

031413 | 20/7

**PROCEEDINGS OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (HEAD OF DEPARTMENT)**

**Present: Dr. H. Basavaraju, I.F.S.,**

**Ref. No. WL5(A)/28765/2017**

**Dated: 18-08-2017**

**Sub:** Tamil Nadu - State Action Plan on Climate Change - Formation of sectoral working groups - Forests and Biodiversity - Follow up action - Formation of Climate Change Cell in Forest Department - Regarding.

- Ref:**
- 1) G.O. (3D) No. 56, Environment and Forests (EC-2) Department dated 10-10-2011.
  - 2) G.O. (3D) No. 57, Environment and Forests (EC-2) Department dated 10-10-2011.
  - 3) Principal Chief Conservator of Forests Ref. No. Bio1/2014 dated 21-05-2014.
  - 4) The Director of Environment, Chennai Ref. No. 810/2015/AE dated 28-05-2015

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**ORDER:-**

In reference 1<sup>st</sup> cited, the Government of Tamil Nadu vide letter No. 16589/EC2/2009-2 dated 17-03-2010 has nominated the Department of Environment as nodal agency for implementing the project under the Indo-German collaboration for the preparation on State Level Action Plan on Climate Change for Tamil Nadu State. Based on the outcome of the inception workshop was organized by the Department of Environment in Chennai during August 2010, necessary G.O for constituting sectoral working groups under eight missions vide G.O 1<sup>st</sup> cited.

- a) Water Resources
- b) Coastal Area Management
- c) Sustainable Agriculture
- d) Energy Efficiency and Renewable Energy
- e) Forest and Biodiversity
- f) Sustainable Habitat
- g) Knowledge Management

2) The Principal Chief Conservator of Forests and Chief Wildlife Warden chaired the sectoral working group in respect of "Forest and Biodiversity".

3) In respect to the above a steering committee on climate change was also constituted under the chairmanship of the Chief Secretary to Government vide G.O 2<sup>nd</sup> cited.

4) As part of effective initiatives taken up by the Department of Environment. Reports prepared by the Sectoral Working Groups, with the assistance / technical guidance of GIZ, New Delhi the State Action Plan on Climate Change submitted by the State of Tamil Nadu was enclosed by the Ministry of Environment, Forests and Climate Change (by the National Steering Committee on Climate Change held on 31-03-2015) vide reference 4<sup>th</sup> cited.

5) Accordingly all State Government were advised to prepare list of activities which could be supported.

- Through on-going schemes implemented by Government of India.
- On-going schemes of the State Government.
- Funding gap in on-going schemes.
- To identify the projects which would be funded from other sources to be adaptation Fund Board, National adaption fund for climate change, National green energy fund, green climate change fund and other financial instruments established by the multilateral / bilateral agencies.

6) Subsequently to implement and evaluate the project effectively a meeting was held on 25-08-2015 by the Department of Environment, it has been concluded that a climate change cell which will be established in the office of Principal Chief Conservator of Forests to facilitate easy communication and implementation with all line departments.

7) It is indicated that the funding allocation provided for "Forests and Biodiversity sector" under State Action Plan on climate change vide reference 3<sup>rd</sup> cited is 1567.19 Crores (Rupees One thousand four hundred and sixty eight Crores only) during 12<sup>th</sup> Five Year Plan and Rs. 1900.00 Crores (Rupees one

thousand eight hundred sixty five only) in the 13<sup>th</sup> Five Year Plan (copy enclosed).

8) In view of the facts mentioned above, after detailed deliberations with the implementing officers, based on the budget allocation provided in Tamil Nadu State Action Plan Climate Change document and mandate of the **Forest Department**, it is hereby ordered to constitute a climate change cell in **Forest Department**, comprising of following officers:-

1.	Principal Chief Conservator of Forests (Head of Department)	Chairperson
2.	Principal Chief Conservator of Forests (Research & Training)	Member
3.	Principal Chief Conservator of Forests (Social Forestry & Extn)	Member
4.	Principal Chief Conservator of Forests (Forest Conservation Act)	Member
5.	Additional Principal Chief Conservator of Forests (P&B)	Member
6.	Additional Principal Chief Conservator of Forests (Wildlife)	Member
7.	Additional Principal Chief Conservator of Forests (WP)	Member
8.	Chief Conservator of Forests (IT) (Nodal officer, Climate Change)	Member Secretary

**Special Invitees:-**

- 1) Principal Chief Conservator of Forests & Chief Wild life Warden(HOFF)
- 2) Principal Chief Conservator of Forests & Chief Project Director, Tamil Nadu Biodiversity and Greening Project.
- 3) Director of Environment.
- 4) Member Secretary, Tamil Nadu Biodiversity Board.
- 5) Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority.
- 6) Chief Conservator of Forests (P&D)

Further it is directed that the activities of the performance of Climate Change Cell will be reviewed by the Principal Chief Conservator of Forests from time to time. For this purpose the following officials are hereby nominated to handle the files related to Climate Change Adaptation Programme.

1.	Senior Draughting Officer (Wildlife), O/o. PCCF	Handling files related to climate change adaptation programme independently.
2.	Thiru. D Chocklingam, System Analyst, O/o. PCCF	Supervisory Authority to handle this subject.

The Climate Change Cell constituted will look after the following issues.

1. Enhancing Landscape resilience for adaptation to Climate Change.
2. Scope of Carbon offsetting through RESULT based payments.
3. Scope of creating additional carbon sink through Nationally Determined Contributions.
4. Enhancing Climate Changes Resilience of Rural and Tribal Communities.

10) The Committee will involve in the process of preparation of schemes related to Climate Change Adaption of Mitigation, Institutional Mechanism, involvement of Stakeholders, Current Climate Change Schemes of both Forests and Protected Areas, projections of Impacts and sectoral approach (strategy wise) relevant to adaption and mitigation, priorities activities, the financial requirement in forth coming years, directing funding mechanism for the activities proposed in the Tamil Nadu State Action Plan Climate Change, coordination with line Departments, engagement of honorary consultant fulfil the needs and requirements capacity building apart from project preparation, approval process, implementation and coordination. The Climate Change Cell will also focus the training needs assessment in future, with the aim to contribute to improved livelihoods and adaptive capacities vulnerable rural communities in this State aligns itself to the National Action Plan 5<sup>th</sup> Climate Change of this country.

11) The Committee will undertake the task to enhance the understanding of implementing officers in various cadres of this Department relates to Climate Change Adaption issues, the officers to implement the strategies already indicated in the sectoral working group report implementation of State Action Plan of Climate Change.

12) A road map will be derived for this purpose in future depending on the Tamil Nadu State Action Plan of Climate Change focusing the sector namely "Forest and Biodiversity".

13) This order will come into effect from the date of approval and all the implementing officers are requested to coordinate with the Chief Conservator of

Forests (P&D) and Additional Principal Chief Conservator of Forests (P&B) and staffs nominated for this purpose.

Encl: As stated above

*WZ* ✓  
12-8-12  
Principal Chief Conservator of Forests  
(Head of Department)

To

*Q*  
*2/6*  
*08/01/12*  
The Principal Chief Conservator of Forests and Chief Project Director, Tami Nadu Biodiversity Conservation and Greening Project, Nanmangalam, Chennai.

The Principal Chief Conservator of Forests (Research and Education), Kolapakkam, Chennai.

All officers in Headquarters.

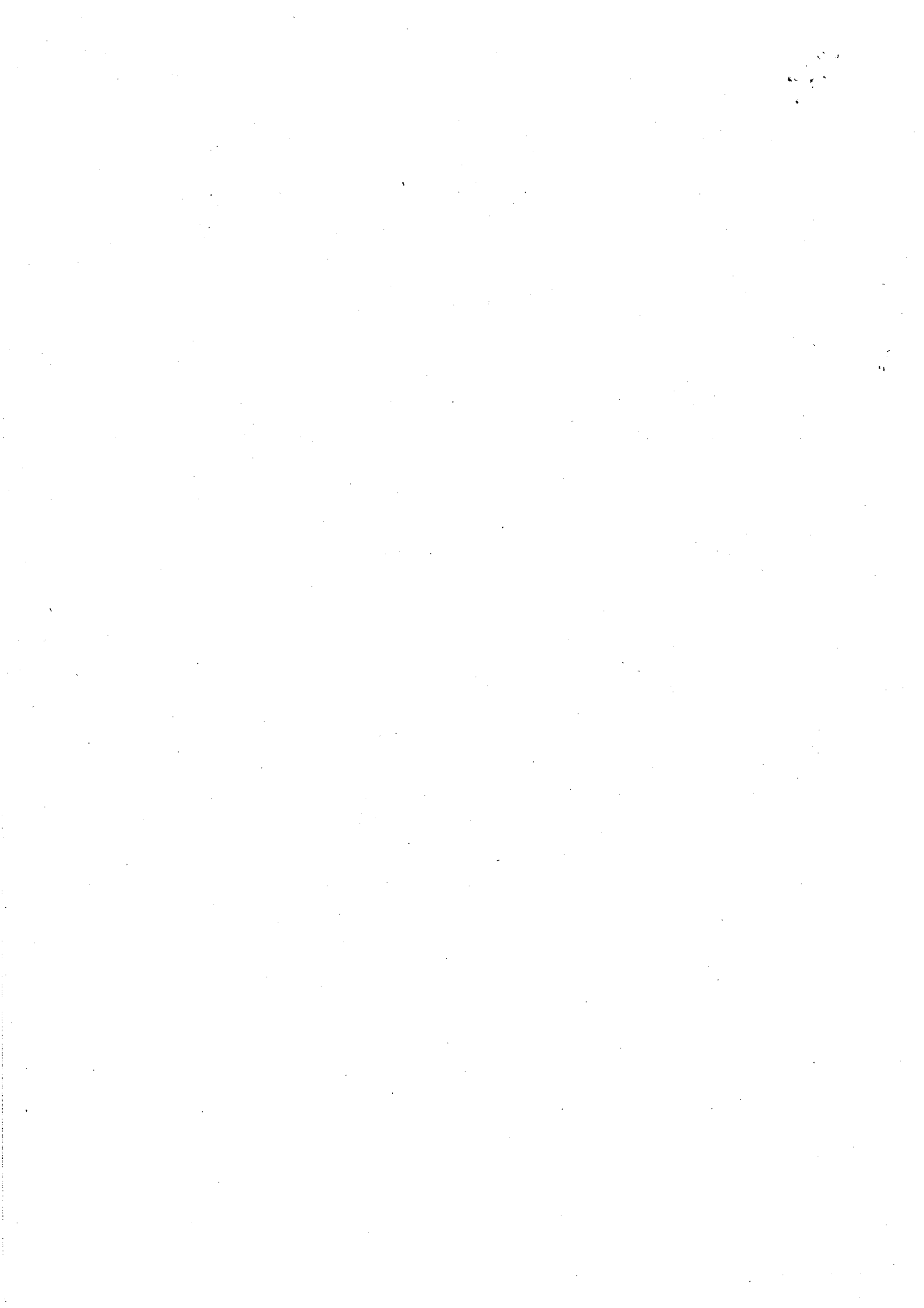
*COF (IT)* ✓

The Chief Conservator of Forests and Field Directors, Anamalai Tiger Reserve, Pollachi / Mudumalai Tiger Reserve, Udthagamandalam / Kalakad Mundanthurai Tiger Reserve, Tirunelveli / Sathyamangalam Tiger Reserve, Erode.

The Chief Conservator of Forests and Director, Arignar Anna Zoological Park, Vandalur, Chennai - 48.

The Chief Conservator of Forests and Trust Director, Gulf of Mannar Biosphere Reserve Trust, Ramanathapuram.

The Conservators of Forests, Chennai / Vellore / Trichy / Villupuram / Coimbatore / Madurai / Dindigul / Salem / Dharmapuri / Tirunelveli / Virudhunagar.



### 7.8 BUDGET REQUIREMENT FOR STRATEGIES IN FOREST AND BIODIVERSITY SECTOR

The total cost for implementing the strategies during the 12<sup>th</sup> Five Year Plan (FYP) is Rs.1567.19 crore of which Rs.39.19 crore is proposed for specific research activities and during the 13<sup>th</sup> Five Year Plan (FYP) is Rs. 1990.00 crore.(Table7.5)

**Table 7.5: Summary of budget requirement for forest and biodiversity sector**

Sl.No.		Cost for 12 <sup>th</sup> FYP (crore)	Cost for 13 <sup>th</sup> FYP (crore)
1	Increasing the forest cover, both inside and outside notified forest areas through afforestation programmes as well as restoration of degraded forests	650	675
2	Enhancing Biodiversity Conservation efforts: <i>in situ</i> / <i>ex situ</i> (Protected Area and Reserved Forests) under TBGP	300	367
3	Coastal & marine biodiversity conservation	140	280
4	Creation of Biodiversity Registers	260	390
5	Lower strata diversification	30	44
6	Management of forest fires and Alien Invasive Species (AIS)	90	145
7	Research & capacity building on impact of climate change on forest & biodiversity & ecosystem services	40	59
8	Awareness generation and capacity building on climate change for integrating CC in governance	18	30
	<b>TOTAL</b>	<b>1528</b>	<b>1990</b>
	Specific Research & related Capacity Building Activities and budgets	39.19	-
	<b>Grand Total</b>	<b>1567.19</b>	<b>1990</b>

The details of the strategies are given in Tables 7.6 and 7.7 respectively.

Table 7.6: Detailed Budget for Strategies in Forests and Biodiversity Sector

S. No	Strategy	Agency	Cost for 12 <sup>th</sup> FYP (Rupees in crore)	Cost for 13 <sup>th</sup> FYP (Rupees in crore)
<b>Strategy 1: Increasing the forest cover, both inside and outside notified forest areas through afforestation programmes as well as restoration of degraded forests</b>				
1.1	Participatory Forest Management or Joint Forest Management (JFM)	DoF	200	200
1.2	Promotion of Industrial and Energy Plantation (PPP)	DoF & DoI	200	200
1.3	Promotion of Climate Resilient Agro and Farm Forestry(PPP)	DoF, DoA	200	200
1.4	Regeneration of Sandal wood:(a) On degraded forest area in sandalwood Belt ; (b) On farmlands in sandalwood tract	DoF	50	75
<b>SUB TOTAL</b>			<b>650</b>	<b>675</b>
<b>Strategy 2: Enhancing Biodiversity Conservation efforts: <i>In situ</i> / <i>ex situ</i> (both inside the Protected Area as well as in other Reserved Forests) under Tamil Nadu Biodiversity conservation and Greening Project (TBGP)</b>				
2.1	Biodiversity Conservation: (both inside Protected Areas as well as in Reserved Forests) including Shola Forest	DoF, TNAU+other agency identified by DOF	200	220
2.2	Establishment of fodder banks in the Protected Areas as well as in other Reserved Forests	DoF, TNAU+other agency identified by DOF	50	75
2.3	Greening of villages and Establishment of Village Seed Banks	Dept. of Plant Genetic Resources, TNAU	10	15
2.4	Conservation of genetic resources by screening and preserving existing wild germplasm for developing climate resilient varieties	DoF & TN State Biodiversity Board	5	7
2.5	Training and extension activities to develop institutional capacity for biodiversity conservation and ecosystem management	Dept. of Plant Genetic Resources, TNAU	5	7



S. No	Strategy	Agency	Cost for 12 <sup>th</sup> FYP (Rupees in crore)	Cost for 13 <sup>th</sup> FYP (Rupees in crore)
2.6	Collection, conservation and documentation of in Nilgiris, Kollil hills, Kodaikanal (Shola Forests), Kalakkad-Mundathurai Tiger Reserve (KMTR)	DoF, TNAU+ other agency identified by DOF	10	15
2.7	Strengthening the <i>ex situ</i> conservation facilities: Gene Banks	DPGR, TNAU	5	7
2.8	R & D on orthodox and recalcitrant seeds cryopreservation for long term storage - Establishing Cryopreservation facilities	TNAU	5	7
2.9	Renewable power generation for powering the freezer facility	TNAU	5	7
2.10	Establishment of biodiversity corridors / species garden for education purpose	DOF	5	7
		<b>SUB TOTAL</b>	<b>300</b>	<b>367</b>
<b>Strategy 3: Coastal &amp; marine biodiversity conservation</b>				
3.1	Conducting regular assessment & monitoring of Coral reef as indicator species	DoE, DoF, GoMBR	20	40
3.2	Coral rehabilitation using resilient & resistant native species	DoE, DoF, GoMBR	50	100
3.3	Alternative livelihood for reef associated fishery dependent people	DoE, DoF, GoMBR	50	100
3.4	Conservation of mangroves and associated biodiversity	DoE, DoF, GoMBR	20	40
		<b>SUB TOTAL</b>	<b>140</b>	<b>280</b>
<b>Strategy 4: Creation of Biodiversity Registers</b>				
4.1	Mapping of floral and faunal biodiversity in State at a high spatial resolution incorporating GPS coordinates and on GIS platform	TNAU, NBA	100	150
4.2	Creation of Peoples Biodiversity Register - BMC level (Panchayat)	NBA, TNAU	50	75
4.3	Identification, conservation and protection of biodiversity of heritage sites (10 sites) and ecologically sensitive districts (9) as suggested by the Gadgil Committee.	DoF, DoE, NBA, TNSBB	100	150
4.4	Disseminate - includes devising access and benefit sharing mechanisms of resources and indigenous knowledge with communities dependent on the same	DoF, TNSBB	10	15
		<b>SUB TOTAL</b>	<b>260</b>	<b>390</b>

S. No	Strategy	Agency	Cost for 12 <sup>th</sup> FYP (Rupees in crore)	Cost for 13 <sup>th</sup> FYP (Rupees in crore)
<b>Strategy 5: Lower strata diversification</b>				
5.1	Identification of suitable fodder genotypes by evaluating existing germplasm-Germplasm collection and documentation	TNAU, DoF	10	15
5.2	Intensive evaluation of the collected forage germplasm suitable to the different ecosystem and testing for climate resilience-Screening of germplasm	TNAU, DoF	5	7
5.3	Large scale multiplication of seeds	DoF	5	7
5.4	Large scale testing – field trials in different agroclimatic zones where degraded forests with invasive species are identified-Approx 3 sites for each agroclimatic zones will be selected	TNAU, DoF	10	15
<b>SUB TOTAL</b>			<b>30</b>	<b>44</b>
<b>Strategy 6: Management of forest fires and Alien Invasive Species (AIS)</b>				
6.1	Training, field review of AIS management ;Procure partners; Training on management of AIS with field review of species (TNFD staff) ;Strategy and manual on management of AIS (in English and Tamil)	DOF	10	15
6.2	Survey, monitoring and reporting-Baseline survey of biodiversity in critical habitats prior to removal of ALS;Enter georeferenced data in biodiversity database/ GIS	DOF	10	15
6.3	Removal of AIS ;Phased removal of Lantana, Prosopis from dry forest ;Phased removal of wattle from Shola ecosystem in the hills	DOF	10	20
6.4	Monitoring biodiversity in critical habitats after removal of ALS;Monitor impact of fencing and removal of exotics from shoal and grassland habitats	DOF	10	20
6.5	Strengthening fire fighting infrastructure to address Forest Fires	DOF	50	75
<b>SUB TOTAL</b>			<b>90</b>	<b>145</b>

S.No	Strategy	Agency	Cost for 12 <sup>th</sup> FYP (Rupees in crore)	Cost for 13 <sup>th</sup> FYP (Rupees in crore)
<b>Strategy 7: Research &amp; capacity building on impact of climate change on forest &amp; biodiversity &amp; ecosystem services</b>				
7.1	Estimating mitigation potential of forest in Tamil Nadu	DOF, Revenue Dept., DoE	10	15
7.2	Intensification of research on forest plant diversity conservation and utilisation to identify climate resilient plants.	DOF, NBA, MSE MIDS, TNAU	10	15
7.3	Valuation of bio resources in 3 ecosystems; Coastal; Wetland ; Forest	GoMBRT; MRI; ZSI	10	15
7.4	Focused research on impact of climate change on coral reefs and associated biodiversity	GoMBRT	5	7
7.5	Capacity building and dissemination activities	DoF	5	7
		<b>SUB TOTAL</b>	<b>40</b>	<b>59</b>
<b>Strategy 8: Awareness generation and capacity building on climate change for integrating CC in governance</b>				
8.1	Creating awareness on climate change impact on forest to rural poor, farmers, farm labourers and people lives in forest fringes by training, field visits, and field demonstrations.	DOF	3	5
8.2	Creating awareness on climate change and resilient mechanism through forestry by appropriately training NGOs, self-help groups, etc.	DOF	3	5
8.3	Capacity building through seminars and trainings for scientists and researchers to meet the challenges of climate change	DOF	3	5
8.4	Capacity building through training to forestry field staff, managers	DOF	3	5
8.5	Awareness building among all stakeholders in Gulf of Mannar Biosphere Reserve	DOF	3	5
8.6	Capacity building of frontline conservation staff and community in Gulf of Mannar Biosphere Reserve	DOF	3	5
		<b>SUB TOTAL</b>	<b>18</b>	<b>30</b>
		<b>TOTAL</b>	<b>1528</b>	<b>1990</b>

Table 7.7: Specific Research & related Capacity Building Activities and budgets

S. No	Research Programs	Institutes Involved	Approx. Budget (Rs. in crore)	Plan period	Location & area of coverage	Input requirement	Capacity building
1.	Developing & promoting climate resilient agro forestry & farm forestry methodologies for mitigating climate change	Forest College and Research Institute(FC&RI), Mettupalayam; TNAU; NGOs	10.25	12 <sup>th</sup> -13 <sup>th</sup> FYP	Semi arid regions of Tamil Nadu 500 acres	Region specific nurseries -4 Drip irrigation facilities GIS software	Training to farmers, NGOs, field staff of Agrl. Horti. & DoF
2.	Promotion of region specific tree plantation for higher carbon sequestration under climate change affected situation in TN	(FC&RI), MTU DoF; Institute of Forest Genetics and Tree Breeding(IFGTB)	13.48	12 <sup>th</sup> -13 <sup>th</sup> FYP	All agro climatic regions of Tamil Nadu	Demonstrating 600 acres of pln; Drip irrigation facilities Region specific nurseries OTC chamber	Training to farmers, NGOs, field staff of Agrl. Horti. & DoF
3.	Long term monitoring of forest biodiversity due to climate change	(FC&RI), MTU DoF; Botanical Survey of India	1.38	12 <sup>th</sup> -13 <sup>th</sup> FYP	All forest types of Tamil Nadu	Long term monitoring plots of 1 ha size forest types Biodiversity assessment software	Training to DoF staff
4.	Estimating carbon sequestration potential of forest types in TN through long term obsern plots	(FC&RI), MTU; DoF	3.5	12 <sup>th</sup> -13 <sup>th</sup> FYP	All forest types of Tamil Nadu	Carbon analyser Soil respiration instrument	Training to scientists DoF staff
5.	Estimation of biodiversity and Conserved / over exploited trees in agroforestry settings in TN	(FC&RI), MTU; DoF; Botanical Survey of India	2.3	12 <sup>th</sup> -13 <sup>th</sup> FYP	All agro climatic regions of TN	Development of ex-situ and in-situ tree conservation garden;	Training to scientists DoF staff

Tamil Nadu State Action Plan for Climate Change

S. No	Research Programs	Institutes Involved	Approx. Budget (Rs. in crore)	Plan period	Location & area of coverage	Input requirement	Capacity building
6	Urban forestry and carbon sequestration potential in Tamil Nadu	(FC&RI), MTU;	1.8	12 <sup>th</sup> -13 <sup>th</sup> FYP	All city corporations of Tamil Nadu	GIS facilities Avenue tree Planting	Training to school, colleges, corporation officials, DoF
7	Assessing pest and diseases incidences in Tamil Nadu forest due to climate change	(FC&RI), MTU TNAU	0.78	12 <sup>th</sup> -13 <sup>th</sup> FYP	All forest types of Tamil Nadu	Pest and disease assessment through long term monitoring plots in forest types of TN	Training to scientist, DoF personnel
8	Assessing invasive species in forest due to climate change	(FC&RI), MTU TNAU	1.5	12 <sup>th</sup> -13 <sup>th</sup> FYP	All forest types of Tamil Nadu	Assessment of invasive species through long term monitoring plots in forest types of TN	Training to scientist, DoF personnel
9	Assessing Micro floral diversity under the climate change Scenario	(FC&RI), MTU	0.80	12 <sup>th</sup> -13 <sup>th</sup> FYP	All forest types of Tamil Nadu	Assessing micro flora and fauna in forest floor and their diversity	Training to scientist, DoF personnel
10	Training & Capacity building on Forest and climate change adaptations	(FC&RI), MTU TNAU Institute of Forest genetics and Tree Breeding	2.5	12 <sup>th</sup> -13 <sup>th</sup> FYP	All districts of Tamil Nadu	Training, Demonstrations, field visit	Training to farmers, NGOs, staff of Agri. Horti. and DoF school, colleges
11	Documentation of Honey Tappers perception of environmental change from selected forest zones in TN and suggested field actions	MSSRF; Save the Eastern Ghats Org (SEGO) Sramani Institute	0.15				

S. No	Research Programs	Institutes Involved	Approx. Budget (Rs. in crore)	Plan period	Location & area of coverage	Input requirement	Capacity building
12.	Documentation of perceptions of pastoralist holding native breeds of livestock about environmental change from selected agro-ecological zones of TN	MSSRF Kangayam Cattle Research Foundation Sramani Institute	0.15				
13.	Mapping Contemporary Traditional Agriculture/ existing tree flowering stages and hotspots for honey tappers in Eastern Ghats of TN and identification of good practices for adaptation.	MSSRF; Save the Eastern Ghats Org (SEGO) Sramani Institute	0.30				
14.	Local technology demonstration and dissemination to add value of the product through initiation of stakeholder consultation and; Design policy instrument to larger scale beneficiaries	MSSRF; Save the Eastern Ghats Org (SEGO) Sramani Institute	0.30				
	<b>Grand TOTAL</b>		<b>39.19</b>				