on, with labour union representatives for the wage settlement due from 1.1.08.

This Corporation incurred a loss of Rs. 8.47 crores during 2005-06. The management initiatives undertaken during 2006-07 has reduced the loss to Rs.1.10 crores. During the year 2007-08, between the period from October 2007 to March 2008, there was an increase in the price for the made tea. If the trend continues during 2008-09, a profit of Rs.6.85 crores is expected.

**12.2. TAMIL NADU FOREST PLANTATION CORPORATION LIMITED, TIRUCHI**

Tamil Nadu Forest Plantation Corporation was established with Head quarters at Tiruchi on 13th June 1974 under the provisions of Companies Act 1956. The Corporation has in it possession 74963.23 hec. of Reserve Forests and Reserve lands leased out by the Forest department. This Corporation with 7 Regions at Pudukkottai, Aranthangi, Karaikudi, Vridhachalam, Villupuram, Tirukoilur and Melchengam also has one Sandalwood Products Factory.

**12.2.1.Objectives**

The main objectives of the Corporation are :

1. To Raise Pulpwood plantations for regular and sustained supply of pulpwood.
2. Raise Firewood plantations to meet the fuel wood needs of the public and cashew plantations for the production of cashew nuts.

**12.2.2.Eucalyptus Clonal Plantations**

To enhance the productivity, large scale Eucalyptus clonal plantations have been raised from 1999. The area under clonal plantations raised since 1999 are 15458 hec.. While the average yield expected from the plantations of seed origin is only about 19 M.T per hec., in the clonal plantations the average yield is about 34 MT per hec. About 2800 hec. of Eucalyptus clonal plantations are being raised every year. TAFCORN is a major supplier of high yielding superior

quality Eualypcuts clonal plants to M/s TNPL and others. During 2007-08, 22.85 lakhs of clonal plants were supplied to M/s TNPL,.

**12.2.3. Pulpwood Trees**

The paper manufacturing industries whose raw material is wood based, are supplied pulpwood in large scale by TAFCORN. About 1,20,000 MT of Pulpwood will be sold to these industries during 2008-09.

**12.2.4.Cashew**

To increase productivity of cashew, grafts of superior clones are planted. Revenue is realised from the sale of cashew plantations through public auction by tender cum sale. The revenue realised through sale of cashew is as follows

| Year | Revenue realized (Rs. in lakhs) |
|---|---|
| 2006-07 | 349.80 |
| 2007-08 (Estimate) | 805.12 |

**12.2.5 Planting targets for 2008-09**

During 2008-09, plantations will be raised as follows:

| Sl. No. | Type of activity | Target (Area in ha.) |
|---|---|---|
| a) | Raising eucalyptus plantations | 3500 |
| b) | Raising cashew plantations | 1000 |
| c) | Raising casuarina plantations | 10 |

**12.2.6 Financial activities of the Corporation**

During 2006-07, the Corporation has obtained a net profit of Rs.7.71 crores and an accumulated profit of Rs.41.91 crores.

The details of last three years are as follows:

(Rs. in lakhs)

| Year | Revenue | Expenditure | Net Profit |
|---|---|---|---|
| 2004-05 | 3765.61 | 3082.59 | 683.02 |

| | | | |
|---|---|---|---|
| 2005-06 | 3594.79 | 2858.42 | 736.37 |
| 2006-07 | 4028.69 | 3257.68 | 771.01 |
| 2007-08 | Accounts are being finalized. | | |

## 12.3. ARASU RUBBER CORPORATION, NAGERCOIL

Arasu Rubber Corporation has rubber plantations over an area of 4279.78 ha. of forest lands taken on lease from the Forest Department in Kanyakumari district. Kanyakumari district has the required soil, climate and topographic factors suitable for the cultivation of rubber trees. Arasu Rubber Corporation was registered on 10.08.1984 under the Companies Act, 1956. The authorised capital of the Corporation is Rs.10.00 crores. The paid-up share capital is Rs.8.45 crores, the Government of Tamil Nadu holds the entire share capital of the corporation. There are 1823 workers and among them 398 are Srilankan repatriates.

More than 70% of the rubber trees in the plantations of Arasu Rubber Corporation were planted during 1960s and 1970s. The trees which have attained an age of 30 years or more, yield less, and therefore to make the corporation more viable and to provide continuous employment opportunities to the workers, it has been decided to undertake replanting works with high yielding clones as advised by the Rubber Board, after felling of the less productive matured rubber trees. Accordingly, during 2008-09 an area of 142.90 hec. is proposed for felling and will be raised under clonal trees, in subsequent years.

### 12.3.1. Production and sale (Income and Expenditure)

The details of income and expenditure for the years 2004-05, 2005-2006 and 2006-2007 are as follows:

(Rs. in lakhs)

| Year | Rubber production (in M.T.) | Revenue by sale of rubber and other items | Expenditure | Profit (+) Loss (-) |
|---|---|---|---|---|
| 2004-2005 | 2037.00 | 1491.36 | 1470.44 | (+) 20.92 |
| 2005-2006 | 2562.00 | 2015.57 | 1946.16 | (+) 69.41 |
| 2006-2007 | 2116.00 | 2190.49 | 1647.34 | (+) 543.15 |
| 2007-2008 | Accounts are being finalized. | | | |

It is expected that this Corporation will continuously earn profit during 2007-08 and 2008-09.

## 13. PATH AHEAD

Protection of forests will help to conserve our rich biodiversity, promote wildlife management, and ensure the welfare of the scheduled tribes and other forest dwellers. The promotion of tree cover outside forest areas will help to increase our green cover, provide the raw material for economic growth and control pollution levels. The combination of these two approaches will help to make Tamil Nadu the foremost State in our country in forest management and in promoting the economic upliftment of farmers by encouraging scientific tree growth.

## 2. DEPARTMENT OF ENVIRONMENT

Environmental conservation is an integral part of socio-economic development. The spiraling population and increasing industrialization have posed a serious challenge to the preservation of our terrestrial and aquatic ecosystems. Conservation of our natural resources like land, water, forests and bio-diversity are important for the ecological security of Tamil Nadu.

Degradation of the environment affects the poor and underprivileged, the most. Hence, by protecting the environment, the economic interests of the poorer sections of society are also safeguarded. Sustainable development is the need of the hour and this is possible only by promoting awareness about the need to protect the environment. Several initiatives have been taken by this Government for pollution abatement in the rivers and lakes besides promoting environmental awareness among the school children and the public at large.

### 2.1 Directorate of Environment

The Directorate of Environment deals with the promotion of environmental awareness in the State. This Directorate also co-ordinates pollution abatement projects for the Cauvery, Vaigai and Tamiraparani rivers as well as the Chennai City water ways. This Directorate also deals with co-ordination of National Lake Conservation Programme, implementation of Coastal Zone Regulations and all aspects of environment other than those dealt by Tamil Nadu Pollution Control Board.

#### 2.1.1 Administrative set up of the Department.

The Directorate of Environment is headed by the Director in the rank of Chief Conservator of Forests who is assisted by Additional Director in the rank of Conservator of Forests. To assist them in their activities there are 23 personnel including a Deputy Director and an Assistant Executive Engineer. Action against violations of Coastal Regulation Zone Notification are taken by the Green Squad functioning under the control of an Assistant Conservator of Forests.

The co-ordination and liaisoning works with the Government of India and various implementing agencies in respect of National River Action Plan and National Lake Conservation Plan are done by Environment Management Agency of Tamil Nadu (EMAT), in which a Project

Manager, in the rank of Superintending Engineer functions under the control of the Director of Environment. He is assisted by Executive Engineers, Assistant Executive Engineers and Assistant Engineers.

**2.2 Coastal Zone Management**

Tamil Nadu has a coastline of about 1,076 kms which is about 15% of the coastal line of India. In order to protect coastal environment and to regulate development activities in the coastal areas, Government of India have issued Coastal Regulation Zone Notification in 1991 under Environment Protection Act. As per this Notification, in coastal areas a) the land area between Low Tide Line and High Tide Line, b) 500 meters land area on the landward side from High Tide Line, c) 100 meters on both sides of tidal influenced water bodies have been declared as Coastal Regulation Zone. National Coastal Zone Management Authority has been constituted by Government of India to take measures for protecting and improving the quality of the coastal environment and preventing, abating and controlling environmental pollution in coastal areas. Similarly, to protect and improve the coastal environment and preventing environmental pollution in coastal areas of Tamil Nadu, a State Level Coastal Zone Management Authority with Secretary to Government, Environment and Forests Department as Chairman and Director of Environment as Member Secretary, Engineering Experts and Scientists have been constituted. Government of Tamil Nadu have formed the District Coastal Zone Management Authorities with Collector of the district as Chairman to monitor, enforce and implement the provisions of Coastal Regulation Zone at district level. Proposals seeking clearance under Coastal Regulation Zone Notification are first scrutinized by the District Coastal Management Authority and then submitted to State Coastal Zone Management Authority. Depending on the nature of proposal, it is scrutinized and approved either by State Coastal Zone Management Authority or by National Coastal Zone Management Authority.

## 2.3 River and Lake Conservation works

"Environment Management Agency of Tamil Nadu" (EMAT), an autonomous agency, was constituted for coordination and liaisoning between National River Conservation Directorate,

Ministry of Environment and Forests, Government of India and various implementing agencies for implementation of works under National River Action Plan and National Lake Conservation Plan. The following schemes are co-ordinated and monitored by Environment Management Agency of Tamil Nadu.

### 2.3.1 Abatement of Pollution in five polluted stretches of River Cauvery

With an outlay of Rs.36.28 crores (100% Grant) under National River Conservation Programme, abatement of pollution in five polluted stretches of Cauvery river have been taken up since 1996. A sum of Rs.22.44 crores has been spent by the implementing agencies. Under core-activities, interception and diversion of sewage flowing through open drains / channels and construction of Sewage Treatment Plants (STPs) are being done through the Tamil Nadu Water Supply and Drainage Board. All the works in Tiruchy, Komarapalayam and Erode have been completed. The works in Bhavani are under progress. A revised Detailed Project Report for treating domestic sewage for Pallipalayam is being prepared by the TWAD Board. Under non-core activities, construction of low cost sanitation facility, crematoria and river front development have been completed by the local bodies.

### 2.3.2 National River Conservation Programme Seven Additional Towns

Pollution abatement in Cauvery, Vaigai and Tamiraparani rivers in seven towns viz., Karur, Tiruchy-Srirangam, Thanjavur, Kumbakonam, Mayialaduthurai, Madurai and Tirunelveli are being implemented at a total cost of Rs.575.30 crores. The grant from Government of India for this project is Rs.282.15 crores and the rest is met by Government of Tamil Nadu, the local bodies concerned and through public participation. The project envisages provision of underground sewage systems, sewage treatment plants, low cost sanitation, river front development and solid waste management in these towns. These integrated projects will not only clean the river but also provide better health and hygiene to the people through provision of under ground sewage. Non-core schemes consist of solid waste management, low cost sanitation, wood based crematoria, river front development works and bathing ghats etc,. Sewage Treatment Plants with a total

capacity 249.55 MLD are being constructed in these towns. The core works in Madurai and Kumbakonam are being implemented by Chennai Metro Water Supply and Sewerage Board. The core works of Karur, Mayiladuthurai, Thanjavur, Trichy and Tirunelveli are being implemented by Tamil Nadu Water Supply and Drainage Board. The Interception & Diversion works under Phase IV in respect of Madurai will be implemented by Public Works Department. So far, a sum of Rs 439.04 crores has been spent towards these works.

**2.3.3. Chennai City River Conservation Project CCRCP)**

Government of India have sanctioned a grant of Rs.491 crores for pollution abatement works in six important waterways in Chennai City viz., Coovum, Buckingham Canal, Adyar, Otteri Nullah, Captain Cotton Canal and Mambalam drain and this scheme is being implemented by Chennai Metropolitan Water Supply and Sewage Board. The important components of this project are interception of sewage outfalls joining the six Chennai city waterways and pumping it to the sewage treatment plants and construction of four Sewage Treatment Plants at Perungudi (54MLD), Koyambedu (60MLD), Nesapakkam (40MLD)and Kodungaiyur (110MLD). The expenditure incurred is Rs.377.94 crores. After the completion of this project, an additional quantity of 264MLD of sewage is treated by CMWSSB. The Methane gas collected from the sewage treatment plants is being utilised to produce electricity to run the plant.

**2.3.4 National Lake Conservation Programme (NLCP)**

Revival of Ooty lake has been done at a cost of Rs.1.72 crores by Public Works Department, and for this purpose, deweeding, desilting and bio-remediation have been done.

National River Conservation Directorate has sanctioned a Detailed Project Report for environmental upgradation of Kodaikanal lake at a cost of Rs.10.43 crores. It includes providing Under Ground Sewage and construction of Sewage Treatment Plant by Tamil Nadu Water Supply and Drainage Board; deweeding and bioremediation of lake by Public Works Department and low cost sanitation by Kodaikanal Municipality.

Detailed Project Report for Revival of Yercaud lake in Salem district has been prepared by Tamil Nadu Water Supply and Drainage Board for Rs. 4.37 crores and it was sent to National

River Conservation Directorate for approval. National River Conservation Directorate has insisted on the commitment of the State Government to bear 30% of the estimated cost of Rs.4.37 crores before sanctioning the project. Accordingly, Government of Tamil Nadu have conveyed to Government of India, the willingness to bear 30% of the estimated cost.

An Environment Management Plan for the protected area of Pallikaranai swampland at a cost of Rs. 12.32 crores for five years has been prepared by Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore and further action is being taken to implement it.

## 2.4 Environmental Awareness

### 2.4.1. National Green Corps (NGC)

With the financial assistance from Government of India, National Green Corps has been launched in 7500 schools all over Tamil Nadu for strengthening environmental awareness among students. There are three lakhs school children participating in this awareness movement. A grant of Rs.2500/- per school is being given every year. Training is being given to master trainers and teacher coordinators of each district. State level steering committee and district level monitoring committees have been formed to monitor the implementation of this programme.

### 2.4.2. Eco-Clubs

To create environmental awareness among school and college students, eco-clubs, funded by the State Government, have been launched in all the districts of the State. A grant of Rs.2500/- per school is released every year by the State Government on par with NGC Programme of Government of India. 1200 eco-clubs covering about 50,000 students have been formed all over Tamil Nadu in association with selected educational institutions and Non Governmental Organizations. Various environmental awareness activities are carried out through these eco-clubs.

### 2.4.3. Awareness about ill effects of burning of Rubber, Plastic materials.

A three day awareness campaign is organised by the Department of Environment throughout Chennai city to create awareness about ill effects of burning of tyres, plastics and other materials on the eve of Bhogi by distributing pamphlets and requesting the public to refrain from

burning of tyres etc. 8700 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 urban areas.

### 2.4.4 Samathuva Pongal

Samathuva Pongal is celebrated every year to highlight the great culture of Tamil Community to the World on 1st day of "Thai Thingal" by organizing cultural activities, rural sports, community feast and other competitions, etc., by the Environmental Awareness Coordinators in the Districts, involving the eco-club members and general public.

### 2.4.5 Environmental Information System (ENVIS)

The ENVIS Centre is functioning in the Directorate of Environment with grants from Government of India. ENVIS centre is engaged in collection, collation, storage, retrieval and dissemination of environmental information through the Worldwide Web. Newsletters, online quiz, online chat, creation of database, answering environmental queries and training are some of the activities covered under ENVIS.

### 2.4.6 State of Environment (SoE)

The preparation of a State of Environment Report was undertaken at a cost of Rs.12.50 lakhs 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.

### 2.4.7 Environment Awards

The Environmental Awards were instituted during 1999 to honour the best Non-Government Organizations, experts and individuals in recognition of their excellent contributions in the various fields of environment like Environmental Management, Environment Protection and Environment Awareness and Education. An award is also given for best research paper in the field

of Environment. These awards are given during the World Environment Day celebrations on 5th June, every year.

## 2.5 Part-II Schemes

### 2.5.1 Conducting competitions on Environmental Awareness in each District

Environmental awareness is done through Eco-clubs and National Green Corps. At present, about 3.5 lakhs students are enrolled in this movement all over the State. With a view to help students to know about their immediate environment and to make them to 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 among the members of eco-clubs / National Green Corps are conducted. It is proposed to conduct these competitions during the year 2008 -09 at a cost of Rs 5.00 lakhs in all the districts of the state. The amount shall be distributed through Environmental Awareness Coordinators.

### 2.5.2. Conducting Environmental Awareness Camps

The much needed bonding between people and nature cannot be taught or learned through text books within the four walls of class room. The Department of Environment conducts environmental awareness camps from 2006-07 for the students who participated in the environmental awareness competitions and teacher-coordinators for three days. The students will be exposed to various environmental problems through awareness camps. About 3.50 lakhs students are involved in the awareness movement of National Green Corps/Eco-clubs. During the year 2008-09, it is proposed to conduct environmental awareness camps through environmental awareness coordinators in all districts at a cost of Rs 5.00 lakhs. This amount will be distributed through the Environmental Awareness Coordinators. The activities will include visits to polluted hotspots and to areas abounding with wildlife and forest growth for a first hand experience.

### 2.5.3 Creation of Environment Awareness through Eco-clubs

Tamil Nadu has the distinction of launching eco-clubs in all the districts of the State with the State Government funds to create environmental awareness among the school and college students. 1200 eco-clubs have been formed with State funds in all the districts of the State involving selected educational institutions and NGOs. Each district has eco-clubs in 40 schools. To improve eco-club activities, Rs.15.50 lakhs will be distributed through the District Educational Officers and District Elementary Education Officers.

**2.5.4 Study on climate change in Tamil Nadu**

Climatic change is a major global environmental problem and also an issue of great concern to a developing country like India. The Earth's climate has demonstrably changed since the pre-industrial era. It is considered as one of the most serious threats to sustainable development with adverse impact on the food security, natural resources, environment, economic activity, human health and physical infrastructure.

India has reasons to be concerned about the impact of the climate change as its large population depends on climate sensitive sector like agriculture and forestry for livelihoods. Any impact on water availability would threaten food security, cause die back of natural eco-systems including the species that sustain the livelihoods of rural households. It could also adversely impact the coastal system due to sea level rise. There is a need to develop and implement remedial measures.

The Nobel Committee while awarding Nobel Peace Prize in 2007, have acknowledged that efforts are needed to build up and disseminate greater knowledge about man - made climate change and measures to counteract such change are needed.

Hence, it is proposed to undertake a detailed study on the impact of climate change in Tamil Nadu which will throw light on remedial strategies to combat this issue. This study is proposed to be taken up through any one of the reputed institutions such as The Energy Research Institute, Anna University, I.I.T, Madras at a cost of Rs.10.00 lakhs during the year 2008-2009.

## 2.6 World Bank Assisted Schemes :-

### 2.6.1 Formation of One technical Cell at Chennai and two Project Co-ordination units at Nagapattinam and Thoothukudi

The ETRP assisted by the World Bank is being implemented with the support of one technical cell at Chennai and two project co-ordination units at Nagapattinam and Thoothukudi. The scheme being implemented are the following:-

### 2.6.2. Demarcation of High Tide Line ( HTL ) along the Coast of Tamil Nadu from Palar River Mouth to Thengapattinam in Kanyakumari District under World Bank assisted Emergency Tsunami Reconstruction Project

The Department of Environment has already completed the High Tide Line demarcation from Pulicat Lake to Palar river mouth. Demarcation of High Tide Line for the remaining stretch of the coastline including tidal influenced water bodies is now being undertaken. The High Tide Line reference points will be superimposed on the village cadastral maps containing survey numbers, on a scale of 1:5000 at a cost of Rs.2.21 crore. This work is being undertaken by Institute of Remote Sensing, Anna University, Chennai.

### 2.6.3 Erection of Stone Pillars on High Tide Line (HTL) reference points

In order to facilitate the coastal community to identify the High Tide Line on ground, stone pillars will be erected at an interval of 250 meters along the coast at a cost of Rs.1 crore and the work is under progress.

### 2.6.4 Preparation of Integrated Coastal Zone Management Plan (ICZMP) and Coastal Vulnerability Maps

The coast of Tamil Nadu is replete with several economic activities like industry, tourism and fisheries. To minimize the conflicts of interest between various competing activities, an appropriate management plan rationally integrating the activities of all the stakeholders is essential. In order to achieve economic prosperity without sacrificing ecological security, Integrated Coastal Zone Management Plan is being prepared for the coastline of Tamil Nadu. The

setback lines in the coastal areas will also be drawn based on the vulnerability of the coast to natural and man made hazards. For the purpose of assessing the vulnerability of the coast, seven parameters are taken into account viz., elevation, geology, geomorphology, sea level trends, horizontal shore line displacement (erosion / accretion), tidal ranges and wave heights. The Integrated Coastal Zone Management Plan and Coastal Vulnerability Maps are being prepared at cost of Rs.4.92 crores.

**2.6.5 Capacity Building and Awareness Creation**

The concepts of Integrated Coastal Zone Management Plan and mapping of coastal vulnerable areas are relatively new. It is important to develop awareness about these among various stakeholders. Therefore, suitable training modules developed for various stakeholders will be utilized to create awareness among the coastal communities and public. The local academicians and non government organizations will be associated in conducting workshops / seminars / street plays / exhibitions, etc. A sum of Rs.1 crore will be spent for this.

## 3. TAMILNADU POLLUTION CONTROL BOARD

### 1.0 INTRODUCTION

Tamilnadu Pollution Control Board (TNPCB) has the responsibilities of enforcing the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Water (Prevention and Control of Pollution) Cess Act, 1977, Air (Prevention and Control of Pollution) Act, 1981, enacted in the Parliament and the rules made under the Environment (Protection) Act, 1986. Tamilnadu Pollution Control Board has headquarters in Chennai with District Offices all over the State.

### 2.0 CONSTITUTION OF TNPCB

In order to monitor the functioning of the Board and to take policy decision and guide the Board, a group of Board members have been formed. State Government nominates full time Chairman of the Board. Along with Chairman, 5 senior level Government Officials, 5 persons representing local bodies, 3 experts representing important sectors of agriculture, fishery and trade, 2 persons representing the companies or corporations and a full time Member Secretary are the members of the Board.

District Offices of the Board are located in 25 districts. The details of the location of District Office and the jurisdiction covered are given below :-

| Sl.No. | Location | Jurisdiction |
|---|---|---|
| 1 | Joint Chief Environmental Engineer, Madurai | Madurai & Sivagangai Districts. |
| 2 | District Environmental Engineer, Salem | Salem District. |
| 3 | District Environmental Engineer, Chennai | Chennai District. |
| 4 | District Environmental Engineer, Tiruvallur (Ambattur) | Tiruvallur District. |
| 5 | District Environmental Engineer, Kancheepuram (Tambaram) | Kancheepuram District. |
| 6 | District Environmental | Virudhunagar & |

| | | |
|---|---|---|
| | Engineer, Virudhunagar | Ramanathapuram Districts. |
| 7 | District Environmental Engineer, Karur | Karur District. |
| 8 | District Environmental Engineer, Namakkal | Namakkal District. |
| 9 | District Environmental Engineer, Tiruchirapalli | Tiruchirapalli and Perambalur Districts. |
| 10 | District Environmental Engineer, Tirunelveli | Tirunelveli District, |
| 11 | District Environmental Engineer, Tiruppur | Avinashi, Palladam, & Tiruppur Taluks of Coimbatore District. |
| 12 | District Environmental Engineer, Tuticorin | Tuticorin District. |
| 13 | Joint Chief Environmental Engineer, Vaniyambadi | Vaniyambadi, Tirupattur and Katpadi Taluks of Vellore District. |
| 14 | District Environmental Engineer, Vellore | Arcot, Wallajah & Arakonam Taluks of Vellore District & Tiruvannamalai District. |
| 15 | District Environmental Engineer, Coimbatore | Mettupalayam, Pollachi, Udumalpettai & Valparai Taluks of Coimbatore Dist. |
| 16 | District Environmental Engineer, Cuddalore | Cuddalore District. |
| 17 | District Environmental Engineer, Dindigul | Dindigul & Theni Districts. |
| 18 | District Environmental Engineer, Erode | Erode District. |
| 19 | District Environmental Engineer, Hosur | Krishnagiri & Dharmapuri Districts. |
| 20 | District Environmental Engineer, Pudukottai | Pudukottai District. |
| 21 | Assistant Environmental Engineer, Udhagamandalam | The Nilgiris District. |
| 22 | Assistant Environmental Engineer, Thanjavur | Thanjavur District. |
| 23. | Assistant Environmental Engineer, Villupuram | Villupuram District. |
| 24. | Assistant | Nagapattinam & Tiruvarur |

| | | |
|---|---|---|
| | Environmental Engineer, Nagapattinam | Districts. |
| 25 | Assistant Environmental Engineer, Nagercoil | Kanyakumari District. |

The total staff working in this Board is 735. Chief Engineers, District Environmental Engineers, Assistant Environmental Engineers, Scientists, Legal Officer form part of this total strength.

## 3.0 MONITORING OF INDUSTRIES AND ISSUE OF CONSENT

With the rapid industrialization in Tamilnadu, there has been a marked increase in the need for continuous monitoring of pollution of industrial activities. The field officers of the TNPCB inspect the industries under their jurisdiction periodically to assess the adequacy of pollution control measures provided by the industries to treat sewage, trade effluent and emissions and monitor their performance. As on 31.03.2008, TNPC Board has granted consent orders for operation under the Water (Prevention and Control of Pollution) Act, 1974.

Industries had been categorised in to 3 categories as red, orange, and green category based on the pollution load discharged. Highly polluting industries are classified as red category industries, medium polluting industries are classified as orange category industries and less polluting industries are classified as green category industries. From August 2007 onwards, the highly polluting red category industries have been split into ultra red and red category in order to have effective monitoring.

## 3.1 INSPECTION AND SAMPLE COLLECTION PERIODICITY

The field engineers in the District Office inspect the large scale ultra red industries every month and ordinary red category units once in three months. The medium scale red category units are inspected once in four months and the small scale red category units once in a year. Similarly the large and medium scale orange category units are inspected once in six months and the small

scale orange category units once in two years. The less polluting green category units are inspected once in two years.

By analysing samples of trade effluent collected from industries, the operation of treatment units are monitored. Samples are collected for analysis once a month from the large scale ultra red and ordinary red category industries. In respect of medium scale red category units, samples are collected once in three months and in case of small scale red category units, samples are collected once in three to six months. With regard to orange category units, samples are collected once in four months from large scale units, once in six months from medium and small scale units. Samples collected are analyzed to monitor whether the quality of treated effluent satisfies the standards prescribed by the Board. If the quality of the effluent exceeds the standards prescribed by the Board, the units are instructed to operate the effluent treatment plant effectively and in case of repeated non compliance, action is initiated as per the Water Act.

Industries are constantly insisted to continuously operate and maintain the pollution control measures. Industries are monitored for the continuous operation of pollution control measures and industries which have operated the pollution control devices to achieve board standards are issued with renewal of consent in time. Since the renewals are issued in time, the Board is encouraging the industries to comply with the conditions imposed in the renewal of consent.

### 3.2 HOT SPOT MONITORING

The TNPCB has identified 10 Hot spot areas based on the location of hazardous waste nature of the industries, high level of polluting industries and cluster of highly polluting industries. In these areas TNPCB has posted one Assistant Environmental Engineer for each area for effective monitoring and to contact local public directly. The ten locations are as follows.

1. Manali
2. Cuddalore
3. Thoothukudi
4. Mettur
5. Ranipet

6. Sriperumpudur
7. IT Corridor at Perungudi
8. Perundurai
9. Gummidipoondi
10. Tiruppur

With regard to any pollution problem arising from the industries in these areas, the public can contact the locally available Board Engineers directly for taking corrective action.

## 4.0 SECTOR SPECIFIC TECHNICAL REPORT ON ENVIRONMENT

In order to develop a ready reckoner for various stakeholders' use, TNPCB is preparing sectorwise document report for 23 sectors. This report will be ready in 6 months. The report will contain complete details on the new cleaner technology options, latest developments in pollution control technologies at the national and international level, pollution discharge standards, etc, for each sector.

## 5.0 COMMON EFFLUENT TREATMENT PLANTS

The TNPCB plays an important role in the establishment of Common Effluent Treatment Plants (CETPs) for clusters of small-scale industries in various parts of the State. Small-scale industries often express financial difficulties, lack of space and other reasons, which prevent them from putting up individual effluent treatment plants. The Board assists the units in mobilization of financial resources and in the technical scrutiny of the proposals for the establishment of common effluent treatment plants.

## STATUS OF COMMON EFFLUENT TREATMENT PLANTS ( CETP )

Common effluent treatment plants have been formulated in the following sectors:-

| | |
|---|---|
| Tanneries | 26 Schemes |
| Textile Bleaching & Dyeing Units | 42 Schemes |
| Hotels & Lodges | 1 Scheme |

Out of this 69 CETPs formulated, 14 CETP schemes for tanneries, 18 CETP schemes for textile dyeing units and 1 CETP scheme for hotels and lodges are under operation. In addition, 12 CETP schemes for tanneries and 24 CETP schemes for textile dyeing units are under various stages of implementation. Government of Tamil Nadu has sanctioned Rs.28.29 crores as subsidy to industries for the common effluent treatment plants.

## 6.0 WASTE MANAGEMENT

### 6.1 MANAGEMENT OF HAZARDOUS WASTE

The TNPCB is taking effective steps in handling and management of hazardous chemicals and treatment and disposal of hazardous wastes in an environmentally safe manner. The Board has identified and listed out 2480 units generating hazardous wastes under the Hazardous Wastes (Management and Handling) Rules, 1989 as amended in 2000 and 2003. These units are being subject to strict supervision. A common hazardous waste treatment storage and disposal facility (TSDF) is established at SIPCOT industrial estate, Gummidipoondi and it has just commenced its operations. The federation of common effluent treatment plants, Tiruppur, has identified a site at Nallur village, Karupagoundarpalayam, Tiruppur taluk, Coimbatore district and the federation of CETPs & ETPs in Karur have identified a site at Mathagiri village, Krishnarayapuram taluk, Karur district for establishing a secure landfill facility for disposal of sludge generated from treatment of textile dyeing effluents. EIA studies and public hearing of the site has been completed. Work will be undertaken after obtaining local body clearance in the above two sites. To adopt recycling and reuse principles, cement industries are encouraged to utilize the sludge from CETPs as raw materials and a trial run is under process in Chettinad Cements at Puliyur. Similarly, the cement industries such as A.C.C, Madukarai and Grasim Industries, are conducting trial runs for utilizing paint sludge, tar waste, ETP sludge as incineration material. The Board has also issued authorization in this regard. Moreover, action will be taken to establish a common hazardous waste treatment storage and disposal facility at SIPCOT, Perundurai.

## 6.2 MANAGEMENT OF BIOMEDICAL WASTE

Government of India have notified the Biomedical Waste (Management and Handling) Rules 1998 as amended in 2000 under Environment (Protection) Act, 1986. As per the notification, biomedical wastes are to be segregated and disposed in an approved manner through a biomedical waste treatment and disposal facility. The Board has so far listed out 2479 private hospitals and 317 Government hospitals in the State for which biomedical waste treatment is necessary. Sites for 11 common facilities for bio-medical waste treatment and disposal have been identified for the private sector health care units in the State of which ten common facilities are under operation and the remaining one facility at Coimbatore is nearing completion. To evaluate the performance of common bio-medical waste treatment and disposal facility, a monitoring team with District Environmental Engineers and Assistant Engineers has been formed.

Tamil Nadu Government have issued G.O. (4D) No.10, Health & Family Welfare(EAP 1/1)Department, dt.28.09.2007 for implementation of health care waste management in 29 District Headquarters Hospitals and 241 Sub District Hospitals, 41 Tertiary Care Hospitals, 130 upgraded Primary Health Centres and 8 ESI Hospitals in Tamilnadu.

## 6.3 MANAGEMENT OF MUNICIPAL SOLID WASTE

With increasing urbanization and rising levels of municipal solid wastes generation, there is an urgent need to evolve scientific approaches for the management of municipal solid wastes. The Board is advocating the concept of segregation of wastes at source, reduction, recycle and reuse of waste. The Board has issued NOC to 104 Municipalities and one Corporation for composting of municipal solid waste and setting up waste processing facility. NOCs issued for 63 Municipalities have been converted as authorization. In order to develop one municipality or one special village panchayat in each district as a model town in municipal solid waste management, a seed money of Rs.2 lakhs to one municipality or Rs.1 lakh to one special village panchayat in each district has been given by the Board through District Collectors. Also Rs.5 lakhs each have been given to Dharapuram, Coonoor & Namakkal Municipalities for implementing and carrying out municipal

solid waste management and to make it a model municipality. In the year 2007-2008 Board has granted a total sum of Rs one crore for 8 Municipalities for implementation of solid waste management. A monitoring team headed by an Environmental Engineer has been formed to assess the present status of implementation of Municipal Solid Waste Rules, 2000. The team will furnish a report on the present status along with its recommendations.

**6.4 MANAGEMENT OF PLASTIC WASTE**

The environmental problems arising due to the indiscriminate use and disposal of throwaway plastic items is well known. The use of throwaway plastics has increased among the public which ultimately mix with municipal solid waste and cause environmental nuisance due to the non-biodegradable nature of plastics. In order to control and regulate the above, Tamilnadu Pollution Control Board is implementing the Plastic ( Manufacture, Sale and Usage ) Rules. As per the above Rules, the minimum thickness of carry bags manufactured shall be more than 20 microns.

Further, Tamilnadu Pollution Control Board will prepare a report during this financial year which will contain the inventories of the plastic recycling units and to formulate the methods for effectively implementing the Plastic Manufacture, Sale and Usage Rules.

**6. 5 MANAGEMENT OF E- WASTE**

TNPCB has taken several initiatives in the management of E-waste generated in Tamilnadu. A committee consisting of professors of Anna University, representatives of NGOs, an expert from National Metallurgical Laboratory has been formed towards the management of E-Waste generated in Tamilnadu. A workshop on E-waste was held to create awareness among the stakeholders. TNPCB has issued consent to eight E-waste recyclers for segregation and recovery of PCB, IC, Iron Copper, Rubber, Glass etc., PCB/IC wastes are exported to foreign countries such as USA, Singapore and Malaysia to recover the heavy metal present in the said wastes. Other wastes are sent to authorised industries in the country for recycling them.

## 7. 0 MONITORING OF AIR & WATER QUALITY

### 7.1 AIR QUALITY MONITORING

With the increased industrial activities and vehicular pollution in the vicinity of major cities, the quality of the ambient air is affected. As per the Air (Prevention and Control of Pollution) Act, 1981, the entire State of Tamilnadu has been declared as air pollution control area. The Board is monitoring the ambient air quality in Chennai (3 stations), Coimbatore (3 stations), Thoothukudi (3 stations), Madurai (3 stations) and Salem (1 station) under the National Air Quality Monitoring Programme (NAMP). This monitoring programme is conducted with the financial assistance of Central Pollution Control Board. The Board has established 5 ambient air quality monitoring stations in Chennai City and 5 in Thiruchirapalli. These stations are monitoring the ambient air quality in thickly populated residential, commercial zones of these Cities.

In order to enable the public to know the ambient air quality, an electronic display board is installed at the Corporate office, Guindy. The information on ambient air quality of Chennai city is displayed in the display board. Action is being taken to install similar display boards at Kathivakkam, Manali, Madurai, Coimbatore, Trichy and Thoothukudi at a cost of Rs. 30 lakhs. Emission of volatile organic compounds from industrial processes such as Petrochemicals, PVC, Pesticides, Pharmaceutical manufacturing etc., pollutes the environment. The Board has proposed to procure six VOC analyzers at a cost of Rs. 25 lahks to monitor VOCs in these industrial areas. Further, CPCB has sanctioned a sum of Rs 1.75 crores to study the Chennai urban air quality status and its sources of pollution This project is being carried out by IIT, Madras.

### 7.2 VEHICLE EMISSION MONITORING

The TNPCB has established 3 vehicle emission monitoring stations at Alandur, Madhavaram and Ambattur and is testing the emissions from goods carriages. The vehicles which do not satisfy the emission norms are instructed to rectify the defects to bring the emissions within the standards. Certificates are issued only after this is fulfilled.

In order to control the pollution due to vehicular emission in Chennai city action was taken for conversion of autorickshaws from petrol fuel to LPG fuel. In order to encourage the autorickshaws for conversion to LPG fuel, TNPCB has decided to grant substantial amount as subsidy to the autorickshaws. Subsidy by Tamilnadu Pollution Control Board will be granted to autorickhaws which are switching over to LPG if only the conversion kits are approved by Transport Department officials / Regional Transport Officers.

A total number of 20286 applications for conversion to LPG were received from autorickshaw owners by the Transport Department. Further, out of 33731 existing petrol driven autorickshaws scheduled to be converted to LPG mode, 4941 vehicles have already been converted to LPG mode. In order to meet the demand for LPG in Chennai city, 26 LPG dispensing stations (ALDS), have been established.

### 7.3 WATER QUALITY MONITORING

The basic objective of the Water (Prevention and Control of Pollution) Act, 1974 is to protect the quality of water resources. To ensure this objective, regular monitoring of water quality is required. The TNPCB is monitoring the Cauvery river water quality at 16 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 Udhgamandalam lake, Kodaikanal lake and Yercaud lake are being monitored. In addition, TNPC Board is undertaking River Stretch Pollution studies for Cauvery, Thamiraparani, Palar and Vaigai rivers in association with reputed universities and educational institutions.

#### 7.3.1 RIVER CAUVERY

Due to the discharge of sewage from panchayats and municipalities into the river, Erode, Bhavanisagar and Bhavani stations are categorized as ‘highly contaminated' and the stations such as Sirumugai, R.N.Pudur, Pallipalayam, Mohanur, Musiri ferry gate, Grand Anaicut, Trichy are categorized as moderately contaminated, Badrakaliamman Koil, Paramathi Velur, Musiri, Madathukulam and Karuthatankudi are categorized as slightly contaminated.

It is observed with satisfaction that the water quality of Cauvery river as judged from monitoring at the river monitoring stations has improved when compared to previous years.

### 7.3. 2 THAMIRAPARANI RIVER

TNPCB is monitoring the water quality of Thamiraparani river at following 7 locations Cheranmadevi, Kokkirakulam, Papanasam, Morapanadu, Ambasamudram, Tiruvidaimaruthur and Attur. Due to the discharge of sewage from panchayats and municipalities into the river, the water quality at Attur and Kokkirakulam is slightly contaminated. However, the overall water quality of the river conforms to the standards prescribed for outdoor bathing and for use as drinking water after water treatment.

### 7.3.3 PALAR RIVER

The water samples are collected from the Vaniyambadi Municipal head works and monitored every month. The quality of water from the infiltration wells in the Palar river bed conforms to the standards prescribed for class 'B' which designates best use for out door bathing and can be used as a drinking water source after conventional treatment and disinfection.

### 7.3.4 VAIGAI RIVER

The water quality of the Vaigai river is monitored by collecting samples once in six months from the collection well of Thirubuvanam head works. The water quality of the water from the infiltration wells in the Vaigai river bed meets the standards prescribed for drinking water without conventional treatment but after disinfection.

### 7.3.5 LAKES

Under Monitoring of Indian National Aquatic Resources (MINARS) programme, Udhagamandalam, Kodaikanal and Yercaud lakes are monitored by collecting samples once in three months. Among the three lakes, Ooty lake is contaminated with sewage pollution and Kodaikanal lake is relatively clean. The water quality of the Kodaikanal lake conforms to the class 'B' which designates suitably for out door bathing. However, the water quality of Udhagamandalam and Yercaud lakes conforms to the standard 'C' class, which designates suitability for use only after conventional treatment and disinfection.

## 8.0. OTHER ACTIVITIES OF THE BOARD

### 8.1 ENVIRONMENTAL TRAINING INSTITUTE

Environmental Training Institute (ETI) is an organizational wing of TNPCB established in 1994. The main objective of the training institute is to impart training to staff of the Pollution Control Board, representatives of Industry and non-governmental organizations. During the year 2007-08, the Environmental Training Institute has conducted 37 training programmes, in which 946 participants have been trained.

### 8.2 ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

An Awareness Cell is established in the head office, Chennai to promote environmental awareness. To highlight important environmental issues such as the noise and air pollution caused due to bursting of crackers during festival, air pollution caused due to burning of old materials during Bhogi, pollution due to vehicular emission, protection of ozone layer, municipal solid waste management, road safety, rain water harvesting, various awareness campaigns, workshops, rallies are being conducted regularly. During 2007-08, this Cell has carried out 46 awareness activities.

### 8.3 ENVIRONMENTAL ATLAS

The TNPCB in co-ordination with CPCB is preparing the Environmental Atlas. So far the Board has prepared Environmental Atlas for 10 districts viz., Thiruvallur, Kancheepuram, Coimbatore, Vellore, Thoothukudi, Cuddalore, Villupuram, Erode, Salem and Karur. Environmental Management Plan for Chennai city has been prepared. Presently, the project on preparation of District Environmental Atlas for the 3 districts viz., Madurai, Trichy and Namakkal is under progress.

### 8.4 GREEN COVER PROGRAMME

As a measure to mitigate pollution, industries have been directed to develop 25% of the land area as a green belt with trees having a thick canopy cover. Accordingly, industries have taken action to plant adequate number of trees in and around the industrial premises. TNPC

Board has also sanctioned a sum of Rs 3.0 crores to the Forest Department for green belt development to prevent pollution and implement a clean development mechanism in six municipal corporations of TamilNadu. Subsequently 1.2 lakhs saplings have been planted in these Municipal Corporations and their surroundings.

## 8.5 CLEANER TECHNOLOGIES

The TNPCB is involved in promoting a holistic approach of environment protection by cleaner technology options more than mere end-of-pipe treatment. With active support and encouragement from the Board, the industrial units in Tamilnadu have switched over to cleaner technologies such as adoption of membrane cell instead of mercury cell in caustic soda manufacturing, adoption of dry process instead of wet process to reduce air pollution in cement factories, utilization of 25 to 30% of fly ash in PPC cement manufacturing, adoption of double conversion and double absorption technology in sulphuric acid manufacturing, gas carburizing instead of cyanide salt in heat treatment and cyanide free electroplating. Pulp and paper industries are encouraged to go in for elemental chlorine free bleaching to reduce the formation of organo-chlorides including dioxins. Industries consuming ozone-depleting substances are systematically changing to environment friendly compounds.

## 8.6 LIBRARY

The TNPC Board Library was established during the year 1989. At present, it has a collection of about 10,000 books and reports. The Library subscribes to 70 Journals (English & Tamil), 9 Newspapers and 13 Magazines related to environment. Membership is open to all those involved in environmental concerns.

## 8.7 NEWS LETTER

TNPCB is publishing news letter on quarterly basis, containing the news about the activities of the Board, environmental issues in various districts, poetry and essays on

environmental issues etc. This news letter is widely circulated to Government departments, District Collectors and all State Pollution Control Boards.

## 9.0 INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING

In order to develop the infrastructure facilities of the Board, apart from the Corporate office own building at Guindy, TNPCB has constructed own buildings for district offices at Ambattur, Hosur, Madurai, Trichy, Tirunelveli, Vellore and Chennai. The office buildings at Maraimalainagar, Thoothukudi are under construction. For capacity building of the Engineers and Scientists, TNPCB has given training through IIT Madras and 90 Engineers and Scientists have been benefited through this training programme. The Board Engineers were dejected in view of long pending promotion issues. In order to redress the grievances, during the year 2007–08, 65 engineers were promoted. Moreover, in order to fill up the vacancies, it was decided to fill up the post of 25 Engineers. In view of this, there will be further improvement in the functioning of the Board.

**N. SELVARAJ**
**MINISTER FOR FORESTS**