

# Chapter 1

## INTRODUCTION

### 1.1 About CAMPA

Forests are generally used for the lifestyles and the wellbeing of forest dwellers. The local population and other people/species directly or indirectly are dependent on forests. Forests are also used for the nature reserve, national park, wildlife sanctuary, biosphere reserve, as a habitat of endangered/ threatened species of flora and fauna. Forest land is generally diverted for non-forestry purpose under the Forest (Conservation) Act, 1980 for facilitating developmental activities like construction of power projects, irrigation projects, roads, railways, schools, hospitals, rural electrification, telecommunication, drinking water facilities and mining, etc.<sup>1</sup>

Compensatory Afforestation Management and Planning Authority (CAMPA) is a body constituted by the Central government as a consequence of the Supreme Court's order in 2002. The cost of creating the compensatory forest is borne by the 'User Agency' proposing the forest diversion for its project, which can be a public or private sector enterprise or a government body owning the project. Whenever development projects seek land inside a Reserved Forest or a Protected Area (PA), such as a wildlife sanctuary or a national park, certain levies are imposed by the government on the project proponent (the User Agency) towards compensatory afforestation (CA), additional compensatory afforestation (ACA), penal compensatory afforestation (PCA), net present value (NPV) of forestland, catchment area treatment (CAT) plan funds, etc.<sup>2</sup>

In April 2004, the Central Government, under the orders of the Honorable Supreme Court, constituted the CAMPA for the management of money towards CA, NPV and other money recoverable, in compliance of the conditions stipulated by the central government and in accordance with the Forest (Conservation) Act, 1980. The CAMPA functions under the supervision of the Central Government in the Ministry of Environment, Forests & Climate Change (MoEF&CC). Its jurisdiction extends to the whole of India. Under CAMPA, large-scale activities have been taken up to accelerate preservation of natural forests, management of wildlife, capacity building, research & development, infrastructure development in the sector and other allied works.

The Ministry of Environment and Forests, Government of India, in their letter dated 2 July 2009 have issued the Guidelines on State Compensatory Afforestation Fund Management and Planning Authority (State CAMPA). Based on these guidelines, the Government of Andhra Pradesh, in their G.O.Ms.No.78, E.F.S.& T (For. I) Department dated 11 September 2009 issued orders establishing the Andhra Pradesh State Compensatory Afforestation Fund Management and

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<sup>1</sup> Compensatory Afforestation in India: Report no 21

<sup>2</sup> CAMPA Fact Sheet: A Compromised Composition CAF Bill and PSC Report, CSE, 7p.

planning authority (A.P. State CAMPA). The main purpose enunciated in the Notification is enhancement of forest and tree cover and conservation and management of wildlife by utilizing funds received towards CA, NPV etc. in compliance to the conditions stipulated by the Central Government while according approval under Forest (Conservation) Act, 1980 (69 of 1980) for non-forest uses of the forest lands.<sup>3</sup>

With the Compensatory Afforestation Fund Bill 2016 (*hereafter referred to as 'the Bill'*), the Government of India now seeks to make this corpus available to state governments to initiate necessary compensatory afforestation programme, independent of the Supreme Court. The Bill provides for an institutional mechanism to ensure 'expeditious utilization' of the amounts collected from the diversion of forestlands till present.

## 1.2 Necessity of CAMPA

The necessity of CAMPA is to compensate for the loss of tangible as well as intangible benefits from the forest lands which were diverted for non-forest use compensatory afforestation is required to be done over an equivalent area of non-forest land or double the amount of degraded forest land in relation to the actual area being diverted. If clearances for diversion of forest land are granted, certain levies are imposed on the project proponents by the Government to compensate for the loss of forestlands, and this money is to be utilized for afforestation activities elsewhere. This concept is 'Compensatory Afforestation', defined as 'afforestation done in lieu of the diversion of forest land for non-forest use under the Forest (Conservation) Act, 1980 (ref. 5). In order to determine the cost of compensatory afforestation, the appropriate authority will evaluate the area of the forest area/degraded identified for compensatory afforestation. From such money, a huge corpus of over 42,000 crores has accumulated into accounts of Ad hoc CAMPA, a temporary body set up in 2006 by the Supreme Court to manage such funds. The corpus is increasing at the rate of about 6,000 crores per year. The disbursement of funds under the corpus to state governments was previously supervised by the Supreme Court to ensure effective monitoring and regulation of these funds.<sup>4</sup>

CAMPA fund is to be used for assisted natural regeneration (ANR), natural forest management, forest protection, biodiversity conservation, infrastructure development, wildlife

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<sup>3</sup> Manual of Guidelines and Accounting Procedure on works relating to A.P. State Compensatory Afforestation Fund Management and Planning Authority (A.P. State Campa), 38p.

<sup>4</sup> Text of the Supreme Court Order, dated 10 July 2009, on National and State CAMPAs.

protection and management, the supply of wood and other forest produce saving devices and other allied activities.

### **1.3      CAMPA in Telangana**

Telangana state formed in June 2014 from the northwestern part of the Joint State of Andhra Pradesh has an area of 112,102 square kilometers and a population of 35,193,978.<sup>5</sup> The notified forest area of the State is 26903.70 square kilometers, which is 23.99% of the geographical area.<sup>6</sup> The Telangana State Forest Department (TSFD) is implementing CAMPA activities in the state of Telangana since 2009-2010.

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<sup>3</sup> Census of India (2011).

<sup>6</sup> Telangana State of Forest report (2014), TSFD, 144p.

## Chapter 2

### WORKS TAKEN UP UNDER DIFFERENT CAMPA COMPONENTS

This chapter describes the works taken up by TSFD during 2009-2010 under different CAMPA components. Compensatory Afforestation (CA) and Net Present Value (NPV) components for which activities have been undertaken by Telangana State Forest department during 2009-2010 are shown in Fig 2.0.

**Fig 2.0: Works undertaken for different CA and NPV components during 2009-2010.**

<b>Compensatory Afforestation (CA)</b>	<b>Net Present Value (NPV)</b>
<ul style="list-style-type: none"> <li>➤ Compensatory Afforestation</li> <li>➤ Addl.CA/Penal CA</li> <li>➤ Safety Zone</li> <li>➤ Extraction of Tree Growth in diverted areas</li> </ul>	<ul style="list-style-type: none"> <li>➤ Natural Forest Management (NFM)</li> <li>➤ Forest Protection (FP)</li> <li>➤ Forest Fire Management (FFM)</li> <li>➤ Bio-diversity Conservation and Development (BDC)</li> <li>➤ Research and Development (R&amp;D)</li> <li>➤ Capacity Building (CB)</li> <li>➤ Information Communication and Technology (ICT)</li> <li>➤ Monitoring and Evaluation (M&amp;E)</li> <li>➤ Office Support (OS)</li> </ul>

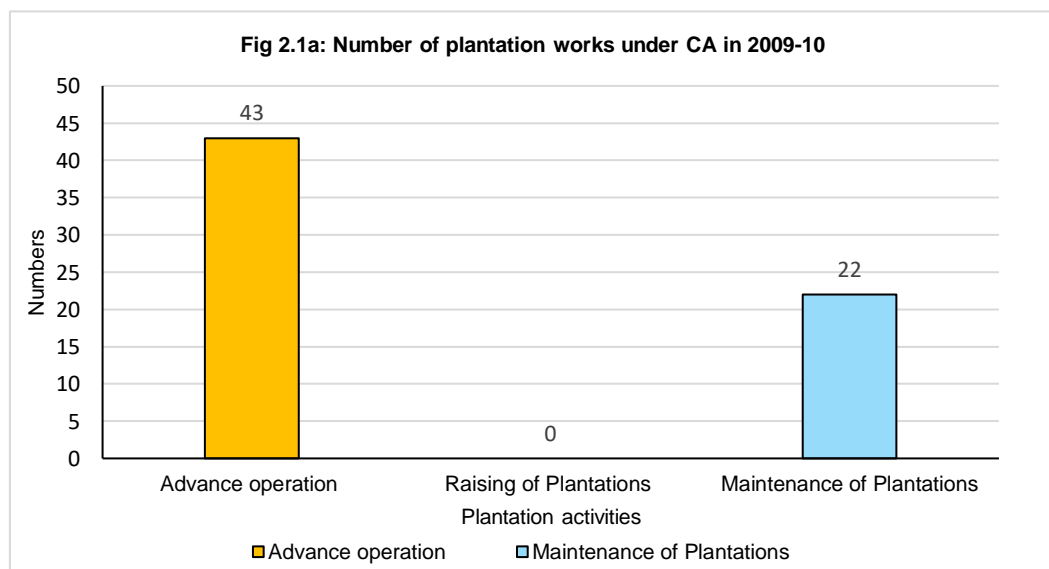
**2.1 Compensatory Afforestation (CA):** The main mandate of Telangana State CAMPA is afforestation of the compensatory area given by the user agency in lieu of the forest areas diverted for non-forestry purposes. Under Compensatory afforestation, planting of trees is carried out on another piece of land equivalent in area to the original forestland diverted for non-forest purposes. It is mandated under the Forest (Conservation) Act, 1980 that compensatory afforestation is done over an equivalent area of non-forestland. Equivalent non-forestland identified for the purpose would subsequently be transferred to the ownership of the State Forest Department and declared as Protected Forests so that the plantation raised can be maintained permanently. Where non-forestlands are not available, compensatory afforestation may be carried out over degraded forest twice in the extent to the area diverted or to twice the difference between forestland being diverted and available non-forestland, as the case may be. The activities under CA head namely CA / Addl.CA / Penal CA / Safety Zone / Extraction of tree growth are taken up by TSFD strictly as per the Government of India stipulations while granting the stage - I & II clearances of CA proposals. It also envisages proper demarcation of the CA areas by erecting boundary pillars.

Under CA during 2009-10, a total of 113 works were undertaken by TSFD with an expenditure of 302.05 lakhs. Division wise total number of works and expenditure under CA is shown in Table 2.1a.

**Table 2.1a: Division wise number of works undertaken and expenditure (lakhs) incurred under CA by TSFD, CAMPA during the year 2009-10.**

Name of the Circle	Name of the Division	No of works undertaken	Expenditure (lakhs)
Adilabad	Adilabad	9	37.0060
	Nirmal	1	13.200
	Jannaram WLM	2	3.0000
	Mancherial	18	35.8080
	Bellampally	7	1.5690
	<b>Circle-total</b>	<b>37</b>	<b>90.5830</b>
Hyderabad	Hyderabad	1	0.9570
	Mahabubnagar	1	5.3400
	Nalgonda	1	1.6680
	<b>Circle-total</b>	<b>3</b>	<b>7.9650</b>
Khammam	Paloncha	58	188.279
	Bhadrachalam (N)	2	5.425
	<b>Circle-total</b>	<b>60</b>	<b>193.704</b>
Nizamabad	Kamareddy	1	0.2460
	Medak	1	2.4500
	<b>Circle-total</b>	<b>2</b>	<b>2.6960</b>
Warangal	Karimnagar (E)	3	1.0000
	<b>Circle-total</b>	<b>3</b>	<b>1.0000</b>
FDPT	Achampet	4	3.4300
	Nagarjunasagar	4	2.6630
	<b>Circle-total</b>	<b>8</b>	<b>6.0930</b>
<b>Telangana</b>	<b>Grand-total</b>	<b>113</b>	<b>302.05</b>

During 2009-2010, there are no plantations raised under CA. The main works under plantation activities included advance operation for plantation raising in 2010-11, including nursery works and maintenance of previously raised plantations. Total plantation works carried out under CA during 2009-2010 is shown in Fig 2.1a.



Division wise total number of plantation works under CA for the year 2009-2010 is shown in Table 2.1b.

**Table 2.1b: Division wise total plantation works under CA by TSFD, CAMPA during 2009-2010.**

Forest Divisions	Advance Operation	Raising	Maintenance	Total
Achampet	1	-	1	2
Adilabad	-	-	-	-
Bellampally	-	-	7	7
Bhadrachalam (North)	2	-	-	2
Bhadrachalam (South)	-	-	-	-
FG Warangal	-	-	-	-
Hyderabad	1	-	-	1
Kaghaznagar	1	-	-	1
Kamareddy	-	-	-	-
Karimnagar East	2	-	-	2
Karimnagar West	-	-	-	-
Khammam	-	-	-	-
Kothagudem	-	-	-	-
Mahabubnagar	1	-	-	1
Mancherial	3	-	11	14
Medak	1	-	-	1
Nagarjunasagar	-	-	3	3
Nalgonda	1	-	-	1
Nirmal	-	-	-	-
Nizamabad	-	-	-	-
NZP Hyderabad	-	-	-	-
Paloncha	30	-	-	30
SS Hyderabad	-	-	-	-
Warangal North	-	-	-	-
Warangal South	-	-	-	-
<b>TOTAL</b>	<b>43</b>	<b>0</b>	<b>22</b>	<b>65</b>

Under CA other activities, mainly includes extraction of tree growth in diverted areas. A total of 121.50 ha (as per APO) area was extracted from diverted areas in Adilabad and Bellampally division under Adilabad circle in 2009-2010.

**2.2 Net Present Value (NPV):** The components of NPV include natural forest management, forest protection, forest fire management, biodiversity conservation and development, research and development, capacity building, information communication and technology, monitoring and evaluation and office support. Each of the NPV components is described in the following sub-sections.

**2.2.1 Natural Forest Management (NFM):** The purpose of natural forest management treatments is to improve the overall stockings of the natural forests and at the same time to afforest degraded forest areas and improve the productivity of the forests on a sustained yield basis by using appropriate silvicultural and management practices. Under the natural forest treatments, activities were proposed to improve the stockings of natural bamboo in the forests, improve the stockings of teak in the teak bearing Telangana forests and cover the barren hills with indigenous tree species. Management and silvicultural prescriptions were in accordance with the overall

prescriptions of the working plan for the given division. In 2009-2010, only four activities are conducted under Natural Forest Management component in Mancherial division of Adilabad circle. It mainly includes the Management and improvement of natural bamboo forests including cleaning, decongestion, Soil and Moisture conservation works and transportation of harvested bamboo poles, and nursery activities. There are no activities on plantation under NFM component in Telangana carried out in 2009-10. The total amount spent under NFM was 12.682 lakhs (INR).

Division wise targets and achievements under NFM for the year 2012-2013 is shown in Table 2.2.1.

**Table 2.2.1: Division wise physical works (ha) and expenditure (lakhs) abstract of NFM under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Target		Achievements	
		Physical (ha)	Financial (lakhs)	Physical (ha)	Financial (lakhs)
	Mancherial	4	0.0000	4	12.682
	<b>Circle-total</b>	<b>4</b>	<b>0.000</b>	<b>4</b>	<b>12.682</b>
	<b>Telangana Grand total</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>12.682</b>

Under NFM during 2009-2010 activities to increase the overall stocking of the natural forest through plantations of various species were undertaken by TSFD. The details of NFM activities are as follows:

- Extraction of 3,82,200 numbers of long bamboo poles from Rally RF, Mancherial forest division.
- Transportation of 23,219 bamboo poles from Rally RF
- Maintenance of government Bamboo Depot in Mancherial division.

**2.2.2 Forest Protection (FP):** Protection of forests is one of the vital responsibility of the forest department. The size of forest beats, sections and ranges have remained unchanged in the state and do not conform to national standards of forest beat, section and range sizes. To supplement the frontline field staffs in their protection efforts it was proposed to continue the existing and establish fresh base camps, strike forces, check posts and police parties. Various initiatives like maintenance and construction of forest boundaries pillars, providing arms to the frontline staff were proposed for improving the protection of the existing forests. An amount of 192.33 lakh was spent for completing the proposed interventions, of the year 2009-2010. Activities carried out under FP during 2009-2010 includes:

- Base Camps (34 base camps) activities with highest in Adilabad circle (25 base camps).
- Forest Strike Forces (31 nos) activities towards establishment and maintenance highest in Khammam circle (10).
- Check posts (32 nos), highest in Adilabad circle (17 nos)
- Fuel charges and repairs for Departmental vehicles (127 works).
- Communication charges.
- Hiring and wages to drivers

Division wise targets and achievements under FP for the year 2009-2010 is shown in Table 2.2.2.

**Table 2.2.2: Division wise physical works (numbers) and expenditure (lakhs) abstract of FP under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Target		Expenditure	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
Adilabad	Adilabad	15	14.95	15	14.30
	Nirmal	54	15.65	54	15.65
	WL Jannaram	25	11.49	25	10.97
	Mancherial	16	17.09	16	14.73
	Bellampally	11	11.80	11	4.43
	Kazagnagar	16	9.24	16	9.24
	<b>Circle-total</b>	<b>137</b>	<b>80.22</b>	<b>137</b>	<b>69.31</b>
Hyderabad	Hyderabad	2	3.01	2	3.01
	Mahabubnagar	6	3.66	6	3.49
	Nalgonda	3	5.81	3	5.45
	FSP Hyderabad	1	1.86	1	0.36
	<b>Circle-total</b>	<b>13</b>	<b>12.84</b>	<b>13</b>	<b>12.31</b>
Khammam	Khammam	4	11.44	4	3.91
	Kothagudam	6	14.93	6	11.61
	Paloncha	40	14.69	40	13.06
	Bhadrachalam (N)	2	7.01	2	2.69
	Bhadrachalam (S)	4	10.39	4	4.42
	WL Paloncha	5	4.50	5	0.74
	<b>Circle-total</b>	<b>61</b>	<b>62.97</b>	<b>61</b>	<b>36.43</b>
Nizamabad	Nizamabad	6	6.75	6	3.63
	Kamareddy	12	4.46	12	3.08
	Medak	12	11.80	12	10.46
	WL Medak	2	0.24	2	0.23
	<b>Circle-total</b>	<b>32</b>	<b>23.25</b>	<b>32</b>	<b>17.40</b>
Warangal	Warangal (N)	23	11.10	23	10.38
	Warangal (S)	8	4.86	8	4.18
	WL Warangal	5	1.85	5	1.17
	Karimnagar (E)	19	15.25	19	9.66
	Karimnagar (W)	16	12.17	16	10.50
	<b>Circle-total</b>	<b>71</b>	<b>45.22</b>	<b>71</b>	<b>35.89</b>
FDPT	Achampet	1	5.09	2	1.00
	<b>Circle-total</b>	<b>2</b>	<b>6.82</b>	<b>2</b>	<b>1.00</b>
WLM Hyd	CNP	1	20.50	1	20.00
	D.F.O	1	0.78	1	0.00
	<b>Circle-total</b>	<b>2</b>	<b>21.28</b>	<b>2</b>	<b>20.00</b>
<b>TOTAL</b>		<b>317</b>	<b>252.59</b>	<b>317</b>	<b>192.33</b>

**2.2.3 Forest Fire Management (FFM):** The forest areas in Telangana are subjected to damage due to annual ground fires in the summer season. The protection of regeneration of forest areas from fire damage is essential for improving the stocking in the forests and for providing fodder for the wild herbivores. An amount of 16.16 lakh was spent on interventions under this component. Major activities under FFM during 2009-2010 includes:

- Maintenance of fires lines of (873 km) with highest in Adilabad circle (773.77 km)

Division wise targets and achievements under FFM for the year 2009-2010 is shown in Table 2.2.3.



**Table 2.2.3: Division wise physical works (numbers) and expenditure (lakhs) abstract of FFM under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Sanctioned Cost		Expenditure	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
Adilabad	Adilabad	21	2.20	21	2.20
	Nirmal	20	3.20	20	3.20
	WL Jannaram	9	1.20	9	1.20
	Mancherial	5	1.90	5	1.90
	Bellampally	23	3.20	23	3.20
	Kazagnagar	4	1.10	4	1.10
	<b>Circle-total</b>	<b>82</b>	<b>12.80</b>	<b>82</b>	<b>12.80</b>
Hyderabad	Hyderabad	1	0.50	1	0.41
	Mahabubnagar	1	0.50	1	0.50
	Nalgonda	1	0.50	1	0.00
	<b>Circle-total</b>	<b>3</b>	<b>1.50</b>	<b>3</b>	<b>0.91</b>
Khammam	Khammam	-	2.10	-	0.00
	Kothagudam	1	4.50	1	0.50
	Paloncha	1	3.60	1	0.35
	Bhadrachalam (N)	-	2.60	-	0.00
	Bhadrachalam (S)	-	2.30	-	0.00
	WL Paloncha	-	2.10	-	0.00
	<b>Circle-total</b>	<b>2</b>	<b>17.20</b>	<b>2</b>	<b>0.85</b>
Nizamabad	Nizamabad	-	1.00	-	0.00
	Kamareddy	-	1.00	-	0.00
	Medak	6	0.60	6	0.60
	WL Medak	-	0.00	-	0.00
	<b>Circle-total</b>	<b>6</b>	<b>2.60</b>	<b>6</b>	<b>0.60</b>
Warangal	Warangal (N)	-	2.50	-	0.00
	Warangal (S)	-	2.50	-	0.00
	WL Warangal	-	1.10	-	0.00
	Karimnagar (E)	14	1.00	14	1.00
	Karimnagar (W)	-	0.00	-	0.00
	<b>Circle-total</b>	<b>14</b>	<b>7.10</b>	<b>14</b>	<b>1.00</b>
<b>Telangana Grand total</b>		<b>107</b>	<b>41.20</b>	<b>107</b>	<b>16.16</b>

**2.2.4 Biodiversity Conservation (BDC):** The Telangana state is endowed with rich flora and fauna with more than 3000 plant species, 400 bird species, 80 mammalian species and more than 50 reptilian species. Under this component during the year 2009-2010 an expenditure of 68.97 lakhs was made by TSFD. Initiatives for the conservation of biodiversity and development in the National Parks and Protected Areas undertaken by TSFD during 2009-2010 are listed below:

- Improvement of zoo parks / Consultancy for bringing the zoos of the state of international standards
- Mitigation of Man-Animal conflict by payment of compensation to the affected people in Wildlife cases (crop damage and wildlife victims).
- Providing animal trackers
- Wildlife habitat improvement

Division wise targets and achievements under BDC for the year 2009-2010 is shown in Table

2.2.4.

**Table 2.2.4: Division wise physical works (numbers) and expenditure (lakhs) abstract of BDC under TSFD, CAMPA for the year 2009-2010.**

Circle	Divisions	Target		Achievements	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
Adilabad	Adilabad	-	-	-	-
	Nirmal	-	-	-	-
	WL Jannaram	9	10.88	9	10.21
	Mancherial	3	1.44	3	1.44
	Bellampally	-	-	-	-

	Kazagnagar	4	1.44	4	1.44
	<b>Circle-total</b>	<b>16</b>	<b>13.76</b>	<b>16</b>	<b>13.09</b>
Hyderabad	Hyderabad	-	-	-	-
	Mahabubnagar	2	7.00	2	7.00
	<b>Circle-total</b>	<b>2</b>	<b>7.00</b>	<b>2</b>	<b>7.00</b>
Khammam	Bhadrachalam (S)	-	-	-	-
	WL Paloncha	2	9.00	2	1.00
	<b>Circle-total</b>	<b>2</b>	<b>9.00</b>	<b>2</b>	<b>1.00</b>
Nizamabad	Nizamabad	6	1.07	6	1.07
	Kamareddy	7	2.92	7	0.95
	Medak	4	3.51	4	2.44
	WL Medak	7	9.30	7	7.03
	<b>Circle-total</b>	<b>24</b>	<b>16.80</b>	<b>24</b>	<b>11.49</b>
Warangal	Warangal (N)	-	-	-	-
	WL Warangal	4	12.50	4	4.99
	<b>Circle-total</b>	<b>4</b>	<b>12.50</b>	<b>4</b>	<b>4.99</b>
FDPT	Achampet	2	8.15	2	1.84
	Nagarjunasagar (G)	-	1.00	-	0.00
	<b>Circle-total</b>	<b>2</b>	<b>9.15</b>	<b>2</b>	<b>1.84</b>
WLM Hyderabad	CNP	4	38.44	4	14.49
	D.F.O	1	29.44	1	15.07
	<b>Circle-total</b>	<b>5</b>	<b>67.88</b>	<b>5</b>	<b>29.56</b>
<b>Telangana</b>	<b>Grand total</b>	<b>55</b>	<b>136.09</b>	<b>55</b>	<b>68.97</b>

**2.2.5 Research and Development (R&D):** The forest department has undertaken applied forestry research in a number of fields for improving the growing stock of forests species and development of genetically superior and high yielding variety of various species. A total amount of 0.39 lakhs was spent under this component during 2009-2010. The major interventions include

- Production of quality planting stocks,
- Maintenance of Research plots
- Strengthening of Research stations ,
- Collection, processing, testing and supply of forest seeds
- Creation and Maintenance of in-situ and ex-situ conservation stands
- Maintenance of existing stands
- Mass production of tissue culture plants of teak clones,
- Improvement of tissue culture lab
- Production of organic compost, vermicomposting, bio-fertilizers and bio-pesticides
- Research assistants to assists silviculturists in research projects
- Strengthening the data base and central library.

Division wise targets and achievements under R&D for the year 2009-2010 is shown in Table 2.2.5.

**Table 2.2.5: Division wise physical works (numbers) and expenditure (lakhs) abstract of R&D under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Sanctioned Cost		Expenditure	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
R&D	SS Hyd	4	7.50	4	0.39
	FG WGL	-	7.50	-	0.00
<b>Grand total</b>		<b>4</b>	<b>15.00</b>	<b>4</b>	<b>0.39</b>

**2.2.6 Capacity Building (CB):** The Forest Academy, Dullapally is the premier institute selected by the Government of India for imparting training to range officer trainees of the country. It also trains the in-service FBOs and FSOs to discharge their duties effectively. An amount of 39.33 lakhs is provided under the component for the following activities:

- Maintenance of training institutes (Housekeeping services, Lawn & Gardens, electricity and water charges, Communication charges)
- Study tours for FSOs/FBOs
- Organizing CAFÉ programme on Environmental Education Activities including development of site selected for CAFE
- Refreshers training programme on various subjects (30 trainings @ 30,000/- per each training.
- Organizing workshops/trainings for frontline staff, other forest officers / various communities engaged in forest improvement and protection.
- Publications/Publicity of study material/magazines/books etc

Division wise targets and achievements under CB for the year 2009-2010 is shown in Table 2.2.6.

**Table 2.2.6: Division wise physical works (numbers) and expenditure (lakhs) abstract of CB under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Capacity Building			
		Sanctioned Cost		Expenditure	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
APFP Dullapally	Dullapally	64	58.40	64	34.08
R&D Circle	FUO Hyd	3	7.50	3	5.25
<b>Grand total</b>		<b>67</b>	<b>60.90</b>	<b>67</b>	<b>39.33</b>

**2.2.7 Information Communication and Technology (IC&T):** TSFD is the pioneer in obtaining satellite data, analyzing and interpreting it and creating a database for monitoring and improving the forest cover. The information obtained from the satellite imageries are analyzed and areas prone to fire damages have been categorized as high risk and moderate zones. This base information has been utilized for laying and maintaining the fire lines in the forests. CAMPA MIS is also being developed to capture and monitor the implementation of the activities under CAMPA. An amount of 2.18 lakhs has been spent in this component. Division wise targets and achievements are shown in Table 2.2.7. Major interventions under ICT component during 2009-2010 include:

- Broadband and internet connections.
- Communication charges for the frontline staff.

**Table 2.2.7: Division wise ICT works (numbers) and expenditure (lakhs) during the year 2009-2010.**

Circle	Divisions	Target		Achievements	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
ICT	Adilabad	5	1.92	5	1.79
	Karimnagar West	5	0.475	5	0.395
	<b>Circle-total</b>	<b>10</b>	<b>2.39</b>	<b>10</b>	<b>2.18</b>
<b>GRAND TOTAL</b>		<b>10</b>	<b>2.39</b>	<b>10</b>	<b>2.18</b>

**2.2.8 Infrastructure Development & Maintenance (ID&M):** Infrastructure Development and Maintenance activities was taken under FSP Hyderabad division. In 2009-2010 single activity was reported in Telangana under IDM component with expenditure of 1.50 lakhs.

**2.2.9 Office Support (OS):** Office support activities were undertaken for effective and proper maintenance of offices and implementation of various schemes. Contractual technical and other staff for office support, POL Charges, AMC charges, Electricity and water charges, Telephone and cell phone charges, Office stationery and other miscellaneous expense, CA audit fee are included under OC by Telangana state. An amount of 179.41 lakhs has been spent under this component.

Division wise targets and achievements under O&S for the year 2009-2010 is shown in Table 2.2.9.

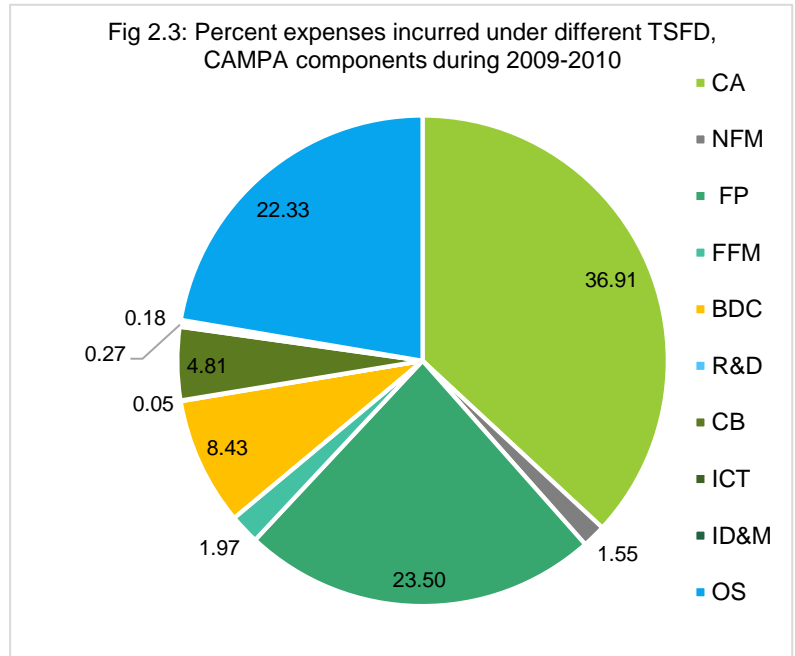
- Office support (POL, Telephones & communication charges, Office Stationery etc)
- Water and electricity charges

**Table 2.2.9: Division wise physical works (numbers) and expenditure (lakhs) abstract of OS under TSFD, CAMPA for the year 2009-2010.**

Name of the Circle	Name of the Division	Office Support			
		Sanctioned Cost		Expenditure	
		Physical (nos)	Financial (lakhs)	Physical (nos)	Financial (lakhs)
Hyderabad	Hyderabad	2	151.03	2	151.03
	<b>Circle total</b>	<b>2</b>	<b>151.03</b>	<b>2</b>	<b>151.03</b>
Khammam	Khammam	1	-	1	0.26
	Kothagudam	1	-	1	0.18
	Paloncha	1	-	1	0.68
	Bhadrachalam (N)	1	-	1	0.82
	Bhadrachalam (S)	1	-	1	0.68
	WL Paloncha	1	-	1	0.32
	<b>Circle total</b>	<b>6</b>	<b>-</b>	<b>6</b>	<b>2.93</b>
Nizamabad	Kamareddy	4	-	3	0.18
	Medak	8	-	5	0.98
	<b>Circle total</b>	<b>12</b>	<b>-</b>	<b>8</b>	<b>1.16</b>
Warangal	Warangal (N)	-	0.20	-	0.00
	Warangal (S)	1	0.23	1	0.10
	WL Warangal	-	0.40	-	0.00
	Karimnagar (E)	2	1.00	2	1.00
	Karimnagar (W)	4	1.75	4	1.75
	<b>Circle total</b>	<b>7</b>	<b>3.58</b>	<b>7</b>	<b>2.85</b>
R&D	FG Warangal	1	-	1	0.10
	SS Hyderabad	1	-	1	0.81
	<b>Circle total</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>0.91</b>
TSFA Dullapally	TSFA	1	-	1	2.43
	<b>Circle total</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>2.43</b>
AO IV	AO IV	-	-	-	21.44
<b>Grand total</b>		<b>27</b>	<b>154.60</b>	<b>26</b>	<b>182.75</b>

### 2.3 Targets and Achievements of CAMPA components during 2009-2010:

The Government of India, Ministry of Environment and Forests communicated guidelines that prescribe the preparation of an annual plan of operations for utilizing funds received towards Compensatory Afforestation, Net Present Value etc., currently available with the Ad-hoc CAMPA. Accordingly, keeping in view the GOI guidelines, an Annual Plan of Operation (APO) for utilization of amounts realized under Compensatory Afforestation (CA) and Net Present Value (NPV) have been prepared by the TSFD for the year 2009-2010 under A.P. State CAMPA, as Telangana state was a part of AP state in 2009-2010. Component wise detail target and achievements are shown in table 2.3. Percent expenses of funds under different CAMPA components are shown in Figure 2.3.



The target through Annual Plan of Operation was prepared to keep in view the following broad objectives:

- (a) Compensatory Afforestation in lieu of diverted forest areas,
- (b) Conservation, protection, regeneration, and management of existing natural forests,
- (c) Biodiversity Conservation and management of Protected forest areas and wildlife habitats, and
- (d) Research, training and capacity building.

**Table 2.3: Summary of targets and achievements of TSFD, CAMPA components during 2009-2010.**

CAMPA Components	Targets		Achievements	
	Physical (nos)	Financial (lakhs)	Physical (Nos)	Financial (lakhs)
Compensatory Afforestation (CA)	-	302.05	113	302.05
Natural Forest Management (NFM)	-	12.682	4	12.682
Forest Protection (FP)	-	1234.217	318	192.33
Forest Fire Management (FFM)	-	12.071	107	16.16
Biodiversity Conservation and Development (BDC)	-	611.199	55	68.97
Research & Development (R&D)	-	159.6	4	0.39
Capacity Building (CB)	-	554.26	67	39.33
Information & Communication Technology (ICT)	-	696.072	10	2.18
Infrastructure Development & Maintenance (ID&M)	-	0	1	1.50
Office Support (OS)	-	93.02639	26	182.75
<b>TOTAL</b>	-	<b>5900.538</b>	<b>705</b>	<b>818.342</b>

**2.4 Implementing mechanism:** The Telangana State Forest Department was the implementing agency. The works were executed through the departmental personnel. In activities like nursery raising, raising of plantations, maintenance of plantations, Soil and Moisture Conservation works, creation and maintenance of fire lines and other activities with wage component, the programme was implemented following the guidelines of NREGA scheme by employing the rural unemployed people with job cards, maintenance of muster rolls and payment of wages into the bank account of job card holders.<sup>7</sup>

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<sup>7</sup>AP State CAMPA, APO for the year 2009-2010 pp 9.

## Chapter 3

### EVALUATION SCOPE AND OBJECTIVES

As Telangana State Forest Department (TSFD) is implementing CAMPA activities in the state of Telangana since 2009-2010, there is a felt need to technically evaluate these ongoing efforts, and based on the learnings, plan the way forward. Also, the State CAMPA guidelines stipulate that an evaluation methodology of the works implemented has to be evolved and implemented to ensure effective and proper utilization of the fund for which funds are also earmarked. In this regard, IORA Ecological Solutions Pvt. Ltd. is engaged as the 'Third party' to evaluate and monitor CAMPA works implemented in the State of Telangana yearly for the period 2009-10 to 2015-16. Evaluation of activities under all the CAMPA components was conducted. Two-stage random sampling strategy has been adopted.<sup>8</sup> Of all the activities, firstly 10% of works for each year were randomly sampled. For plantations activities, the basis for selecting 10% of the samples is adhering the National Evaluation Manual for CAMPA Projects when the survival percentage for different plantation sites is not available. Secondly, from the selected plantation sites, randomly a plot of 0.1 ha was laid for field enumeration adhering NWPC-2014<sup>9</sup> guidelines. For other activities, works carried out were randomly sampled and 10% of the activities were selected every year. Records maintained for the activities was checked and in the case where civil or other physical works were carried out, the inspection was conducted during the evaluation process to check from variation as reported in the records and that exists on the field. It was ensured that the random sample covers maximum forest divisions of the state.

#### 3.1 Evaluation scope

IORA Ecological Solutions Pvt. Ltd. has been assigned to conduct 3<sup>rd</sup> party evaluation of CAMPA works implemented in the State of Telangana.

#### 3.2 Objectives of the study

1. To physically monitor and document the status of plantations of the selected sample from the plantation carried out under the CAMPA Scheme in Telangana State Forest department for the year 2009-2010.
2. To evaluate the survival and health of plantations carried out under the CAMPA Scheme in Telangana State Forest department for the year 2009-2010 with photographic evidence.
3. To evaluate the other activities carried out by Telangana State Forest Department for the year 2009-2010 with photographic evidence.

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<sup>8</sup>National Evaluation Manual for CAMPA Projects (2016) CEAMT, IIFM Bhopal, 25 pages

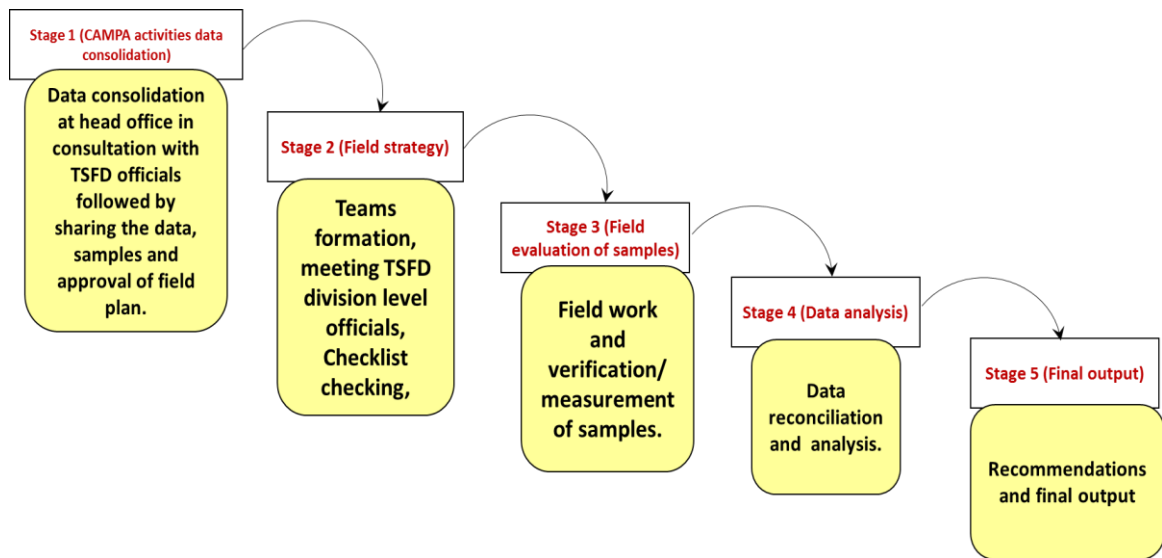
<sup>9</sup>National Working Plan Code – For Sustainable Management of Forests & Biodiversity in India (2014), MoEFCC, 91p.

# Chapter 4

## EVALUATION APPROACH AND METHODS

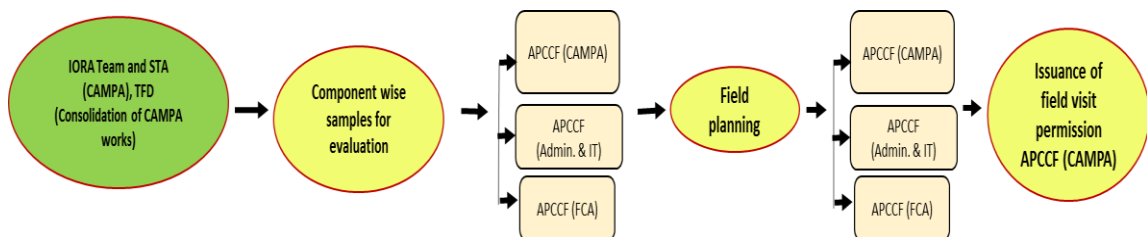
### 4.1 Evaluation Methodology

The process flow that was adopted during the third party CAMPA evaluation exercise is shown through a flowchart in Fig 4.1. The evaluation methodology was conducted in five stages. Each of these stages is elaborated in this chapter under five sub-sections.



**Fig 4.1: Process flow of third party CAMPA evaluation.**

**4.1.1 Stage 1 - CAMPA activities data consolidation:** The first stage i.e. CAMPA Activities Data Consolidation (see Fig 4.1.1) consisted of four major activities namely data collection, sampling, field planning and issuance of field visit permission from APCCF (CAMPA).



**Fig 4.1.1: Flow chart of Stage 1 - CAMPA activities data consolidation.**

TSFD officials were contacted at the TSFD, Head Office, Hyderabad to collect the total list of works under different CAMPA components undertaken by TSFD CAMPA for the year 2009-2010. The list of data sources reviewed for consolidation of CAMPA list of works for 2009-2010 is shown in List 4.1.1.



**List 4.1.1: List of data sources for third-party CAMPA evaluation.**

- (A) TSFD Data sources (files, excels) reviewed with support from STATE CAMPA
- 1) TSFD circles, divisions together with AP order
  - 2) TSFD circles, divisions before bifurcation list
  - 3) TSFD circles, divisions after reconciliation list
  - 4) CAMPA Annual Plan report 2009-2010
  - 5) List of works 2009-2010 excel
- (B) Information on GIS with support from DCF (FCA) and RFO (Geomatics)
- 1) List of divisions
  - 2) List of ranges

**4.1.1.1 Component wise samples for evaluation:** The consolidated list of CAMPA works under different CAMPA components undertaken by TSFD, CAMPA for the year 2009-2010 was collected. A total of 705 works (*Part B*) were undertaken in the state of Telangana under CAMPA during 2009-2010. The total list of CAMPA works was sorted into two categories i.e. Plantation Activities and Other Activities. The list of samples prepared was presented to the CAMPA Monitoring Committee (CMC) consisting of the APCCF (CAMPA), APCCF (Admin & IT) and APCCF (FCA) through an inception workshop. Suggestions received from the CMC during the inception workshop was incorporated and the final inception report submitted to TSFD for approval. Detail sampling design adopted is described under the following two sub-sections.

**4.1.1.1.1 Sampling of plantation activities:** For direct field evaluation of plantation, the two-stage random sampling strategy was applied.

The list of plantation activities namely advance works, raising of forest plantations, maintenance of plantations and raising of planting stocks undertaken under CA and NPV was sorted for the year 2009-2010. The sorted list was then ably formatted using MS Excel software and the file was converted to a comma separated values (CSV) to plot them into the geo-spatial domain. The CSV values were plotted geo-spatially in ArcGIS Version 10.3 software and segregated into plantations undertaken under CA. Sampling design tool, an add-on of ArcGIS 10.3 software was run to generate random samples keeping sampling intensity of 10%.

Of all the total plantation taken up by TSFD, firstly 10% of plantations were randomly sampled. The basis for selecting 10% of the sample is adhering the National Evaluation Manual for CAMPA Projects when the survival percentage for different plantation sites is not available<sup>10</sup>.

Secondly, an iterative method was used to get the appropriate distribution of samples in the divisions. Telangana forest division boundary was taken as a sample frame to decide the extent of samples. From the selected plantation sites, a random point was generated to lay plot for direct

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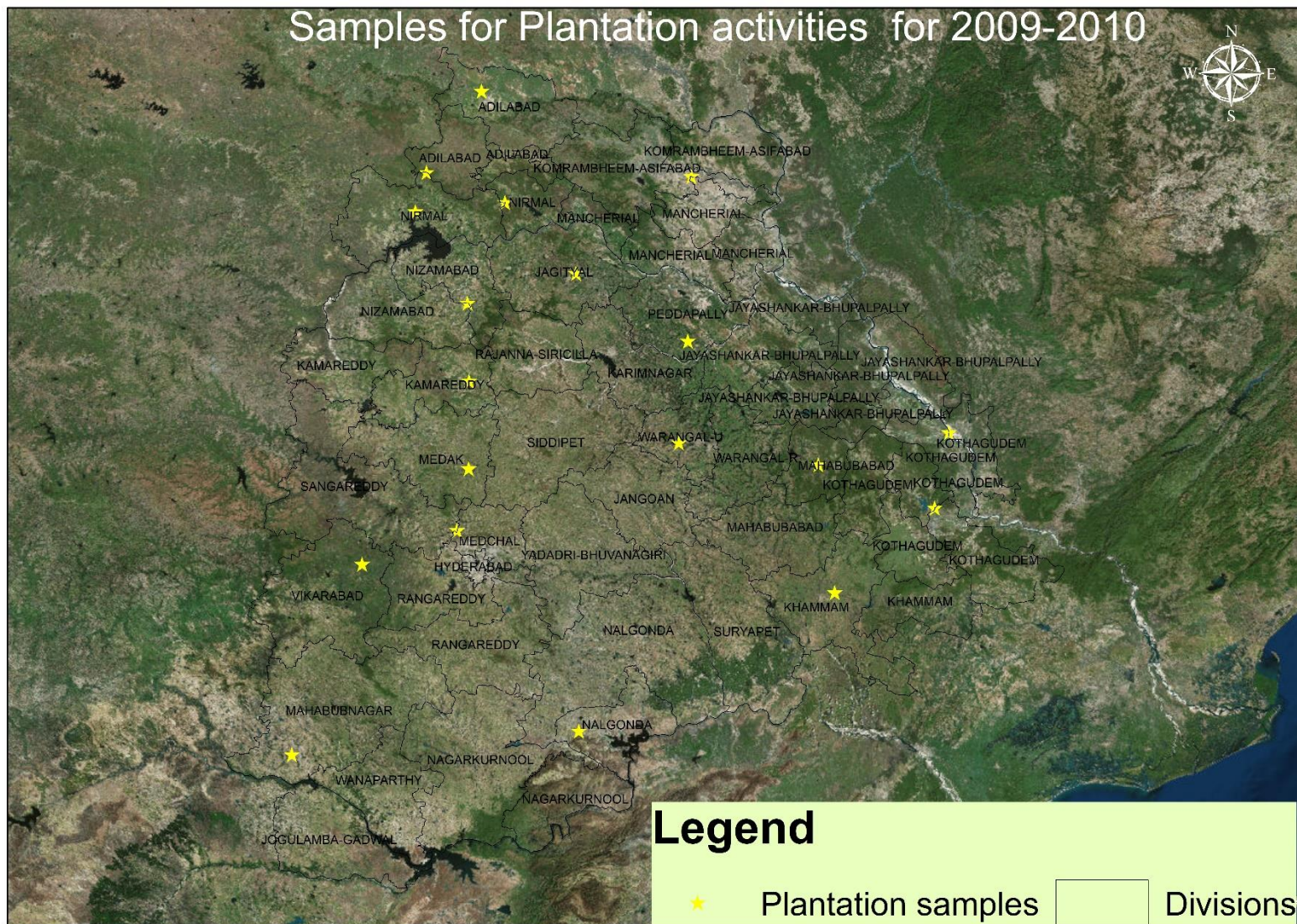
<sup>10</sup>National Evaluation Manual for CAMPA Projects (2016) CEAMT, IIFM Bhopal, 25 pages

field enumeration adhering NWPC-2014 guidelines. The detail sample list (7 nos) of plantation activities is given in Annexure IV. Division wise number of plantation samples for evaluation under CA is shown in table 4.1.1a and Map 4.1.1.

**Table 4.1.1a: Division wise number of plantation samples for different CAMPA components (2009-2010) for 3<sup>rd</sup> party evaluation.**

Forest Divisions	Advance Operation		Maintenance		Nursery		Total
	CA	NFM	CA	NFM	CA	NFM	
Adilabad	1	-	-	-	-	-	1
Manuguru	1	-	-	-	1	-	2
Mancherial	-	-	-	-	1	-	1
Mahabubnagar	-	-	1	-	-	-	1
Paloncha	-	-	1	-	-	-	1
Peddapally	1	-	-	-	-	-	1
<b>TOTAL</b>	<b>3</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>7</b>

**Map 4.1.1a: Map showing plantation activities samples evaluated for 3<sup>rd</sup> party evaluation.**

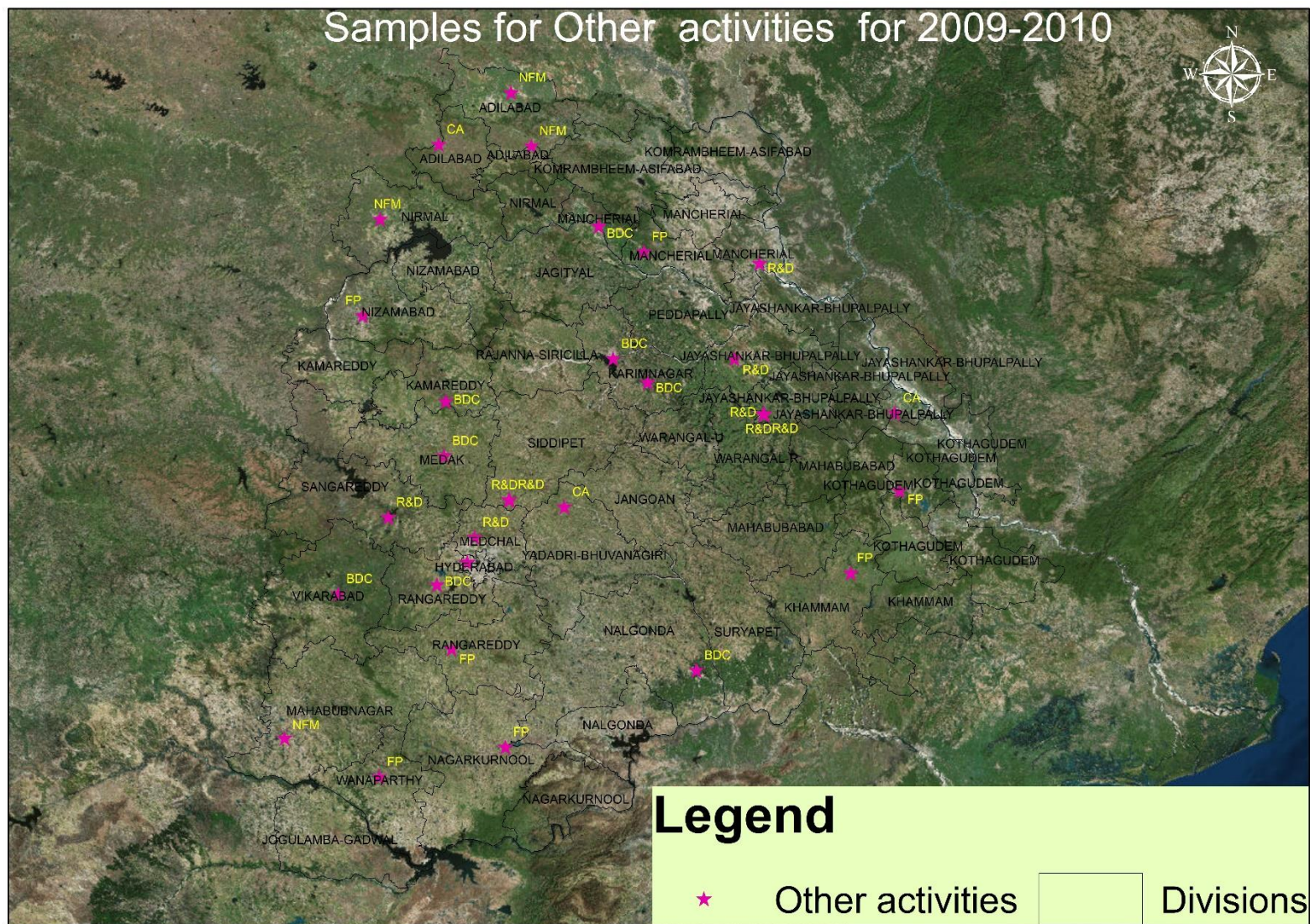


**4.1.1.1.2 Sampling of other activities:** For sampling other activities, the consolidated list of works of all the other activities undertaken by TSFD CAMPA during the year 2009-2010 was sorted. The sorted list was segregated into different CAMPA components. Sampling design tool, an add-on of ArcGIS 10.3 software was run to generate random samples keeping sampling intensity of 10%. An iterative method was used to get the appropriate distribution of samples in the divisions. The detail sample list (66 nos) of other activities is given in Annexure V. Division wise number of samples of other activities under different CAMPA components namely, CA, NFM, FP, FFM, ICT, BDC, R&D, and OC is shown in table 4.1.1b and map 4.1.1.b.

**Table 4.1.1b: Division wise number of samples for 3<sup>rd</sup> party evaluation of other activities under different CAMPA components for the year 2012-2013.**

Division	CA	NFM	FP	FFM	BDC	ICT	R&D	CB	OS	Total
Achampet	-	-	2	-	1	-	-	-	-	3
Adilabad	1	-	1	1	-	-	-	-	-	3
Amrabad	-	-	-	-	1	-	-	-	-	1
Asifabad	-	-	1	3	-	-	-	-	-	4
Bhadrachalam	-	-	3	-	-	-	-	-	-	3
Bhupalpally	-	-	1	-	-	-	-	-	-	1
Echoda	3	-	3	2	-	-	-	-	-	8
Chennur	1	-	-	-	-	-	-	-	-	1
Jannaram	-	-	4	-	2	-	-	-	-	6
Kaghnaznagar	-	-	1	-	-	-	-	-	-	1
Karimnagar East	-	-	-	-	-	1	-	-	-	1
Karimnagar West	-	-	1	-	-	-	-	-	1	2
Khammam	-	-	1	-	-	-	-	-	-	1
Khanapur	-	-	-	1	-	-	-	-	-	1
Mancherial	-	1	6	2	-	-	-	-	1	10
Manuguru	-	-	2	-	-	-	-	-	-	2
Nagarjunasagar WLM	-	-	1	-	-	-	-	-	-	1
Paloncha WLM	-	-	-	-	1	-	-	-	-	1
Siddipet	-	-	1	-	-	1	-	-	1	3
Sircilla	-	-	1	-	-	-	-	-	-	1
SS Hyderabad	-	-	-	-	-	-	1	-	-	1
TSFA, Dullapally	-	-	-	-	-	-	-	6	-	6
Utnoor	-	-	1	2	-	-	-	-	-	3
Yadadri Bhuvangiri	-	-	1	-	-	-	-	-	-	1
Yellandu	-	-	1	-	-	-	-	-	-	1
<b>Grand Total</b>	<b>5</b>	<b>1</b>	<b>32</b>	<b>11</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>6</b>	<b>3</b>	<b>66</b>

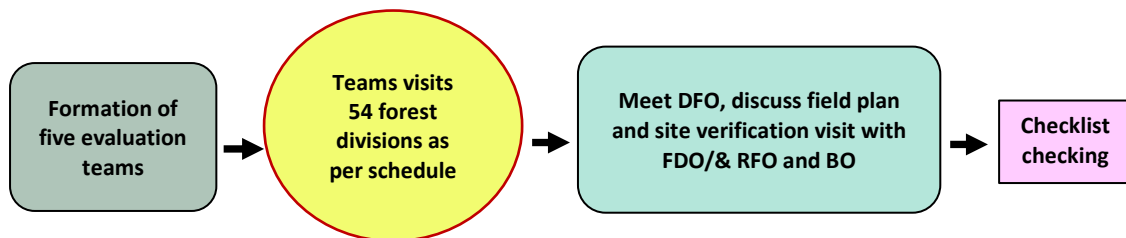
**Map 4.1.1b: Map showing plantation activities samples evaluated for 3<sup>rd</sup> party evaluation.**



**4.1.1.3 Field plan:** Proposed field visit dates was prepared in consultation with DFO, Hyderabad and shared with CMC for comments. Suggestions received were incorporated and the draft field plan was submitted to APCCF (CAMPA) for its approval. The division-wise details of field visits are given in Annexure I.

**4.1.1.4 Issuance of field permission:** Proposed field visit dates, records and other information to be furnished were circulated from the O/o PCCF & HoFF, TSFD to all DFO/FDO of the territorial and wildlife forest divisions of Telangana state (*Annexure I*). Field staff of the forest divisions to be visited were requested to be present during evaluation along with Measurement Book, Plantation Journal, CAMPA works register, and other information to facilitate smooth completion of the evaluation. As per the Rc.No.3037/2017/CAMPA dated 30.05.2017 issued by PCCF, TSFD the DFOs/FDOs (*Annexure II*) shall ensure concern field staff should be present and show the plantation site or other works taken up for CAMPA. The plantation journal, measurement books, estimate, list of works in Division/Range should be made available to the evaluation team.

**4.1.2 Stage 2 - Field Strategy:** In the second stage (*see Fig 4.1.2 for the flow chart*) of third-party field evaluation field strategy was developed. This stage started with the formation of evaluation teams, team visits to fifty-four forest divisions team visits.



**Fig 4.1.2: Flow chart of Stage 2 - Field strategy.**

This stage started with the formation of five evaluation teams, each team comprising of Field lead, field associate, and back support analyst. Names and qualifications of the team members are shown in Annexure III.

As per the field visit schedule, each team met DFO and discussed field plan with DFO, FDO, and RFO. The following checklist was checked: a) CAMPA Works Register, b) Confirmation of Samples, c) Plantation Sites, d) Measurement Books, e) Plantation Journals and f) Vouchers, were requested from the forest division/range visited for conducting site verification. Visit to the site was done with FDO/& RFO and BO.

**4.1.3 Stage 3 - Field evaluation of samples:** Field evaluation of samples was conducted by first checking CAMPA works register in the division to reconfirm plantation activities samples drawn under CA and NPV and after confirmation based on the geo coordinate the evaluation team visited the sites with the TSFD division level officials and data was collected adhering the forms (*Appendix I*).

#### 4.1.3.1 Meeting TSFD officials

- 1) Met DFO followed by a meeting with FDO, RFO and FBOs in each division/ranges visited.
- 2) Collected list of works carried out under TSFD, CAMPA.
- 3) Matched each sample with the CAMPA works register list.
- 4) After confirmation ensured a forest department officials presence in each of the samples locations.
- 5) Physical verification and geotagging. This is elaborated under sub-section 4.2.

**4.1.3.2 Build capacity:** During field evaluation efforts was laid also to build the capacity of the front line TSFD officials present during evaluation on how to lay sample plots and use, hands-on different forest inventory instruments like GPS, compass, densitometer, Hypsometer.

**4.1.4 Stage 4 - Data analysis:** This stage consisted of activities (see Fig 4.1.4) pertaining to data digitization, data reconciliation, and data analysis data analysis.



Fig 4.1.4: Flow chart of Stage 4 – Data Analysis.

**4.1.4.1 Data digitization:** The primary activities conducted for digitizing the data are as follows:

- a) Allocation of a place at Aranya Bhavan.
- b) Data of plantation activities and other activities were digitized through MS Excel.
- c) Data consolidated at the division level.

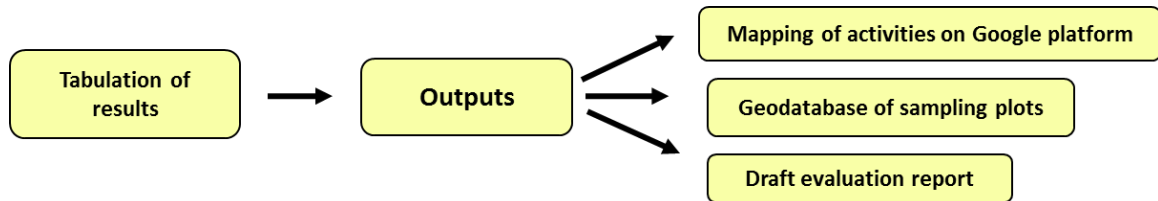
#### 4.1.4.2 Data reconciliation

- a) Reconciliation of the field data with the spending records.
- b) Verified works with audited reports and FA 9 for each CAMPA activities at Aranya Bhavan with support from STA CAMPA. The verified CAMPA works list as per the audited reports was used.
- c) Collation of Field data collated.

**4.1.4.3 Data analysis:** Data analysis as per the methodologies approved in the inception workshop using MS Excel. For the purpose of reporting, the survival percent was weighted by net

area planted in the same model. The percentage was reported separately for plantation type, plantation method, protection status of the plantation and different species.

**4.1.5 Stage 5 - Final output:** The final stage of evaluation constituted tabulation of results and production of outputs (see fig 4.1.5).



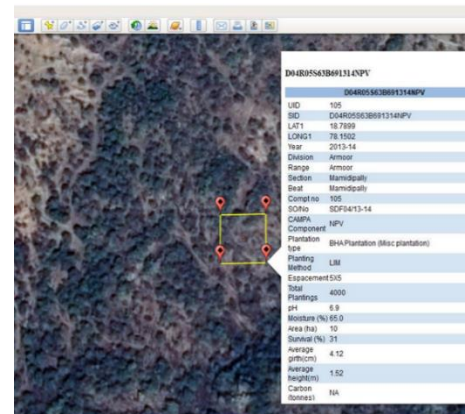
**Fig 4.1.5: Flow chart of Stage 5 – Final output.**

**4.1.5.1 Tabulation of results**

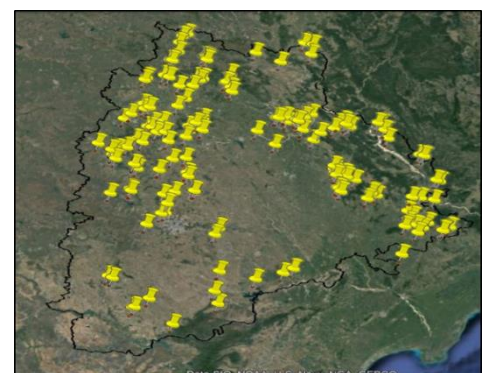
- a) Analyzed results were tabulated separately for divisions, species, plantation types, activities.
- b) Matched field data collected and data digitized.
- c) Field data digitization and consolidated at the division level for 2009-2010.

**4.1.5.2 Outputs**

a) Geodatabase created of all sampled plantation plots (file *CAMPA\_2009\_2010\_field\_plantation\_samples.kmz*)



b) All activities mapped using Arc GIS and exported to Google earth platform (file *CAMPA other activities samples\_2009-2010.kmz*)



c) Development of draft evaluation report.



## 4.2 Field evaluation and data collection

### (A) Plantation activities:

- 1) Based on the measurement books (MB), where all the works executed and amounts paid written by officer executing the work, check measured by R.O. and test checked by DFO/Sub DFO or any other higher authority are maintained, physical verification of MB, collection of GPS coordinates from registers and other records available in the concerned forest offices followed by field visit to the project area for its field verification. For evaluation plantation (raising) samples, sample plots were laid. Evaluation of other plantation activities namely, advance operations including nursery works of planting stocks; maintenance (1<sup>st</sup> year, 2<sup>nd</sup> year and 3<sup>rd</sup> year) was based on scrutinization of information available on measurement books/plantation journals/expenditure vouchers since these type of plantation activities had completed at least a year before the evaluation team visited the field.
- 2) For laying sample plot, Garmin GPS used to navigate to reach the randomly generated sample geocoordinate. A square plot of 0.1 ha<sup>11</sup> (Fig 4.1.3.2) was laid out by measuring 22.5 m horizontal distance i.e., half of the diagonal in all the four directions at 45<sup>o</sup> in north-east, at 135<sup>o</sup> in the south-east, at 225<sup>o</sup> in the south-west, and at 315<sup>o</sup> in north-west corners of the plot from true north. The dimensions of the plot, i.e. one side measured 31.62 m horizontal distance.

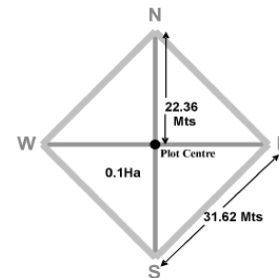


Fig 4.1.3.2: Sample plot layout.

- 3) After laying the sample plot, plots, the parameters evaluated is shown in table 4.1.3.2.a.

**Table 4.1.3.2b: List of evaluation parameters for plantations.**

Evaluation Parameters	Field Recordings to be made
Survival percentage	Plants surviving in the sample plot counted and recorded.
Growth of trees	Diameter and height of each tree inside the plots were recorded.
Habitat Improvement	Presence of wildlife, good growth of grasses, soil erosion, water sources if any observed recorded. Plantation watchman, officials, VSS members, if present were interviewed to record their qualitative perception of CAMPA plantations on habitat improvement.
Canopy density	Canopy density recorded using a densiometer. Number of plants wounded, stressed, wilt, diseased recorded.
Soil salinity and moisture status	Soil salinity and soil moisture estimated using a portable soil pH and soil moisture meter.
Carbon content of plantations	The carbon content of the plantations estimated based on allometric equations as given by Forest Survey of India. <sup>12</sup>

<sup>11</sup>National Working Plan Code — For Sustainable Management of Forests & Biodiversity in India (2014), MoEFCC, 91p.

<sup>12</sup>FSI (2015) Carbon Stocks in India's Forest, 164p

- 4) For assessing mortality, every tree growing inside the plot were counted. Diameter for every tree growing inside the plot was measured 50 cm above the ground level for up to 3 years old plantation and 100 cm above ground level for up to 5 years plantations as mentioned in NEM CAMPA, 2016<sup>13</sup> using a tape.
- 5) For calculating the carbon content trees with girth above 30cm was taken to apply the allometric equations as developed by FSI<sup>10</sup> for calculating tree carbon. Accordingly, the carbon content per tree was calculated.
- 6) Data observed were recorded in Form B (Appendix I). Evaluated samples detail of plantation activities is shown in Annexure IV.

**(B) Other activities:**

- 7) For evaluation of other activities, from a total of the activities under each component, 10% of activity were randomly selected. Activities that were physically visible like base camp, check post, beat office, quarters, etc. field evaluation on work status was conducted and geotagged pictures were taken. Evaluations of samples of other activities like fuel charges, POL charges, payments, etc. were based on the information made available through measurement books / CAMPA register/vouchers / FA 9, since the activities had been completed five years before the field evaluation visited the sites.
- 8) Field observations were recorded in different forms namely Form A to Form L (*Appendix 1*). Form number with the activities information recorded during the field evaluation exercise is shown in table 4.1.3.2a.

**Table 4.1.3.2a: List of Forms with the information of activities to be recorded during CAMPA field evaluation exercise.**

S. No.	Form No.	Activities
1.	Form A	Summary
2.	Form B	Plantation Activities (CA / NFM)
3.	Form C	Soil & Water Conservation activities (CA-CAT, FWM, BDC)
4.	Form D	Forest Protection Activities
5.	Form E	Forest Fire Management Activities
6.	Form F	Biodiversity Conservation & Ecotourism Activities
7.	Form G	Infrastructure Development & Maintenance
8.	Form H	Research & Development
9.	Form I	Information & Communication technology Activities
10.	Form J	Capacity Building and Office Support Activities
11.	Form K	Monitoring & Evaluation Activities
12.	Form M	Third-party comments

The evaluated samples detail of other activities is shown in Annexure V.

<sup>13</sup>National Evaluation Manual for CAMPA Projects (2016) CEAMT, IIFM Bhopal, 25 pages

### 4.3 Evaluation scoring

#### (A) Quantitative aspects

Quantitative evaluation score for different plantation activities and other activities under different CAMPA components are elaborated below

##### i) Plantation activities:

a) There were no raising of plantation undertaken during 2009-2010 in Telangana state.

b) For advance works and maintenance of plantations, scoring was done on a scale of 0 to 100 based on the percent variations. For deviations less than 10% = 100 points, 11% to 20% = 80 points, 21% to 30% = 60 points, 31% to 40% = 40 points, 41% to 50% = 20 points and for deviations above 50% = 0 points was assigned.

c) Total score allotted to plantation activity for the year is the average score of the total plantation activities evaluated.

##### ii) Other activities:

a) For Other Activities under CA and NFM, FP, OS the scoring was done in a scale of 0 to 200. Scoring to evaluated works was based on the deviations observed in between the records and in the field. For deviations less than 10% = 200 points, 11% to 20% = 160 points, 21% to 30% = 120 points, 31% to 40% = 80 points, 41% to 50% = 40 points and for deviations above 50% = 0 points was given.

b) For BDC the scoring was done in a scale of 0 to 100. Scoring to evaluated works was based on the deviations observed in between the records and in the field. For deviations less than 10% = 100 points, 11% to 20% = 80 points, 21% to 30% = 60 points, 31% to 40% = 40 points, 41% to 50% = 20 points and for deviations above 50% = 0 points was assigned.

c) For CB the scoring was done in a scale of 0 to 50. For deviations less than 10% = 50 points, 11% to 20% = 30 points, 21% to 30% = 20 points, 31% to 40% = 15 points, 41% to 50% = 10 points and for deviations above 50% = 0 points was assigned.

d) For FFM and ICT the scoring was done in a scale of 0 to 20. For deviations less than 10% = 20 points, 11% to 20% = 16 points, 21% to 30% = 12 points, 31% to 40% = 8 points, 41% to 50% = 4 points and for deviations above 50% = 0 points was given.

e) For R&D the scoring was done in a scale of 0 to 10. Scoring to evaluated works was based on the deviations observed in between the records and in the field. For deviations less than 10% = 10 points, 11% to 20% = 8 points, 21% to 30% = 6 points, 31% to 40% = 4 points, 41% to 50% = 2 points and for deviations above 50% = 0 points was given.

**(B) Qualitative aspects**

Qualitative evaluation scoring for different plantation and other activities carried out under TSFD CAMPA are elaborated below

- a) Impact awareness generation campaign is based on any evidence during evaluation on conducting of regular CAMPA campaigns by the forest department.
- b) Identification of approved site for plantation were based on checking the availability of treatment plan on measurement books/ plantation journals.
- c) Improvement in quality of wildlife habitat are based on the impact of different plantation raised under CAMPA on the wildlife.
- d) CAMPA benefits was based on a number of persons from BPL/SC/ST communities engaged for CAMPA activities.
- e) Project awareness CAMPA is based on discussion with local people and forest officials about CAMPA.
- f) Transparency maintenance and payment was based on the availability of matching CAMPA works at the division and at the head office.
- g) Maintenance of assets created was based on the state of the physical assets created and plantations raised.

**4.3.1 Evaluation scoring total:** The total score of a component is the total of the average score of the points scored under each sub-component. The total score of evaluation was recorded in the overall site assessment sheet as shown in table 4.3.1 for the year evaluated.

**Table 4.3.1: Overall site assessment sample sheet<sup>14</sup>.**

Quantitative Aspects (A)				Qualitative Aspects (B)			
S.No.	Main Heading	Score	Total	S.No.	Main Heading	Score	Total
I.	Plantation Activities (Compensatory Afforestation and Natural Forest Management)		200	I.	Impact of awareness Generation campaign		5
II.	Other activities (CA/NFM)		200	II.	Identification of approved Site for plantation		5
III.	Forest Protection		200	III.	Improvement in quality of wildlife habitat		5
IV.	Forest Fire Management		20	IV.	CAMPA benefits		10
V.	Biodiversity Conservation and Development		100	V.	Project Awareness		5

<sup>14</sup> The total score assigned to the components were done as per the percentage expenditure under the various sub-components of CAMPA.

VI	Research & Development		10	VI.	Transparency, maintenance And payments		5
VII	Capacity Building		50	VII.	Maintenance of assets Created		10
VIII	Information Communication & Technology		20				
IX	Office support		200				
<b>Total (A)</b>			<b>1000</b>	<b>Total (B)</b>			<b>45</b>
<b>GRAND TOTAL (A+B)</b>							<b>1045</b>

The total figure under each main heading of quantitative aspect in the above table is based on the number of sub-components under the components evaluated.

Percent of the total score obtained is used to rank the performance<sup>15</sup> based on the following table.

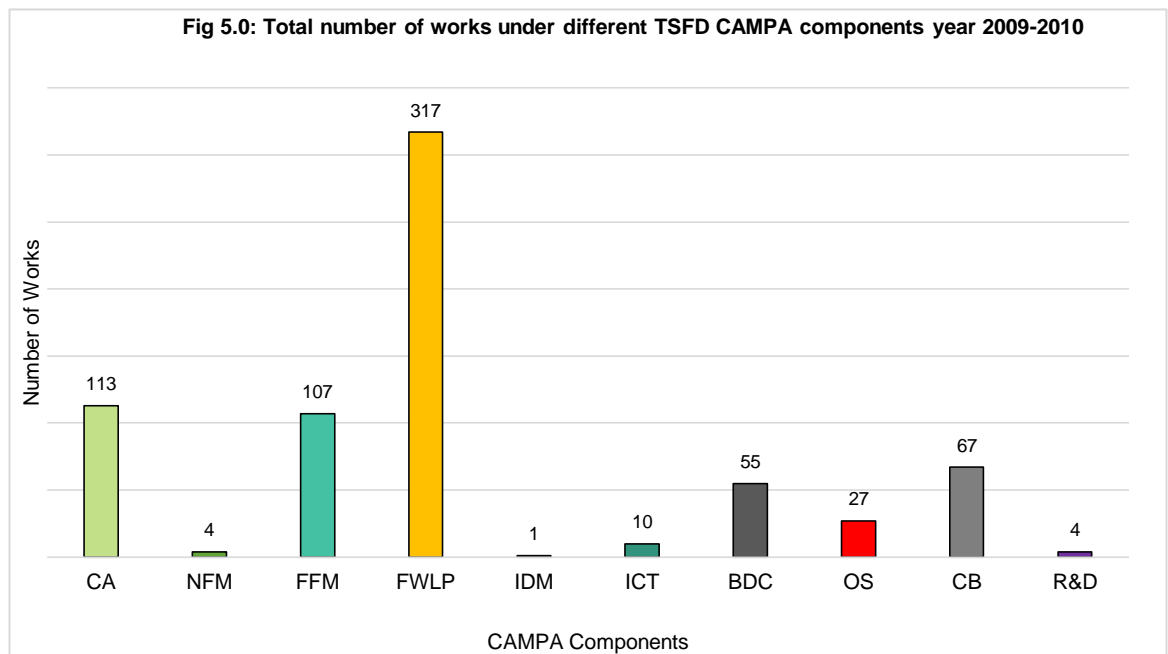
<b>Percent score</b>	<b>Performance</b>
90 - 100	Highly satisfactory
80 - 90	Satisfactory
60 - 80	Moderately Satisfactory
40 - 60	Unsatisfactory
Below 40	Highly unsatisfactory

<sup>15</sup>National Evaluation Manual for CAMPA Projects (2016) CEAMT, IIFM Bhopal, 25 pages

## Chapter 5

### DATA ANALYSIS

The total number of activities undertaken by TSFD under different CAMPA components during 2009-2010 is shown in Figure 5.0.



A total of 705 works were undertaken in the state of Telangana during 2009-2010 under different CAMPA components. The highest number of works were undertaken under FP followed by CA, FFM, CB, BDC, OS, ICT, IDM, NFM and R&D. Division wise details of total works are shown in table 5.0 below.

FP was undertaken by 29 divisions under 7 circles. The highest number of FP works was undertaken by Nirmal division. CA activities were undertaken in 15 divisions under 6 circles, Paloncha undertook the highest number of CA activities. FFM works were carried out in 14 divisions of the state, among which Bellampally had undertaken a maximum number of forest fire protection works. BDC works were undertaken by 13 divisions with Jannaram WL undertaking maximum number of BDC activities.

**Table 5.0: Division wise total number of works under different components of CAMPA for the year 2009-2010 (division list as per before bifurcation).**

Circle	Division	CA	NFM	FP	FFM	BDC	ICT	R&D	CB	OS	IDM	Total Works
Adilabad	Adilabad	9	-	15	21	-	5	-	-	-	-	50
	Nirmal	1	-	54	20	-	-	-	-	-	-	75
	Jannaram WL	2	-	25	9	9	-	-	-	-	-	45
	Mancherial	18	4	16	5	3	-	-	-	-	-	46
	Bellampally	7	-	11	23	-	-	-	-	-	-	41
	Kaghaznagar	-	-	16	4	4	-	-	-	-	-	24
Hyderabad	Hyderabad	1	-	2	1	-	-	-	-	2	-	6
	Mahabubnagar	1	-	6	1	2	-	-	-	-	-	10
	Nalgonda	1	-	3	1	-	-	-	-	-	-	5
	FSP Hyderabad	-	-	1	-	-	-	-	-	-	1	2
Khammam	Khammam	-	-	4	-	-	-	-	-	1	-	5
	Kothagudem	-	-	6	2	-	-	-	-	1	-	9
	Paloncha	58	-	40	-	-	-	-	-	1	-	99
	Bhadrachalam (N)	2	-	2	-	-	-	-	-	1	-	5
	Bhadrachalam (S)	-	-	4	-	-	-	-	-	1	-	5
	WLM Paloncha	-	-	5	-	2	-	-	-	1	-	8
Nizamabad	Nizamabad	-	-	6	-	6	-	-	-	-	-	12
	Kamareddy	1	-	12	-	7	-	-	-	4	-	24
	Medak	1	-	12	5	4	-	-	-	8	-	30
	WLM Medak	-	-	2	1	7	-	-	-	-	-	10
Warangal	Warangal (N)	-	-	23	-	-	-	-	-	-	-	23
	Warangal (S)	-	-	8	-	-	-	-	-	1	-	9
	Warangal WLM	-	-	5	3	4	-	-	-	-	-	12
	Karimnagar (E)	3	-	19	11	-	-	-	-	2	-	35
	Karimnagar (W)	-	-	16	-	-	5	-	-	4	-	25
FDPT	Achampet	4	-	1	-	2	-	-	-	-	-	7
	Nagarjunasagar	4	-	1	-	-	-	-	-	-	-	5
TSFA	APFA Dullapally	-	-	-	-	-	-	-	64	-	-	64
R & D Circle, Hyderabad	SS Hyderabad	-	-	-	-	-	-	4	-	-	-	4
	FUO Hyderabad	-	-	-	-	-	-	-	3	-	-	3
WLM Hyderabad	CNP	-	-	1	-	4	-	-	-	-	-	5
	WLM Hyderabad	-	-	1	-	1	-	-	-	-	-	2
<b>Total</b>		<b>113</b>	<b>4</b>	<b>318</b>	<b>107</b>	<b>55</b>	<b>10</b>	<b>4</b>	<b>67</b>	<b>27</b>	<b>1</b>	<b>705</b>

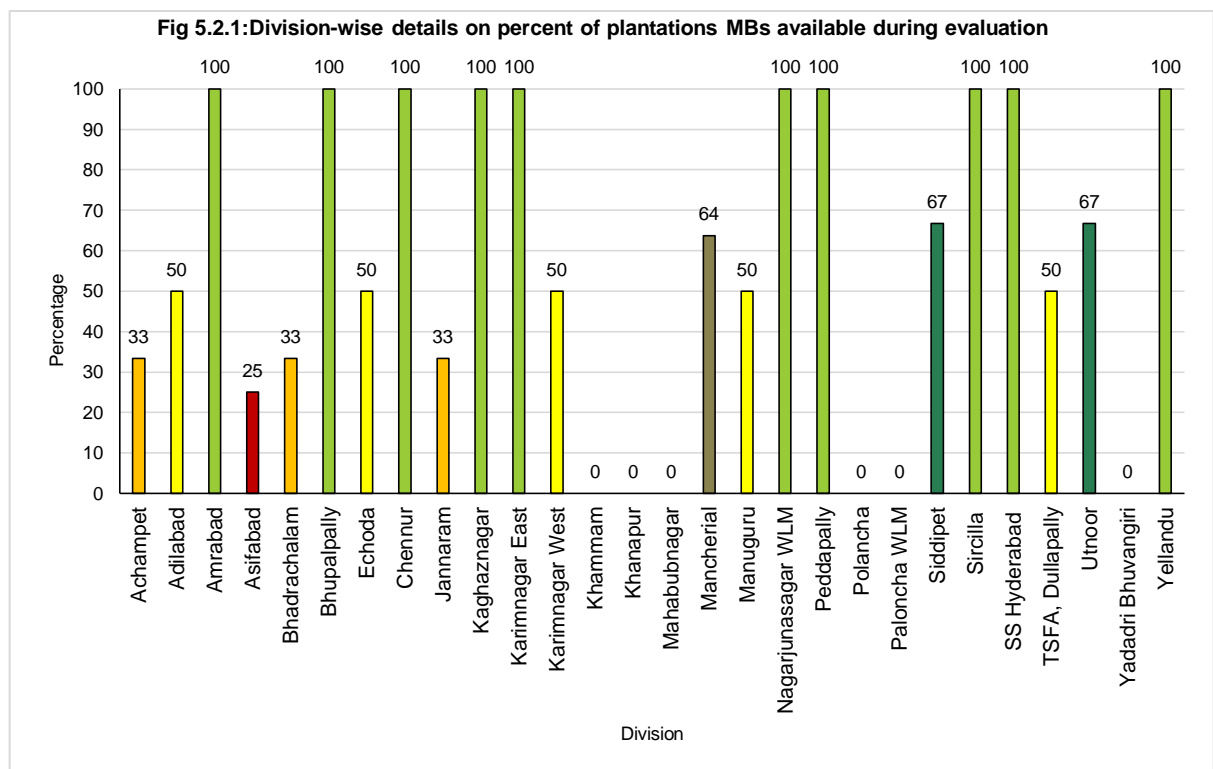
**5.1 Data Analysis of CAMPA Plantation activities:** Data collected for plantation activities and other activities during field evaluation of the sample CAMPA activities for the year 2009-2010 were digitized, collated and checked as per the audited records available at the O/o PCCF, TSFD, Aranya Bhavan. Thereafter, the data was analyzed to understand the status, performance of plantations, quantity and quality of other activities and any other critical issues on the CAMPA activities for the state of Telangana.

In 2009-2010, there are no plantation was raised in Telangana state, only maintenance of plantation raised in 2008-2009 and advance work including nursery for the plantation raising in

2010-2011 was conducted. There are total 43 advance work and 22 maintenance of plantation, the majority of advance work is carried out in Paloncha division with 30 advance works, where highest maintenance work was carried out in Mancherial division with 11 works.

**5.2 Maintenance of Records:** Records were categorized as measurement books (estimates), plantation registers (treatment maps) and CAMPA schedule of works registers, vouchers, etc.

**5.2.1 Measurement Books (MB):** Section wise detail of works executed with estimates, amount disbursed, a period of works, is mentioned in MB. It has been observed that out of 73 samples activities, only for 38 samples MBs were made available. Fig 5.2.1 shows the division-wise percent of MBs available during evaluation.



**5.2.2 CAMPA works register (CWR):** CAMPA works register contains an index of work and summarized details of expenditure with the Schedule of Order. All the works entered in CWR are signed by the DFO. This information helps to authenticate whether works have been carried out. During field evaluation, it was observed that all the works were mentioned in the CWR.

**Findings:** The overall maintenance of Measurement Book (MB) for 2009-2010 sample evaluated is 52 percent. Respective range level/ beat level officials during the evaluation time revealed that due to bifurcation of the Telangana state from erstwhile Andhra Pradesh and after further reconciliation of the divisions, documents have been kept at different places and therefore there



were unable to produce during evaluation. It indicates that less attention is given to MBs which otherwise is a very important document. Irrespective of the situation MBs should always be kept with care in the range where plantation has been carried out. Further in all the available MBs for other activities, grid-wise details on volume of works undertaken is lacking. Lack of grid wise details makes it very difficult to quantify the works carried out. All the MBs that were made available during evaluation had the signature of RFOs indicating that RFOs have checked the works before making payments.

As above mentioned in 2009-10, no plantation is raised therefore is measurement book is crucial to assess the work conducted for advance work and maintenance of earlier raised plantations.

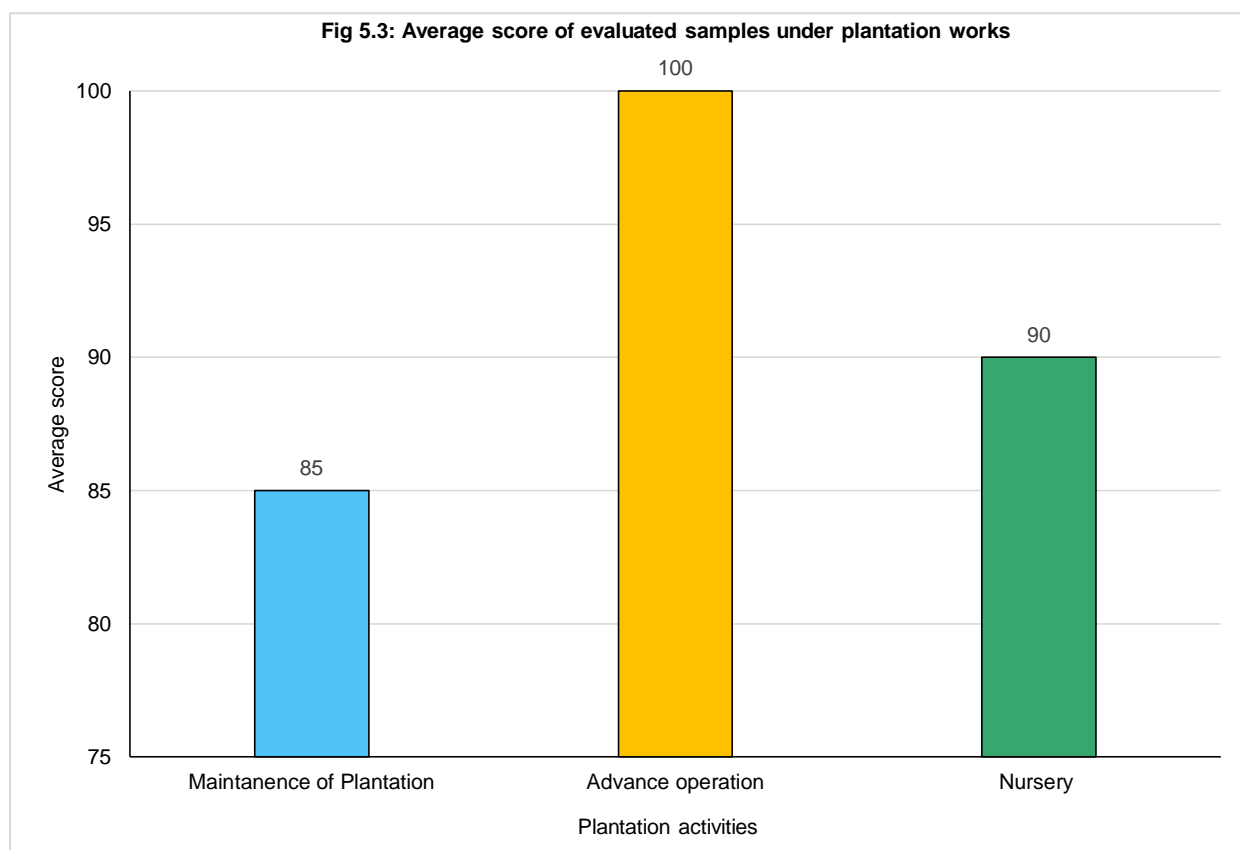
CAMPA works register (CWR) a record-keeping document was found in all the sites of evaluation. Works register hardcopy and softcopy were maintained at the division office. It contains an index of works based on Schedule of Order (SO) with the name of works/activity, site, and the summary of expenditure. All the activities entered in CWR was found to be signed by the DFO. The CWR maintained in the divisions and the final list of works as audited and maintained at the H/o does not totally tally.

**5.3 Plantations Works:** In 2009-2010 the total sample evaluated under plantation work are 7, i.e. 10 % of total plantation activities. The advance work and maintenance of plantation were assessed using the measurement book and field verification of plantation sites. The details of evaluated samples are tabulated below in table 5.3.

**Table 5.3: 3<sup>rd</sup> party CAMPA evaluation score of plantation samples for 2009-2010.**

Maintenance of Plantations									
Sl. No.	Division	Activity	Lat	Long	Component	Plantation type	Area (ha)	Remarks	Score
1	Paloncha	1st year maintenance of Acacia Hybrid plantation under CA Scheme during 2009-10	17.6070	80.7217	CA	Acacia hybrid	4.74	Very high weed presence (>50%), only a few plantation trees remaining, rest of the site is covered with Senna auriculata shrubs. Site is easily accessible with no protection, only installed pillar were seen.	70
2	Mahabubnagar	Maintenance of 10 Ha Misc. Plantation in Boyapally beat Mahabubnagar	16.8035	77.9830	CA-IV (Bit-II)	NTHS Plantation.	10	Biotic interference was observed during the evaluation process, Availability of check dam around 500 m away from plantation. CPT is dugged recently, No treatment map was available.	100
<b>Average score =85</b>									

Advance work for plantations									
Sl. No.	Division	Activity	Lat	Long	Component	Plantation type	Planting type	Area (ha)	Score
1	Manuguru	Advance Operation in Degraded Forest during 2009-10	17.71630	80.86529	CA	Eucalyptus Plantation	SMM	5.33	100
2	Peddapally	Advance operation for raising CA plantation Hari-Hara Mines and Minerals	18.57264	79.62984	CA	Eucalyptus +Bamboo	SMM	2	100
3	Adilabad	Advance Operation works for 2010-11 planting season during the year 2009-10 ( SM Method)	19.62506	78.53346	CA	Eucalyptus Plantation	SMM	60	100
Nursery activities									
Sl. No.	Division	Lat	Long	Activity	Component	Remarks	Score		
1	Manuguru	18.121996	80.652053	Raising of Eucalyptus clonal Nursery at Manuguru under CA	CA	The nursery was demolished at the time of evaluation on 2017 as it was on lease land.	80		
2	Mancherial	18.82712	79.71205	Raising of 18000 Misc. bag plants nursery at CTA Bheemaram through VSS Elkeshwaram	CA	The raising was done under CA for plantation work in 2010-11	100		
<b>Average score of Advance work &amp; Nursery activities =95</b>									



**Findings:** Based on the field evaluation the NTSH plantation maintained are showing average growth, during the field investigation it was observed that plantation are under biotic interference, and most of the plantation sites are covered with shrub and unwanted growth but plantations survived are well established. The advance operation work done in 2009-10 including nurseries are mostly for the raising of eucalyptus plantation in 2010-11. The plantation samples evaluated under advance works were well established and showing good growth. The total score of plantation works are found to be 180 out of 200. The work wise average score is shown in above fig 5.3.

**5.4 Data analysis of CAMPA Other Activities:** Data collected for CAMPA other activities during field evaluation of the sample CAMPA activities for the year 2009-2010 were digitized, collated and checked as per the audited records available at the O/o PCCF, TSFD, Aranya Bhavan. Thereafter, the data was analysed to understand the deviation with that of field and any other critical issues on the CAMPA activities for the state of Telangana.

**5.4.1 Other activities under CA and NFM:** A total of 48 different activities were undertaken by TSFD CAMPA during 2009-2010 under CA and NFM components. Six samples were evaluated under CA and NFM other activities. Sample evaluation details is provided in Annexure V. Average score based on the percent variation obtained by each CA/NFM other activities is shown in table 5.4.1. **The Average score obtained by CA and NFM other activities is 200 out of 200.**

**Table 5.4.1: 3<sup>rd</sup> party CAMPA evaluation score of other activities under (CA/NFM) samples for 2009-2010.**

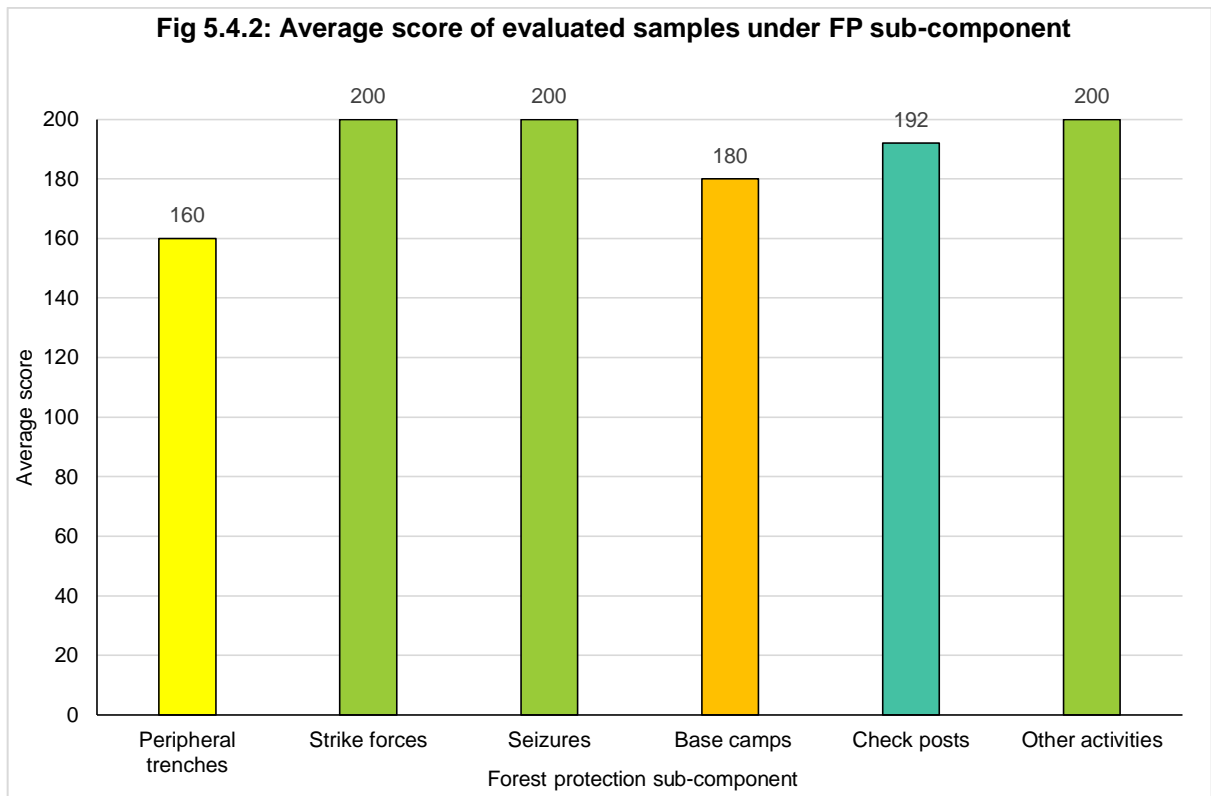
Sl. No.	Division	Range	Activity	Component	Characteristics as in M.B./ CAMPA Register/ Works register/ list	Remarks	Score
1	Chennur	Chennur	Purchase of seedling Forest Genetics Warangal through VSS Shivalingapur of Chennur range	CA	Cost of Seedling from FG Warangal around 33300	Purchase of seedling for raising plantation in Chennur range	200
2	Mancherial	Mancherial	Transportation of 23219 long bamboos from BC NO-I Talmalla in Rally RF C.NO- 472,492 to 495,499,500,541,544, 549 to 556 through VSS Gatraopally (2115.17 ha)	NFM	Transportation of long bamboo from loading point to GBD Dwapur in 1st class and 2nd class categories	Transportation of Bamboo charges under Natural forest management	200
3	Echoda	Echoda	Extraction and transportation timber lying in stretch of RF Blocks along NH7 (Widening of NH7 of 4/6 lanes from Gudihathnoor section to GTD Echoda during the year 2009-10 (Stretch length 2KM)	CA	Enumeration of timber tree and painting, felling and conversion of standing trees, transportation of timber by lorries including loading and unloading dragging charges	CA extraction and transportation charges for 555 trees	200

4	Adilabad	Adilabad	Extraction and Transportation timber lying in stretch of R F Blocks along N H 7 (Widening of N H 7 of 4/6 lane) from Mavala Beat of Adilabad Section to GTD, Echoda during the year 2009-10 (stretch length 4.50 KM)	CA	Enumeration of timber tree and painting, felling and conversion of standing trees, transportation of timber by lorries including loading and unloading dragging charges	CA extraction and transportation charges for 5520 trees	200
5	Echoda	Echoda	Extraction and Transportation timber lying in stretch of R F Blocks along N H 7 (Widening of N H 7 of 4/6 lane) from Wankidi Section to GTD, Echoda during the year 2009-10 (stretch length 3 KM)	CA	Enumeration of timber tree and painting, felling and conversion of standing trees, transportation of timber by lorries including loading and unloading dragging charges	CA extraction and transportation charges for 2600 trees	200
6	Echoda	Echoda	Extraction and Transportation timber lying in stretch of R F Blocks along N H 7 (Widening of N H 7 of 4/6 lane) from Neredigonda Section to GTD, Echoda during the year 2009-10 (stretch length 5 KM)	CA	Enumeration of timber tree and painting, felling and conversion of standing trees, transportation of timber by lorries including loading and unloading dragging charges	CA extraction and transportation charges for 3600 trees	200
<b>Average score =200</b>							

**5.4.2 Forest Protection:** A total of 318 different forest protection activities (FP) were undertaken by TSFD CAMPA during 2009-2010. Thirty two samples were evaluated under six sub-components of FP (*table 5.4.2*). Sample evaluation details is provided in Annexure V. Average score based on the percent variation obtained by each FP sub-component is shown in Figure 5.4.2. **The total score obtained by forest protection is 188.66 out of 200.**

**Table 5.4.2: Number of samples evaluated under different sub-components of FP.**

No.	Forest Protection (FP) sub components	Number of samples
A	Peripheral trenches	1
B	Strike forces	2
C	Seizures	6
D	Base camps	2
E	Check posts	5
F	Other activities	16
<b>Total</b>		<b>32</b>



**Findings:** Out of six evaluated FP sub-components, variation of dimension was observed in activity under two sub-component i.e. peripheral trenches and check post. In Yadadri Bhuvangiri, during field evaluation, the variation was found to 11 to 20 percent in the depth of trench. In most of the places, the trench is filled with soil and mud. In Yellandu forest check post was slightly damaged. In Kaghaznagar division physical verification of Base camp at Indergaon is carried, but record are not produced, rest activities under taken in forest protection i.e. strike force, seizure cases, and other activities mainly POL charges secured full scores.

**5.4.3 Forest Fire Management:** A total of one hundred seven different forest fire management (FFM) works were undertaken by TSFD CAMPA during 2009-2010. 10% sample, i.e. 11 samples all falling under one sub-component namely fire tracing were evaluated. Scores obtained during field evaluation is provided in table. 5.4.3. Sample evaluation details is provided in Annexure V. **The average score obtained by forest protection is 20 out of 20.**

**Table 5.9.3: Evaluation summary of FFM samples.**

S. N o.	Division	Range	Activity	Dimension /Area in Register / MB	Remarks	Score
1	Adilabad	Adilabad	Fire terracing operation to the existing and new fire lines in comp no. 245	Fire tracing for 26870 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 50000 and same has been spent	20

2	Echoda	Echoda	Fire terracing along existing and new Fire line at Gudhiutnoor section	Fire tracing for 8000 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 14885 and Rs14650 has been spent	20
3	Utnoor	Utnoor	Carrying out the Fire Tracing Operations in Beat Utnoor	Fire tracing for 8000 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 14884 and same amount has been spent	20
4	Khanapur	Khanapur	Fire tracing operations in Sathanpally section	Fire tracing for 6718 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 12500 and Rs12498 amount has been spent	20
5	Mancherial	Luxitipet	Fire tracing along existing and New fire lines in Rangapet VSS	Fire tracing for 6000 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 11000 and same amount has been spent	20
6	Asifabad	Asifabad	Fire Tracing Operation through VSS Jennaguda, takkalpally in Asifabad Range	5375 rmt Fire line created (@37.21 INR for 20 rmt)	The total amount sanctioned for the work is Rs 10000 and same amount has been spent	20
7	Utnoor	Utnoor	Carrying out the Fire Tracing Operations in Beats having Fire prone areas in Range Utnoor	Fire tracing for 7600 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 50000 and same amount has been spent	20
8	Mancherial	Luxitipet	Fire tracing along existing and New fire lines in Babanagar VSS	Fire tracing for 6000 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 11000 and same amount has been spent	20
9	Echoda	Echoda	Fire terracing along existing and new Fire line at bazarhathnoor section	Fire tracing for 5000 metres of fire line @ 37,21 INR/ 20 rmt	The total amount sanctioned for the work is Rs 9303 and same amount has been spent	20
10	Asifabad	Asifabad	Fire Tracing Operation through VSS Enoli in Asifabad Range	5375 rmt fire line created (@37.21 INR for 20 rmt)	The total amount sanctioned for the work is Rs 10000 and same amount has been spent	20
11	Asifabad	Asifabad	Fire Tracing Operation through VSS Wadiloddi in Asifabad Range	5375 rmt fire line created (@37.21 INR for 20 rmt)	The total amount sanctioned for the work is Rs 10000 and same amount has been spent	20
<b>Average score =20</b>						

**Findings:** Highest FFM works were undertaken in Bellampally (Asifabad) followed by Adilabad. Evaluation of fire lines made at least two years back cannot be evaluated on the field. Evaluation was done on the basis of the available records.

**5.4.4 Biodiversity Conservation and Development (BDC):** A total of 55 different biodiversity conservation and development activities were undertaken by TSFD CAMPA during 2009-2010. Six samples were evaluated under ten sub-components of BDC (table 5.4.4a). Sample evaluation details is provided in Annexure V. Average score based on the percent variation obtained by each BDC sub-component is shown in Table 5.4.4. The total score obtained by forest protection is 100 out of 100

**Table 5.4.4a: Number of samples evaluated under different sub-components of BDC.**

No.	BDC sub components	Samples
A	Habitat Improvement	2
B	Rescue animal trekkers	4
<b>Total</b>		<b>6</b>

**Table 5.4.4b: Summary of samples evaluated under different sub-components of BDC.**

S.No.	Division	Range	Activity	Characteristic in CAMPA register & MB	Remarks	BDC Score
<b>(A) Habitat Improvement</b>						
1	Medak WLM	Medak WLM	Formation of new transect lines for tiger census in Rajpet Burugupalli Parvatapur	Charges for clearing the transect line	The Amount of Rs 9480 was sanctioned and same has been spent	100
2	Paloncha WLM	Paloncha WLM	Cost of Salt lick for KSP Deer Park	Cost of Salt licks for the deer and other animals in Deer park	The Amount of Rs 50000 was sanctioned and same has been spent	100
<b>(B) Rescue, animal trekkers</b>						
3	Jannaram	Indanpally	Contract hiring persons for animal trackers in KWS	Wages to Animal Trackers 7 in number from 12/2009 to 3/2010 for four months @ 3000	The Amount of Rs 84000 was sanctioned and same has been spent	100
4	Achampet	Achampet	Estimate for Wages of Tiger Trackers	Salary of INR 2500/- for 24 Tiger watchers for two months= 1,20,000/- Grand Total= 1,20,000/-	The Amount of Rs 120000 was sanctioned and same has been spent	100
5	Amrabad	Amrabad	Wages to Tiger Watchers (8 Nos.) from August 2009 to March 2010	INR 2500 for 8 Tiger watchers for Aug and Sep= 40000/- INR 2500 for 8 Tiger watchers for Oct and Mar= 144000/- Grand Total= 184000/-	The Amount of Rs 184000 was sanctioned and same has been spent	100
6	Jannaram	Jannaram	Hiring persons of Animal Trackers at Jannaram range	Wages to 10 Tiger Trackers (8 Nos.) from August 2009 to March 2010	The Amount of Rs 108000 was sanctioned and same has been spent	100
<b>Average score =100</b>						

**Findings:** Highest activities were undertaken in Jannaram WLM followed by Medak WLM. Habitat improvement, activities under rescue, animal trekkers scored full 10 points. Most of the BDC activities in 2009-10 are contractual charges for animal trekkers.

**5.4.5 Research & Development (R&D):** The total number of different works under CAMPA NPV component research and development undertaken by TSFD CAMPA during 2009-2010 is 4. 10% of the total works, 1 sample of R&D were evaluated. Details of evaluated samples is provided in Annexure V. Average score based on the percent variation obtained by each R&D samples is shown in Table 5.4.5. **The average score obtained by Research and Development is 10 out of 10.**

**Table 5.4.5: Summary of R&D sample evaluation.**

S.No.	Division	Range	Activity	Characteristics as in M.B./ CAMPA Register/ Works register/ list	Physical verification	Remarks	Score
1	SS Hyderabad	FRC-Mulugu	Collection of seed at FRC Mulugu	Seed collection of Pterocarpus marsupium(25 Kg) with rate of 198.38 per kg, Albizia odorothium (18 kg) with rate of 149.30, Dalbergia latifolia (17 kg) @189.92, Terminalia arjuna (20 Kg) @ 50.30, Ailanthus excelsa (10 Kg) @296.97, Sandal wood (15 Kg) @ 198.38, Sterculia foetida (20 kg )@106.60, Bamboo (15.01kg)@251.82, Cassia javanica(10)@320kg	photographic evidence of records were taken	The total amount sanctioned for the activity is Rs 27000 and same has been spent	10
<b>Average score =10</b>							

**Findings:** SS Hyderabad undertook only 4 R&D activities under TSFD CAMPA. However, during 2009-10 no activities on plantation activities are under taken in SS Hyderabad and no activity is conducted in FG Warangal.

**5.4.6 Capacity Building:** CB activities were undertaken in Telangana State Forest Academy under CAMPA NPV component during the year 2009-2010. The total number of different works under CB component undertaken by TSFD CAMPA during 2009-2010 is 67. 10% of the total works, 6 samples of CB were evaluated. Details of evaluated samples is provided in Annexure V. Average score based on the percent variation evaluated on the basis of the available documents is shown in Table 5.4.6. **The total score obtained by CB is 50 out of 50.**

**Table 5.4.6: Summary of CB sample evaluation.**

S.No.	Division	Activity	Records in M.B./ CAMPA Register/	Physical verification of records	Remarks	Score
1	TSFA, Dullapally	Housekeeping services	Housekeeping services.	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 406794 and amount of Rs 260915 has been spent	50
2	TSFA, Dullapally	Maintenance of lawns & gardens	Maintenance of lawns & gardens	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 322315 and amount of Rs 176452 has been spent	50
3	TSFA, Dullapally	Dismantling of wall and widening of entrance portion in officers dining hall	Dismantling of wall and widening of entrance portion in officers dining hall.	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 6136 and same amount has been spent	50
4	TSFA, Dullapally	Maintenance of Govt. vehicles including POL charges	Maintenance of Govt. vehicles including POL charges	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 200000 and amount of Rs 66168 has been spent	50
5	TSFA, Dullapally	Repairs to vehicle AP-09/V-4747	Repairs to vehicle AP-09/V-4747	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 4192 and same amount has been spent	50



6	TSFA, Dullapally	Organizing workshop to frontline staff on Capacity building on 8th & 9th January, 2010	Organizing workshop to frontline staff on Capacity building on 8th & 9th January, 2010	Photographic evidence of activities carried out and records are enclosed	The total amount sanctioned for the work is Rs 40000 and amount of Rs 33582 has been spent	50
<b>Average score =50</b>						

**Findings:** All the CB activities was undertaken in Telangana State Forest Academy, Dullapally. CB activities full points during evaluation. There are training programmes for forest officials both within and outside the state on nursery raising, plant protection, jeep driving. Infrastructure development for housing trainees are also carried out under CAMPA in TSFA, Dullapally.

**5.4.7 Information Communication and Technology (ICT):** The total number of different works under ICT component undertaken by TSFD CAMPA during 2009-2010 is 10. 10% of the total works, 1 samples of ICT were evaluated. Details of evaluated samples is provided in Annexure V. Average score based on the percent variation obtained by each ICT samples is shown in table 5.4.7. **The total score obtained by ICT is 20 out of 20.**

**Table 5.4.7: Summary of ICT sample evaluation.**

S.No.	Division	Range	Activity	Characteristics as in M.B./ CAMPA Register/	Physical verification	Remarks	Score
1	Siddipet	Siddipet	Payment of Cell Phone Bill charges in Range Staff O/o FRO Siddipet	Cell phone charges for FRO, FSO, FBO, AFBO's for three months @Rs 500 per month	Records verified	The total amount sanctioned for the work is Rs 34500 and same has been spent	20
2	Karimnagar	Karimnagar	Communication Charges to F.R.O., Karimnagar F.S.O	Communication charges for 15 month @500	Records verified	The total amount sanctioned for the work is Rs 7500 and Rs 5500 has been spent	20
<b>Average score =20</b>							

**Findings:** There were a total of 10 activities undertaken in 2009-2010. ICT was booked under Karimnagar East and Adilabad. ICT activities are evaluated based on the available records indicated highly satisfactory performance.

**5.4.8 Office Support (OS):** The total number of different works under OS component undertaken by TSFD CAMPA during 2009-2010 is 27. 10% of the total works i.e. 3 samples, highest work occurred in Medak followed by Kamareddy and Karimnagar (West) divisions was evaluated. Details of the evaluated sample is provided in Annexure V. Average score based on the percent variation obtained by each OS samples is shown in table 5.4.8. **Total score based on the percent variation of the OS activity evaluated on the basis of the available documents is 200 out of 200.**

**Table 5.4.8: Summary of OS sample evaluation.**

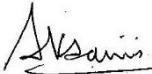





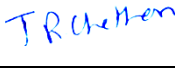



S. N o.	Division	Range	Activity	Office support items M.B./ CAMPA Register	Physical verification and verification of records	Remarks	Score
1	Karimnagar	Karimnagar	Payment of Electricity Charges of Karimnagar West Division.	Electricity charges for the Karimnagar range under three sanction orders i.e.45,36 and 147	Photographic evidence of records has been taken	The total amount sanctioned for the work is Rs 70000 and same has been spent	200
2	Siddipet	Siddipet	Payment of Electricity Bill of Forest Range Office, Siddipet	Payment of Electricity Bill of Forest Range Office, Siddipet, Total amount spent Rs 15,801	Photographic evidence of records has been taken	The total amount sanctioned for the work is Rs 15850 and Rs 15801 has been spent	200
3	Mancherial	Luxitipet	Cell phone charges to the staff of Luxettipet	Cell phone charges for 21 staff @Rs 500 per month	Photographic evidence of records has been taken	The total amount sanctioned for the work is Rs 39500 and same has been spent	200
<b>Average score =200</b>							

**Findings:** There were a total of 27 activities under OS undertaken in 2009-2010 in Medak Kamareddy and Karimnagar (West) divisions. OS activities evaluated based on the available records indicated highly satisfactory performance.

**5.5 Over all evaluation score:** Scores obtained by different plantation activities and other activities under different CAMPA components is shown in Table 5.5. The total score obtained for the 2009-2010 CAMPA activities is **986.46** out of **1045** i.e. **94.39%** indicating “**Highly satisfactory performance**”.

**Table 5.5: Overall scoring of TSFD CAMPA undertaken during 2009-2010.**

Quantitative Aspects (A)				Qualitative Aspects (B)			
S.No	Main heading	Score	Total	S.No	Main heading	Score	Total
I.	Plantation activities (CA and NPV)	180	200	I.	Impact of awareness generation campaign	0.5	5
II.	Other activities (CA & NFM)	200	200	II.	Identification of approved site for plantation	0	5
III.	Forest Protection	188.66	200	III.	Improvement in quality of wildlife habitat	0.8	5
IV	Forest Fire Management	20	20	IV.	CAMPA benefits (SC/ST/BPL households)	5	10
V	Biodiversity Conservation	100	100	V.	Project Awareness	0.5	5
VI	Research & Development	10	10	VI.	Transparency, maintenance and payments	2.5	5
VII	Capacity Building	50	50	VII.	Maintenance of assets created	8.5	10
VIII	ICT	20	20				
X	Office Support	200	200				
	<b>Total (A)</b>	968.66	<b>1000</b>		<b>Total (B)</b>	17.8	<b>45</b>
<b>Grand Total (A+B)</b>						<b>986.46</b>	<b>1045</b>

Name of evaluators	Signatures	Name of evaluators	Signatures
Dr. Satvant K Saini		Dr. Saurindra Nr Goswami	
Akhilesh Singh		Amit Ashok Singhe	
Ankit Rawat		Aniket Choudhury	
Chetan TR		Rohit Kumar	
Raj Kumar Arya		Neeraj Agrawal	

## 5.6 Third party critical comments

### 1. Project constraints/limitations

What were the constraints /limitations faced by the project authority based on evaluator? Specify

- a) Lack of community participation in CAMPA activities.
- b) Lack of readily available quality planting materials of Teak and NTSH species.
- c) Lack of proven nursery practices for developing quality saplings within the state.
- d) Severe pressure on lands from encroachments.
- e) Lack of sufficient time for site preparation in the degraded lands before plantation.
- f) Lack of sufficient manpower to conduct regular maintenance of plantation and structures.
- g) Lack of holistic understand on CAMPA components, reporting amongst forest department staffs.
- h) Poorly organized record keeping.

### 2. Suggestions for improvement

Areas of improving the project output? Specify

- a) Involvement of local stakeholders from site selection to maintenance activities.
- b) Identification of mother trees bearing areas for teak and NTSH species.
- c) Training on forest trees nursery practices for producing quality planting stocks.
- d) Planting of saplings to be synchronized with meteorological conditions (forecasting).
- e) Site - species relationships needs consideration for raising plantation.
- f) Adoption of innovative solutions (wadi, etc.) for soil and water on degraded areas.
- g) Emphasize on developing short rotation forest plantations as carbon sinks.
- h) Emphasize on wildlife habitat improvement including improvement of the hydrological regime.
- i) Updated CAMPA works on E-green watch and TGIMS.

### 3. Whether the project authorities have felt any need of improving upon any particular activity on methodology? Specify.

Stakeholder's participation in all the project activities from planning to implementation needs to be initiated. Development of ecosystem based site quality indices including key considerations of community preference, biodiversity conservation, Soil and water conservation should be included

### 4. Whether the people of the project area feel any need to improve any particular aspects of the project? Specify.

Presently few people from the project area were associated during implementation of activities as daily wage labour. Unless local people are totally aware of the benefits of CAMPA project and they actively participate, it is difficult to get reflections from them on the project.

### 5. Whether the project should be continued on the same lines or some modifications are necessary. Specify.

The project should seriously make modifications by adopting ecosystem approach to ensure ecological security of the affected areas and the livelihoods of the communities affected by forest diversions. Plantation of local species with multiple benefits instead of planting exotic monoculture like eucalyptus is necessary to improve wildlife habitat and also distribute benefits for the affected people. Project activity should aim at rejuvenation of ecological goods and services like rebuilding soil fertility, pollination, seed dispersal, perennial stream flow, availability of fuelwood, fodder, fruits for the local people. Mechanism for ecological monitoring of CAMPA activities is to be developed. Use of latest field and information technology sources is highly recommended.

## Chapter 6

### RECOMMENDATIONS

#### Plantation activities

1. Development of Telangana State Site Quality Index (TSQX) based on climate variable, soil parameters, topography, land tenure, and degradation status for plantations.
2. Although from survival point of view, eucalyptus plantations obtained a better score yet avoidance of eucalyptus plantations as habitats by wildlife is a serious concern. It is recommended raising of local fast growing non timber forest products (NTFP) species for deriving multiple benefits for wildlife, human beings and rejuvenation of ecosystem services.
3. For raising teak plantation, planting stock of teak needs to be made from selected mother trees followed by proper root training of teak seedlings and acclimatization of the saplings before field transplantation with a ball of earth. Plantations to synchronize with the onset of monsoon. Sapling not less than 6ft in height should be field planted.
4. Keep updated plantation journals of all the CAMPA plantation activities in every ranges.
5. Eucalyptus not to replace natural teak growing areas.
6. Regular silvicultural practices for NTFP/NTSH and teak plantations to enhance the forest canopy.
7. Fast growing native NTFP/NTSH plantations should be raised for developing forest carbon sink.

#### Other activities

1. Plantation of native NTFP trees to join fragmented reserve forests for improving wildlife habitat and ensure ecosystem continuity.
2. Regular maintenance operations of soil and water conservation structures is necessary. Innovative low cost water harvesting structures like staggered trenches, *jaal kund* is better for treating catchments.
3. In areas frequented by wild herbivores, CPT be avoided to reduce the risk of wildlife accidents.

4. Maintenance of forest protection measures like chain link fencing in areas susceptible to severe grazing pressure is necessary.
5. Building trust among the forest fringe population on the benefits of stall-feeding for ecological benefits is a better way to reduce the grazing pressure.
6. Awareness programme for communities on the need for biodiversity conservation to enhance the perennial flow of ecosystem services is necessary.
7. All the activities undertaken under CAMPA is to be updated regularly in E-green watch for ease in conducting google earth based regular monitoring of activities.
8. Ecological monitoring of all the works on an annual basis is necessary.

#### **General activities**

1. Each division to update CAMPA list of works under each component as presently done for the year 2016-2017 in the FAMIS portal.
2. Training of officials on CAMPA components/sub-components for correct booking of works under the appropriate head/sub-head. A web based toolkit support system if available will assist forest officials to correctly book CAMPA works under the appropriate components.
3. Maintenance of record for all the activities is vital for proper monitoring of works. Irrespective of any situation measurement books / plantations journals should always be kept with care in the ranges where CAMPA works (*plantation and other activities*) have been carried out.
4. Adoption of recording CAMPA activities details grid wise. This is vital for ease in evaluating quantification of works.
5. Participatory selection of sites for CA plantations and CAMPA other activities in degraded lands with stakeholders for developing enhanced climate change resilient forests.