DEMAND No. 54

POLICY NOTE 2019-2020

FOREST DEPARTMENT

INTRODUCTION

மணிநீரும் மண்ணும் மலையும் அணிநிழற்
காடும் உடைய தரண்

One of the couplets by Saint Thiruvalluvar (Thirukural No 742) has emphasized the importance of having crystal clear water, open space, mountains and shade of forests in a place which is the ideal condition for the well-being of human race. This ideal condition with all the four elements can be ensured with sustainable management of ecosystem which is possible only by keeping one third of land under tree cover.

Protection of forests and human welfare is a delicate act requiring an intricate balance to be maintained between conservation and

development. Forest and wildlife conservation are crucial for watershed protection, biodiversity conservation and carbon sequestration. Advances in scientific understanding have revealed the crucial intangible services which forests offer. They serve as a giant carbon sink, removing carbon dioxide from the atmosphere and locking in their woody biomass. Their vast subterranean network of roots binds soil, prevents erosion and provides protection against floods and landslides. They influence local weather patterns, lowering scorching temperatures in the tropics and driving local cloud systems that provide life-giving rainfall. Tamil Nadu gives lot of emphasis on sustainable forest management leading to conservation of biodiversity, soil and moisture conservation, habitat improvement and empowerment of people residing in and around forest fringe areas.

The National Forest Policy 1988 aims to bring one third of the country's geographical area under forest and tree cover. As the natural forest area has to be conserved to meet the ecosystem services, day to day needs of fuel, timber and fodder have to be fulfilled by creating tree resources outside the forest areas. After the formulation of National Forest Policy 1988 there is a sea change in forest management which laid emphasis on Joint Forest Management (JFM).

As per the India's State of Forest Report, 2017 the forest cover in the State is 26,281 sq km which is 20.21% of the State's Geographical area. In terms of forest canopy density classes, the State has 3,672 sq km under very dense forest, 10,979 sq km under moderately dense forest and 11,630 sq km under open forest. Tamil Nadu has shown an increase in forest cover of 73 sq km as per the India State of Forest Report 2017 as compared to India State

of Forest Report 2015. It was possible due to continued emphasis on trees outside forests. Tamil Nadu has the distinction of being one among the two States which has shown positive trend up to now since the publication of State of Forest Report, 1993 (Published biannually by Forest Survey of India, Government of India). The report also mentions the decadal change in water bodies has increased to the tune of 279 sq km as compared to the year 2005.

The State holds a rich repository of biodiversity owing to its unique geographical setting and presence of diverse forms of ecosystems, offering habitat to varied life forms. Tamil Nadu has been a pioneer in Protected Area Network which has led to conservation of diverse terrestrial & marine flora and fauna. The State's sincere efforts in protection and management of Tiger habitats in Western and Eastern Ghats of Tamil Nadu have resulted in

increase of tiger population from 163 (2010 Census) to 229 (2014 Census). As per the last tiger census 2014, population of tigers is 89 in Mudumalai Tiger Reserve, 72 in Satyamangalam Tiger Reserve, 13 in Anamalai Tiger Reserve and 10 in Kalakad Mudanthurai Tiger Reserve and balance 45 in outside tiger reserves. The compiled census figure of the census 2018 is yet to be announced.

The United Nations has framed 17 Sustainable Development Goals. The Sustainable Development Goals are universally acceptable goals that balance 3 dimensions of Sustainable Development, namely, Environmental, Social and Economic. The Tamil Nadu Government is committed to achieve all goals under Sustainable Development Goals. Multi-pronged strategy has been designed by the State and is being implemented for fulfillment of commitment under Goal No 14 (Life under sea) and Goal

5

No 15 (Life on Land) related to Forest Department, with intention of addressing issues of climate change and conservation of genetic diversity. These are linked to all other goals (17 in total) directly/indirectly. Main strategy to achieve the Sustainable Development Goal 14 & 15 by the year 2030 is to increase the trees outside forests, improve and protect the forest cover in forest area, restoration of degraded areas, protect the bio-diversity on land and water with suggested investment of Rs 1500 crore /year for achieving the goal of 33% forest and tree cover.

2. VISION

In 2014 Government of Tamil Nadu had launched "Vision Tamil Nadu 2023" which stresses on maintaining ecological balance across the State and it emphasizes tree cover outside forest as the single most important and

cost effective strategy for achieving the goal of 33% forest and tree cover.

3.   STATE FOREST POLICY

The Tamil Nadu Forest department after fully recognizing the challenges has set its objectives in the State Forest Policy 2018. The State Government motto is nurturing a rich heritage and preserving ecology. The policy aims at enhancing the forest and tree cover and enriching wildlife habitats on scientific principles, without sacrificing the livelihood needs of the local communities specially the tribal communities and the other forest dwellers. The State is taking all stakeholders in its fold for the conservation, management and enhancement of forest and tree cover and for providing the sustainable means of livelihood for the forest dependent communities.

The distinct geographical characteristics of the State viz. long coastline, presence,

confluence and influence of the Eastern and Western Ghats, dry climate and scarce water resources and the need for significant enhancement of tree cover outside the forests has been well addressed while formulating the State Forest Policy 2018.

4. POLICY INITIATIVES 2019-20

During the annual plan period (2019-20) the forests and wildlife will be managed with the following policy initiatives:

4.1 *Forest Protection*

Protection of the forest wealth of the State is the primary duty of forest department. Forests are vulnerable to damage and destruction due to encroachment, illicit felling of trees, fire, illegal grazing, ganja cultivation and poaching of wildlife. Efforts are being taken to strengthen the infrastructure for forest protection and to equip the protection staff with facilities like

firearms, vehicles, wireless sets and other safety equipments combined with capacity building.

Forest fires cause extensive damage to forests, wildlife, environment, soil fertility & quality and forest regeneration. Geographical Information System (GIS) based Multi Variable Analysis has been done wherein 106 beats have been identified as very highly/highly sensitive to forest fire and vulnerability level of forests in each beat assessed and marked on map.

The following activities are undertaken for forest fire fighting with the help of forest officials, villagers, Eco-Development Committees (EDCs)/ Village Forest Committees (VFCs):

I.   Fire alert systems from National Remote Sensing Centre (NRSC) and Forest Survey of India (FSI)

II.   Engaging Fire Watchers during the fire season for 6 months

III.   Creation / Maintenance of fire lines

IV.   Regular patrolling

V.   Rapid Response Teams/ Forest Elite Force

VI.   Training and Mock Drill to staff

VII.   Awareness creation among public

VIII.   Training and capacity building to villagers and members of the Eco-Development Committee / Village Forest Committee

IX.   Distribution of incentives.

Encroachment of forest lands by estate owners and adjoining patta holders is a serious problem. At the district level, regular meetings are conducted with Revenue and Police officials for developing strategies to evict encroachments. Advanced technologies like Differential Global Positioning System (DGPS) etc. are being used in the field to effectively detect encroachments.

The Forest settlement process is an effort to regulate and protect the land at the disposal of the government, wherein the intention to declare such land as forests, after settling of claims, has already been notified. Forest land will be consolidated by survey and demarcation of forest boundaries.

A step highly significant and worth mentioning towards forest protection and biodiversity conservation in Gudalur (Nilgiris) (Janmam land) is the amendment to the Tamil Nadu Forest Act 1882 (Tamil Nadu Act V of 1882) by inserting section 16A during the year 2019. An area of 12117.27 ha (about 29942.43 Acres) of Janmam Land has been declared under section 53 of Gudalur Janmam Estate (Abolition and Conversion into Ryotwary) Act 1969 and handed over to Forest Department. These areas are located in the Western Ghats of Tamil Nadu and rich in faunal and floral biodiversity. This

amendment will simplify the procedure for declaring the Section 53 areas as Reserved Forest under Tamil Nadu Forest Act, 1882 and substantially reduce the time taken for Reserve Forest notification and in turn conserving biodiversity.

Protection in notified areas is ensured by various Forest and Wildlife divisions in each district. Forest protection is also strengthened by 12 Forest Protection Squads, 9 Enforcement Ranges, 9 Forest stations and establishment of mobile Roving check posts in sensitive areas. During 2018-19, 41,979 forest offences were booked, 7,697 offenders were arrested and Rs.6.26 crore was collected as compounding fee. 78 sandalwood offences were booked, 104 accused were arrested, 1.671 Metric tone of sandalwood was seized and 10 vehicles were confiscated to Government. 29 Red sanders offences were booked, 38 accused were

arrested, 13.88 Metric tone of red sanders wood was seized and 12 vehicles were confiscated. A total of 954 offences were booked under the Wildlife (Protection) Act, 1972 during 2018-19.

Recruitment of Frontline staff

The Tamil Nadu Forest Uniform Services Recruitment Committee (TNFUSRC) notified for recruitment of 1178 posts of front line staff comprising of 300 Foresters, 726 Forest Guards and 152 Forest Guard with Driving Licence. The online examination was conducted from 06.12.2018 to 11.12.2018.

The Hon'ble Chief Minister had distributed allotment orders to 10 provisionally selected candidates for the post of Forest Guard and Forest Guard with driving license on 04.03.2019.

Salient features :

I) The TNFUSRC had received about 3.48 lakh online applications for 1178 posts, out of which 2.2 lakh applicants were found to be eligible to appear for examination and about 1.5 lakh candidates appeared for the online examination. The online examination was conducted in 150 centers across Tamil Nadu. It is for the first time in Tamil Nadu that online examination of such magnitude was ever conducted by any recruiting agency.

II) It is for the first time in the history of Tamil Nadu Forest Department that provision for entry of Transgender candidates was made available.

III) It is for the first time in Tamil Nadu / India that Endurance Test has been

conducted by using Radio Frequency Identification (RFID) chip with precision / instant result with virtually no human intervention.

IV)   The online examination was conducted on 4 days for the post of Forester and in 4 sessions for the post of Forest Guard and Forest Guard with Driving Licence. Therefore it is for the first time that in Tamil Nadu that any recruiting agency successfully conducted online examination in multiple sessions with normalization and published final results.

V)   The unique feature of admit cards issued by TNFUSRC has been that the admit cards were issued with name of District alone. The name of examination center was communicated to the candidates 3 days

before the date of examination through Email and SMS to avoid any possible nexus with examination centers etc.

VI) The allotment of candidates to Interview Boards was not decided in advance by TNFUSRC for greater transparency and confidence of candidates. The allotment was done through a system of lots captured on video for a batch of every 6 candidates. Interview Boards had one member from outside the Department. Interview was captured live using twin cameras.

VII) The Question Paper was generated using Question Paper tool software. The question paper for each session was generated and uploaded on the server of the service provider directly by TNFUSRC barely one hour before

commencement of online examination in encrypted mode.

VIII) The result of the Forest Guard and Forest Guard with driving license was declared within a record time of two and a half months. Likewise, despite court issues and model code of conduct, the final result for Foresters was declared in a little over 4 months.

4.2 *Conservation of Biodiversity, Wildlife and their genetic resources*

Tamil Nadu has been a pioneer in conservation of wildlife and setting up a protected area network. Overall 30.92 % (7073 sq km) of the State's forest area is under protected area against the norm of 25%. In all, 5 National parks, 15 Wildlife sanctuaries, 15 bird sanctuaries, 3 Biosphere Reserves, 2 conservation reserves, 4 Tiger Reserves and one genepool garden have been established in the

State. The Western Ghats is one of the 25 global hotspots and one of the 3 mega centers of endemism in India. Four Elephant Reserves are located within the landscape of Tamil Nadu. The State is also endowed with a unique coastline hosting rich mangroves and associated forest types. Eastern Ghats also contribute to the richness of the biodiversity of the State. Protection and conservation of rare and endangered species, restoration and improvement in the quality of the forests are aimed to enrich biodiversity of the State forests as envisaged in the National Wildlife Action Plan.

Keeping in mind ecological requirements and landscape specific intervention measures, a special focus on Biodiversity Conservation at landscape level is being attempted and encouraged. Special efforts are being taken to remove alien (exotic) species and to encourage regeneration of native species preferred by

wildlife. The removal of invasive species (Lantana, Prosopis, Wattle etc.) has a great impact on restoration of ecosystem such as, increasing the area with native floral vegetation, regeneration and growth of indigenous plants, increase in fodder area available for wildlife, rich biodiversity of both protected and other forest areas, improvement in wildlife habitat by restoring original vegetation and reduction in human wildlife conflict due to availability of fodder species.

The department is undertaking this work under various schemes. Under Tamil Nadu Biodiversity Conservation and Greening Project (TBGP), the work of removal of invasive species has been carried out from 2011-12 to 2018-19 over an area of 3,028 ha of forest land at a cost of Rs 7.84 crore. During 2018-19, under different wildlife schemes, the work of removal

of invasive species has been undertaken over an extent of 521 ha at a cost of Rs.67.68 lakh.

Augmentation of drinking water through natural water holes as well as by artificial means is also being promoted for the benefit of wildlife. Latest technology available within the system is being utilized to upgrade protection status and management of all protected areas.

Recognising the seriousness of human-wildlife conflict situation on the forest fringe areas, multi-pronged strategies have been devised to manage the problem of human-wildlife conflicts. Both traditional methods like foot patrolling and modern tools like Geographical Information System (GIS), Geographical Positioning System (GPS), Drones etc are used for tackling this problem. The Forest department has taken several measures that benefit both the wildlife and local human communities, enabling mutually beneficial

co-existence. Nonetheless, there have been some instances of conflict which are being attended to by the department through its frontline staff on day to day basis. The following initiatives are being taken to address human-wildlife conflict:

    I.   Monitoring of wildlife habitats for availability of water and fodder resources.

    II.   Continuous monitoring of movement of wildlife in conflict zones.

    III.   Early warning system for alerting the people in conflict zones.

    IV.   Sensitizing the local inhabitants.

    V.   Payment of compensation amount to victims for the damage by wildlife.

VI. Protocols for the rescue and rehabilitation of wildlife straying out of forest areas.

VII. Strengthening veterinary services for wildlife through Rapid Response Team and Mobile Veterinary Units.

Wildlife health is the ability of species to cope with biological, social and environmental changes. Infectious diseases are a concern for the conservation of wildlife species. Veterinarians being an integral part of the team attending to wildlife emergencies, have key responsibilities in alleviating stress and improving welfare aspects of the displaced wildlife.

The State has constituted Tamil Nadu State Biodiversity Board to manage the key biodiversity resources in the State. It has formed

385 rural Biodiversity Management Committtees (BMCs) at Block level and 664 urban BMCs. BMCs are responsible for conservation and sustainable utilisation of bio resources within its area of jurisdiction. Training programme for Member Secretaries has been conducted throughout the State. Workshops on the Biodiversity Act, 2002 for officials of line departments were conducted.

4.3 *Rehabilitation and restoration of degraded forests*

Sincere efforts are being taken to combat denudation and degradation due to anthropogenic pressures. As a result of consistent efforts, the State has not only succeeded in arresting further degradation but afforested more than 6,00,000 hectares of forest under Joint Forest Management(JFM) in the last 20 years following an ecosystem approach called "Facilitating Natural regeneration supplemented

with artificial regeneration under community participation" through Externally Aided Projects. Tamil Nadu will further move towards an ecosystem approach of forest management by applying principles of "Close to Nature Forestry". Under the said approach, the focus would not only be on trees but also on shrubs, climbers, herbs, grasses, fauna, micro fauna and flora, soil, soil nutrients, soil moisture and the fringe human habitations that affect the ecological processes and are at the centre of ecosystem management. Open forest land, having crown density of less than 40%, are being managed by seeking the willing participation of the local people in afforestation and protection by sharing with them the sustainable benefits accrued from such forests. Involvement of the people in this venture through JFM is being encouraged through the 2317 Village Forest Committees (VFCs) in identified villages under the afforestation programmes.

4.4 *Conservation and Management of coastal eco-systems:*

Tamil Nadu is having long coastline of 1,076 Km covering 13 coastal districts. Special attention is being accorded for the management of the fragile ecosystem of coastal areas with a thrust on mangrove forests, wetlands and the Marine National Parks. Considering their vital role in the coastal ecosystem the degraded mangrove area is being rejuvenated on consistent basis.

The State Forest Department has improved and developed mangrove areas. Mangrove forests provide a range of ecosystem services, play a key role in stabilizing land and erosion control in the face of changing sea level by trapping sediments, cycling nutrients, processing pollutants, supporting nursery habitats for marine organisms and providing fuelwood,

25

timber and fisheries resources. Mangroves are also highly valued by coastal communities, which use them for shelter, securing food and fuelwood, medicinal plants and even as sites for agricultural production, especially rice production. Mangroves provide several important functions to animals such as breeding and nesting grounds, nurseries, shelter areas, as well as a feeding habitat. Mangroves may also enhance the resilience of corals by providing a natural refuge from climate change induced thermal stress and ocean acidification.

In addition to the above functions, protection against coastal disasters such as cyclones, tsunamis and tropical storms has been identified as an important service of mangrove ecosystems. Mangroves also play an important role in global climate change mitigation as they are a significant global carbon store and sink, with the largest average carbon stocks per unit

area of any terrestrial or marine ecosystems. As per the latest Indian Survey of Forest Report (ISFR), 2017, mangrove cover of Tamil Nadu is 49 sq km (increase of 2 sq km over the year 2015 assessment) spread over 8 districts.

Coastal shelterbelt plantations are being raised to reduce the velocity of winds to minimize wind erosion and to act as a protective shield for the coastal areas against the vagaries of nature including natural calamities like Tsunami, cyclones, tidal surges and floods.

The Gulf of Mannar Biosphere reserve supports the conservation of marine biodiversity through integration of activities of relevant departments and through community participation and adoption of scientific management principles and programmes and shall continue to provide environmental benefits to the present as well as future generations.

27

The coastal area along the Gulf of Mannar has more than 225 fishing villages with a population of about 2 lakh. In order to strengthen the participatory approach, 252 Village Marine Councils (VMC) and Eco Development Committees (EDC) have been constituted comprising of coastal villagers as members in Ramanathapuram and Tuticorin districts. Micro credit funds were provided to the villages for alternate income generation activities. Group enterprise activities have also been promoted through Self Help Groups (SHG) and enterprise groups. The fund support have been given on repayable loan basis. About 2650 SHG's are in place through this revolving fund support and 80 different alternate income generation activities / group enterprises are being undertaken through the SHGs.

4.5 Mitigating / adapting climate change through enhancement of tree cover inside and outside forests

Carbon change has emerged as the leading environmental issue in the recent past. Forests play an important role in mitigation and adaptation of climate change. Carbon sequestration by forests has been considered a relatively inexpensive means of addressing climate change immediately.

Climate Change mitigation is being accomplished by undertaking massive afforestation over degraded forest areas and on areas outside the forests (such as community lands, waste lands, panchayat lands, revenue lands and farm lands). The massive effort on the part of the Government, Panchayats, Community, NGOs and others including farmers is being undertaken through multi-stakeholder partnerships and through public-private collaborative efforts.

Trees outside forests include agroforestry systems on agricultural lands and farms, trees in the rural landscape and along roads, rivers and human settlements and trees in and around cities. While contributing to environmental sustainability they are provide income and a range of goods and eco system services for rural households, thus contributing to food security and poverty eradication. Throughout the world, trees outside forests help mitigate climate change by storing carbon, halting land degradation, providing fuel to substitute fossil fuels and fixing nitrogen to reduce the use of fertilizers. Trees in agricultural landscapes represent a globally important carbon stock: almost half of the world's agricultural land has at least 10 per cent tree cover. The contribution of trees outside forests to climate change mitigation can be increased by promoting agro forestry systems and urban forestry. Trees outside forests plays

an important role in climate change adaptation through diversified land-use practices, livelihoods and sources of income and through enhancement of agricultural productivity and buffering against weather-related production losses, enhancing resilience against climate impacts in farming systems. The growing stock in tree outside forests within the State of Tamil Nadu as per India's state of Forest Report, 2017, is 66.257 million cu.m. (growth of 2.891 million cu.m over a period of 2 years).

Tamil Nadu will design its tree-based programmes appropriately to encourage and support tree planting on private lands. The outdated rules and regulations will be revisited and certain obsolete restrictions and regulations which hamper tree growing by farmers be done away with. Tree growing in private lands will be reformed into a free enterprise for this effort to

succeed and following specific measures will be taken.

- Forest department with the help of research institutions is developing better quality clones of indigenous species and providing necessary scientific information on tree farming to the farmers. Viable agroforestry models is being continuously developed.

- Formation of tree farmers' cooperative societies is being facilitated to organize the farmers to take care of their interest and to avoid exploitation by middlemen.

- Massive awareness programmes through Panchayats, NGOs, educational institutions and media is being organized for mitigating / adapting to Climate Change within the State of Tamil Nadu.

In the era of cogeneration of wood and food, Tree cultivation in Private lands (TCPL) is promoted in a big way for ensuring food and wood security besides achieving 33% of geographical area under forest and tree cover.

The Tree Cultivation in Private Lands [TCPL] programme of Tamil Nadu Biodiversity Conservation and Greening Project(TBGP) was implemented since 2012-13 in the state covering 32 districts. Forest Department does the job of raising seedlings and planting them in the farmers' land taking into consideration the fact that the marginal and small farmers are the paramount beneficiaries of this programme. The programme is mainly implemented on the fallow lands of farmers as per their willingness. Under the programme, farmers willing to plant at least 50 seedlings and group (SHGs) willing to plant at least 200 seedlings were preferred as primary beneficiaries. A maximum of 5 ha of fallow land

@500 seedlings/ha, i.e 2500 seedlings (maximum) per farmer was planted. In case of non availability of suitable small farmer, medium and large farmers were also supported. The selection was on cluster basis comprising 3-5 villages per cluster. The villages are selected from the list of initial screening of potential villages prepared by the Divisional Management Units concerned during the year 2011-12. The species planted were Teak (*Tectona grandis*), Kumil (*Gmelina arborea*), Malaivembu (*Melia dubia*), Peenari (*Ailanthus excelsa*), Jack (*Artocarpus heterophyllus*) etc,. Entire planting expenditure was met from project cost and no expenditure was done by farmer for planting.

Prior to the selection of potential villages to implement the programme, Rapid Appraisal was conducted to confirm and update the data collected from secondary sources and to assess the scope for different plantations models and

also the interest of the farmers as per the criteria laid down in the Minutes of Discussion (MoD). Besides, adequate awareness was also created among the farmers through cultural programme, display depicting the significance of the programme, puppet shows, distribution of pamphlets etc. The services of the Non Government Organizations / Resource organizations were taken for Rapid Appraisal, Awareness Creation, Preparation of Micro plans etc. throughout the year covering all the villages selected under the programme. On-site Training for farmers and SHG members on nursery, planting and maintenance techniques, agro-forestry models, particularly for different suitable agricultural crops for inter-cropping were also given. Constitution of Farmers Interest Groups (FIG's) and regular interactions/meeting with them remained an important hallmark of the programme.

The programme was implemented based on the micro plans prepared and approved by Divisional Management Units / controlling officers for each Tree cultivation in Private lands village. The micro plans were prepared with the help of Non Government Organizations / Resource Organizations.

Farmers can cut the trees on maturity subject to their willingness. After cutting the trees, the farmer should plant the tree in the same area with his own money.

The Tree cultivation in Private lands programme has significantly contributed towards twin objectives of enhancing Tree outside Forests and Bio- diversity in Tamil Nadu.

Many innovations are being tried in the field for raising plantation in difficult areas. Green- shade net is being used for making individual seedlings drought proof. Different methods and

suitability of different species are being tried for raising plantations in effluent polluted areas.

Tamil Nadu Forest Department is the Nodal department to implement the Agro forestry scheme in Tamil Nadu for the project "Sub-Mission on Agro forestry (SMAF) under National Mission for Sustainable Agriculture (NMSA)" in rain deficient area.

The Forest department will make efforts to use wastelands, unused and fallow lands for raising timber, fuelwood and fodder plantations through Social Forestry programme. Panchayat lands, revenue lands and other non forest lands will be taken up for afforestation with suitable tree species under social forestry programme.

Over the years the air quality in the urban area has deteriorated. Tree plantations will be raised in the urban and surrounding areas under the Urban Forestry programmes with the

objective of controlling the adverse effects of air, water and noise pollution and improving the aesthetic appearance of these areas.

India is a signatory to different international agreements for reducing the greenhouse emissions. There is growing concern about the climate change and also the confidence in resolving this through biomass build up which act as carbon sinks. Massive tree plantation activities through collaboration with private and public participation can result in greater carbon sequestration mitigate global warming, and promote bio-fuels production as an alternative to fossil fuels.

4.6 Water augmentation through forest conservation and integrated watershed management

The State has a network of rivers formed by many famous rivers and their tributaries. Flowing eastwards, all these rivers are

completely rain fed and originate from the forests in Western Ghats. There are 17 river basins, a majority of which is water stressed. There are 61 major reservoirs, about 40,000 tanks and about 3 million wells that heavily utilize the available surface water and groundwater. The average annual rainfall is about 950 mm with bi-modal distribution. The demand for water for agricultural and non-agricultural purpose indicates a huge demand and supply gap. Hence, the department has to strive for improving, safeguarding and monitoring of the water harnessing potential of all forest catchments. Forests play an important role in maintaining hydrological balance and river flows particularly in lean season.

The multitude of forest catchments will be protected through massive soil and water conservation programmes and treatment measures. In the year 2018-19, the work of

water harvesting structures such as 27 percolation ponds, 46 check dams, 63,000 contour trenches and 16 water holes was executed at a cost of Rs 7.47 crore. The present approach of integrated watershed management will be further strengthened by ensuring the active involvement of all stakeholders. Coordination with the other relevant departments will be increased for the development of the stake holders.

Wetlands and lakes in general and those in and around the urban areas are facing serious threat of siltation and encroachment. These wetlands and lakes perform multiple ecological functions. They are rich in biodiversity, recharge ground water and provide habitat for several flora and fauna. Suitable measures will be initiated to protect these water bodies so that they continue to provide environmental benefits to the present as well as future generations.

The total Wetland area in Tamil Nadu is about 9,02,524 Ha comprising 6.92% of the geographical area of the State. The Tamil Nadu State Wetland Authority established as per the Wetland [Conservation and Management] Rules, 2017 is mandated with the task of policy development, implementing regulatory functions, capacity building, research networking, communications, awareness and raising funds for Wetland management.

4.7 Involving local people, especially the tribal communities in protection, conservation and wildlife management

The people living in the Forest fringe villages have increasingly perceived the Forest Department as an agent of development. These villages are dependent on forests for wood, food, water and livelihood security. Unsustainable harvest of fruits, flowers, berries, tubers, resins, honey, leaves, creepers and other resources has reduced their availability in the forest areas

leading to the poverty among the forest fringe communities. The Forest Department will continue its efforts towards socio-economic development of forest fringe villages by, (i) facilitating sustainable livelihood options for the fringe and forest dwelling communities, (ii) revitalising the established institutions of joint forest management and (iii) promoting primary level processing and storage facility for Non-timber Forest Produce (NTFP) and marketing support.

The Forest Department has empowered and engaged the communities living in the forest fringes in a big way to protect the forest resources. Sustainable forest management is being achieved by incentivizing the local communities and also ensuring that the communities get ample labour opportunities in the protection and management of forests.

For the holistic development of tribals living in inaccessible areas , the Forest department is running 20 tribal schools in Jawadhis hills of Vellore and Tirupattur and the Anamalais in Coimbatore. In 10th standard, out of 186 boys and 168 girls, 167 boys and 155 girls have passed during 2018-19. The overall pass percentage is 91%. In plus two, 150 boys and 109 girls had appeared out of which 143 boys and 99 girls have passed out and the total pass percentage is 93.43%. In case of 11th standard, out of 284 students appeared, 257 (90.5%) have passed. Many of these tribal students have gone for higher education in professional institutions like engineering and medical. Some of them have cleared Tamil Nadu Public Service Commission examination. During 2018-19, the infrastructure works were carried out in the schools at a cost of Rs. 202.6 lakh. Modern facilities for imparting education in the

classroom of tribal school of Tirupattur Division were provided at a cost of Rs 15.24 Lakh.

Further, drinking water facilities were provided in 4 tribal settlement villages in Erode, Theni, Namakkal and Dharmapuri districts at a cost of Rs.21.95 lakh. In Vellore and Tirupattur division, Katcha Houses were converted to Pucca houses for 945 beneficiaries at a cost of Rs 3.02 Crore.

Tamil Nadu is rich in Medicinal Plants. However, over exploitation of medicinal plant from forests could lead to depletion of these natural resources. There is a need for ex-situ conservation of medicinal plants to ensure sustainable supply of medicinal plants from areas outside natural forests. The forest department will continue to create opportunities for women empowerment in forest fringe villages by providing necessary training and know-how for cultivation and harvest of

important medicinal plant species. Economically important species in demand will be raised and sold to needy agencies. The National Medicinal Plants Board is also supporting the State's endeavour in conservation of medicinal plants.

Forests play a vital role in the life of rural folk by providing fuelwood to the poorest. The potential of Non-timber Forest Produces for poverty alleviation is well known. The rural poor and tribal communities collect various kinds of products from forest areas throughout the year to sustain their livelihood. In fact sustainable Non-timber Forest Produce harvest and management is key to the success of Joint Forest Management.

Traditionally the Forest Department has been associated with the tribal affairs and taking up developmental works in the tribal areas. For the long term viability of forest-tribal relationship, it is imperative to conserve the

natural resources, create opportunities for greater partnership in managing the natural resources and work with the tribal to generate livelihood options without affecting the local environment. Following activities are envisaged:

I. Identification of Tribal Villages and focusing on welfare measures by developing comprehensive plans.

II. Conducting Tribal Employment Melas with private companies for providing employment to tribal youths.

III. Capacity building of tribal youth in Eco Tourism activities and conservation of Medicinal plants.

IV. Improvement of road network in Tribal areas for better accessibility.

4.8 Technology Support - Research and Development for scientific management:

Research and Development in Forestry shall help in the scientific management of forests and wildlife for the security of the ecosystem through appropriate strategy and technology, which in turn shall provide guidance in the preparation of the working plans and management plans. Research with respect to Biodiversity Conservation and Wildlife Management, shall be carried out in the existing research wing / wildlife wing of the department and also in collaboration with the reputed research / wildlife institutions.

Research would provide technological support to the people with regard to agro-forestry, promote socio-economic development, improvement in environment and forest based activities in the State. Research will also support forestry extension and training of field staff and

47

guiding them in executing the scientifically acceptable and adoptable management practices.

The thrust areas of forest research shall be biodiversity conservation and ecological security, climate change, livelihood support and economic growth, genetic resource management and tree improvement, forestry education, extension and policy research to meet emerging challenges. The State Forest Research Institute and Advanced Institute for Wildlife Conservation and Research shall be developed as Centres of Excellence so that it can provide the technical and scientific input needed by the Forest Department and people in general. Advanced Institute for Wildlife Conservation and Research has started basic wildlife forensic research and diagnostic operations in its morphometery, DNA and DNA scat laboratories. It has conducted capacity building programmes for zoo and

wildlife staff. It is also involved in rescue and rehabilitation of wild animals in trade.

Data on forestry resources and forest management is of vital importance. Such data is being collected, collated and updated periodically by using modern technology and tools with quick retrieval facilities.   For this purpose, advanced technological applications such as Remote Sensing and Geographical Information System, and Management Information System will be used. The Geomatic centre in the headquarters will be equipped further to provide inputs for management issues. The database and expertise of the Forest Department will be shared with other departments also like Revenue, Survey and Settlement etc., and their database will be reconciled and areas of demarcation of forest lands will be reviewed periodically.

All circles are connected through Internet facility for day-to-day administration. Video-

conferencing infrastructure has been provided at Circle level offices for better communication, transmission and review of projects. Information Technology plays a vital role in forest management, planning and monitoring by improving overall efficiency, transparency and accountability in the system through maintenance of website, application of satellite and geospatial technology, forest fire mitigation planning and training.

Tamil Nadu Forest Academy, Coimbatore, Tamil Nadu Forest College, Vaigai Dam, and all the Extension Centres will have virtual class room facilities through Educate Connectivity for training and dissemination of information. Personal Digital Assistant [PDA] will be provided at grass-root level with web-based Geographical Information System [GIS] facility for forest and wildlife management, fire alert, offence

monitoring, wildlife movement and for better communication.

National Working Plan Code 2014 provides for uniformity in forest management planning across the country. All the forest divisions are managed under the prescriptions of such working plans. The wildlife divisions are covered under Management Plans. The working plan and management plan, guide the forest management in the State.

4.9 Eco-Tourism for providing livelihood to the local people, especially the tribal communities

Ecotourism is a form of travel that involves preserving and sustaining the diversity of the world's natural and cultural environments. It is intended to be low negative impact (on the environment) and a small scale alternative to commercial tourism. It focuses on socially responsible travel to destinations where flora,

fauna and cultural heritage are the main attractions.

Ecotourism management strives for:

- Eliciting the public support for the cause of conservation without disturbing the pristine nature of the forest ecosystem.

- To involve local communities in ecotourism for their economic prosperity and well being.

- To provide an environment to appreciate wilderness, provide educational cum recreational experience.

The Tamil Nadu Forest Department has identified 25 number of ecotourism destinations in Tamil Nadu under Tamil Nadu Bio-diversity Conservation and Greening Project.

Following strategies for promoting Ecotourism shall be implemented under the overall guidance of State Ecotourism Policy :

- Forest Department promoted Ecotourism based on appropriate guidelines and conducted within carrying capacity of the location.

- Participatory approach through Forest Department-Local Community linkages, and involving local Government institutions.

Based on the National Tiger Conservation Authority (NTCA) guidelines, eco-tourism activities are implemented in the Tiger Reserves. Around 10.5 Lakh people visited the 4 tiger reserves and the revenue earned during 2018-19 was Rs. 1199 Lakh.

The Tiger Conservation Foundation in each Tiger Reserve was formed as per Section 38 X of the Wildlife (Protection) Act, 1972 (amended in 2006). The sources of funds for the foundation are income generated from levying forest entry fee, vehicle charges, rest house rents, camera fee, compounding fees and other charges for the eco services generated like eco-preservation charges. The Foundation has also been authorised to accept donations, gifts from the donors towards management of the resources. Apart from other activities, the funds of the foundations are also utilised to provide livelihood opportunities for tribal / local people living in buffer zone and fringe areas of Tiger Reserve such as Financial assistance to Eco Development Committees for livelihood support, vocational training, educational assistance to tribal school children, providing health support to tribal school children, eco-education, eco-awareness etc.

Under the aegis of Eco-Tourism Policy approved by the Government of Tamil Nadu, necessary provisions have been made for operating special purpose vehicles which is as follows:

The Forest Department shall be the Nodal Department for implementing the policy and shall create a special purpose vehicle in the form of State Eco-tourism Board (SEB) to be registered under the Tamil Nadu Society Registration Act, 1975, covering the entire State to assist in delivering the vision and the objectives of Eco-tourism Policy mainly in the protected areas and other forest areas.

The Government of Tamil Nadu has created a special purpose vehicle called "Tamil Nadu Wilderness Experience Corporation Limited" under the provisions of Companies Act 2013. They have identified eight Eco-Tourism sites under the control of Forests Department,

Sericulture Department and Horticulture Department.

With the financial assistance of Tamil Nadu Infrastructure Fund Management Corporation (TNIFMC), necessary action has been initiated to obtain a 'Request for proposal' to undertake preparation of Detailed Project Report and Transaction Advisory Services for the eight ecotourism sites. Five consultants have been shortlisted by the Tamil Nadu Infrastructure Fund Management Corporation. The Tamil Nadu Infrastructure Fund Management Corporation is in the process of issuing the work order to the successful Tenderers/ Project Consultants.

The proposed Tamil Nadu Wilderness Experience Corporation Ltd. should be in tune with the Tamil Nadu Forest Act, 1882, Wildlife (Protection) Act, 1972, Forest (Conservation) Act, 1980 other relevant Acts, Rules and Hon'ble Court orders etc., in force. The special purpose

vehicle (SPV) has to function under the overall control of the State Eco Tourism Board. It should also be ensured that all eco-tourism site identification and activities to be approved by the State Ecotourism Board.

Trekking Rules:

The Government of Tamil Nadu have issued orders for regulating the Trekking in Reserved Forests and Wildlife Areas in Tamil Nadu under Regulation of Trekking Rules 2018 in G.O (D) No.296, Environment and Forests (FR.14) department dated 12.10.2018. As per this rule no person shall undertake trekking without obtaining permission from the competent authority. Every group intending to undertake trekking shall apply for permission to the competent authority to trek on a linear route. The competent authority if satisfied that the requirements of these rules are fulfilled, shall

grant permission for trekking and require the group leader to pay the fees prescribed.

4.10 Human Resource Development for Forest Management

Forestry involves multi-disciplinary approaches and linkages and understanding of traditional and modern forest management practices. Therefore there is a need to update knowledge and skills in all spheres of forestry. With the increasing threat to biodiversity and the latest techniques involved in wildlife management, the advent of JFM, human resource development is vital. Efforts are being taken to increase the number of women in the forest force especially in field of forest protection and management.

Existing institutions, namely, Tamil Nadu Forest Academy, Coimbatore and the Tamil Nadu Forestry College, Vaigai Dam is being strengthened to provide much needed scientific

and technical support to forestry personnel. The departmental staff and officers shall be exposed to emerging trends in forest management through training programmes at reputed national and international institutions.

Forestry training institutions shall also be strengthened to cultivate professionalism in the service. Organizational needs of the Forest Department and the needs of the personnel will be analyzed and matched to develop appropriate capacity building programmes including training. Career prospects of all the personnel will be given specific focus in the development programme of the department. Filling up of vacant posts of forest personnel will be prioritized.

4.11 Infrastructure development:

To effectively manage the forest wealth of the State, there is an imperative need to provide

proper infrastructure to the manpower deployed in protection and management of forests and wildlife. The main components of infrastructure are communication, transport facilities, buildings, surveillance instruments like Drones and weapons etc. Steps are being taken to strengthen the forest protection by using the latest equipments like Drones, Global Positioning System (GPS), Differential Global Positioning System(DGPS) etc to effectively tackle the emerging challenges.

5. PROGRAMMES:

In order to achieve the policy objectives, the following programmes are being implemented in the Department:-

5.1. Important ongoing schemes:

Major State Schemes:

5.1.1 Tamil Nadu Biodiversity Conservation and Greening Project

Japan International Co-operation Agency (JICA) aided Tamil Nadu Biodiversity Conservation and Greening Project (TBGP) with an expenditure of Rs.510.02 crore has been implemented as a eight year project, from 2011-12 to 2018-19. The project has been instrumental in reducing the threats to the native Biodiversity of the State and in enhancing the natural resource base besides improving the capacity of field staff. 7.89 crore seedlings have been planted under Tree Cultivation in Private Lands from the beginning of the project covering an area of 1.43 lakh hectare farmland benefiting 87,299 farmers.

5.1.2   Massive Tree Planting Programme

Tamil Nadu Forest Department conceived the project of Massive Tree Planting Programme (MTP) with the aim to increase green cover, mitigate the adverse effects of various environmental pollutants etc. This massive tree planting programme is being implemented continuously from 2011-12 onwards. From 2011-12 to 2017-18, the Planting and maintenance of 3.99 crore seedlings in the 32 districts throughout Tamil Nadu has been achieved. During 2018-19, the scheme was continued with a target of 71 lakh seedlings. 64 lakh seedlings will be planted by Rural Development and Panchayat Raj department under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and 7 lakh seedlings will be planted by Forest Department in degraded forest areas.

5.1.3   Raising Teak Plantations

To enhance the tree cover and timber resources of the State, the scheme of Raising Teak plantations over an area of 6000 ha is being implemented from 2017-18 for 8 years at a total outlay of Rs.52.64 crore. The scheme has been implemented during 2018-19 at a cost of Rs.5.63 crore. This scheme will be continued during 2019-20 at an outlay of Rs.7.98 crore over an area of 1200 ha.

5.1.4 Raising of Sandal plantations

The scheme of Raising of Sandal plantations in Reserved Forests in the traditional natural sandal bearing areas of Jawadhi Hills, Shervaroyan hills, Kolli Hills, Pachamalai hills and Chitheri hills for a period of 10 years from 2015-16 to 2024-25 with an outlay of Rs.100 crore is being implemented. The scheme has been implemented during 2018-19 at a cost of

Rs.1.29 crore. The scheme will continue during 2019-20 at an outlay of Rs.14.37 crore.

5.1.5 Rejuvenation of Vaigai and Noyyal Rivers

The National Bank for Agriculture and Rural Development assisted scheme of Rejuvenation of Vaigai and Noyyal rivers has been conceived for preventing the pollutants including the heavy load of silts into the water bodies. The scheme is being implemented from 2017-18 for 3 years at a total outlay of Rs.24.58 crore. Soil and Moisture Conservation works and a small component of planting work which inter alia include the sowing of grass seeds are carried out under the scheme. The scheme is expected to improve the fodder and water availability inside the Reserved Forest area for mitigating the human-wildlife conflict in the forest fringe areas. During 2018-19, the scheme has been implemented with an outlay of Rs.6.79 crore.

The scheme will be implemented during 2019-20 with an outlay of Rs.9.05 crore.

5.1.6 Compensation for the damages caused by wildlife:

Mitigating Human-wildlife conflict is one of the greatest challenges faced by the department. Several steps are taken to avoid the conflict including augmenting of various fodder and water resources in the wildlife habitat. Inspite of such steps, in case of any loss of life, injury or damages to agriculture crops and property caused by wildlife, the department is also paying compensation to the unfortunate victims. The compensation is paid at the enhanced rate from 2016-17. The compensation for human death and permanent incapacitation is Rs.4.00 lakh and for major injuries, it is Rs.0.591 lakh. During the year 2018-19, payment of compensation was sanctioned to the tune of Rs.3.34 crore under State schemes.

An amount of Rs.3.63 crore has been provided in 2019-20.

5.1.7 Eco-restoration of Pallikaranai Marshland:

The State Government is committed to protect the Pallikaranai marshland which is a unique fresh water swamp located within the Chennai Metropolitan area. Conservation Authority of Pallikaranai Marshland has been constituted to monitor all the activities. An area of 690.65 ha is under the control of Tamil Nadu Forest Department. Restoration activities like habitat improvement, protection, research, monitoring, publicity and awareness has been undertaken under the scheme. It is being implemented from 2018-2019 to 2022-2023 at a cost of Rs.165.68 crore under National Adaptation Fund for Climate Change.

5.1.8 Gulf of Mannar Biosphere Reserve Trust (GOMBRT):

Gulf of Mannar located in the south-east coast of India, is a unique marine environment and rich in biodiversity. The Gulf of Mannar Biosphere Reserve Trust (GOMBRT) is a unique and pioneering initiative of the Government of Tamil Nadu to bring desired focus on co-ordinated approach among all concerned to link biodiversity conservation and sustainable utilization of marine resources with the livelihood security of coastal people of the area. An expenditure of Rs. 0.89 crore was incurred during the year 2018-19 and the scheme will continue during 2019-20 with proposed outlay of Rs 1.50 crore.

5.1.9 Arignar Anna Zoological Park, (AAZP) Vandalur:

The Arignar Anna Zoological Park is located in Vandalur near Chennai spreading over an extent of 602 Ha. Since its establishment, this

zoological park has emerged as a successful ex-situ conservation complex and a captive breeding centre for many endangered wildlife species like White Tiger, Lion Tailed Macaque and Nilgiri Langur. This park exhibits 2644 animals, which include 46 species of mammals, 90 species of birds, 35 species of reptiles numbering 171 species of wildlife in all.

Arigna Anna Zoological Park has recorded visitor footfall of 20.49 lakh during 2018-19. The total revenue of Zoo is Rs.13.96 crore during 2018-19. 24x7 Animal Live Streaming of 14 animals was introduced last year for the benefit of the public through the website. More than 3 crore page views were recorded in one year. The Zoo has strengthened its protections by means of installing more than 150 Closed Circuit Television (CCTV) cameras for both visitors & animal management which is called as Zoo e-eye.

Online ticketing system and digital payments were introduced during 2018-19 for the benefit of visitors. More than 1000 rescued animals were rehabilitated at the Zoo. The Zoo school conducts several awareness programmes such as Zoo Ambassador for school children, special themed workshops for adults, zoo outreach activities. Through these programmes more than 400 Zoo Ambassador were titled last year and about 20,000 people were given awareness talks. The Zoo has introduced several facilities like Vandalur Zoo Mobile Application, YouTube channel, Virtual reality shows, Zoo souvenir shop, Purified drinking water for the benefit of the visitors. Facilities, like modern electric incinerator, solar fencing, digital x-ray, new animal enclosure were provided for the better management of the Zoo animals.

5.1.10 Rejuvenation Camp for Temple and Departmental Elephants:

With an objective of monitoring and improving the health of elephants belonging to temples and mutts, a Special Health and Rejuvenation camp has been organized by the department with the support of Hindu Religious and Charitable Endowments department every year. The rejuvenation camp facilitates the elephants to revive their socialization skills and joyful experience which results in psychological improvement among them. For the year 2018-19 the camp for 29 elephants was conducted for 48 days from 14.12.2018 to 30.01.2019 at a cost of Rs.1.41 crore sanctioned by Hindu Religious and Charitable Endowment department. Forest Department has also conducted the rejuvenation camp for 52 elephants from 23.02.2019 to 11.04.2019 for 48 days at a cost of Rs.0.65 crore. Forest Department will continue to support the

conduct of elephant rejuvenation camp during 2019-20 with an outlay of Rs.30 lakh.

5.2 SHARED SCHEMES BETWEEN CENTRAL AND STATE GOVERNMENTS:

These schemes are implemented with fund shared by Government of India and the State Government generally in a ratio of 60:40. The major centrally sponsored schemes are as follows:-

5.2.1 Integrated Development of Wildlife Habitats:

Integrated Development of Wildlife habitats has following components:

- Support to Protected Areas (National Parks, Wildlife sanctuaries, Conservation Reserves and Community Reserves)

- Protection of wildlife outside protected areas.

71

- Recovery programmes for saving critically endangered species and habitats.

The Nilgiris Tahr which is endemic to Western Ghat of Tamil Nadu and Kerala has been identified under the said recovery programme.

The Government of India has sanctioned funds for 30 schemes for the developmental activities in National Parks, Wildlife Sanctuaries and Conservation reserves. The scheme has been implemented with an outlay of Rs.6.13 crore for the year 2018-19. This scheme will be continued during 2019-20 with a proposed outlay of Rs.5.18 crore.

5.2.2 Project Tiger:

Tiger being the top carnivore, the importance of its conservation lies in the fact that the presence of this predator is an indicator of the overall health of an ecosystem. Various

measures to conserve Tigers and their habitats have been taken up by the Forest Department in the four Tiger Reserves viz., Kalakad-Mundanthurai Tiger Reserve in Tirunelveli district, Anamalai Tiger Reserve in Coimbatore and Tiruppur districts, Mudumalai Tiger Reserve in Nilgiris district and Sathyamangalam Tiger Reserve in Erode district. The scheme provides assistance for works relating to habitat conservation and protection including fire prevention, eco-development, improvement of water sources, tourism development, mitigating human wildlife conflicts and improvement of infrastructure facilities in the Tiger Reserves. To reduce the anthropogenic disturbances in Critical Tiger Habitats in Tiger Reserves, 435 families have been relocated from core area of Mudumalai Tiger Reserve. Further with respect to recurring works the funds are sanctioned in the ratio of 50:50 by the Central and State Governments. During 2018-19 the scheme has

been implemented at a cost of Rs.49.59 crore. This scheme will continue during 2019-20 with proposed outlay of Rs.29.87 crore.

5.2.3 Project Elephant:

Tamil Nadu is one among the leading States implementing Project Elephant, pursuing scientific management and habitat conservation. The elephant population in Tamil Nadu has been estimated to be 2761 during May 2017. The Project Elephant scheme is implemented in large contiguous elephant landscapes categorized for management as Elephant Reserves and these Reserves have no separate legal status. The scheme in Tamil Nadu is being implemented in the four elephant Reserves to protect the elephants and improve their habitats. The scheme also includes payment of compensation to farmers for the crop damages and loss of human lives caused by human wildlife conflict and further to take necessary steps to minimize

such conflicts. During 2018-19 the scheme has been implemented at a cost of Rs.4.58 crore. Around 4000 man-days were generated during the implementation of this scheme. The Scheme will continue during 2019-20 with proposed outlay of Rs.4.50 crore.

5.2.4 Nilgiris Biosphere Reserve:

Nilgiris Biosphere Reserve is a Biosphere Reserve in the Western Ghats and Nilgiris range of Southern India. Nilgiris Biosphere Reserve contains following forest types: Moist evergreen, Semi-evergreen, Thorny, Savana, Shola and grass land. Out of 3,300 species of flowering plants , 132 species are endemic to the Nilgiris Biosphere Reserve. Fauna of the Nilgiris Biosphere Reserve includes about 100 species of reptiles and amphibians, 300 species of butterflies, 31 amphibians and 60 species of reptiles endemic to the Western Ghats. The Reserve encompasses 5,520 sq.km in the 3

southern States of which Tamil Nadu portion is 2537.6 sq.km. It forms an almost complete ring around the Nilgiris Plateau. The Tamil Nadu Part covers parts of The Nilgiris, Erode and Coimbatore Districts. This area is very rich in Flora and Fauna. The scheme has been implemented at an outlay of Rs.0.61 Crore during 2018-19. The scheme will continue during 2019-20 with a proposed outlay of Rs.1.00 crore.

5.2.5 Gulf of Mannar Biosphere Reserve:

The Gulf of Mannar Biosphere Reserve known for its 21 coral rich islands along with coast line from Rameswaram to Thoothukudi was declared as Marine National Park in 1986 by the Government of Tamil Nadu and later in 1989 Government of India declared it as the first Marine Biosphere Reserve of India. With its rich biodiversity of about 4223 species of various flora and fauna, the Reserve is prominent for its

coral reefs, seagrass and mangroves. The Gulf of Mannar Biosphere Reserve supports several critically endangered species such as *Dugong dugong* (sea cow), sharks including whale shark, sea horses, green sea turtles, dolphins, sea cucumbers.

The Gulf of Mannar Biosphere Reserve Trust was established in 2001 with a view to ensure speedy and efficient implementation of the Global Environment Facility (GEF) United National Development Programme (UNDP) funded project on 'Conservation and sustainable use of the coastal biodiversity of Gulf of Mannar Biosphere Reserve'. The activities under the project were implemented for 10 years from 2003 to 2012 and the activities were further continued from State Government funding from 2013 onwards. The major achievements have been Awareness generation, institution building and strengthening of Eco-Development

Committees/Village Management Committees, decreasing biotic pressure, enhance livelihood options, strengthening park management and research activities. The microfinance corpus fund of Rs.8.93 crores created for Eco-Development Committees/Village Management Committees has earned a profit of Rs.4.49 crores by way of interest from beneficiaries of microfinance and Rs.2.27 crores by way of interest accrual from bank since inception. These achievements will be consolidated by mainstreaming it with the regular schemes and programmes of the Government.

The Government of India sanctions funds for the Gulf of Mannar Biosphere Reserve under two separate schemes viz. Gulf of Mannar Biosphere Reserve and Conservation and Management of coral reefs. The scheme has been implemented with an outlay of Rs.1.31 crore during 2018-19. The scheme will continue

during 2019-20 with a proposed outlay of Rs.1.10 crore.

5.2.6 Agasthyamalai Biosphere Reserve:

The Agasthyamalai Biosphere Reserve has been included by United National Education Science and Cultural Organization in the World Network of Biosphere Reserves considering the presence of major ecosystem types and landscapes. The total area of the Biosphere reserve is 3500.36 sq.km., of which 1828 sq.km. is in Kerala and 1672.36 sq.km. in Tamil Nadu. The Biosphere Reserve covers parts of Tirunelveli and Kanniyakumari districts in Tamil Nadu. The scheme has been implemented at an outlay of Rs.1.13 crore during 2018-19. The scheme will continue during 2019-20 with a proposed outlay of Rs.1.20 crore.

5.2.7 Wetland Conservation and Development:

Wetlands are integral to a healthy environment. They help to retain water during dry periods, thus keeping the water table high and relatively stable. During the period of flooding, they act to reduce flood levels and to trap suspended solids and nutrients. Ecosystem services offered by wetlands include floodwater storage and control, recharge of aquifers, treatment of waste water and pollution abatement, general water quality improvement, habitats for fish, birds and plant species. In addition, wetlands are of high aesthetic and heritage values providing opportunities for recreation, research, and education.

In Tamil Nadu, this scheme is being implemented in Point Calimere, Kazhuveli and Pallikaranai Wetlands. Major activities involved in Wetland management are Habitat

improvement, Wildlife Protection, Eco-development activities, Awareness creation, Research and Monitoring and Nature Education. The Scheme has been implemented during 2018-19 with an outlay of Rs.2.05 crore and will continue during 2019-20.

5.2.8 Conservation and Management of Mangroves:

Mangroves are plants that survive high salinity, tidal regimes, strong wind velocity, high temperature and muddy anaerobic soil – a combination of conditions hostile for other plants. Mangrove ecosystem constitutes a bridge between terrestrial and marine ecosystems. Mangrove functions as breeding, feeding, nursery grounds for most of the sport and commercial fishes found in the deep coastal waters and inshore waters. They also provide breeding ground for birds, reptiles and mammals. The mangroves such as Muthupet,

Pitchavaram and Ramanathapuram are under the control of Forest Department. Habitat improvement measures like mangrove restoration in degraded lands, maintenance of older plantation, removal of invasive species, protection and vigilance, eco development activities, awareness creation, monitoring and evaluation etc. are the major activities. The scheme has been implemented at an outlay of Rs.0.51 crore during the year 2018-19 and the scheme will continue during 2019-20 with a proposed outlay of Rs.2.00 crore.

5.2.9 National Afforestation Programme:

The National Afforestation Programme (NAP) is being implemented with the objectives to (i) increase and / or improve forest and tree cover, (ii) rehabilitate degraded forests and other areas by institutionalizing decentralized / participatory forest management and (iii) supplement livelihoods improvement process

(village development, employment generation). The scheme is being implemented with a three tier set up viz., State Forest Development Agency at State level (a body registered under Societies Registration Act), Forest Development Agency at District level and Joint Forest Management Committees at Village level. There are 33 Forest Development Agencies in the State. Till 2017-18 an area of 76,264 ha has been afforested at a cost of Rs.128.19 crore. The Scheme has been implemented during 2018-19 at an outlay of Rs.3.45 crore for the maintenance works already carried out. It is proposed to continue the scheme during 2019-20.

5.2.10 Conservation, Development and Sustainable Management of Medicinal Plants:

Tamil Nadu is the home for Siddha system of medicine, one of the important branches of Indian system of medicine which focuses on the

use of medicinal plants for treating various ailments. The traditional knowledge of medicinal plants has mostly diminished in the present generation. Medicinal plants are an integral part of the Indian heritage. Medicinal Plant resources are dwindling and threatening both, health care practices and livelihoods of the local communities. Taking stock of the situation, the Tamil Nadu Forest Department has taken steps to implement schemes for conservation, development and sustainable management of medicinal plants. The scheme of Conservation, Development and Sustainable Management of Medicinal Plants is being implemented through Forest Department with the assistance from National Medicinal Plants Board, New Delhi. Comprehensive project proposals have been approved at an outlay of Rs.472.27 Lakh for a period of 6 years from 2013-14. Out of this sanction, an amount of Rs.2.57 crore has been spent so far. Further, the National Medicinal

Plants Board (NMPB) has also sanctioned an amount of Rs.3.546 crore (100% funding by NMPB) for promotion of herbal garden. The schemes will continue during 2019-20.

5.2.11 Forest Fire prevention and management:

The scheme of Intensification of Forest Management Scheme has been modified by Government of India to Forest Fire Prevention and Management Scheme with focus on fire prevention, detection and management. The scheme provides support for procurement of firefighting equipments, controlled burning, fire line clearing, maintenance of fire lines, soil and moisture conservation works, awareness creation, capacity building of local community, research, monitoring etc. The scheme was implemented during 2018-19 at a cost of Rs.1.64 crore. The scheme will be continued

with a proposed outlay of Rs.1.50 crore during 2019-20.

6. LOWEST DIVERSION OF FOREST AREAS:

Even though there is increased demand for forest land for various developmental end users, the forest department has ensured minimum diversion of forest lands for any non-forestry purpose. In a long span of more than 37 years, since the enactment of Forest (Conservation) Act 1980, the diversion of Forest areas for non-forestry purpose is only about 5038.80 hectares involving 417 cases.

7. FOREST REVENUE AND EXPENDITURE DETAILS

7.1. Forest Revenue:

Major sources of revenue are by sale of Timber and sale of social forestry plantations (Annexure-I). Mature teak trees aged over 30 years are being harvested every year. Supply of pulpwood raw materials is made

from matured plantations of Eucalyptus and Wattle which are allotted by the Government to the paper mills and other wood based industries.

7.2. Expenditure:

All the developmental programmes including afforestation, soil and water conservation, habitat improvement works in various sanctuaries and Tiger reserves, intensive care towards protection of forest wealth, creation of awareness among the rural people have been continued in an effective manner. The necessary provisions for schemes made in the budget are narrated in Annexure-II.

8. CORPORATIONS:

8.1. Tamil Nadu Forest Plantation Corporation Limited (TAFCORN):

8.1.1. Established in the year 1974, TAFCORN's mandate is to raise, maintain and harvest Eucalyptus pulpwood and cashew to meet the needs of industries, to increase the

productivity of forests, to provide rural employment, to conserve soil and moisture and to supply firewood to meet the needs of the rural people.

8.1.2. This Corporation has an authorized share capital of Rs.10 crore and a paid up share capital of Rs.5.64 crore held by the Government of Tamil Nadu. Tamil Nadu Forest Department has leased 71,540.50 ha, of Reserved Forests to TAFCORN. As per Government orders, TAFCORN pays 30% of the annual turnover as lease rent to the department.

8.1.3. By adapting modern techniques like high yielding clones, mechanization of planting activity, irrigation etc., TAFCORN has been successful in increasing productivity. The details of the plantations raised and expenditure involved during 2017-18 and 2018-19 are given in Annexure-III.

8.1.4. The pulpwood supplied to paper mills during 2017-18 and 2018-19 are given in Annexure-III.

8.1.5. TAFCORN has been giving due emphasis to cashew plantation to increase its per hectare returns in the recent past. It is the second major revenue earner in the Corporation. The details of revenue realized are given in Annexure-III.

8.1.6. The revenue and expenditure details of the corporation for 2017-18 and 2018-19 and the Budget Estimate for 2019-20 are given in Annexure-IV.

8.1.7. The details of fresh plantations to be raised and cost involved during 2019-20 are given in Annexure-IV.

8.2. Tamil Nadu Tea Plantation Corporation Limited (TANTEA):

8.2.1 The Tamil Nadu Tea Plantation Corporation Limited was formed by the Government as a `Rehabilitation Scheme' to rehabilitate the Repatriates from Sri Lanka under Shastri-Srimavo Pact, 1964. This Corporation has plantations of 4311.04 ha of tea on the land leased out by Government of Tamil Nadu.

8.2.2 During the year 2018-19, this Corporation has produced 255.48 lakh kg of green tea leaf and 60.00 lakh kg of made tea.

8.2.3 TANTEA has been trying to increase its retail footprint to fetch higher prices. At present the Corporation is having 278 retail dealers, 25 wholesale district dealers and 3 regional marketing agencies. It has also made tie up with M/s Tamil Nadu Civil Supplies Corporation to sell its products through Public Distribution System shops. Tamil Nadu Tea

Plantation Corporation is also participating in Government fairs and other tourism festivals etc. to advertise TANTEA products to reach a larger sphere of customers.

8.2.4 TANTEA has got organic productivity certificate from IMO Control Private Limited, Bangalore for an area of 7.5 hectare in Coonoor Tea division.

The physical achievement of green tea leaves and made-tea for the year 2017-18, 2018-19 and estimated quantum for 2019-20 are furnished in Annexure V.

The Revenue and Expenditure details are also furnished in Annexure V.

8.3. Arasu Rubber Corporation Limited (ARC):

ARC was started in 1984 under the Indian Companies Act, 1956 with the objective (i) to safeguard the future of the rubber plantations

industry, (ii) to protect the interests of the workers and increase employment potential particularly for surplus rubber plantation labourers and rehabilitation of Sri Lankan repatriates, (iii) to check speculation in acquisition and management of rubber and other plantation estates and (iv) to check monopoly in rubber industry. With headquarters at Nagercoil, ARC employs 955 permanent workers including 233 Sri Lankan repatriates. It has rubber plantations over an area of 4155.295 Ha of lands taken on lease from Tamil Nadu Forest Department in Kanniyakumari district, where the soil, climate and topography are conducive for the growth of rubber trees. The authorized capital of the Corporation is Rs.13.07 crore and the paid up share capital is Rs.13.07 crore owned fully by the Government of Tamil Nadu.

The Arasu Rubber Corporation Ltd has initiated steps to expedite slaughter tapping and

sale of older unproductive rubber trees and replace these by high yielding clonal plantations.

Production and financial achievements are furnished in Annexure-VI.

9. HIGHLIGHTS OF THE YEAR 2018-19:

A. Plan Schemes

- Foundation stone has been laid for construction of Forest Headquarters building at Velachery and the preliminary works have been carried out during 2018-19.

- State Forest Policy and Tamil Nadu Eco-Tourism policy have been released by the Honourable Chief Minister, giving suitable long term directions to the management of forests and eco-tourism in forest areas to provide livelihood options and to garner sustainable support for conservation of forests and wildlife resources of the State.

93

- Tamil Nadu Forest and Wildlife Areas (Regulation of Trekking Rules), 2018 have been framed.

- Creation of Elite Force in Tamil Nadu Forest Department at two locations viz., Coimbatore and Theni, to cover the entire State at a cost of Rs.50 lakhs.

- 125 Jeeps provided to Territorial Forest Ranges at a cost of Rs.9.24 crores.

- Under Massive Tree Planting Programme, 70 lakh seedlings have been planted in the 31 districts throughout Tamil Nadu during 2018-19. Under the scheme Forest Department planted 7 lakh seedlings and Rural Development and Panchayat Raj Department planted 63 lakh seedlings.

- Enhancement of Green Cover in Chennai City and adjoining Districts to restore the tree cover lost due to Vardha Cyclone

94

was implemented. The maintenance of planted seedlings was carried out at an expenditure of Rs.4.86 crore.

- Eco-restoration of 18 ha of Nanmangalam RF was done by undertaking high density planting for improving Bio-diversity and for creating green lungs in and around Chennai at a total cost of Rs.250.00 lakhs from 2018-19 to 2022-23. During 2018-19 it was carried out at a cost of Rs.80.74 lakh.

- Enrichment of Non Timber Forest Product Resources in Forest Areas of Tamil Nadu at a cost of Rs.67.00 Lakh during 2018-19.

- Scheme of raising teak plantations in padugai lands of Tamil Nadu to enhance the timber resources, over an area of 6000 ha has been sanctioned at a total cost of Rs.5263.13 Lakh for a period of 8 years

from 2017-18 and works are being carried out. An area of 1189 ha has been covered along with maintenance of previous year plantations at an expenditure of Rs.5.62 crore.

- Rejuvenation of Vaigai and Noyyal Rivers at a cost of Rs.24.58 crore for a period of three years through assistance of NABARD is being done. During 2018-2019, it has been implemented at a cost of Rs.6.79 crore.

- Women Empowerment through conservation of medicinal plants is continued during 2018-19 in Salem, Namakkal and Dharmapuri districts at a cost of Rs.23.00 lakh.

- In order to encourage sports among the forest personnel, the facilities in Tamil

Nadu Forest Academy, Coimbatore has been enhanced at a total cost of 85 lakh.

- Tribal Eco-cultural Village - A living Museum in Sathyamangalam Tiger Reserve, Erode at a cost of Rs.7.00 crore. Preliminary works have been carried out during 2018-19 at a cost of Rs.3.87 crore.

B. Administration

- To tide over the crisis of manpower shortage at frontline level, 300 Foresters and 726 Forest guards and 61 Forest Guards with driving licence have been recruited through Tamil Nadu Forest Uniformed Services Recruitment Committee (TNFUSRC) through online examination.

C. Wildlife Management

- To tackle the problem of Human-animal conflict, innovative methods like Beehive

97

fences and Wire Rope Fencing along RF boundaries are being tried.

D. Forest Research

- Research Wing has acquired the machinery and capability to transplant the grown up trees instead of felling them in case the space occupied by tree is used for other purposes. For the first time tree transplantation has been done for the Highways Department (NH 45) with considerable success. Standardisation of tree transplanting technique has been done for Neem trees of below 90 cm girth.

- Modern Forest Tree Seed Centre has been established in Trichy District to supply seeds including rare, endangered, threatened trees and medicinal plants in delta districts and central part of

Tamil Nadu and also cater to the needs of farmers, industries and other beneficiaries.

- About 700 newly recruited Forest Guards and 300 newly recruited Foresters are being imparted training by Tamil Nadu Forest Academy although the capacity to train officers is only about 300. This is in addition to the normal routine training of Forest Range Officers. This is being done by hiring three private colleges. It is for the first time that such a large number of field officers are being trained by Tamil Nadu Forest Academy and Tamil Nadu Forestry Training College.

- Forest Genetics Resources Tree Park has been established on Kelambakkam Road near Arignar Anna Zoological Park. Lot of people has started visiting the park.

- Standardisation of technique to raise plantation on barren rock has been done. Rock plantations have been raised with considerable success.

10. CONCLUSION:

Tamil Nadu Forest Department is fully geared to achieve the goal of 33% forest and tree cover as well as to protect the rich bio-diversity of the State, as envisaged in National Forest Policy, 1988 and State Forest Policy, 2018 of Tamil Nadu. Sincere efforts from a dedicated team are already underway and the same will be carried forward with added vigour and zeal through involvement of all stakeholders.

DINDIGUL C. SREENIVASAN
MINISTER FOR FORESTS

ANNEXURE-I

Forest revenue:

Sl. No	Source of revenue	2019-20 Budget Estimate (Rs in lakh)
1.	Sandalwood	8.00
2.	Timber	1512.44
3.	Supply of raw materials to industries	147.88
4.	Other Minor Forest Produce	43.14
5.	Farm Forestry plantations excluding refund	1497.67
6.	Sale of bamboo, cashew, softwood plantations, etc.	20.84
7.	Other receipts	1568.03
	Sub total	**4798.00**
	Deduct recoveries (-)	35.15
	Total	**4762.85`**

ANNEXURE-II

Expenditure:

Name of the Scheme(s)	2019-20 Budget Estimate (Rs in lakh)
State Expenditure	39841.51
Externally Aided Project	0.22
Centrally Sponsored Schemes	0.03
Schemes shared between State and Centre	4636.83
Total	**44478.59**

ANNEXURE-III

Tamil Nadu Forest Plantation Corporation Limited

Achievements:

Sl. No.	Raising Plantation Species	Physical (Ha)		Financial (Rs in Lakh)	
		2017-18	2018-19	2017-18	2018-19
1.	Eucalyptus	3158	2254	1286.70	1039.76
2.	Cashew	284	148	118.89	53.64

Pulpwood supply

Year	Quantity supplied (M.T)	Revenue (Rs in lakh)
2017-18	1,42,851.823	5790.26
2018-19	1,86,801.539	7936.68
2019-20 (Budget Estimate)	1,75,000.000	7437.50

Cashew

Year	Revenue (Rs in lakh)
2017-18	1447.25
2018-19	1082.15
2019-20 (Budget Estimate)	1200.00

ANNEXURE-IV

Tamil Nadu Forest Plantation Corporation Limited

Revenue and Expenditure

(Rs in Lakh)

Year	Revenue	Expenditure	Profit (+) Loss (-)
2017-18	8603.61	7479.90	(+) 1123.71
2018-19 (provisional and unaudited)	10348.49	7565.01	(+) 2783.48
2019-20 (Budget Estimate)	9475.66	7868.66	(+) 1607.00

Proposals for plantations to be raised during 2019-20

Plantations	Physical (Ha)	Financial (Rs in Lakh)
Eucalyptus	2165	842.10
Cashew	1973	838.52

ANNEXURE-V

Tamil Nadu Tea Plantation Corporation Limited

Area leased out to TANTEA

Phase	Year	Planted area (in Ha)		
		Nilgiris	**Anamalai**	**Total**
Phase I	1969-79	1858.74	..	**1858.74**
Phase II	1979-81	583.10	..	**583.10**
Phase III	1982-84	336.58	..	**336.58**
Phase IV	1990-95	576.26	956.36	**1532.62**
TOTAL		**3354.68**	**956.36**	**4311.04**

ANNEXURE-V—*Contd.*

Green tea leaves and made-tea production

Details (in lakh kg)	2017-18	2018-19	2019-20 (Estimated)
Harvest of green tea leaves	285.91	255.48	322.00
Made-Tea production	65.70	62.10	74.08

Revenue and expenditure details

(Rs in crore)

Year	Revenue	Expendi-ture	Profit (+) Loss (-)
2017-18	54.34	85.80	(-) 31.46
2018-19	57.35	79.77	(-)22.42
2019-20 (Estimated)	82.40	81.67	(+)0.73

ANNEXURE-VI

Arasu Rubber Corporation Limited

Production and financial achievement

(Rs in Lakh)

Sl. No	Particulars	2017-18 (Actual)	2018-19	2019-20 BE
1.	Production of Rubber (in M.T)	1573.00	1370.00	1475.00
2.	Revenue and expenditure			
	a) Income	3090.18	2469.16	2840.20
	b) Expenditure	3075.76	3310.50	3342.52
3.	Profit (+) or Loss (-)	(+)14.54	(-)841.36	(-)502.17