

# Third Party Monitoring and Evaluation of CAMPA Plantations and Other Activities

for the period  
2018-2019

Submitted to  
Kerala Forests & Wildlife Department (CAMPA)



**ICFRE - INSTITUTE OF FOREST GENETICS AND TREE BREEDING**

(Indian Council of Forestry Research and Education)

Coimbatore – 641002



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**Indian Council of Forestry Research & Education**  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार  
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**Government of India**  
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## Preface



The State of Kerala established the Compensatory Afforestation Management and Planning Authority (CAMPA) Scheme in 2009 to encourage afforestation, reforestation, and restoration/regeneration activities to compensate for forest land diverted for non-forest purposes and to enhance the state's forest cover. The Kerala Forests & Wildlife Department prepared the Annual Plan of Operations (APO) for 2018-2019, which the MoEFCC, Gol approved. As per the APOs, the state planned various activities, including compensatory afforestation, soil and moisture conservation, biodiversity conservation, awareness campaigns on forests, wildlife and the environment, eradication of invasive alien weeds, river bank stabilisation, protection of research plots and seed production areas, creation of fire breaks and other essential maintenance activities towards forest conservation. All these activities were spread across the forest divisions of the state, including wildlife sanctuaries. The success and sustainability of these CAMPA activities, including structures established and plantations raised in terms of planning, implementation, the quantity of inputs, condition of health and survival, and outcomes, need to be evaluated and documented for monitoring purposes by an independent agency. Accordingly, ICFRE-IFGTB, Coimbatore, was awarded the monitoring and evaluation of CAMPA activities undertaken. A team of IFGTB staff, including forest officers, scientists and technical personnel have been involved in the work since March 2022. The sampling methodology approved by MoEFCC was broadly followed, and a detailed survey, monitoring and evaluation exercises were conducted to represent all the forest circles and plantation models adopted in a given year. In total, 155 activities were monitored and evaluated. Overall the CAMPA activities supported the forests and contributed to enhancing forest health in Kerala. I would like to acknowledge the Kerala Forests & Wildlife Department for their support and assistance in bringing out this document in a comprehensive manner.

  
( C. Kunhikannan )





## *Acknowledgements*

We acknowledge the Kerala Forests & Wildlife Department for identifying ICFRE - IFGTB, Coimbatore, to evaluate the CAMPA activities carried out from 2018- 19. We sincerely thank the PCCF & Head of Forest Force for facilitating this special assignment. We would like to express our gratitude to Shri. Rajesh Ravindran IFS, APCCF & Chief Executive Officer, CAMPA, Kerala, who facilitated the evaluation work and extended valuable guidance in finalizing the formats for assessment of different CAMPA activities in the state. We would like to express our sincere thanks to all the Divisional Forest Officers, Range Forest Officers, Frontline Field Staff and VSS members for their assistance in providing the assessment teams with the essential logistics and information during the on-site evaluation.

**ICFRE - IFGTB**





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## FACT SHEET

S. No.	Item	Details
1.	Scope of evaluation	Third-party monitoring and evaluation of the CAMPA Activities of Kerala Forests and Wildlife Department (2018-19)
2.	Period of evaluation work	Signing of MoU – March 2022 Field works – April to June 2022 Report preparation – July to September 2022
3.	Focus	Quality of conservation and development works. Assessment of compensatory afforestation activities. Public awareness campaigns.
4.	Number of evaluation teams	15 Evaluation Teams and one editorial team.
5.	Objectives	<ul style="list-style-type: none"> <li>To evaluate different plantations established under CAMPA in different forest divisions of Kerala.</li> <li>To evaluate the civil structures (buildings and soil &amp; water conservation structures) established under CAMPA in different forest divisions of Kerala.</li> <li>To suggest for improvement in quality of plantations for future.</li> </ul>
6.	Area covered	25 territorial forest divisions. 14 social forestry divisions. 11 wildlife divisions.
7.	Sample size	<p><b>Plantation:</b> 20% plantation randomly selected from various divisions. Sampling intensity for evaluation is nearly 10% for block plantations. For every hectare (ha) of plantation, the evaluation to be done on a 30 x 30 m plot. In the case of a linear plantation, evaluation of every 10<sup>th</sup> tree/planted sapling of each row for 25% of its length per running km basis.</p> <p><b>Soil and Moisture Conservation (SMC) activities:</b> 20% of SMC works evaluated in each division based on random selection from measurement book (Mbook).</p> <p><b>Eradication of weeds:</b> Density assessment and plot transects.</p> <p><b>Forest protection:</b> 10% of all fire lines evaluated in each division.</p>
8.	Findings	<ul style="list-style-type: none"> <li>The average survival rate in ecorestoration activities is 70%. Compensatory afforestation was observed in one circle only.</li> <li>The quality of other departmental works was rated high (85%)</li> <li>Check-dams and gullies are the major SMC works taken up.</li> <li>Eradication of weeds was taken up effectively with ~60 per cent success.</li> <li>Priority was accorded to biodiversity conservation.</li> <li>The involvement of the Vana Samrakshana Samidi in various department activities has ensured a participatory approach to the protection and conservation of forests.</li> <li>Most activities related to assistance to tribal Vana Samrakshana Samidi, as this period witnessed heavy and unprecedented floods.</li> </ul>





## EXECUTIVE SUMMARY

### Executive Summary

The Forest (Conservation) Act, 1980 was enforced to conserve and protect forest resources. The Act mandated that whenever forest land is diverted for non-forestry purposes usually the conditions relating to transfer, mutation and declaration as Reserve Forest/Protected Forest, the equivalent non-forest land for compensatory afforestation and funds for raising compensatory afforestation etc., are to be imposed. Additional conditions such as maintaining a safety zone area, fencing and regeneration etc., are prescribed for mining purposes, and catchment area treatment plans are stipulated for big and medium irrigation projects. Further, the Act provided that the non-forest land for Compensatory Afforestation (CA) was to be identified contiguous to or close to Reserved Forest or Protected Forest. The funds for CA are received from the user agencies based on the rates fixed by the State Forest Department, which are site-specific and vary according to the species, type of forest and site. The fund received for compensatory afforestation, additional compensatory afforestation etc., has to be used as per site-specific schemes submitted by the state along with the approved proposals for diversion of forest land. After receipt of the fund, State Forest Department has to accomplish the afforestation for which money is deposited in the CA fund within a period of one year or two growing seasons.

The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Kerala has been constituted with the objective of conservation, protection, regeneration and management of existing natural forests, wildlife and their habitat and raising site specific compensatory afforestation, penal compensatory afforestation etc. As per the provisions of CAMPA guidelines, the state CAMPA has been formulating Annual Plans of Operation (APO) since 2009-10. The APO for the period 2018-19 was approved vide No. 15-2(18)/2018-CAMPA dated 31.08.2018.

The Government of India released **Rs. 7,93,49,000** for the period 2018 to 2019 to Kerala to implement the activities.

### The Assignment

As a range of activities were taken up under CAMPA, a technical evaluation of the activities by a third party was considered essential. ICFRE-IFGTB was identified to carry out third party monitoring of all the CAMPA interventions since 2009-10 (File No. FC5 -1433/2021 dated 28.01.2022). The broad scope of evaluation comprised all the components and sub-components of CAMPA implementation in Kerala.

### Study Area

The evaluation study covered 50 forest divisions of Kerala (25 territorial, 14 social forestry and 11 wildlife divisions) under 11 forest circles. In addition, research divisions where CAMPA funds were utilised are also covered in the study.

### Study Approach and Methodology

Various CAMPA interventions were evaluated using appropriate sampling criteria, data collection approaches and, in view of diversity, nature of component and stakeholders



involved. The study approach and methodology have been adopted from the evaluation formats of the MoEFCC, GoI.

### Details of Data Collection

- **Primary Data:** First hand information was obtained using specifically designed formats for different components and subcomponents.
- **Secondary Data:** Secondary data relating to various activities undertaken in CAMPA were collected from the circle, division and range offices in pre-designed formats and checklists.
- **Focussed Group Discussion(FGD):** FGD with the members of the Vana Samrakshana Samidi were conducted to evaluate peoples' perceptions and participation levels in implementing CAMPA activities in a given locality.
- **Consultation with Forest Officials:** Consultations were undertaken with a range of forest officers involved at various stages planning and decision making, implementation, monitoring and evaluation. This includes Divisional Forest Officers (DFOs), Forest Range Officers (FROs), Forest Beat Officers (FBOs), Foresters, Forest Guards, etc.
- **Field Observation:** Data on survival, field measurements to assess growth in different plantations, condition of physical structures in SMC activities and weed density in plantation sites were collected. Notes were prepared on various activities under CAMPA implementation, which provided the basis for the entire evaluation process.

### Performance of CAMPA during 2018-19

- The total funds received from the adhoc CAMPA up to APO year 2018-19 stands at Rs. 7.94 crores and the expenditure ending March 2019 was 5.09 crores which is 70.77% of the funds received.
- The core activities undertaken with the CAMPA funds comprise creation of SMC structures, forest protection and assistance to tribal VSS.
- The non-core activities comprised biodiversity conservation, infrastructure development, forest Information Technology, monitoring, evaluation and accounting.
- Major components addressed were forest and wildlife protection, and Forest fire management (71%). This period focussed more on activities such as improving connectivity and fire protection (32%), followed by soil and moisture conservation activities and assistance to tribal Vana Samrakshana Samidi. The Vana Samrakshana Samidi members were engaged in almost all the activities.
- Various SMC structures in CAMPA APOs includes check dams, contour trenches, gully plugging etc. SMC structures undertaken by frontline forest officers under CAMPA are site-specific as per the site requirement.
- Preparatory works for ecorestoration were taken up. Most activities were done departmentally, an economical and time-saving approach.
- River stabilisation was taken up by five divisions, an improvement over the earlier APOs.



- Conservation of fauna was also prioritised in this period, with the social forestry wings focussing on bird and sea turtle conservation.
- Under infrastructure development, efforts were taken to repair / improve dilapidated structures. The major construction activities undertaken with the help of CAMPA funds were antipoaching campsheds.
- Inclusion of VSS members in patrolling, fire break creation, developing infrastructure in interior forest areas, has encouraged their active participation in conservation activities.
- During this period, permanent nurseries were set up in different districts to support various department plantings and public needs.
- Training and capacity development programmes focussed on imparting training sessions and awareness among general public.

### **Recommendations & Suggestions**

1. There should be provision in CAMPA APOs for the periodic maintenance of SMC structures as most SMC structures are subject to heavy wear and tear due to recurrent floods.
2. De-centralized local nurseries for production of forest type specific planting stocks may be promoted.
3. Maintenance and watch and ward may be continued for 4 to 5 years for better establishment.
4. Buildings / structures constructed during this period needs to be repaired and maintained. In some cases, renovation / refurbishing may also be done based on a fixed schedule.
5. Species should be selected on the basis of floristic composition of the forest types and prevailing local soil condition of the afforestation / plantation site.
6. Number of watchers should be increased proportionate to the size of the plantation site.
7. Record keeping needs to be ensured in some circles.
8. The frontline staff may be trained on seed handling and nursery technologies of native tree species.





## Monitoring and Evaluation of CAMPA Plantations and Other Activities (2018-2019)

### 1. Introduction

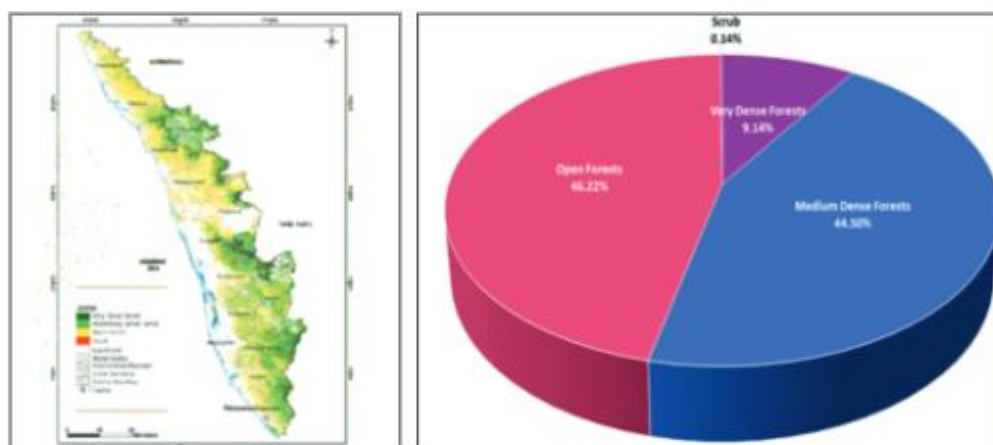
#### 1.1 Background

Forests in India comprise diverse forest types and reserved areas accounting for about 24.62% of the country's geographical area. Forest provides livelihood support to the people living in and neighborhood. Forests are the most significant natural carbon sinks and regulate water regimes. Given that the forest sector provides goods and services to humankind, forest land is diverted for developmental activities for non-forestry purposes, consequently leading to considerable shrinkage of forest cover.

Kerala is endowed with rich natural resources. The conducive tropical climate favours forests with rich biodiversity and endemism. The Western Ghats, one of the biodiversity hotspots, runs all along the eastern boundary of Kerala. Unfortunately, the increasing population and changing lifestyles exert tremendous pressure on forests. The greatest challenge today is to accommodate developmental needs by minimizing the destruction of its pristine forests.

#### 1.2 Forest Cover in Kerala

The forest cover in the state based on the interpretation of the Forest Survey of India (FSI) 2021 is 21,253.49 sq km which is 54.7% of the state's geographical area.



Source: ISFR, 2021

Forest cover in the state has increased by 109 sq km compared to the previous assessment reported in ISFR 2019. Among forest canopy density classes, the state has 1944.32 sq km area under very dense forest, 9472 sq km area under moderately dense forest and 9837.17 sq km area under open forest.

#### 1.3 Forest Cover in Kerala from 2015 to 2019

Forest cover in the state has been increasing over the years. Forest conservation and afforestation activities are the key reasons for the improvement.



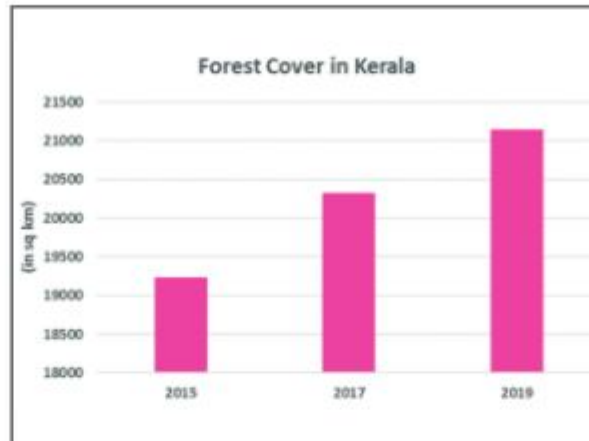
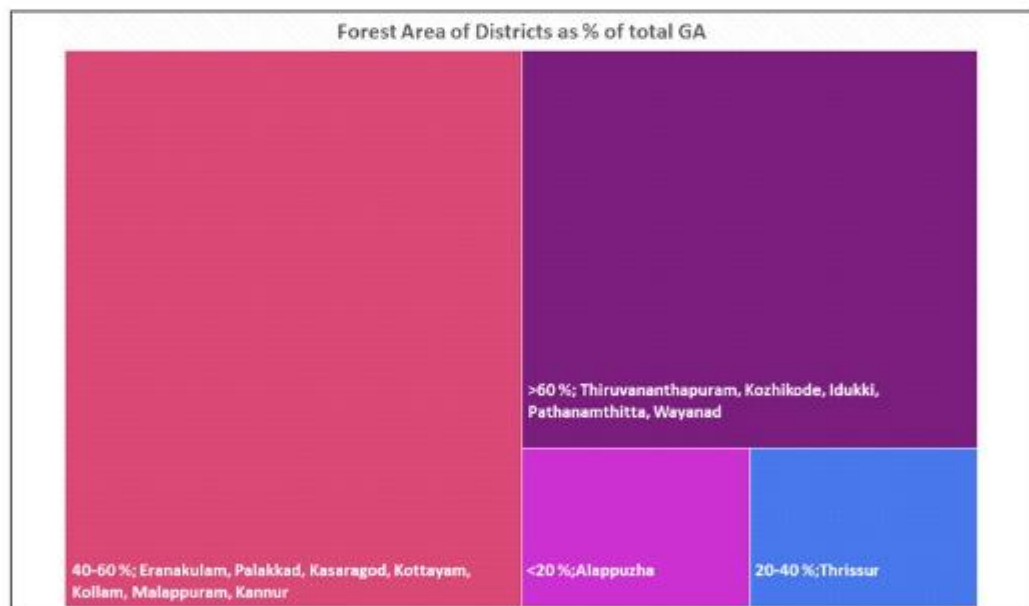


Figure 1.1 Forest Cover in Kerala From 2015 To 2019

#### 1.4 District-wise Forest Coverage in Kerala

The tree map at Fig 1.2 provides the distribution across districts.



Comparing district-wise area cover in Kerala, Idukki has the largest forest cover (3155 sq km) in the state, followed by Palakkad (2104 sq km), Malappuram (1984 sq km), Pathanamthitta (1949 sq km) and Kannur (1669 sq km). In terms of percentage of forest cover concerning the total geographical area, Wayanad with 74.2% has the highest forest cover, followed by Pathanamthitta (73.49%), Idukki (72.44%), Kozhikode (61.74%) and Thiruvananthapuram (60.17%). Data reveals an increase in forest cover by 109 sq km in 2021 compared to 2019 (Kerala ENVIS, 2022).

Nearly 60 lakh ha of forest is degraded with less than 40% canopy density. This is the target area for the afforestation programmes. Forest plantations extend over 1.56 lakh ha, teak being the major species, covering almost 50% of the total plantation area, followed by mixed plantations and eucalypts. The natural forests, plantations and homestead gardens contribute to the state's green cover, and all these are required in forest management.



## 2. Project profile

Compensatory afforestation programmes in the state were initiated in 1993, and plantations were maintained until 2002-03. The Government of India notified The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) in April, 2004. The State CAMPA receives funds collected from user agencies towards compensatory afforestation, additional compensatory afforestation, penal compensatory afforestation, Net Present Value (NPV) and all other amounts recovered from such agencies under the Forest (Conservation) Act, 1980. Kerala state CAMPA was constituted in November 2009.

Kerala Forests & Wildlife Department (KFD) has been receiving funds since 2009 from CAMPA, MoEFCC, Gol for various developmental activities such as afforestation programs, soil and moisture conservation works, capacity building for staff and local communities, the establishment of civil structures, etc. in various forest divisions of Kerala. The funds were spent for compensatory afforestation, biodiversity conservation, soil and moisture conservation, etc. The Chief Executive Officer, CAMPA, Kerala, is responsible for preparing the schemes, Annual Plan of Operations (APO) for CAMPA, and getting it approved by the Executive Committee, Steering Committee and the Government of India, followed by implementation of the approved APO. After receiving the fund allotment under State CAMPA, the implementing officers, the DFOs execute the assigned activities as per the APO. Under each major heads, there are different subheads available, which vary according to site conditions and needs.

The total outlay of the CAMPA activities from 2018 to 2019 is Rs. 7.94 crores. The details of the divisions, and the number of activities against different years are in Annexure-III.

## 3. Methodology

### Physical Verification of Activities

#### I. Plantation - Methodology

- ◆ 10% plantation randomly selected from various divisions.
- ◆ Sampling intensity for evaluation - 10% for block plantations.
- ◆ For every hectare of the plantation, the evaluation was done on a 30 x 30 m plot.
- ◆ Each plot was marked on a map of the plantation area, and GPS co-ordinates of all such (30 x 30 m) plots were collected.
- ◆ In case of linear plantation, every 10<sup>th</sup> tree/planted sapling of each row was evaluated for 25% of its length per running km basis (5 intermittent line transects – each for 5% of length per running km).
- ◆ The evaluation was done on 0.1 ha by laying a 30 x 30 m plot based on random sampling.

#### II. Soil and water conservation measures:

- (a) The teams obtained the norms and expenditure of SMC activities taken up in the plantation site from the respective offices.



- (b) The teams assessed the quantity/ present condition/ treatment plans of the different SMC works. 20% sampling was carried out.
- (c) For civil works, 50% M & E was carried out, based on random selection from M-Books from various divisions.

### III. Eradication of weeds

#### Density assessment - plot counts

- ◆ Three or more plots (quadrats) of size 10 x 10 m (located randomly over the site) were marked, and the number of plants within the plots was counted.
- ◆ To get the actual number per ha, multiplied the average number of plants in the plots by 100.

#### Plot transects

- ◆ Marked out 100m transects, keeping them parallel to one another (10m-50 m apart). Using a 2 x 2 m plot frame (using a rope) plots were placed at intervals along the transect.
- ◆ The number of plants within the plot was counted. The values were converted to density measure by averaging the number of plants in each of the plots (i.e. individuals per ha).

### IV. Forest protection

- ◆ 10% of all firelines were evaluated in each division based on random selection from M-Books from various divisions.

### V. Qualitative Aspects

**Focused group discussion :** FGD was conducted for 10% of the villages in which CAMPA works were undertaken with at least 15 villagers in a common place within the village. The group comprised office bearers of Joint Forest Management Committee, Below Poverty Line households and village residents.

#### Ranking of individual projects

The criterion below was used to evaluate the project needs since the site parameters, species and inputs provided vary from site to site.

Site suitability	High	Medium	Low
Suitable area with favourable site condition rainfall, soil, etc.	7 to 10	>3 to<7	< 3
Medium quality forest sites	>5	2-5	≤ 2
Poor forest sites	> 4	2-4	< 2

#### Criteria for classifying a site into suitable site, medium site and poor site

- (a) Suitable site: soil depth more than 61 cm, rainfall range between 1270 to 3810 mm, average prevalence of adverse biotic factors, gentle to moderate slopes.



- (b) Medium site: Soil depth ranges between 30.4 cm to 61 cm, rainfall ranges between 889 to 1270 mm, average prevalence of adverse biotic factors, gentle to moderate slopes.
- (c) Poor site: Soil depth less than 30.4 cm, rainfall less than 889 mm and excessive prevalence of mist and fog during monsoon, prevalence of adverse biotic factors and steep slopes.

This approach involve aggregating the percentage of readings falling into the three higher ratings (3-5) under the 'satisfactory' heading and the two lower ratings (1-2) under 'unsatisfactory'. The introduction of these two broad categories allowed better tracking of performance trends. The ranking table is provided below

Score	Assessment	Category
5	Highly satisfactory	Satisfactory
4	Satisfactory	
3	Moderately satisfactory	
2	Unsatisfactory	Unsatisfactory
1	Highly Unsatisfactory	

### Physical verification

Each of the selected plots was visited by the monitoring team and the following details were documented in the field.

- ◆ Plot location with GPS co-ordinates and area
- ◆ Plantation type and design (wherever available)
- ◆ Year of establishment
- ◆ Number of saplings planted initially (species wise)
- ◆ Height of the saplings when planted
- ◆ Number of plants surviving at the time of monitoring
- ◆ Average height of surviving plants
- ◆ Species composition and distribution
- ◆ Protection measures and maintenance
- ◆ Anthropogenic pressure, etc.

### Parameters considered during M&E

- ◆ **For plantations**
  - a. Qualitative – site suitability (both climatic and edaphic factors), condition of the plantation, choice of species, etc.
  - b. Quantitative - Total seedling/tree height, collar girth/GBH, survival percentage, etc.
  - c. Other parameters – Management practices, biotic and abiotic factors, etc.



➤ **For civil constructions**

- a. Verification (sketch and dimensions) based on the original documents and M-book.

**Deliverables and time schedule**

Work plan submission	One week after signing the agreement
Field Data Collection	Two - three months
Draft report submission	One month after field data collection
Final report submission	Two months after draft report submission
Total Duration	6 months

**4. Evaluation Details of the Circles and Divisions**

The details of various circles and divisions evaluated are presented below.

	<b>Circles</b>	<b>Divisions</b>
Territorial Circles and Divisions	Northern Circle, Kannur	Kannur, North Wayanad, South Wayanad and Kozhikode Forest Divisions
	Eastern Circle, Palakkad.	Nilambur North, Nilambur South, Mannarkkad, Palakkad and Nemmara Forest Divisions
	Central Circle, Thrissur.	Thrissur, Chalakkudy, Vazhachal and Malayattoor Forest Divisions
	High Range Circle, Kottayam.	Kothamangalam, Mankulam, Munnar, Marayoor and Kottayam Forest Divisions
	Southern Circle, Kollam	Ranni, Konni, Punalur, Thenmala, Achenkovil and Thiruvananthapuram Forest Divisions
Wildlife Circles and Divisions	Wildlife, Palakkad.	Aralam, Wayanad, Parambikulam, Peechi and Silent Valley National Park Wildlife Divisions.
	Field Director Project Tiger, Kottayam.	Munnar, Idukki, Periyar Tiger Reserve East & Periyar Tiger West Wildlife Divisions.
	Agasthyavanam Biological Park, Thiruvananthapuram.	Shendurney and Thiruvananthapuram Wildlife Divisions.
Social Forestry Circles and Divisions.	Social Forestry, Kozhikode	Kasargodee, Kannur, Wayanad, Kozhikode and Malappuram Social Forestry Divisions.
	Social Forestry, Ernakulam	Palakkad, Thrissur, Ernakulam and Idukki Social Forestry Divisions.
	Social Forestry, Kollam	Alappuzha, Kottayam, Pathanamthitta, Kollam and Thiruvananthapuram Social Forestry Divisions.
Research Circles & Research Divisions	Working Plan & Research	Kozhikode, Palakkad, Munnar, Punalur and Kollam Working Plan Divisions as well as Research Division, Thrissur Research Division.

**Northern circle, Kannur (2018-19)**

The evaluation covered four forest divisions of the circle. They include



1. Kannur
2. Kozhikode
3. North Wayanad
4. South Wayanad

Six different activities were envisaged in the circle under four components. The distribution of activities is as follows:

Component	Particulars of work	Divisions
Forest and Wildlife Protection	Digging water holes/Ponds River Bank Stabilization Soil and moisture conservation / Gully Plugging	South Wayanad Kasargodee South Wayanad, Kozhikode
Forest Fire Management	Engaging Fire Gang	South Wayanad, Kozhikode, Kasargode
Infrastructure Development	Providing basic infrastructure to tribal settlement	South Wayanad
Capacity Building	Conducting Nature Camps	North Wayanad

All the activities mentioned in the APO were carried out in the Circle. In addition, spillover activities of the APOs 2014-15 and 2015-16 were also undertaken. These activities were also evaluated.

## I. Forest and Wildlife Protection

### a. Digging water holes/Ponds

Location / Range / Division	GPS Location	Dimensions (m <sup>2</sup> )	Observations of the Evaluation Team
Pulplally/ Srambi / Chedleth / South Wayanad	N11°32'22.8" E76°00'98.2"	561.69	Good
Pulplally/Polanna/ Chedleth / South Wayanad	N11°41'17.5" E76°56'30.7"	558.94	Good

### Observations of the Evaluation Team

Type of Assets/ Division / Range / Place	Type of current use / Observations	Impact	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
Pond/Pulplally/ Srambi/ Chedleth / South Wayanad	The Water retention is medium.	The ponds deliver 70% of the envisaged impacts and needs desiltation.	7	Medium
Pond/Pulplally/ Polanna/Chedleth / South Wayanad	The Water retention is medium.	The ponds deliver 70% of the envisaged impacts and needs desiltation.	7	Medium



Water pond at Pulpally

The activity carried out during 2018-2019 was physically verified, records perused and found correct. Ponds were able to deliver only 70% of the envisaged impacts. The structure needs periodical desiltation.

**b. River bank stabilization**

Location / Range / Division	GPS Location	Dimensions (m <sup>3</sup> )	Observations of the Evaluation Team
Balavanthadukka/ Kasargode/ Kasargode	N12°53'53.5" E75°.18'80.56"	15 x 0.5 x 2	Verified.

**Observations of the evaluation team**

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	River Bank Stabilization / Balavanthadukka Kasargode/ Kasargode	Vegetation has established well. which protects soil erosion and road damage.	Good	9	High

The activity was physically assessed, the records were verified and found correct.

Soil and moisture conservation / Gully Plugging



Sites Team	Location / Range / Division	GPS Location	Dimensions (m <sup>2</sup> )	Observations of the Evaluation
1.	Nalukettumchola / Meppady/South Wayanad	N11°35'21.56" E76°06'17.31" Altitude:725	87.536	Good condition
2.	Vannathimala/Kalpetta/ South Wayanad	N11°37'11.4" E75°59'53.4"	87.682	Good condition
3.	Poozhithodu/ Peruvannamuzhy/ Kozhikode	N11°50'27.5" E75°59'01.3"	85.654	Good condition
4.	Kurumurukandy and Payona /Puthuppadi/ Thamarassery/ Kozhikode	N11°84'26.05" E75°65'57.95" Alt:167 msl	92.324	Good condition
5.	Kolamala and Mele Kolamala/Puthuppadi/ Thamarassery/ Kozhikode	N11°45'451" E75°52'661"	89.256	Good condition

#### Observations of the evaluation team

Type of Assets/ Division / Range / Place	Type of current use / Observations	Impact	Score (Low, < 3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
Nalukettumchola/ Meppady/South Wayanad	The gullies were constructed in 2018-19 has good soil retention.	The gullies have helped retain moisture in the adjoining areas, improving the vegetation.	7	Good
Vannathimala/ Kalpetta/South Wayanad			8	Good
Poozhithodu/ Peruvannamuzhy /Kozhikode			8	Good
Kurumurukandy and Payona/ Puthuppadi/ Thamarassery/ Kozhikode			7	Good
Kolamala and Mele/ Kolamala /Puthuppadi Thamarassery / Kozhikode			8	Good





Gully plug dimension assessment

Under the activity soil and water conservation, gully plugging was carried out in 2018-2019. The gullies were evaluated for physical existence and quality. The specifications of the gullies were checked by verifying the vouchers and estimates.

## II. Forest fire management

- a. Engaging Fire Gang: Under the component Forest fire management fire gang, fire watchers, fire protection mazdoors were engaged for fire protection activity.

Location / Range / Division	Activity
Peedikapullu /Kalpetta/ South Wayanad	Fire Gang
Attipara/ Kalpetta/ South Wayanad	Fire Gang
Head Quarteres level/Meppady / South Wayanad	Fire Gang
Chembra / Vythiry/Meppady/ South Wayanad	Fire Gang
Manikunnu & Thrikkaipetta/ Vythiry/Meppady/ South Wayanad	Fire Gang
Veettikunnu / Vythiry/ Meppady/ South Wayanad	Fire Gang
Puthuppady/ Thamarassery/Kozhikode	Fire protection Mazdoor
Edathara/Thamarassery/ Kozhikode	Fire protection Mazdoor
Kadothikunnu/ Nairkolly/ Thamarassery/ Kozhikode	Fire protection Mazdoor
Kanalad/ Thamarassery/ Kozhikode	Fire protection Mazdoor
Thamburankolli/Nairkolly/ Thamarassery/ Kozhikode	Fire protection Mazdoor
Peedikappara/ Thamarassery/ Kozhikode	Fire protection Mazdoor
Panathady/Kanhangad/Kasargode	Fire gang
Bheemanady/Kanhangad/Kasargode	Fire gang
Kidoor/ Anangaur/Kasaragod/Kasargode	Fire watcher
Bandaduka/Kasaragod/Kasargode	Firegang
Bovikanam/Kasaragod/Kasargode	Firegang
Panathur /Panathady /Kanhangad/Kasargode	Fire gang
Panathur /Panathady / Kanhangad/Kasargode	Fire gang



The activity was verified through inspecting bill books and vouchers and found correct.

### III. Infrastructure development

- a. Providing basic infrastructure to tribal settlement - Under this CAMPA activity small street lights and furniture were provided to the tribal settlements in different places in Chedleth range under South Wayanad.

Sl.No	Location /Range/ Division	Activity
1.	Appadu Community Hall/ Chedleth / South Wayanad	Providing furniture
2.	Athikkadavu Community Hall/ Chedleth / South Wayanad	Providing furniture
3.	Chettimattam Paniya Colony/ Irulam/ Chedleth / South Wayanad	Providing Small Street light
4.	Chettipambra Anganvady/Chedleth / South Wayanad	Providing furniture
5.	Kakkodan block PaniyaColony/Pulpally / Chedleth / South Wayanad	Providing SmallStreet light
6.	Kolarattukunnu Anganvady /Chedleth / South Wayanad	Providing furniture
7.	MadaparambuAnganvady /Chedleth / South Wayanad	Providing furniture
8.	Manikode Urali Colony / Pulpally / Chedleth / South Wayanad	Providing Small Street light
9.	Manthadam PaniyaColony/ Pulpally/Chedleth / South Wayanad	Providing small Street light
10.	Olimidavu NaikkaColony/ Pulpally /Chedleth/ South Wayanad	Providing Small Street light
11.	Vattappady Community Hall/ Chedleth / South Wayanad	Providing furniture
12.	Velamkode Anganvady /Chedleth/ South Wayanad	Providing furniture
13.	Vettathoor Anganvady/ Chedleth/South Wayanad	Providing furniture

The activities were verified through inspection of vouchers by the monitoring team and found correct.



Tribal girl provided study table



Study table provided under CAMPA



Provision of street lights



Interaction with the tribal VSS

### IV. Capacity building

- a. Conducting Nature Camps



Location / Range / Division	Activity
North Wayanad	Conducting training programme to protective staffs
North Wayanad	Conducting nature camps for staffs

Under the component capacity building conducted training programme and nature camps for protective staffs. The activity was verified from vouchers and found correct.

Following eight activities of earlier APOs (2014-16) were undertaken

**A. CA plantation maintenance**

Sl. No.	Location / Range / Division	GPS Location	Activity	Year of Activity	Dimensions (ha)
1	Tharippa CA Plantation / Kuttiyady / Kozhikode	N11°41'11.5" E75°51'14.8"	Engaging Fire mazdoors for fire protection work in CA plantation	2018-19	5.816
2	Meenpatti CA Plantation/ Kuttiyady / Kozhikode	N11°41'13.7" E75°51'17.8"	Engaging Fire mazdoors for fire protection work in CA plantation	2018-19	0.911

As a part of CA plantaion maintenance, fire mazdoors were engaged for fire protection work in compensatory afforestation plantation raised in Tharippa and Meenpatti in Luttiyady range, Kozhikode. The activity was verified through inspecting vouchers by the inspecting team and found correct.

**B. Soil and moisture conservation / gully plugging**

Location / Range / Division	GPS Location	Year of Construction	Dimensions (m)
Kollymala/Vythiri/ Meppady / South Wayanad	N11°50'35.8" E76°45'34.2"	2019-20	8.53 x 1.25x 0.54 10.57 x 1.13x 0.58 8 x1.13x0.54 16 x1.18x0.64
Karuvanthode / Kalpetta/ South Wayanad	N11°41'17.5" E76°56'30.7"	2018-19	9.47 x 2.47x 0.8 8.1 x 2.967x 0.909 10.25 x 2 x 0.8912
Seethapara/Pannikottur/ Peruvannamuzhy / Kozhikode	N11°32'22.8" E76°00'98.2"	2018-19	7x 2.06x 0.85 9.7x 2.05x 0.95 9.3x 2.0x 1 9.6x2.05x0.9
Chempothumpoil / Vilangad/Kuttiady/ Kozhikode	N11°32'22.8" E76°00'98.2"	2018-19	11.48x 0.9x 0.98 8.85x 0.9x 0.875
Uruppuvenkunnu/ Keezhpally/ Kottiyoor /Kannur	N11°84'26.05" E75°65'57.95"	2018-19	7x 2.06x 0.85
Punneri/ Kannavam/ Kannavam/ Kannur	N11°82'01.1" E75°68'27.47"	2018-19	4.20x2.06x 1.05 4.10x2.10x1.06 5.27x2.06x 1.0



### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Gully Plugging/ Vythiri/ Meppady/ South Wayanad	Gully plugging constructed in 2018 -2019 & 2019-20. The soil retention is good.	Few Gullies are damaged due to flood.	7	Good
2.	Gully Plugging/ South Wayanad/ Kalpetta / Karuvanthode	Gully plugging constructed in 2018-19 is maintained good. The soil retention is good.	The gully deliver 80 % of the envisaged impacts.	8	Good
3.	Gully Plugging/ Peruvannamuzhy/ Kozhikode Division	Gully plugging constructed in 2018-19. The soil retention is good.	Few Gullies are damaged due to wild life movement.	7	Good
4.	Gully Plugging/ Thamarassery/ Kozhikode	Gully plugging constructed in 2018-19. The soil retention is good.	The gully deliver 70 % of the envisaged impacts	8	Good
5.	Gully Plugging/ Kozhikode/ Peruvannamuzhy / Pannikottur	Gully plugging constructed in 2018-19. The soil retention is good.	The gully deliver 80 % of the envisaged impacts	8	Good
6.	Gully Plugging/ Kozhikode/ Peruvannamuzhy / Pannikottur	Gully plugging constructed in 2018-19. The soil retention is good.	The gully deliver 80 % of the envisaged impacts	8	Good
7.	Gully Plugging/ Kozhikode/ Kuttiady / Chempothumpoil	Gully plugging constructed in 2018-19. The soil retention is good.	The gully deliver 80 % of the envisaged impacts	7	Good
8.	Gully Plugging/ Uruppuvenkundu /Keezhpally / Kottiyoor / Kannur	Gully plugging constructed in 2018-19. The soil retention is good.	Maintained in good condition	8	Good
9.	Gully Plugging/ Punneri/ Kannavam/ Kannavam /Kannur	Gully plugging constructed in 2018-19. The soil retention is good.	Maintained in good condition	8	Good



Under soil water conservation gully plugging was carried out in 10 sites. The evaluation team physically perused the gullies for their quality and dimensions were measured and confirmed with the vouchers/records. Few Gullies were found damaged due to wild life movement and flood. The activity was verified through inspecting vouchers by the inspecting team and found correct.

**C. Construction/ cleaning/ distillation of pond**

Sites	Location / Range / Division	GPS Location	Year of Construction	Dimensions (m)
1	Chendamoola, Kamblikara/ Parappa/ Kasargode / Kasargode	N12°58'11.44" E75°27'20.32" Altitude 113msl	2018 -2019	18x12x 6
2	Balavanthadukka/ Kasargode / Kasargode	N12°52'47.67" E75°20'02.07" Altitude 121 msl	2018 -2019	10x10x 5
3	Ranipuram/ Kanhangad/ Kasargode	N12°41'22.19" E75°36'73.7" Altitude 820 msl	2018 -2019	15x5x 2 16x13x 105

**Observations of the Evaluation Team**

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Ponds / Kasargode/ Kasargode	The ponds were constructed in 2018-19. The water retention is medium.	The ponds deliver 70 % of the envisaged impacts and needs desiltation.	7	Medium
2.	Ponds/ Kanhangad/ Kasargode	The ponds were constructed in 2018-19. The water retention is medium.	The ponds deliver 70% of the envisaged impacts and needs desiltation.	7	Medium

The ponds were evaluated for their physical existence and quality. They need desiltation. The specifications of the ponds were checked by verifying the vouchers and estimates.

**D. Better connectivity (includes culverts/ foot bridges, roads)**

Sites	Location / Range / Division	GPS Location	Year of Construction	Dimensions (m)
1	Athikkode/Kakkayam /Peruvannamuzhy/ Kozhikode	N11°53'58.93" E75°95'21.87"	2018 -2019	9.8 x 2.9



### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Culverts / Athikkode / Kakkayam / Peruvannamuzhy / Kozhikode	The culverts were damaged in flood.	Damaged	3	Low

The culverts were inspected by the team for their existence and quality and found damaged due to flood. The specifications of the ponds were checked by verifying the vouchers and estimates.

#### E. Fire Mazdoor/ fire gangs/ EDC assistance

Location / Range / Division	Activity
Jankikkad / Kuttiyadi/ Kozhikode	Fire mazdoor
Nilamburkad To Mailallampara/ Kanalad/ Thamarassery / Kozhikode	Fire mazdoor
Peruvannamuzhy / Kozhikode	Fire protection
Puthuppady/ Thamarassery / Kozhikode	Fire mazdoor
Palchuram/ Kottiyoor/ Kannur	Fire gang
Edappuzha/Irutty/ Kottiyoor / Kannur	Fire gang
Konnakkad /Kanhangad / Kasargode	Fire watcher
Kasaragod / Kasargode	Fire gang
Bheemanady /Kanhangad / Kasargode	Fire watcher
Panathady/ Ranipuram / Kasargode	Fire gang
Parappa /Parappa/ Kasargode	Fire gang
Mandakol /Bandaduka / Kasargode	Fire gang
Maruthom / Kasargode	Fire gang
Karadukka / Kasargode	Fire gang
Muliyar / Kasargode	Fire gang
Chittarikkal/ Bheemanady / Kasargode	Fire gang
Vilaramkunnu / Padinjarathara/ Kalpetta / South Wayanad	Fire gang
Kalpetta / SouthWayanad	Fire gang

The evaluation team verified the records and vouchers for the engagement of fire gang, fire mazdoor, fire watchers and driver for fire protection activities vehicle and found correct.



**F. Assistance to Tribal VSS**

Sl.No	Location /Range/ Division	Activity
1.	Ambalamoola/ Begur/ NorthWayanad	Supply bench & desk for alternate school
2.	Anapanthi Kn Colony/ Pulpally/ Chedleth/ South Wayanad	Street lights
3.	Anapathy Anganvady/ Chedleth/ South Wayanad	Furniture ( Toys)
4.	OzhakollyAnganvady/ Nellarachal/ Aranamala/ Meppady/ South Wayanad	Improving infrastructure
5.	Anganvady- Tribal Settlement/ Meppady/ South Wayanad	Drinking Water facilities
6.	Appadu Community Hall/ Chedleth/ South Wayanad	Providing furniture
7.	Athikkadavu Community Hall/Chedleth / South Wayanad	Providing furniture
8.	Cheriyamala /Pulpally/ Chedleth / South Wayanad	Street lights
9.	Chettimattam Paniya Colony/ Irulam/ Chedleth/ South Wayanad	SmallStreet lights
10.	Chettipambra Anganvady/Chedleth / South Wayanad	Providing furniture
11.	Churali Colony/ Kunhome/Peria/ North Wayand	Educational support to anganvady
12.	Elambelery To Poolakkunnu Tribal Settlement/Meppady/ South Wayanad	Drinking Water facilities
13.	Forest Vayal / Pulpally /Chedleth / South Wayanad	Basic infrastructure improvement
14.	Govindanpara TribalSettlement/Vythiri /Meppady /South Wayanad	House hold articles
15.	Idiyamvayal Community Hall / Kalpetta /Kalpetta/South Wayanad	Equipment like steel racks, table, chair, Plastic Chair
16.	Kakkodan Block Paniya Colony/ Pulpally/ Chedleth/ South Wayanad	Small Street light
17.	Kallingal / Kunhome / Peria / North Wayanad	LPG gas connection
18.	Kappikkalam Anganvady/Cheerapoil Tribal Settlement/ Padinjarathaa / Kalpetta / South Wayanad	Equipment like steel racks, table, chair, Plastic Chair
19.	Karukanthode Anganvady /Karukan Thode Tribal Settlement/ Kalpetta /Kalpetta / South Wayanad	Equipment like steel racks, table, chair, Plastic Chair
20.	Kolarattukunnu –Anganvady/ Chedleth / South Wayanad	Providing furniture
21.	Koodaloor KN Colony/Irulam/Chedleth / South Wayanad	Street light
22.	Koonampala /Kottiyor / Kannur	LPG gas connection
23.	Kuttiyamvayal Anganvady/Mangalam Kunnu Tribal Settlement/ Padinjarathaa /Kalpetta /South Wayanad	Equipment like steel racks, table, chair, Plastic Chair, Slider, Oonjal
24.	MadaparambuAnganvady/ Chedleth / South Wayanad	Providing furniture and Drinking Water facilities
25.	Madathil Colony/ Varayal/ Peria/ North Wayanad	Educational support to schools
26.	Mangalassery /Mananthavady / North Wayanad	Study materials to tribal students and Basic infrastructure improvement



Sl.No	Location /Range/ Division	Activity
27.	Manikode Urali Colony / Pulpally/ Chedleth Range/South Wayanad	SmallStreet light
28.	Manthadam PaniyaColony/ Pulpally/Chedleth / South Wayanad	SmallStreet light
29.	Olimidavu NaikkaColony/ Pulpally/Chedleth /South Wayand	SmallStreet light
30.	Paithalmala/ Karamaramthattu / Thaliparambu / Kannur	Water pump for drinking water
31.	Pilathil Colony/ Kunhome/ Peria / North Wayand	Furniture to community hall
32.	Suganthagiritribal Settlement/ Kalpetta /Kalpetta /South Wayanad	Equipment like steel racks, table, chair, Plastic Chair
33.	Thazhaseery Colony/Pulapally / Chedleth / South Wayanad	Street lights
34.	Varachankunnu Community Hall/ Chedleth /South Wayanad	Furniture
35.	Various Tribal Settlement In Kalpetta /Kalpetta /South Wayanad	Torches, Steel boxes, Plastic chairs
36.	Vattappady Community Hall /Chedleth / South Wayanad	Providing furniture
37.	VelamkodeAnganvady/ Chedleth / South Wayanad	Providing furniture
38.	Vettathoor/Anganvady- PFS/ Chedleth / South Wayanad	Furniture



Drinking water facilities at Madaparambu

As part of the CAMPA operation, the tribal communities were provided with furnitures, small street light, Educational support, bench and desk to alternate schools and anganvady, Study materials to tribal students, steel rack , steel table, steel chair, plastic chair, Slider, Oonjal, toys, drinking water facility, water pump for drinking water and LPG gas connection. The records were verified and found correct.



**G. Purchase of equipment**

Sl.No	Location /Range/ Division	Activity
1	Kalpetta / South Wayanad	Electronic Search Light for elephant Scaring squad
2	Thamarassery / Kozhikode	Cages, Snake catching equipment
3	Chedlth / South Wayanad	Security equipment
4	APC at Kakkayam/ Kozhikode	Torches
5	Peruvannamuzhy / Kozhikode	Life saving equipments
6	Kanhangad / Kasargode	Life saving equipments
7	DFO office/ Kasargode	Life saving equipments
8	Division office, South Wayanad	Android mobile phone for MSTRIPS



Fire Safety Guards



Search Lights



The equipment purchased were evaluated for physical existence and quality. They were checked by verifying the vouchers. The equipment are in good condition and used regularly.

#### H. Awareness programme/ Nature camps/ Training to protective staffs

Location // Division	Activity
Ladysmith Hall / Kalpetta/ South Wayanad	Conducting training in HAWK Module to staff
Kasargode / Kasargode	Training in vanasree complex
Kasargode / Kasargode	Training in vanasree complex
Kasargode / Kasargode	Snake catcher Training
Kasargode / Kasargode	Snake catcher Training

The evaluation team verified the records and vouchers pertaining to the awareness programme.

All the six activities envisaged were completed during 2018-19 in the circle. Eight spillovers of earlier years were also taken up during this period. These activities were also evaluated. Against an outlay of Rs. 47.50 lakhs allotted, an expenditure of Rs. 52.18 lakhs was incurred due to unforeseen expenditure to the camp sheds as a result of damage by the floods.

#### Eastern circle, Palakkad (2018 - 2019)

The evaluation covered five forest divisions of the circle. They include

1. Mannarkkad
2. Nennara
3. Nilambur North
4. Nilambur South
5. Palakkad

Five different activities have been undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Divisions
Forest and Wildlife Protection	Creation of Kayyalas Interior Camp sheds	Nennara
	Maintenance of trek path/ Patrolling Route	Nennara
	River Bank Stabilization	Palakkad
Forest Fire Management	Engaging Fire Gang	Palakkad
		Nilambur North, Nilambur South, Palakkad



**I. Forest and Wildlife protection**

**a. Creation of Kayyalas**

Sites	GPS Location	Dimensions (m)	Remarks
Kollengode /Nemmara	N10° 34'15.26" E76°46'32.62"	143 x 1.5x0.1	Inspected the kayyalas created during 2017-18 and found in good condition

The measurement book was checked for dimensions and expenditure and found correct.



Bommiyampadi campshed

**b. Interior campsheds**

Sites	GPS Location	Year of Construction	Observations of the Evaluation Team
Nelliyampathy, Nemmara	N10°30'14.7" E76°41'27.94"	Constructed during British period	Maintenance of doors/windows/ kitchen utensils/ furnitures are required.



Sooryapara Camp shed at Nelliyampathy



### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of asset - Low, Medium or High
1.	Sooryapara Camp shed, Nelliampathy, Nemmara	Damaged due to minimal maintenance	The shed may be maintained for use by the frontline staff.	5	Medium

#### c. Maintenance of trek path/ Patrolling route

Sites	GPS Location	Year of Activity	Dimensions	Observations of the Evaluation Team
Pudur, Attappady	N11°09'56.06" E76°37'26.41"	2018-19	Length - 8 km Width - 3.2m	The works were evaluated for physical existence and quality.
Koottupuzha Elival, Olavakkode	N11°25'0.72" E76°13'28.01"	2019-20	Length - 3km	The works were evaluated for the physical existence and for the quality.



Trek path at Pudur

The Trek paths which are useful for the frontline staff were evaluated for physical existence and quality.

#### d. River bank stabilization

Sl. No.	Divisions	Area (ha)/ Planting	Species	Survival (%)	Observations of the Evaluation Team
1	Elival, Olavakkode /Palakkad	5 ha	Bamboo and <i>Syzigium cumini</i>	10%	The river bank was severely damaged in the 2018 floods.



Under river bank stabilization, 1100 plants of bamboo and *S.cumini* were planted in 5 ha. Most of them were destroyed due to 2018 floods.



M-book details on production and distribution of seedlings

## II. Forest fire management

### a. Engaging fire gang

Location / Range / Division	Activity
Nilambur North : Kanjirapuzha, Walluvassery, Vazhukaradam, Ayiravellikavu, Edavanna, Kodumpuzha	Fire gang
Karulai, Nilambur South	Fire gang
Mannarkad, Agali, Attappady	Fire gang and purchase of furniture for campsheds of the range
Olavakkode and Walayar/ Palakkad	Fire gang

The inspection team verified the records and the vouchers for engaging fire gang and purchase of furnitures for campsheds of the entire range and found correct.

All the five activities envisaged were completed during 2018-19 in the circle. The amount allotted for the campshed was utilized for the purchase of equipment such as water purifier and the vouchers were checked. Overall, an amount of Rs. 47.50 lakhs was allotted to the circle which was fully utilised.

### Central circle, Thrissur (2018 - 2019)

The evaluation covered four forest divisions of the circle. They include

1. Chalakkudy
2. Malayattoor
3. Thrissur
4. Vazhachal



Six different activities were undertaken under three components in the circle. The distribution of activities is as follows.

Component	Particulars of work	Divisions
Compensatory Afforestation Funds	Compensatory Afforestation Works	Chalakkudy, Vazhachal
Forest and Wildlife Protection	Better connectivity including bridges roads communications	Chalakkudy, Vazhachal, Malayattoor
	Construction & Maintenance of check dams	Malayattoor
	Construction of Chappath/ Bridge	Malayattoor
	Interior Camp sheds	Chalakkudy
Forest Fire Management	Engaging Fire Gang	Chalakkudy, Vazhachal, Malayattoor, Thrissur

Two new activities were also taken up. These activities were also evaluated.

## I. Compensatory afforestation funds

- a. **Compensatory afforestation works:** This work has not been evaluated as the details were not available with the concerned office.



A CA plantation of 2018 visited by the team

## II. Forest and wildlife protection

- a. **Interior campsheds**

Sites	GPS Location	Dimensions (m <sup>2</sup> )	Observations of the Evaluation Team
Camp Shed/ Chalakkudy division/Vellikulangara Range	N10°22'11.59" E76°27'53.53" N10°22'18.93" E76°20'54.4" N10°24'59.6" E76°20'54.4"	10	The above Camp sheds are maintained well.



Sites	GPS Location	Dimensions (m <sup>2</sup> )	Observations of the Evaluation Team
Vazhachal Division, Poringalkuthu	N10°20'46.82" E76°38'18.76"	95	Maintenance like patch work in the floor of the existing camp shed.
Malayattoor Division Thundathil & Kuttampuzha ranges	N10°11'46.1" E76°48'1.5" N10°09'24.1" E76°50'23.2"72.	16	Maintenance like tress work over the existing camp shed.



The inspection team with members of VSS at camp shed

### III. Forest fire management

- a. **Engaging fire gang:** Antipoaching watchers and fire gangs were engaged through tribal VSS tribal. The records were verified and found correct.

### IV. Capacity building

- a. **Training and workshops:** Awareness classes and nature education were imparted in Vellikulangara, Chalakudy Division during 2019.

The following three new activities outside the APO were undertaken

#### A. Provision for field Ration for interior camps

S.No	Year	Range	Particulars (Field Ration)
1.	2018	Vellikulangara	Providing field ration for the participants in camping site (10 Nos) inside forest area in Vellikulangara range
2.	2019	Palappilly	Field ration for interior camping in the Palappilly range
3.	2019	Pariyaram	Cost of field ration for the participants in camping site inside forest area in Pariyaram
4.	2019	Vellikulangara	Providing field ration for interior camping in the Vellikulangara range



The records and vouchers were verified and found correct

### B. Purchase of equipment

S. No.	Location / Range / Division	Items procured
1	Parakkadavu/ Palappily / Chalakudy	Interior camp shed items
2	Myladumpara/Pariyaram /Chalakudy	Furniture and utensils
3	Charpa /Vazhachal	Emergency flickering light and search light for control room vehicle

The items were physically verified by the team. The vouchers were also verified and found correct.

Out of the six activities envisaged under the three components during 2018-19, in the circle except one activity, five activities have not been evaluated. Two new activities outside the APO were undertaken. Overall, an amount of Rs. 67.57 lakhs was allotted to the circle during the period of which 95.14 percent financial achievement was observed.

### High Range Circle, Kottayam (2018 - 2019)

The evaluation covered five forest divisions of the circle. They include

1. Kothamangalam
2. Kottayam
3. Mankulam
4. Marayoor
5. Munnar

Seven different activities were undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of Work	Divisions
Compensatory Afforestation Funds	Compensatory Afforestation Works	Munnar
Forest and Wildlife Protection	Digging water holes/Ponds	Mankulam, Marayoor, Munnar
	Interior Camp sheds	Kottayam, Marayoor
	Maintenance of trek path/ Patrolling Route	Marayoor, Munnar
	Soil and moisture conservation / Gully Plugging	Munnar, Kothamangalam
Infrastructure Development	Providing basic infrastructure to tribal settlement	Marayoor
Capacity Building	Training and workshops	Marayoor, Mankulam

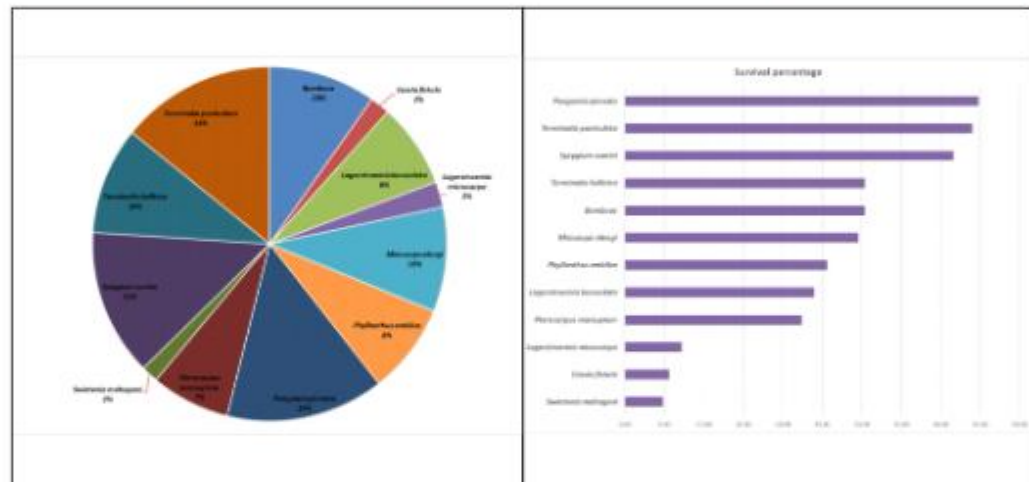




**I. Compensatory afforestation funds**

**a. Compensatory afforestation works**

S. No.	Divisions	Area (ha)/ Planting	Species	Survival (%)
1.	Munnar, Makkumchal, Adimali	19.3 ha	<i>Pongamia pinnata</i> , <i>Syzygium cumini</i> , <i>Terminalia paniculata</i> , <i>T. bellirica</i> , Bamboos, <i>Garcinia gummigutta</i> , <i>Albizia procera</i> , <i>Dalbergia</i> , <i>Mimusops elengi</i> , <i>Vateria indica</i> , <i>Lagerstroemia microcarpa</i> , <i>Cassia fistula</i> , <i>Pterocarpus marsupium</i> , <i>Phyllanthus emblica</i>	40.16



Distribution of the species in the plantation

Survival of individual species

Growth performance of different species in terms of height (cm) at Makkumchal

Species	Average (cm)	Maximum (cm)	Minimum (cm)	CV (%)
Bamboos	50.45	78.00	33.00	26.37
<i>Cassia fistula</i>	125.71	200.00	89.00	77.31
<i>Lagerstroemia lanceolata</i>	32.43	51.00	19.00	17.92
<i>Lagerstroemia microcarpa</i>	57.56	65.00	50.00	11.09
<i>Mimusops elengi</i>	42.78	70.00	21.00	23.13
<i>Phyllanthus emblica</i>	40.31	61.00	19.00	17.77
<i>Pongamia pinnata</i>	96.45	212.00	34.00	96.77
<i>Pterocarpus marsupium</i>	54.43	106.00	24.00	56.20
<i>Swietenia mahagoni</i>	83.00	90.00	74.00	12.41
<i>Syzygium cumini</i>	78.37	200.00	19.00	96.79
<i>Terminalia bellirica</i>	70.05	113.00	30.00	55.09
<i>Terminalia paniculata</i>	59.67	88.00	35.00	26.57



Survival of different species at Makkumchal plantation

This activity was carried out in Munnar Division. Of the 12 species planted only *Pongamia pinnata*, *Syzygium cumini* and *Terminalia paniculata* recorded more than 40 % survival.

## II. Forest and wildlife protection

### a. Interior campsheds

Sites	GPS Location	Dimensions (m <sup>2</sup> )	Remarks
1	N10°10'55.88" E77°09'38.18" Elevation-1023m	8.548	The shed is maintained well.
2	N10°16'19.38" E77°09'17.08" Elevation-1016m	9.408	The shed is maintained well.
3	N10°16'21.80" E77°09'16.19" Elevation-1033m	9.408	The shed is maintained well.
4	N09°40'54.55" E76°54'24.91" Elevation-1037m	34.43	Steel Structure for Water Tank with 1.35 x 1.35 x 2.75 was constructed.



Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, <3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Camp Shed/ Ambalappara, Marayoor, Marayoor	The shed is maintained well.	The shed is useful for the frontline staff.	9	High
2	Camp Shed / Karimpara, Marayoor, Marayoor	The shed is maintained well.	The shed is useful for the frontline staff.	9	High
3	Camp Shed / Uralkuthy, Marayoor, Marayoor	The shed is maintained well.	The shed is useful for the frontline staff.	9	High
4	Campshed / Vagamon/ Erumely/ Kottayam	The camp shed has two rooms, kitchen, verandah and a toilet. Roofing was done with 0.50 mm GI Sheet.	The shed is useful for the frontline staff.	9	High



Observations of the Evaluation Team



Campshed at Erumely

The works were evaluated for physical existence and quality. The specifications of the camp sheds were checked with measurement books and vouchers and verified the expenditure.

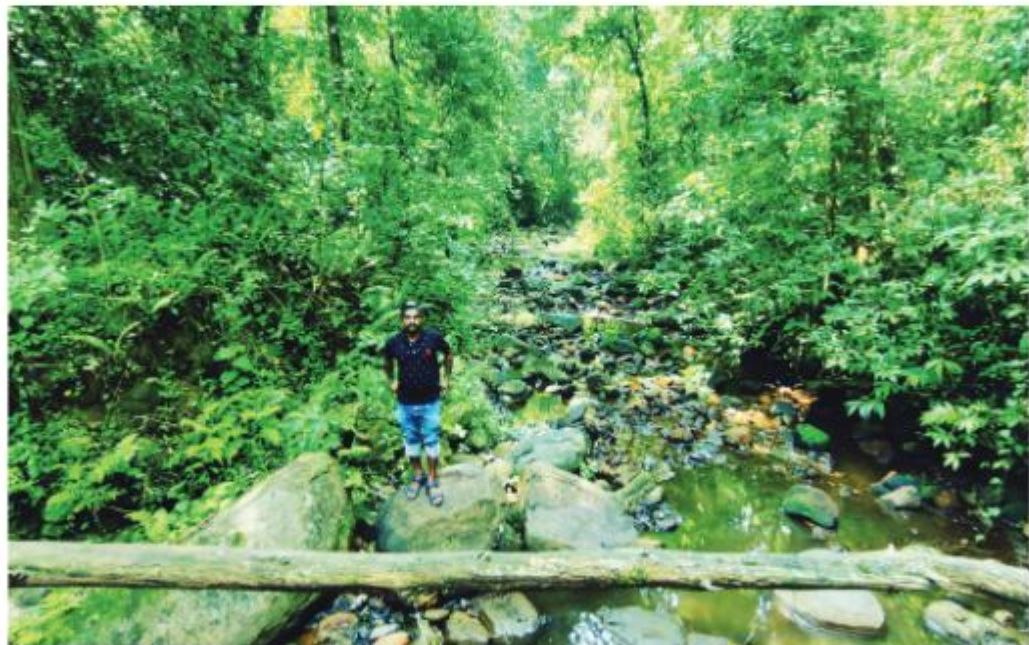
#### b. Soil and moisture conservation / Gully Plugging

Sites	GPSLocation	Dimensions (m)	Observations of the Evaluation Team
1.	N10°10'40.55" E77°08'54.22" Elevation-2235m	10 x 10 x 1.40	Water is stored at full level for the wildlife.
2.	N10°10'49.18" E77°09'09.17" Elevation-2272m	10 x 10 x 1.40	Water is stored at full level for the wildlife.
3.	N10°03'52.23" E76°47'45.43" Elevation-227m	10 x 5 x 1.40	Water is stored at full level for the wildlife.
4.	N10°01'54.7" E76°8'08.17" Elevation-127m	2.23 x 0.97 x 4.42 2.48 x 1.09 x 5.92 2.03 x 1.02 x 4.52 2.43 x 1.2 x 4.73 2.2 x 1.11 x 7.71 2.47 x 1.14 x 3.9 2.28 x 1.09 x 5.4	Water stored at quarter level



**Observations of the evaluation team**

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, <3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Gully/Bluvady/ Chullikkandam/ Mullaringad/ Kothamangalam	Water stored at quarter level	Nine gullies were created. The water storage was observed to be low in almost all of them.	4	Medium
2.	Gundumala Water Hole/ Munnar, Munnar	Water is stored at full level for the wildlife.	This water hole is mostly used to provide water for animals. Well maintained.	9	High
3.	Munnam Mile Water Hole/ Munnar, Neriamangalam	Water is stored at full level for the wildlife.	This water hole is mostly used to provide water for animals. Well maintained.	9	High
4.	Muthuvanpara Water Hole: Munnar, Munnar	Water is stored at full level for the wildlife.	This water hole is mostly used to provide water for animals. Well maintained.	9	High



Gully at Bluvady



Muthuvanpara Water Hole



Munnam Mile Water Hole

Under the soil water conservations the gullies and water holes made were inspected for their physical appearance and quality and found good wildlife. The records are verified and found correct.

### III. Infrastructure development

- a. Providing basic infrastructure to tribal settlement: LPG connections were provided to the members of Kuthukallukudi VSS , Pongampally VSS and Cherukad VSS of Marayoor and Kanthalloor Ranges in Marayoor Division.



#### IV. Capacity building

##### a. Training and workshops

- (i) Training was provided to the staff and watchers on fire protection during 2018-2019, Marayoor Division, Marayoor Range.
- (ii) Engaging Fire Gang: Fire gangs were engaged in Marayoor Division (Marayoor Range and Kanthalloor Range), Mankulam Division, Mankulam Range, Mankulam Section, Mankulam Division, Mankulam Range, Kallar Section and Mankulam Division, Anakkulam Range.
- (iii) Training Workshop: A training workshop on bird watching and bird census was organized at Mankulam Division, Mankulam Range for protection staff and watchers.

The following new activity outside the APO were undertaken

##### A. Soil and moisture conservation

Sites	Type of Assets/ Division / Range	GPS Location	Dimensions (m)	Observations of the Evaluation Team
1.	Temporary checkdam/ Nallyyamavu / Vattakkalamthatty/ Kulamavu/ Thodupuzha/ Kothamangalam	N°10.01544° E°76.80844° Elevation-134 m	-	The check dam has been constructed using brushwood.
2.	Gully Plugging(6)/ Bluvady/ Mullaringad/ Kothamangalam	N°10.01544° E°76.80844° Elevation-134 m	2.56x 0.92x 5.16 2.25 x 1 x 9.41 2.25 x 1.07 x 6.1 2.73 x 1.2 x 8.73	Water stored at quarter level in all except one, wherefull storage was observed.
3.	Gully Plugging/ Perakuthu/ Kothamangalam/ Kothamangalam	N°10.0761° E°76.7220° Elevation- 72 m	43.64m <sup>3</sup>	Water stored at quarter level
4.	Gully Plugging/ Pothenchery/ Nedukkadu/ Kaliyar/ Kothamangalam	N°10.0132° E°76.7357° Elevation- 50 m	43.64m <sup>3</sup>	Water stored at quarter level



Lush vegetation surrounding the SMC



Under this activity, gullies were created in 8 sites and temporary check dam in one site. These activities were verified physically and dimensions were measured and confirmed with the vouchers/records. All the structures were in healthy conditions and useful in soil moisture conservation as is evident from the lush green vegetation.

Seven activities were planned under four components during 2018-19 in the circle. Two activities have not been evaluated as the details were not available with the concerned office. Soil and moisture conservation activities outside the APO were undertaken. Overall, an amount of Rs. 62.85 lakhs was allotted to the circle during the period of which 96.82 percent financial achievement was observed.

### Southern circle, Kollam (2018 - 2019)

The evaluation covered six forest divisions of the circle. They include

1. Achenkovil
2. Konni
3. Punalur
4. Ranni
5. Thenmala
6. Thiruvananthapuram

Six different activities were undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of Work	Divisions
Compensatory Afforestation Funds	Compensatory Afforestation Works	Punalur
Forest and Wildlife Protection	Better connectivity including bridges roads communications	Konni, Achenkovil, Punalur, Ranni, Thenmala
	Interior Camp sheds	Achenkovil
	River Bank Stabilization	Konni
Forest Fire Management	Engaging Fire Gang	Konni, Achenkovil, Punalur, Ranni, Thenmala, Thiruvananthapuram
Capacity Building	Awareness Program	Ranni, Konni, Achenkoil, Punalur

Most activities mentioned in the APO were carried out in the Circle. Four new activities were also taken up. were These activities were also evaluated.

## I. Compensatory afforestation funds

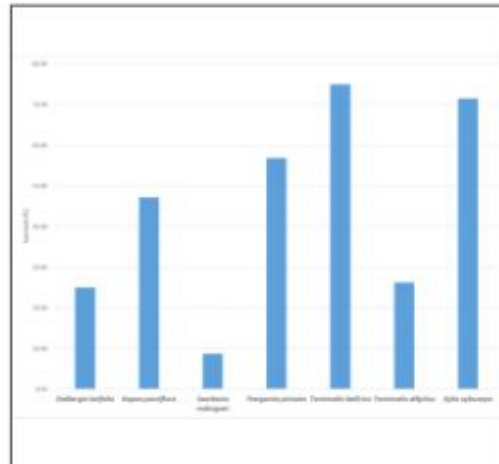
### a. Compensatory afforestation works

S. No.	GPS	Area (ha)/ Planting	Species	Survival (%)
1.	N09°3'51.76" E76°58'2.39"	Out of 50 ha at Verukuzhi 10 ha gap planting	<i>Terminalia bellirica</i> , <i>Hopea parviflora</i> , <i>Xylia xylocarpa</i> , <i>Schleichera oleosa</i> and <i>Atrocarpus hirsutus</i> .	54.00
2.	N09°05'59.9" E76°57'3.9"	Kulatharapacha 28 ha gap plantation	<i>Dalbergia latifolia</i> , <i>Hopea parviflora</i> , <i>Sweitenia mahogany</i> , <i>Pongamia pinnata</i> , <i>Xylia xylocarpa</i> , <i>Terminalia bellirica</i> , and <i>Terminalia elliptica</i>	44.37
3.	N09°05'59.9" E76°57'3.9"	Chudalakunnu gap plantation work in an area of 10 Ha	<i>Xylia xylocarpa</i> , <i>Terminalia bellirica</i> , <i>Dalbergia latifolia</i> , <i>Hopea parviflora</i> , <i>Albizia odoratissima</i> .	69.5

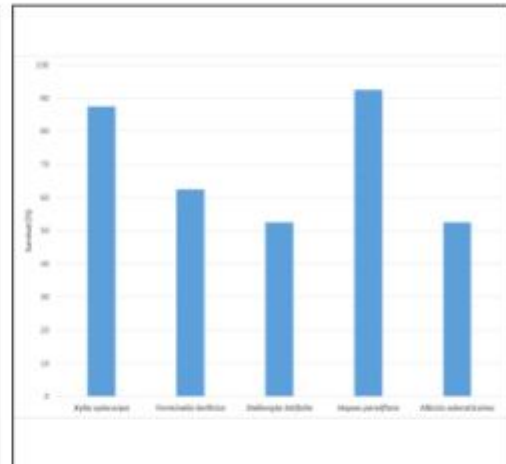




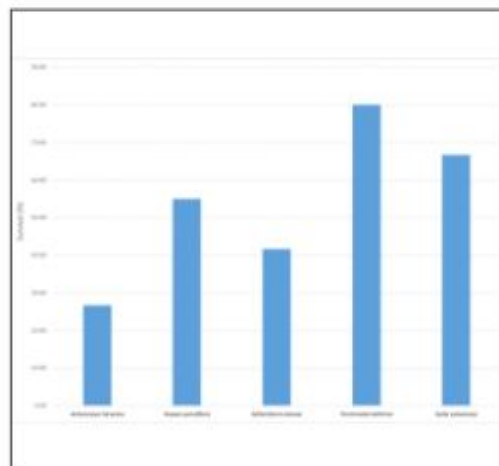
Activities which were carried out include selective removal of alien exotic weeds, gap planting, construction of staggered trenches for soil water conservation and to hold seeds of forest tree species for further natural regeneration, protection against fire, grazing by engaging protection watcher, fire protection through fire break.



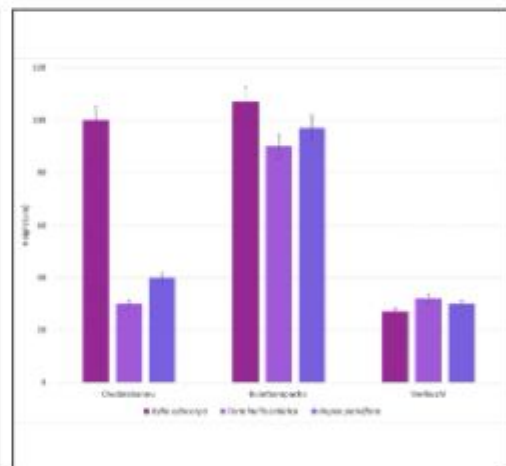
Survival (%) of different species in Kulathurpacha



Survival (%) of different species in Chudalakunnu



Survival (%) of different species in Verikuzhi



Performance of three species across three locations in the Circle

Compensatory afforestation was carried out in Punalur Division. Performance of three species *Hopea parviflora*, *Xylocarpus*, *Terminalia bellirica* across three locations were evaluated. All three species performed well in Kulathurpacha.

## II. Forest and Wildlife protection

- Better connectivity including bridges roads communications:** Records were verified and found correct
- Interior campsheds**



Sites	GPS Location	Year of Construction	Dimensions (m)	Remarks
1	N09°10'0.498" E77°9'17.736"	2018-2019	10 x 10.5	The condition of the structure is good.

### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Camp Shed at Chittar, Achenkovil division	The shed is maintained well.	The shed is useful for the frontline staff.	7	High



Camp shed at Chittar

The camp shed was evaluated for its physical existence and quality. The specifications of the camp shed was checked by physical measurements and verifying the vouchers and estimates. The camp shed is well maintained which is useful for the frontline staff.

### c. River bank stabilization

Divisions	Area of Planting	Species	Survival (%)	Observations of the Evaluation Team
Mannapara at Konni N09°100165 E77°123735	12 km along Achencovil river from Mannarapara to Chithode	3000 <i>Bambusa bambos</i>	65	Natural regeneration of <i>Tetrameles nudiflora</i> , <i>Albizia chinensis</i> , <i>Homonoia riparia</i> and <i>Bombax ceibawas</i> noted.



Divisions	Area of Planting	Species	Survival (%)	Observations of the Evaluation Team
				<p>The weeds <i>Glycosmis pentaphylla</i>, <i>Jatropha curcas</i>, <i>Scoparia dulcis</i>, <i>Rorippa indica</i> and <i>Acacia initia</i> were observed</p> <p>River width increased by 5m in both sides. The field was highly infested with weeds and the saplings were damaged due to elephant and wild boar grazing.</p>



River Bank Stabilisation along Achenkovil river in Konni Division



Successful establishment of bamboos in river bank stabilisation



### III. Forest fire management

- a. Engaging Fire Gang: This work was carried out with the support of VSS members. Records were verified and found correct.

### IV. Human animal interace

- a. Preparation of detailed GIS based system for managing Human animal interface: It was explained that this is a common activity organised by the HQ and all details are available with HQ.

### V. Capacity building

#### a. Awareness programmes

Conducted five training and awareness programmes to students field staff, VSS members and public at at Ranni, Konni, Achenkoil, Punalur.

The benefits as observed from records and through interviews.

- i. Due to fire gang activities incidents of forest fire reduced
- ii. Human animal conflict reduced by placing elephant ponds at correct locations
- iii. Improved basic infrastructure like camp shed facilities, received LPG connections
- iv. Improved awareness about forest protection
- v. Employment opportunities through fire gang activities and honey collection etc.

The following four new activities outside the APO were undertaken

#### A. Elephant proof trench

Location	Year	Remarks
Punchakolly, Koodallor, Pambra	2013-14	The trenches were physically verified.
Maramala, Chedleth Range	2013-14	The trenches were physically verified.

#### B. Construction of solar fencing

Location	Year	Remarks
Orkittammolla, Ammani	2013-14	The solar fencing was physically verified. There are minor damages to the fences. Records were verified and found correct.

#### C. Gully plugging

Sites	GPS Location	Dimensions (m)	Observations of the Evaluation Team
Anchanakkoppam Reach II, Sankily, Kulathupuzha	N08°48'40.6" E77°05'28.3"	2.1 x 1.25 x 20.5	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Gully plugs are found to be intact and good.
Anchanakkoppam Reach II, Sankily, Kulathupuzha	N08°48'23.0" E77°05'53.6"	1.4 x 1.30 x 6.6	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Gully plugs are found to be intact and good.



Sites	GPS Location	Dimensions (m)	Observations of the Evaluation Team
Anchanakkoppam Reach II, Sankily, Kulathupuzha	N08°48'25.6" E77°05'54.6"	1.9 x 1.5 x 5.1	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Gully plugs are found to be intact and good.
Kocharappinchola, Vithura, Paruthipally	N08°46'26.3" E77°02'36.7"	1.8 x 1.4 x 8.5	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Gully plugs are found to be intact and good.
Dally, Mylamood, Kulathupuzha	N08°51'11.18" E77°03'57.82"	11.50 x 0.75 x 20	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Gully plugs are found to be intact and good.



Latitude: 8.807088  
Longitude: 77.098645  
Elevation: 172.77±100 m  
Accuracy: 12.0 m  
Time: 22-04-2022 11:36  
Note: anchanakkoppam, Gully plugging

Gully plugging at Anchanakkoppam

Gullies were verified for their physical existence and quality. The specifications of the gullies were checked by physical measurements and verifying the Measurement (M) book.

#### D. Construction / Desilting of elephant ponds

Sites	GPS Location	Year of Construction	Dimensions (m)	Observations of the Evaluation Team
Dally, Mylamood, Kulathupuzha	N08°51'11.18" E77°03'57.82"	2018-19	11.50 x 0.75 x 20	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.



Sites	GPS Location	Year of Construction	Dimensions (m)	Observations of the Evaluation Team
Poovathinmoodu, Mylamood, Kulathupuzha	N08°50'11.90" E77°05'26.60"	2018-19	12 x 0.80 x 15	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Kozhiyaruppankala, Chittar North	N08°47'07.94" E77°02'17.84"	2018-19	10 x 1.5 x 15	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Oduchuttapadukka, Chittar South, Kulathupuzha	N08°46'24.9" E77°02'35.9"	2018-19	10 x 1.5 x 15	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Nallumarudia -moodu, Vithura, Paruthipally	N08°46'26.3" E77°02'36.7"	2018-19	10 x 1 x 15	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Aanakulam, Vithura, Paruthipally	N08°70'58.09" E77°14'59.1"	2018-19	10 x 1.10 x 15	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Apathuvayal, Sankily, Kulathupuzha	N08°48'43.57" E77°05'50.77"	2018-19	7 x 0.75 x 18	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.
Bonakadu, Vithura, Paruthipally	N08°41'51.09" E77°09'31.06"	2018-19	10 x 1.5 x 13	Sketch and dimensions mentioned in the Measurement (M) book found to be same. Bills and records were maintained well. Elephant ponds are found to be intact and good.



Elephant Pond at Kozhiyappankala



Elephant Pond at Oduchuttapadukka



Elephant pond at Dally, Mylamood



The ponds were evaluated for their physical existence and quality. The specifications of the ponds were checked by verifying the vouchers and estimates.

This circle undertook the highest number of activities during the period 2018-2019, and implemented most activities listed in the APO. Seven activities under five components mentioned in the APO were carried out in the Circle. Four activities outside the APO were undertaken namely elephant proof trench, Solar Fencing, gully plugging and elephant pond creation. Overall, an amount of Rs. 75.65 lakhs was allotted to the circle. An expenditure of Rs, 89.69 lakhs was incurred, which was ascribed to the heavy floods during the year.

### Wildlife circle, Palakkad (2018 - 2019)

The evaluation covered four divisions of the circle. They include

1. Peechi
2. Parambikulam
3. Silent Valley
4. Wayanad

Eight different activities were envisaged in the circle under five components. The distribution of activities is as follows:

Component	Particulars of Work	Divisions
Forest and Wildlife Protection	Better connectivity including bridges roads communications	Wayanad
	Digging water holes/Ponds	Silent Valley
	Interior Camp sheds	Wayanad, Parambikulam
	Maintenance of trek path/ Patrolling Route	Silent Valley
Forest Fire Management	Engaging Fire Gang	Parambikulam
Infrastructure Development	Providing basic infrastructure to tribal settlement	Silent Valley
Biodiversity Conservation	Eradication of Exotic weeds/ Obnoxious weeds	Wayanad
Capacity Building	Training and workshops	Wayanad

## I. Forest and Wildlife protection

### a. Interior campsheds

Sites	GPS Location	Year of Construction	Dimensions (m)	Remarks
1.	N11°44'28.52" E76°22'1.59"	2018-2019	6.5 x5.1x 8	The condition of the structure is good.
2.	N10°37'65.48" E76°69'0.42"	2018-2019	9.5x5.5x6.2	The condition of the structure is good.





**Observations of the evaluation team**

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Campshed/ Wayanad division/ Sulthanbatory	The shed is maintained well.	The shed is useful for the frontline staff.	7	High
2.	Camp shed/ Parambikulam division/ Karimala range	The shed is maintained well.	The shed is useful for the frontline staff.	7	High



Camp Shed at Naiketty Section

The camp sheds were evaluated for physical existence and quality. The specifications of the camp sheds were checked by physical measurements and verifying the vouchers and estimates. The camp sheds are well maintained and is useful for the frontline staff.

**II. Forest fire management**

a. Engaging Fire Gang

Antipoaching watchers were engaged from tribal people to protect Forest in Parambikulam Division. Trenches were made for protection from wildlife.

**III. Biodiversity conservation**

a. Eradication of Exotic weeds/Obnoxious weeds:

Eradication of Exotic weeds was undertaken in Wayanad Division, based on the records verified. Three species were removed, *Senna spectabilis* *Lantana camara* and *Chromalena odorata*



Plot No.	GPS coordinates of the worked plot	Species	Efficiency (%)	Observations of the Evaluation Team
1.	N11°56'55.487" E76°4'30.4"	<i>Senna spectabilis</i>	65	The weeds have reduced in comparison to the unworked plot. However, regular maintenance is required.
2.	N10°26'39.37" E76°27'26.35"	<i>Senna spectabilis</i> <i>Lantana camara</i> <i>Chromalena odorata</i>	72	The weeds have reduced in comparison to the unworked plot. However, regular maintenance is required.

The following four new activities outside the APO were undertaken

#### A. Construction of Solar Fencing

Location	Year	Observations of the Evaluation Team
Chiranada, Sulthan bathery	2018-19	The solar fencing was physically verified. There are minor damages to the fences. Records were verified and found correct.
Podhuvapadam, Silent Valley	2018-19	The solar fencing was physically verified. There are minor damages to the fences. Records were verified and found correct.
Ambalapara, Silent valley	2018-19	The solar fencing was physically verified. There are minor damages to the fences. Records were verified and found correct.



Solar Fencing at Silent Valley



**B. Elephant proof trench**

Location	Year	Observations of the Evaluation Team
Anaporu, Chimmony (maintenance)	2018-19	The trenches were physically verified for its maintenance



Elephant Proof Trench at Chimmony

**C. Interior campshed & ration**

Sites	GPS Location	Dimensions (m)	Observations of the Evaluation Team
Camp shed / Chavachi/ Aralam	N11°55'43.85" E76°26'31.92"	4x3.5	The maintenance of the structure is in good condition
Camp shed/ Keeripara/ Bhavani/ Silent Valley	N11°55'41.5" E76°54'10.5"	4.5x1.5x4	The maintenance of the structure is in good condition.
Camp shed/ Pooparai/ Karimala/ Parambikulam	N10°35'73.11" E76°81'36.35"	5.5x5.5	The maintenance of the structure is in good condition.



Campshed at Parambikulam



Campshed at Aralam

The works were evaluated for the physical existence and for the quality. The specifications of both camp sheds were checked by verifying the old vouchers and the estimates.



**D. Gully Plugging**

Sites	GPS Location	Dimensions (m)	Observations of the Evaluation Team
Gully Plugging/ Peechi/ Chimony/ Pazhavalachal	N10°26'45.48" E76°27'5.67"	10.2x1x1.7	Inspected gullies. They displayed damages which the staff mentioned was due to washing away in floods.
Gully Plugging/ Peechi/ Chimmony/ Vellani	N10°59'80.43" E76°35'36.7"	2.9x5.5x0.9 1.5x6.3x0.6 1.5x6x2	Inspected gullies. They displayed damages which the staff mentioned was due to washing away in floods.



Gully plugging at Chimony

The works were evaluated for physical existence and quality. The specifications of gullies were checked by verifying the vouchers and te estimates.

Eight different activities envisaged under five components were carried out in the circle. Four new activities outside the APO were undertaken namely elephant proof trench, solar fencing, gully plugging and interior camp shed.

Overall, an amount of Rs. 47.10 lakhs was allotted to the circle which was fully utilised.

**Field Director Project Tiger, Kottayam (2018 - 2019)**

The evaluation covered four forest divisions of the circle. They include

1. Periyar East
2. Periyar West
3. Idukki Wildlife
4. Munnar Wildlife

Fifteen different activities were undertaken under five components in the circle. The distribution of activities is as follows.



Component	Particulars of work	Divisions
Forest and Wildlife Protection	Construction & Maintenance of check dams	Periyar West Division
	Construction of Chappath/ Bridge	Periyar East Division
	Creation of Kayyalas	Periyar West Division
	Digging water holes/Ponds	Periyar West Division
	Interior Camp sheds	Idukki WL, Periyar West Division, Periyar East Division
	Maintenance of trek path/ Patrolling Route	Periyar East Division
	Organising Joint Patrolling and Raids	Periyar West Division
	River Bank Stabilization	Periyar West Division
	Soil and moisture conservation / Gully Plugging	Idukki WL
Forest Fire Management	Engaging Fire Gang	Idukki
	Fire Watch Station	Periyar West Division
Human Animal Interface	Creation of Elephant Proof Trench	Periyar West Division
Biodiversity Conservation	Bird survey and conservation	Periyar West Division
Capacity Building	Conducting Nature Camps	Idukki WL, Periyar West Division, Munnar WL
	Training to protective staff in batches of 20 to 30 persons (in a batch)	Periyar West Division

## I. Forest and Wildlife protection

### a. Construction & maintenance of check dams

Sites	GPS Location	Year of Construction	Dimensions (m)	Observations of the Evaluation Team
1.	N09°28'34.40" E77°05'44.60"	2018-19	9 x 0.75 x 2	Concrete work, earth work for excavation etc.,

### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Check Dam/ Uppupara/ Azhutha/ PTR (West)	Activities, M-Book are verified and found its correct.	8	High



Check dams constructed were verified physically and dimensions were measured and confirmed with the vouchers/records.

- b. Construction of Chappath/Bridge:** Though a Hanging Bridge was envisaged at Tamara, East Periyar, the activity could not be undertaken.
- c. Creation of Kayyalas**

GPS Location	Dimensions (m)	Observations of the Evaluation Team
N09°27'33.05" E76°58'.03.9"	Foundation: 1 x 26 x 0.3 Super structure: 36 x 1.3 x 1.50	Construction of stone kayyalas for forest boundary



Kayyala in Periyar (West) Division

**Observations of the evaluation team**

Type of Assets/ Division / Range /Place	Type of current use/ Observations	Score (Low, ≤ 3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - High, Medium, Low
Kayyalas/ Parathodu/ Azhutha/PTR(West)	Activities, M-Book are verified and found correct.	8	High

**d. Digging water holes/ ponds**

Sites	GPS Location	Dimensions (m)	Observations of the Evaluation Team
4 <sup>th</sup> mile near APC/Azutha/PTR(W)	N09°29'19.01" E77°07'54.21"	11 x 3.4 x 4.2	10 ponds were created.

The ponds were created at Kaduvethanam, Thalikanam, 4<sup>th</sup> mile, and Jollymala (7). There was an increase (14.5 %) in expenditure as the activity had to be undertaken in difficult, rigid and rock like conditions.



Pond hole at Thalikanam



Pond hole at Jollymala

#### e. Interior campsheds

Sites	GPS Location	Observations of the Evaluation Team
1	N10°06'58.98" E76°41'58.87"	Providing and fixing 12 mm plywood in the existing framework. Painting of ceiling in rooms. Polishing on wood work. The structure is in good condition.
2.	N10°06'58.91" E76°42'30.36"	Spare parts such as plumbing pipes, flash washer, sockets, taps, electrical items such as lights, fans, rewinding of fan motor, water pump sets for drinking water supply were procured. The structure is in good condition.





Sites	GPS Location	Observations of the Evaluation Team
3.	N10°06'58.91" E76°42'30.36"	Fixing of door frames and repair of windows. The structure is in good condition.
4.	N09°47'41.4" E76°59'09.4"	Cement flooring of the camp shed and fixing of metal sheet, procuring kitchen utensils, and fixing solar power set-up. The structure is in good condition and maintained very well.
5.	N09°26'37.9" E76°56'29.59"	Constructed interlocking and sidewall protection. Laying solid interlocking wall with cement and concrete etc. M-Book, Bills verified and found correct.
6.	N09°31'57.30" E77°08'52.62"	Roofing work on the existing building. Activities, Measurement, Items, M-Book, Bills are verified and found correct.
7.	N09°35'07.35" E77°18'04.00"	Toilet and plumbing work in the camp shed.
8.	N09°33'47.01" E77°18'19.9"	Purchase of electrical items such as cable wire, LED bulb, PVC pipes, drip system, junction box, MCB fixing.
9.	N09°35'15.80" E77°12'29.26"	Purchase of electrical items such as cable wire, LED bulb, PVC pipes, drip system, junction box, MCB fixing.
10.	N09°34'15.74" N09°34'15.74"	E77°15'57.28" Maintenance of trenches
11.	N09°31'58.67" E77°15'39.61"	Maintenance of trenches
12.	N09°34'33.61" E77°20'12.17"	Maintenance of trenches



Campshed in Idukki Range

**Observations of the evaluation team**



Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Ovumkal/ Idukki WL/Idukki WLS	Construction of toilet was undertaken.	The shed is useful for the frontline staff.	7	High
2.	Kolumba/ Idukki WL/TBS	Minor repairs were undertaken. Camp shed maintained well	The shed is useful for the frontline staff.	7	High
3	Thottapura/ Idukki WL/ Idukki WLS	Door was replaced. Camp shed is maintained well.	The shed is useful for the frontline staff.	8	High
4	Interior Camp shed/Idukki WL/ Idukki WLS	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
5	Antipoaching camp shed/ Azhuthakkadavu/ Pampaa/ PTR(West)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
6	Damsite camp shed/ Vallakkadavu range/ PTR (East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
7	Camp shed / Eravangalar/ Eravangalar / Periyar/PTR(East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
8	Anjurali camp shed/ Thekkady/ PTR(East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
9	Karadikkavala camp shed/ Thekkady/ PTR(East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
10	Mavadi/ Periyar range/ PTR(East)	The shed is maintained well. The shed is used	The shed is useful for the frontline staff.	9	High



Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
		during patrolling by the watchers.			
11	Senioroda/ Mullathodu anti poaching camp shed/ Periyar/ PTR(East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High
12	Manalar Camp shed/Periyar/ PTR(East)	The shed is maintained well. The shed is used during patrolling by the watchers.	The shed is useful for the frontline staff.	9	High



Anti Poaching Camp at Azhuthakadavu

The camp shed constructed at 12 locations were evaluated for their physical existence and the quality of the asset. The specifications of the camp shed was checked by physical measurements and verifying the vouchers and estimates. The camp sheds are well maintained and useful to the frontline staff.

**f. Maintenance of trek path/ patrolling route**

Location/ Range/ Division	GPS Location	Dimensions	Observations of the Evaluation Team
Trek Path/ Kanamudiyoram/ Vallakkadavu/ PTR(East)	N09°32'12.45" E77°20.05.44"	7.5 km x 5.5 m	Bills and vouchers verified and found correct.



The activities were verified through inspection of records and found correct.



Trek Path at Kanamudiyoram

#### Observations of the evaluation team

Type of Assets/ Division / Range	Type of current use/ Observations	Score (Low, $\leq 3$ , Medium $>3$ to $<7$ , High 7 to 10	Assessment on the quality of the asset - Low, Medium or High
Trek Path/ Kanamudiyoram/ Vallakkadavu/ PTR(East)	The trek path needs maintenance	5	Medium



Inspecting the Trek Path at Kanamudiyoram



- g. Organising Joint Patrolling and Raids:** The activities, Measurement, Items, M-Book, Bills are verified and found correct.
- h. River Bank stabilization**

Divisions	Dimensions	Observations of the Evaluation Team
Azutha River Moolikkal area / Pampa / PTR(W)	Foundation: 8.1 m <sup>3</sup> Super structure : 14.49 m <sup>3</sup> Length: 18 m Width: 18 X 0.9 X 0.5 m Height : 18 X 0.7 m	Concrete cement, bricks and dryable hard stone were used for river bank stabilization.

The activities were verified through inspection of records and found correct.



River bank stabilisation along Azutha River

**i. Soil and moisture conservation / gully plugging**

Sites	GPS Location	Dimensions (m)	Remarks
Kizhukkanam	N09°44'42.8" E76°59'09.2"	11.5 x 2 x 2 12 x 2 x 3 10 x 2 x 3 7 x 1.6 x 1.1 10 x 2 x 2.5 14 x 2 x 3	Inspected six(6) gullies at Kizhukkanam. Floods have weakened them and needs strengthening and maintenance
Kathithappan	N09°44'26.095" E77°00'04.41"	12x2 x3 10x 1.5 x 2 10x 2 x 3 12x3 x 4.5	Inspected four(4) gullies. Floods have weakened them and needs strengthening and maintenance.



Sites	GPS Location	Dimensions (m)	Remarks
Vagavanam	N09°43'24.06" E76°57'23.3"	10 x 2 x 2 11 x 2 x 2.5 8.5 x 1.6 x 2.5 9 x 1.5 x 3	Inspected four(4) gullies. They displayed minimal damage. Floods have weakened them and needs strengthening and maintenance.
Vanmavu	N09°44'31.09" E76°59'09.6"	8 x 2 x 3 10 x 1.5 x 3 8.5 x 1.8 x 2.8 10 x 1.6 x 3	Inspected four(4) gullies. Two gullies are damaged and others need some strengthening work.
Kallekkulam	N09°43'29.08" E76°56'35.3"	9 x 1.5 x 1.2 15 x 2 x 3 11 x 1.5 x 2 8 x 2 x 3	Inspected four(4) gullies. Floods have weakened them and needs strengthening and maintenance
Vettilapara	N09°48'16.3" E77°00'14.2"	10 x 1.5 x 3 8.5 x 1.8 x 2.8 10 x 1.6 x 3 11 x 1.6 x 4 9 x 1.5 x 8	Inspected five(5) gullies. Floods have weakened them and needs strengthening and maintenance.
Matnai	N10°08'29.07" E76°40'47.25"	10 x 1.3 x 1.5 7 x 2 x 1.5 8 x 1.3 x 1.2 10 x 1.3 x 1.25 10 x 1.25 x 1.25 10 x 1.3 x 1.25 8 x 1.3 x 1.25 7 x 1 x 1 7 x 1 x 1 7 x 1 x 1	Inspected ten (10) gullies. They displayed minimal damage. Floods have weakened them and needs strengthening and maintenance.
Chettipally	N10°07'26.60" E76°42'18.68"	12x2 x 3 10 x 1.5 x 2 10 x 2 x 3 12 x 3 x 4.5 5 x 1.2 x 1 6 x 1.5 x 1.3 12 x 1.5 x 1	Inspected six (6) gullies. They displayed minimal damage which the staff mentioned was due to washing away in floods.
Anjilithandu	N09°49'03.09" E76°57'25.5"	8 x 1.5 x 1.5 7 x 1.5 x 1.3 7 x 1.3 x 1.5	Inspected three (3) gullies. Although they are intact, they have been weakened due to floods.

Under this activity, 46 gullies were created. These activities were verified physically and dimensions were measured and confirmed with the vouchers/records. Most gullies have been weakened due to floods.



Gullies from different locations in Idukki WLS



### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Gully Plugging/ Idukki WL/ Idukki WLS/ Idukki/ Kizhukkana, Kathithappan Kettuchira, Vagavanam, Vanmavu, Matnai, Kallekkulam, Vettilapara, Chettipally.	The gullies were maintained in 2018-19. They have weakened due to floods. Water retention is poor	The gullies need strengthening. Presently it is able to deliver 75 % of the envisaged impacts	6	Medium
2.	Gully plugging/ Idukki WLS/ Idukki WL/ Anjilithandu	The gullies are damaged due to floods. Water retention is poor	The gully needs repairs. Presently it is only able to deliver 75 % of the envisaged impacts	5	Medium

## II. Forest Fire management

### a. Engaging fire gang

Location / Range / Division	Activity
TBS –Urulanthanni / Idukki	Fire Gang
TBS –Urulanthanni / Idukki	Watch and Ward

## III. Capacity building

- a. **Conducting Nature Camps:** Five different nature camp activities on the present trend of population and movement of birds in Thattekad Bird Sanctuary and awareness programmes were organized. The files and vouchers were verified and found correct.

### A. Eradication of exotic weeds





Plot	GPS coordinates of the worked plot	Species	GPS coordinates of the unworked adjacent plot	Species
TBS	N10°07'47.09" E76°41'19.03"	<i>Nelumbo nucifera</i> , <i>Nymphaea nouchali</i> , <i>Cyperus sp.</i> , Algae	N10°07'50.96" E76°41'25.69"	<i>Nymphaea nouchali</i> , <i>Asclepias curassavica</i> , <i>Digitaria sp.</i> , <i>Carex filicina</i> , <i>Ageratum conyzoides</i> , <i>Dactyloctenium aegyptium</i> , <i>Echinochloa frumentacea</i> , <i>Ludwigia perennis</i> , <i>Persicaria hydropiper</i> , <i>Xanthium indicum</i> , <i>Alternanthera aronychioides</i> , <i>Cyperus sp.</i> and Algae
TBS	N10°07'46.33" E76°41'19.78	<i>Nelumbo nucifera</i> , <i>Nymphaea nouchali</i> , <i>Cyperus sp.</i> , <i>Persicaria hydropiper</i> , Algae	N10°07'51.97" E 76°41'22.53"	<i>Nelumbo nucifera</i> , <i>Nymphaea nouchali</i> , <i>Ageratum conyzoides</i> , <i>Ischaemum sp.</i> , <i>Mimosa pudica</i> , <i>Ludwigia perennis</i> , <i>Alternanthera paronychioides</i> , <i>Carex filicina</i> , <i>Scleria lithosperma</i> , <i>Xanthium indicum</i> and Algae
TBS	N 10°07'48.09" E76°41'18.05	<i>Nelumbo nucifera</i> , <i>Nymphaea nouchali</i> , <i>Cyperus sp.</i> , Algae	N10°07'51.40" E76°41'19.93	<i>Hyptis suaveolens</i> , <i>Alternanthera paronychioides</i> , <i>Asclepias curassavica</i> , <i>Mimosa pudica</i> , <i>Lantana camara</i> , <i>Ageratum conyzoides</i> , <i>Echinochloa frumentacea</i> , <i>Ischaemum sp.</i> , <i>Cyperus sp.</i> and Algae
Vallakkadavu 2 mile	N09°30'23.05" E77°07'18.73"	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> Palatable grasses	N09°31'39.34" E77°06'45.27"	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> <i>Jasminium sp.</i> , <i>Mikania macranta</i> <i>Pteris sp.</i> , <i>Cinnamom sp.</i> , <i>Coix sp.</i> , <i>Pupalia sp.</i> , <i>Tragia sp.</i> , <i>Pagopyrum sp.</i> , <i>Mercine sp.</i> , Palatable grass
Vallakkadavu 2 mile	N 09°30'24.22" E77°07'19.20"	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> Palatable grasses	N09°31'39.34" E77°06'43.51"	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> <i>Jasminium sp.</i> , <i>Mikania macranta</i> <i>Pteris sp.</i> , <i>Cinnamom sp.</i> , <i>Coix sp.</i> , <i>Pupalia sp.</i> , <i>Tragia sp.</i> , <i>Pagopyrum sp.</i> , <i>Mercine sp.</i> , Palatable grass



Plot	GPS coordinates of the worked plot	Species	GPS coordinates of the unworked adjacent plot	Species
Vallakkadavu 2 mile	N09°30'26.02" E77°07'21.18	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> Palatable grasses	N09°31'39.34" E77°06'42.41"	<i>Lantana camara</i> <i>Eupatorium perfoliatum</i> <i>Pteris sp.</i> , <i>Cinnamom sp.</i> , <i>Coix sp.</i> , <i>Pupalia sp.</i> , <i>Tragia sp.</i> , <i>Pagopyrum sp.</i> , <i>Mercine sp.</i> , <i>Jasminium sp.</i> , <i>Mikania macranta</i> Palatable grass



Aquatic weed eradication in Thattekad Bird Sanctuary



**Assessment of effectiveness**

Id/No.	Size/density of infestation in the worked plot	Size/density of infestation in the unworked plot	% change (+/-)	Observations of the Evaluation Team Present status - Intact/Worn out/effectiveness of work
Aquaticbody-TBS	Infestation- Nil All the exotic aquatic weeds were removed. Recorded only lotus and lilies only.The algal cover is low.	28000/ High level of aquatic exotic weeds occupied in the lake. Algal cover is higher in this plot.	100	The removal of aquatic exotic weeds increased the native species of lotus and lilies and also reduced the floating algal growth. Weed eradication has been very effective in maintaining the aquatic lake.
Vallakkadavu 2 mile	Ecorestoration of Eucalyptus plantation through gridling of bark and removal of <i>Lantana camara</i> and <i>Eupatorium perfoliatum</i> found very effectitve and hardly few lantana was observed.	The plot is heavily infested.	85	same kind of treatment may be implemented in other areas which will help in protecting the grasslands and improve the wildlife habitats. This treatment protects the grassland which is the main food source for wild elephants and buffalos.



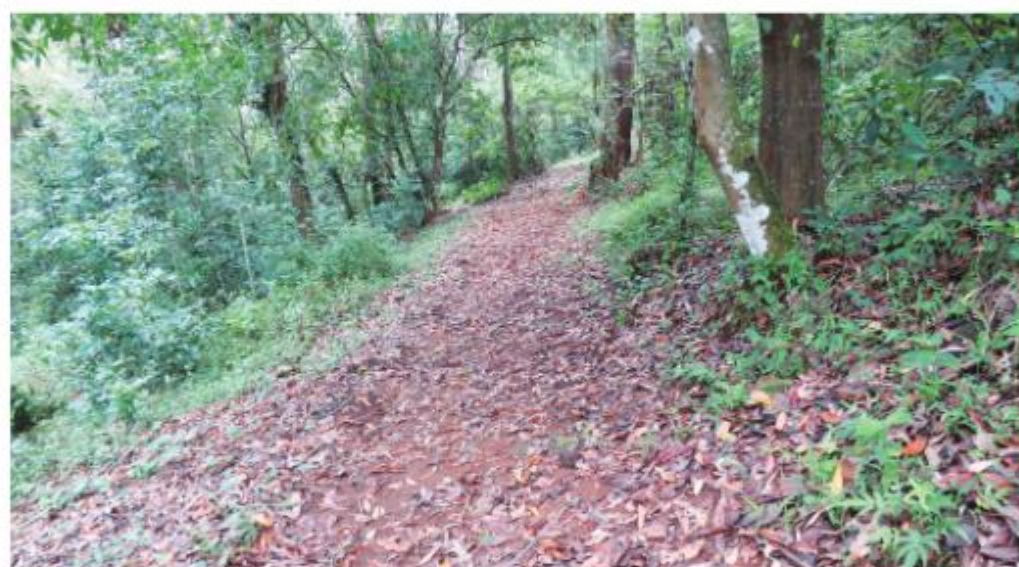
Weed Density Assessment in Vallakkadavu



### B. Maintenance of trek path/Patrolling Route

Location / Range / Division	GPS Location	Dimensions	Observations of the Evaluation Team
Fireline/ Eravangalar/ Periyar/ PTR (East)	N09°35'73.05" E77°18.04.00"	Length -7 km Width - 5 m	Clearing of ground level vegetation palatable grasses and weeds etc.,
Fireline/ Manalar / Periyar/ PTR (East)	N09°32'12.45" E77°20.05.44"	Length - 2.5 km Width - 5.5 m	Clearing of ground level vegetation palatable grasses and weeds etc.,
Trek Path/ Kanamudiyoram/ Vallakkadavu/ PTR (East)	N09°32'12.45" E77°20.05.44"	Length - 7.5 km Width - 5.5 m	Bills and vouchers verified and found correct.
Trench/ Eravangalar/ Eravangalar/ Periyar/ PTR (East)	N09°35'07.35" E77°18.04.0"	L - 145 m W- 4.5 m D - 2.5 m Bottom : 1 m	Bills and vouchers verified and found correct.

The activities were verified through inspection of records and found correct.



Trek path in PTR (East)

### Observations of the Evaluation Team

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Fireline/ Eravangalar/ Periyar/ PTR (East)	The firline is maintained well.	No fire incidence for last five years	9	High
2.	Fireline/ Manalar/ Periyar/ PTR (East)	The firline is maintained well.	This fireline is to protect the forest, wild animals. For the	9	High



Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, <3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
			last 5 years, no fire incidence was recorded. Every year the firelines are maintained.		
3	Trench/ Eravangalar/ Periyar/ PTR(East)	Maintained well.	The trench is used to protect the camp shed from wildlife	9	High



Trenches around campsheds

Two new activities outside the APO were undertaken. Overall, an amount of Rs. 69.10 lakhs was allotted to the circle during the period of which 96.85 percent financial achievement was observed.

**Agasthyavanam biological park circle, Thiruvananthapuram (2018-2019)**

The evaluation covered both Shendurney and Thiruvananthapuram Wildlife Divisions of the circle. Eight different activities were undertaken in the circle.

Component	Particurlrs of Work	Divisions
Forest and Wildlife Protection	Construction & Maintenance of check dams	Thiruvananthapuram WL
	Construction of rain water harvesting/water retension structure	Thiruvananthapuram WL



Component	Particulars of Work	Divisions
	Creation of Kayyalas	Shendurney WL
	Interior Camp sheds	Thiruvananthapuram WL
	Maintenance of trek path/ Patrolling Route	Thiruvananthapuram WL, Shendurney WL
	Soil and moisture conservation / Gully Plugging	Thiruvananthapuram WL, Shendurney WL
	Provision for elephant corridor	Shendurney WL
Forest Fire Management	Engaging Fire Gang	Thiruvananthapuram WL, Shendurney WL

Two major components were addressed during this period. Almost all the works were carried out during the period. One spillover activity from 2014-2016 was observed.

## I. Forest and Wildlife protection

### a. Construction & maintenance of check dams

Sites	GPS Location	Year of Construction	Dimensions (m)	Remarks
Cherrupunnathode	N08°33' 42" E 77° 9'56"	2018-19	1 x 1 x 8	Since Mbook details were not provided, the year of work execution could not be verified.

The structure is good, based on the physical verification





**Observations of the Evaluation Team**

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, <3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Desilting of ponds and check dams/ ABP/Kottor / Trivandrum Wildlife/ Cherrupunnathode	There is silt deposition which needs to be removed.	Siltations render the check dam inefficient.	4	Medium

**b. Construction of rain water harvesting/water retention structure**

Sites	GPS Location	Year of Construction	Dimensions (m)	Remarks
Kamanthikkavu	N08°36'47.2" E77°11'6.3"	2018-19	18 x 10.9 x 2	Since M-book details were not provided, the year of work execution could not be verified.
Painthy	N08°36'07.56" E77°09'18.85"	2018-19	6 x 9.5 x 0.7	Since M-book details were not provided the year of work execution could not be verified.
Karingakala	N08°36'28.9" E77°08'10.6"	2018-19	9 x 8.5 x 1.5	M-book details were verified and found correct.
Kudilinga	N08°37'40.5" E77°11'10.5"	2018-19	6.75 x 3 x 6.75	Since M-book details were not provided the year of work execution could not be verified.
Kunnatheri	N08°37'22.7" E77°11'56.9"	2018-19	6.75 x 3 x 6.75	Due to paucity of funds during 2014-2016, the work was carried out in the year 2018-2019. M-book details were verified and found correct.

**Observations of the evaluation team**

Type of Assets/ Division / Range	Type of current use/Observations	Impact	Score (Low, <3, Medium >3 to<7, High 7 to 10)	Assessment on the quality of the asset – Low, Medium or High
Elephant Pond/ Athirumala/ Shenduruney/ Shenduruney Wildlife	The water hole is present in a grassland area and weeds have grown around the pond. There is silt deposition and the water depth is around 2 m.	Desiltation is needed. This water hole is mostly used to provide water for animals. Partially maintained.	4	Medium



Type of Assets/ Division / Range	Type of current use/Observations	Impact	Score (Low, ≤ 3, Medium >3 to<7, High 7 to 10	Assessment on the quality of the asset – Low, Medium or High
Elephant Pond/ Painthi/ Kottoor/ ABP/Thiruvanantha puram	The site is frequently visited by elephants. There is silt deposition and the depth is around 0.5m. Desiltation is needed.	This water hole is mostly used to provide water for animals. Partially maintained.	4	Medium
Elephant Pond/ Karingakala/ Pulininnakala/ Shenduruney Wildlife	There is extensive weed growth around the pond. Well maintained.	This water hole is mostly used to provide water for animals.	9	High
Elephant Pond/ Kudilinga/ Athirumala / Peppara / Shenduruney Wildlife	Silt and soil deposition is observed and the pond needs regular maintenance.	This water hole is mostly used to provide water for animals. Partially maintained.	7	High
Elephant Pond/ Kudilinga/ Athirumala / Peppara / Shenduruney Wildlife	The pond is partially filled with soil and silt. Maintenance work needs to be done.	This water hole is mostly used to provide water for animals. Partially maintained.	4	Medium

\*The elephant pond at Karingakala has been maintained very well with the structure deepened to meet the requirement of the animals.

#### Water retention Structures







Elephant Pond at Karingamala

**c. Interior campsheds**

Sites	GPS Location	Dimensions (m)	Remarks
Chakkappara/ Neyyar wildlife sanctuary/ Thiruvanathapuram	N08°30' 22" E77°10'48"	6 x 5	Since Mbook details were not provided, the year of execution could not be verified.
Karlakkode/ Athirumala/ Peppara wildlife sanctuary/ Thiruvanathapuram Wildlife	N08°36' 31" E77°09'37"	2.4 x 2.6 x 1.75	Work has been completed. Mbook details were verified and found correct.

The physical condition and asset quality of the camp shed was assessed. Physical measurements and verification of vouchers and estimates were used to verify the specifications of the camp sheds.

**Observations of the evaluation team**

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, <3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Chakkappara/ Neyyar wildlife sanctuary/ Thiruvanathapuram Wildlife	The shed is maintained well.	The shed is routinely used by the frontline staff.	7	High



Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
2.	Karlakkode/ Athirumala/ Peppara wildlife sanctuary/ Thiruvananthapuram Wildlife	The kitchen shed was constructed using concrete bricks and cement. There is a rock basement and the roofing is done with GI sheets. The kitchen is in good condition.	The shed is routinely used by the frontline staff.	9	High



Camp Shed at Chakkapara

The works carried out for interior camp shed was verified for their existence and quality. The specifications of the camp shed were checked by verifying vouchers and the estimates and found correct.

#### d. Maintenance of trek path/ patrolling route

Trek paths and partolling routes were cleared and maintained in the circle in both divisions.

Location / Range / Division	GPS Location	Year of Activity	Dimensions (m)	Remarks
Pallivasal to Dharbhakkulam	N08° 54' 34.1" E77° 10' 58.2	2018-19	8100 x 2 M	book details verified and found correct.
Vattavila to Pazhaunniattinpuram	N08° 35' 23.1" E77° 7' 13.2	2018-19	2000 x 1.5	Mbook details verified and found correct.
Utharamkayam to Pulizhunthalchuna	N08° 32'44" E77° 13'4"	2018-19	2000 x 1.5	Since Mbook details were not provided, the year of work execution could not be verified.
Bhoodhaka – Ayanimoodappu	N08° 33'33" E77° 17'20"	2018-19	4900 x 2.5	Since Mbook details were not provided, the year of work execution could not be verified.



Inspection of trek path

**Observations of the evaluation team**

Sl. No.	Type of Assets / Division / Range	Type of current use/ Observations	Impact	Score (Low, ≤ 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Maintenance of trek path / Rosemala / Eettapadappu/ Shenduruney/ Shenduruney Wildlife	The 6 km trek path is well maintained.	The path is used regularly by the frontline staff.	8	High
2	Maintenance of patrolling route/ Vattavila to Pazhaunniattin puram/ ABP/ Trivandrum Wildlife	The 2 km trek path is well maintained.	The path is used regularly by the frontline staff.	8	High
3	Maintenance of patrolling route/ Utharamkayam to Pulizhunthal chuna/ Neyyar Wildlife sanctuary / Trivandrum Wildlife	The 2 km trek path is well maintained.	The path is used regularly by the frontline staff.	8	High
4	Maintenance of patrolling route/ Bhoodhaka – Ayanimoodappu/ Neyyar Wildlife sanctuary / Trivandrum Wildlife	The trek path is well maintained.	The path is used regularly by the frontline staff.	8	High



### e. Soil and moisture conservation / gully plugging

SMC related activities (gully plugging) carried during 2018-19 were evaluated and is presented.

S. No.	GPS Location	Dimensions (m)	Remarks
1.	N08°52'29.85" E77° 7'13.87"	14.5 x 2.05 x 1.26 10 x 2.16 x 1.5 8.4 x 2.08 x 1.5 7.6 x 2.10 x 1.5	Work has been completed. However, M-book details were not provided; hence the year of work execution could not be verified.
2.	N08°52'29.85" E77°07'13.87"	13 x 2.05 x 1.3 10.8 x 2.05 x 1.3	Work has been completed. However, M-book details were not provided; hence the year of work execution could not be verified.
3.	N08°25' 6" E77°14' 23"	9.4 x 0.85 x 1.5 6 x 0.85 x 1 5.4 x 0.85 x 1 9.4 x 0.85 x 1.5	Work has been completed. However, M-book details were not provided; hence the year of work execution could not be verified.
4.	N08°37' 08.2" E77°09' 07.2"	20 x 1.25 x 0.70 11.5 x 1.2 x 0.6 11.2 x 1.25 x 0.60	Work has been completed and verified in M-book.

### Observations of the evaluation team

Sl. No.	Type of Assets / Division / Range / Place	Type of current use/ Observations	Impact	Score (Low, < 3, Medium >3 to <7, High 7 to 10)	Assessment on the quality of the asset - Low, Medium or High
1.	Gully plugs / Rockwood/ Kalluvarambu/ Shenduruney/ Shenduruney Wildlife	The gully is present across a stream. There are 4 gullies and all of them are in good condition.	The moisture content in surrounding areas is improved as is evident from the vegetation.	9	High
2.	Gully plugs / Rosemala/ Moonumukku/ Kalluvarambu/ Shenduruney/ Shenduruney Wildlife	There were 4 gullies of which only two exist now, the others were washed away by flood during heavy rains.	Siltation is observed in the gullies indicating erosion.	5	Medium
3.	Aananirathy/ Neyyar wildlife sanctuary/ Thiruvanatha -puram Wildlife	The condition of the gullies are good.	The moisture content in surrounding areas is improved as is evident from the vegetation.	9	High
4.	Thumbithode/ Athirumala/ Peppara wildlife sanctuary/ Thiruvanatha puram	There are 8 gullies at three different locations of which three were verified. All the gullies are intact.	The moisture content in surrounding areas is improved as is evident from the vegetation.	9	High



Gully plugging in four different locations

Gullies were verified physically and dimensions were measured and confirmed with the vouchers/records. All the structures except in one location were in healthy conditions and useful in soil moisture conservation as is evident from the lush green vegetation.

In addition, to the activities mentioned, the staff also mentioned creation of a chappath. Since M-book details were not provided, the year of work execution could not be verified.

Location / Range / Division	GPS Location	Activity	Dimensions (m)	Observations of the Evaluation Team
Punnakkathode / Shenduruney / Kalluvarabu / Shenduruney Wildlife	N08°53'16.6" E77°07'22.5"	Chappath creation	10 x 4.16 x 1.25	The structure is well maintained



In this circle it was observed that measurement books were not available to verify vouchers and estimates for many of the activities.

Eight different activities were envisaged under two major components were addressed during this period in the circle. Almost all the works were carried out during the period, except the provision for elephant corridor. Only one spillover activity from 2014-2016 was observed.

Overall, an amount of Rs. 54.30 lakhs was allotted to the circle during the period of which 81.58 percent financial achievement was observed.

### Social forestry southern circle, Kollam (2018 - 2019)

Four different activities under two components were undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work	Districts
Compensatory Afforestation Funds	Preparatory work for setting up Permanent Nursery	Kollam and Kottayam
	Setting up Permanent Nursery Works	Thiruvananthapuram and Pathanamthitta
Biodiversity Conservation	Bird survey and conservation	Kollam, Pathanamthitta
	Sea Turtle Conservation	Alappuzha

#### I. Compensatory Afforestation Funds

##### a. Preparatory work for setting up Permanent Nursery

In Kollam, funds were surrendered to Headquarters as the division has an established nursery (documents were verified). Seedlings were produced and distributed to schools and public for planting during World Environment day.

In Kollam, polyhouse and compost mixing unit were established at Kottayam Aranya Bhavan, Forest complex Govt Timber Depot.

##### Construction of Poly House

- i. Total Plinth Area – 80 m<sup>2</sup> (10 x 8 m)
- ii. Structure was constructed with 50mm, 40mm, 32mm, 25mm & 20mm GI Pipes
- iii. Height of Structure – 2.50 m
- iv. Height of Roofing – 1.70 m
- v. Roofing is done with White UV Film
- vi. Aluminum Stand – 3.00m x 1.20m x 1m (12 Nos)





**Compost Mixing Unit & Net Fencing around Central Nursery**

- a) Total Plinth Area – 12.96m<sup>2</sup> (3.6 x 3.6 m)
- b) Structure was constructed with 60mm GI Pipe
- c) Electrification had been done
- d) Height of Structure – 2.70 m
- e) Roofing is done with 0.35 mm GI Sheet with projection of 0.6m away from flooring.
- f) Foundation was done with RR Masonry

Documents and structures were verified physically. The dimensions were measured and confirmed with the vouchers/records.

**b. Permanent Nursery works**

S.No	Location	Items	Dimensions
1	Poojapura/	Construction of Rain Shelter	150m <sup>2</sup> (10 x 15 m)
2	Thiruvananthapuram	Construction of Shade Net House	235m <sup>2</sup> (9 x 15 m)
3	(N 11.01782, E 76.95147)	Construction of Poly House	300m <sup>2</sup> (30 x 10 m)
4		Construction of Potting Mixture Shed, Storage Shelter, Work Shed for Labour	157.5m <sup>2</sup> (17.5 x 9 m)
5		Chain Link Fencing with Angle Post	400m
6		Clearing and Levelling	960 m <sup>3</sup>
7		Earth Work Excavation & Tree Cutting	60 m <sup>3</sup>
8		Laying of Interlocking Pathway	338.92 m <sup>2</sup>
9		Construction of Semi-Permanent Office Building	69.60m <sup>2</sup> (9.47 x 7.35 m)
10		Beautification of District Permanent Nursery, Tools and Machineries	Hand Trowel, Wheel Barrow, Secateur, Brush Cutter, Weed Control Sheet
11		Irrigation System, Providing Electricity Supply, Providing of Electrification and Lighting, Construction of Overhead Tank	10.56m <sup>2</sup> (5.15 x 2.05 m)

These activities were verified physically and dimensions were measured and confirmed with the vouchers/records.





In Pathanamthitta Division (N09°16611, E76°98500), Vazhappara, the following were undertaken.

- i. Providing chain linked fencing around the nursery area, leveling and clearing the proposed site.
- ii. Renovation of building for store room, Renovation of existing building for front office cum interpretation centre including interpretation centre furnishing.
- iii. Construction of shade house, Construction of rain shelter, Repair of damaged poly house, Construction of compost unit and potting media mixing unit.
- iv. Construction of toilet block.
- v. Making road and inspection path.
- vi. Purchase of machines for weeding, sieving, chopping, mixing etc.
- vii. Purchase of root trainers (45000, tray and metal frame).
- viii. Maintenance of existing well, construction of new pond, 3HP motor pump, overhead tank of 20000 litres, pump house and plumbing work.
- ix. Beautification and boards.
- x. Engaging a protection mazdoor for the upkeep of nursery, Construction of retaining wall, Construction of labour shed by renovating existing damaged building.
- xi. Construction of gates (Entrance and Exit).
- xii. Contingencies such as electric connection, solar lighting, procurement of computer, furniture etc.



These activities were verified physically and dimensions were measured and confirmed with the vouchers/records.





**II. Biodiversity conservation**

**a. Bird survey and conservation**

Sr.No.	Division	Location	Remarks
1	Kollam	GHS Sasthamkotta	Records were verified
2	Alappuzha (Special campaign on house sparrows)	Chenganur, Kayamkulam, Edathuva, Alapuzha and Cherthala	
3	Pathanamthitta	GHS Kulathupuzha	

**b. Sea turtle conservation**

Sr.No.	Division	Location	Remarks
1	Alappuzha	Pallana near Thottappalli Maradikulam Attingal	Records were verified

The staff mentioned that due to paucity of funds for providing wages to the personnel engaged in Sea Turtle conservation, the conservation activity could not be implemented successfully.

Overall, an amount of Rs. 234 lakhs was allotted to the circle with a financial achievement of 92.45 per cent.

**Social forestry central circle, Eranakulam (2018 - 2019)**

Three different activities were undertaken in the circle. The distribution of activities is as follows:

Component	Particulars of work
Forest Fire Management	Engaging Fire Gang
Biodiversity Conservation	Bird survey and conservation Sea Turtle Conservation

**I. Forest fire management**

**a. Engaging fire gang**

Work Details	Ranges
Fire awareness programme	KFS
Coffee mug printed with fire awareness message	Arattukadavu VSS Kaprikkad VSS Panamkuzhy VSS Alattuchira
Engaging fire watchers	Kurisumudy

The activities were verified through inspection of records and found correct.



## II. Biodiversity conservation

### a. Bird survey and conservation

S.No	Bird Conservation	Locations
1	Bird awareness camp	Samuham HSS, Paravur
2	Bird awareness camp	VHSS, Kaitharam
3	Bird conservation	Providing water drinking pots for birds in summer season

### b. Sea turtle conservation

S.No	Turtle Conservation & Awareness	Locations
1	Awareness camp	KMEA college, Pookattupadi
2	Turtle Conservation	Printing the picture of turtle on mugs
3	Awareness camp	MES Marampilly
4	Awareness camp	Hithayath Islam HSS, Edavanakkadu
5	Awareness campaign	Pamphlets and brochures on Kadalama to students
6	Conservation Activities	Pappaly- Andathode Beach

The following four new activities outside the APO were undertaken

### A. Distribution of seedlings

- Vetiver seedlings were raised for river bank stabilization in Vazhathoppe, Kattappana and Idukki ranges. VSS were involved in river bank stabilization in Kaprikkad and Arattukadavu.
- Seedlings were distributed to Panchayats, Schools, Govt. Institutions, NGOs.
- A cage for Sambar deer was constructed in Kaprikkad range while snake catching equipment were procured for Thodupuzha, Kattappana, Peerumade and Munnar ranges.

### B. Fire awareness campaign

The SF wing also implemented various fire awareness programmes. These were a part of the spillover activities of 2014-18.

Details of the programme	Location
Forest fire awareness camp	Govt. HS Vattavada
Forest fire awareness camp	Govt. UP School Chempan Kuzhi Govt. UP Parekkavala
Cleaning camp	Philomina School Upputhara in SF Range, Peerumade
Fire banners fixing	All fire sensitive areas
Mass Rally Programme	General public
Forest fire awareness camp	Ernakulam
Forest fire awareness camp	Silent valley

The activities were verified through inspection of records and found correct.



**C. Plant diversity**

The Social Forestry Division was also involved in the production and maintenance of seedlings of various species as detailed below.

Name of the species	Range	Seedlings produced
Big basketed Nakshathravanam Seedlings	Chalaky, Social Forestry Range	1350
Medicinal Species Seedlings (Dasapushpam, Thripala etc.)	Chalaky, Social Forestry Range	5000
Mangrove seedlings	Peringnad, SFR Thrissur	5000
Mulching with coconut husk for miscellaneous species	Pazherikkandam-Blathykkavala	150

Vouchers were verified and found correct. The seedlings were distributed to Panchayats, Schools, Govt. Institutions, NGOs.

A Nature and Fire Awareness Programme was conducted in all ranges of the circle. A training on forest code and office procedures for RFOs and SFOs of central circle was also imparted.

**D. Avenue planting**

Avenue Planting was undertaken along Vengallur- Kollam Road during 2018 in Thodupuzha range covering a distance of 3km.

GPS coordinates of centre of plot	Species	No. of plants planted	Condition of plants		Avg. height of live plants (in m.)	Avg. collar girth (in cm)
			No. of live plants	No. of dead plants		
N09°54'26.60" E76°40'07.30"	Elanji	90	81	9	4.04	29.82
N09°54'24.40" E76°42'06.40"	Manimaruthu					
N09°54'20.10" E76°42'01.20"	Aryaveppu					
N09°54'03.00" E76°41'54.20"	Kambakom					

Other Activities include construction of nursery shed at central nursery Kudayathoor in Thodupuzha SF Range.

Overall, an amount of Rs. 4.63 lakhs was allotted to the circle which was fully utilised.

**Social forestry, Northern circle, Kozhikode (2018-19)**

The CAMPA activities undertaken at Kasargode, Kannur, Wayanad and Kozhikodee specially for students includes environmental protection, fire awareness programme, fire awareness campaign rally, planting of medicinal plants, river bank cleaning and rain water harvesting. Permanent nursery expected to be established at Malappuram as per the APO has been shifted to 2020-21. The evaluation team verified all the related documents, such as expenditure vouchers and photographs.



**Kasargode:** At the GHSS, Kasargode, various activities conducted in school surrounding areas with 69 participants. School teachers provided information during the survey and produced relevant photographs and documents. GHSS, Iriyani organized different activities utilizing CAMPA fund. The activities includes the vegetable crops occupying 4 cents areas inside the school campus, mother bed preparation of bamboo, distribution of excess seedlings to the villagers and local people which were verified and found correct. The Government Higher Secondary School at Panathady (Balanthode) had done, protection of seedlings and fire awareness rally with 50 students as a part of fire awareness programme. Photos and vouchers were verified. All the 10 sites of Kasargode district where activities related to nature conservation and awareness generation were surveyed and documents verified. Vouchers were tallied.

**Kannur:** Two social forestry ranges namely Kannur and Thalassery with the support of schools, conducted fire awareness campaigns in the form of bike and cycle rallies. Nature camps were also conducted in different Schools and towns. Seven sites were surveyed regarding fire awareness campaign in Kannur district. The Government Tribal UP School at Kannavam organized fire awareness rally with 122 student participants. Relevant photos of the programme were produced during the survey. Another fire awareness camp took place in Kannavam Town with 400 participants organized by forest officials. The Santhome Higher Secondary School at, Kolakkad organized rally with 60 participants. All related documents were verified and work was found satisfactory.

**Wayanad:** Fire awareness campaigns were organized in nine sites of the Wayanad district by three social forestry divisions namely Mananthavady, Sulthan bathery and Kalpetta. Activities carried out were rallies and workshops arranged by schools, colleges, public library, civil station and sport club in various locations. Civil Station at Kalpatta conducted one day Fire awareness programme. The organizers produced necessary documents during the evaluation.

**Kozhikode:** Seven sites under four social forestry ranges namely Vadakara, Koyilandy, Thamarassery territorial and Kozhikode organized activities like fire awareness campaign in schools and Vana Samrekshan Samities in different locations of the district. Vana Samrakshan Samiti at Vanaparvam organized an one day awareness camp on 'the mitigation of Man – animal conflict' with VSS members where nearby school students and local people participated. Same year, St. Joseph High School organized the one day fire awareness camp with 80 participants. Higher Secondary School, Kallachi also took part in the campaign in same year with same strength of student participants.

**Malappuram:** The district was expected to set up a Permanent Nursery as per the APO. Civil works for the Permanent nursery in Mathottam forest office were shifted to 2020-21.

Overall, an amount of **Rs. 10 lakhs** was allotted to the circle during the period which was fully utilised.



#### 4. Recommendations and suggestions

The proposed evaluation had multiple objectives. Inter alia, this evaluation examined the impact of various activities in terms of increase in vegetation spread, soil and water conservation measures, infrastructure development, capacity building and the extent to which the objectives of CAMPA were achieved. The qualitative data were used to support further analysis of variations across regions and categories. The following are the recommendations and suggestions arising out of this present monitoring and evaluation of CAMPA activities in Kerala

- (a) **Soil & Water Conservation (SWC) Works:** Most SWC works carried out in the forest areas are effective. The SMC activities, in most places, have increased the vegetation, indicating the moisture retention impacts. However, certain SWC structures are very crucial as they connect different ranges within a division. Such chappaths deserve special attention.
- (b) Due to heavy flooding, heavy wear and tear was observed in most SMCs. The depth and width of rivers has increased in many sections. Such SMCs need to be replaced with concrete structures. Most of the water-holding structures are old, and not capable of holding water to the designed potential. Such structures may be reworked.
- (c) The river stabilisation process in many circles could be encouraged in the coming years as severe erosion was observed in many stretches.
- (d) Regional and state level workshop could be organized for prioritation of species for afforestation/ enrichment planting in the forest areas by involving local communities, field staff of SFDs, forestry research institutions, NGOs and other stakeholders.
- (e) Technical support can be obtained from forestry research institutions for transferring/developing seed handling techniques and nursery technologies for indigenous species prioritized for afforestation / enrichment planting.
- (f) In remote locations and in locations with high damages to the planted seedlings by wild animals, manual seeding of indigenous species using seed ball technologies can be attempted.
- (g) Maintenance costs should be linked to survival rates and strict guidelines should be framed regarding replanting in failed sites.
- (h) Protection measures were not effective in many places. It is essential to provide maintenance provisions for five years so that the purpose is well achieved.
- (i) Fodder plantations should be prioritied in elephant corridors which would act as deterrents to their entry into human-habitation.
- (j) Protection of Forests and Wildlife: Anti-Poaching Camps (APC) have been established throughout the state in almost all divisions. The APCs are sufficiently equipped with staff and modern equipment for protection activities. There is a need to regularly support the staff with protective gears and field survival kits.
- (k) GIS-based forest survey monitoring has been attempted in the state. The staff report that this has helped prevent, contain and douse forest fires in many places. All staff



have to be provided basic training in the use of advanced methods of monitoring for protection. The procedures of fire management / fire protection can be extended to the forest fringe area inhabitants in addition to school/ college students.

- (l) Provisions need to be made in the budget for procuring more field vehicles, as a dearth in availability of these was observed.
- (m) In almost all divisions, the maintenance of buildings, roads, SMCs are taken up regularly. A fixed cycle could be adopted for maintenance and repair of civil works, rather than taking a routine annual maintenance.
- (n) A decentralised allotment to the social forestry wings may be thought of, to meet the local needs for each division.
- (o) Incentives to temporary staff associated with the department's activities for more than ten years.
- (p) Digitisation of records would enable easy access to information.
- (q) Internal evaluation needs to be strengthened and a database must be established to monitor the changes. This would enable regular assessment of seasonal works like protection camps, fire protection works etc. Further, this report should also be made available during third party monitoring and evaluation.
- (r) Permanent structures created should be acknowledged through suitable markings to ensure proper visibility of CAMPA-funded activities.



## ANNEXURES

## Annexure I

**Minutes of meeting**  
**Third Party Evaluation of State CAMPA Activities in Kerala**  
**23<sup>rd</sup> November 2021**  
**Venue: VC Hall, IFGTB**

Participants:

IFGTB	Kerala Forest Department
Dr. C. Kunhikannan, Director IFGTB	Shri. Rajeesh Ravindran IFS, CEO
Dr. R. Yasodha, Scientist G & GCR	CAMPA & APCCF
Dr. JP Jacob, Scientist G – <i>on leave</i>	Ms P. T. Sreelekha, ACF, SA&NO,
Shri. Rajesh Gopalan IFS - <i>online</i>	CAMPA
Dr. C. Buvaneshwaran, Scientist F	
Dr. Kannan CS Warriar, Scientist F	
Dr. A. Karthikeyan, Scientist F	
Dr. D.R.S. Sekar, Scientist F – <i>not attended</i>	
Dr. Rekha R Warriar, Scientist F	
Dr. S. Saravanan, Scientist F	
Dr. A. Rajasekaran, Scientist F	

An online meeting was held on 23<sup>rd</sup> November 2021 at 10.00 am to discuss the modalities of third party evaluation of CAMPA-related works undertaken in Kerala by Kerala Forest Department.

Under CAMPA, various activities have been taken up to accelerate preservation of natural forests, management of wildlife, infrastructure development in the sector and other allied works.

Shri Rajesh Ravindran, CEO-CAMPA listed the different circles where CAMPA activities have been taken up. He sought evaluation of different protection activities, labour deployed for watch and ward, fire protection, and site suitability, especially regarding



ecorestoration of monoculture plantations, the species planted and their performance, etc.

Dr. S. Saravanan, Scientist F, presented the need for third-party evaluation to assess the various activities taken under State CAMPA. He elaborated on the requirements of the National CAMPA Authority concerning the monitoring while carrying out the evaluation. He also detailed the methodology for the evaluation process and the extent of sampling for the different activities taken under CAMPA based on the guidelines provided by the IIFM, Bhopal with necessary modifications. He also informed that IFGTB has experience working towards the evaluation of NAP of the NAEB in Kerala and providing consultancies to various industries. A team has been formed for the execution of the work.

This was followed by a discussion on the modalities for execution of the evaluation. The following points emerged.

1. An MoU would be signed between the Kerala Forest Department and IFGTB towards the activity. IFGTB would complete the evaluation within a period of six months from the date of release of funds.
2. State CAMPA would provide information, plantation journals, maps, measurement books, and all relevant records pertaining to the CAMPA works from 2009 to the present. Co-ordination in the state, local travel, lodging, and field support of personnel would also be provided by the Department.
3. The Department looks forward to APO-wise reports. Thus, six reports are envisaged at the end of the evaluation.
4. The sampling intensity was agreed upon.
5. A proposal including financial requirements and draft MoU would be sent to the CEO-CAMPA for perusal.
6. The CEO-CAMPA would visit IFGTB during the last week of November, 2021 for a detailed discussion and finalising the proposal.



**Annexure II****Timelines of the Evaluation**

<b>Milestone</b>	<b>Activity</b>
September 2021	Identification of ICFRE-IFGTB for third party monitoring
November 2021	Finalisation of activities under the third party monitoring
January 2022	Acceptance of project proposal of ICFRE-IFGTB for monitoring and evaluation of CAMPA activities in Kerala. Approval of the MoU.
March 2022	Signing of the MoU and release of the first instalment
April to June 2022	Field works
July to September 2022	Report preparation
September 2022	Release of the second instalment
October 2022	Submission of final report



### Annexure III

#### APO-wise components implemented in various Circles

Components	Particulars
Biodiversity Conservation	Bird survey and conservation
	Eradication of Exotic weeds/ Obnoxious weeds
	Sea Turtle Conservation
Capacity Building	Conducting Nature Camps
	Training and workshops
	Training to protective staff in batches of 20 to 30 persons (in a batch)
	Awareness Program
Compensatory Afforestation Funds	Compensatory Afforestation Works
	Preparatory work for setting up Permanent Nursery in 2 Districts
	Setting up Permanent Nursery
	Setting up Permanent Nursery Works (Balance work)
Forest and Wildlife Protection	Better connectivity including bridges roads communications
	Construction and MTCE of check dams
	Construction of Chappath/Bridge
	Construction of rain water harvesting/water retension structure
	Creation of Kayyalas
	Digging water holes/Ponds
	Interior campsheds
	Mtce of trek path/Patrolling Route
	Organising Joint Patrolling and Raids
	River Bank Stabilization
	Soil and moisture conservation / Gully Plugging
Forest Fire Management	Engaging Fire Gang
	Fire Watch Station
Human Animal Interace	Creation of Elephant Proof Trench
	Preparation of detailed GIS based system for managing Human animal interface
	Provision for elephant corridor
Infrastructure Development	Providing basic infrastructure to tribal settlement



**Annexure IV**

**Monitoring and evaluation teams**

Teams Region	1 Southern Circle, Kollam (1)	2 Southern Circle, Kollam (2)	3 High Range Circle, Kottayam (1)	4 High Range Circle, Kottayam (2)	5 FD PT, Kottayam (1)
Team Co-ordinators (Dr/Mr/Ms)	C. Buvaneshwaran	Rekha R Warriar	Kannan CS Warriar	K. Murali Shankar	S. Saravanan
Team Leaders (Dr/Mr/Ms)	A. Balasubramanian	R. Sumathi	K. Gireesan	A. Mayavel	S.P. Subramani
Member	N. Sivadasan	L. Vivek	K. Sureshkumar	J. Soosairaj	K. Senthil
Member	V. Mareeswaran	S. Sudha	K. Gopalakrishnan	P. Vignesh	M. Suryaprakash
Member	S.S. Abijith	R.G. Anitha	T. Pradeep	K.R. Shankar	R. Ariharasuthan
Member			C. Muthumanikam	M. Vishnu	M. Mahalingam
Team Co-ordinator (KFD)	Fen Antony, ACF	Fen Antony, ACF	KS Subash, ACF	Subash, ACF	Sandeep.S, ACF

Teams Region	6 FD PT, Kottayam (2)	7 Agasthyavanam biological park Circle	8 Social Forestry, Southern Region, Kollam	9 Central Circle, Thrissur	10 Social Forestry, Central Region, Thrissur
Team Co-ordinators (Dr/Mr/Ms)	N.V. Mathish	A. Rajasekaran	A.C. Surya Prabha	D. Raja Suguna Sekar	J. Sriram Team
Leaders (Dr/Mr/Ms)	S.P. Subramani	Muhammad Ali Noushad	P. Chandrasekar	B. Deeparaj	A. Mayavel
Member	K. Senthil	P. Manoharan	J. Soosairaj	P. Malliga	R. Abinaya
Member	M. Suryaprakash	L. Mahalingam	P. Vignesh	S. Pragadeesh	C.V. Vijayam
Member	R. Ariharasuthan	S. Selvakumar	K.R. Shankar	R. Kalaiselvi	R. Sathishkumar
Member	M. Mahalingam	N. Vijayanand	M. Vishnu	C. Thamocharan	Rudranath, V.R.
Team Co-ordinator (KFD)	Sandeep.S, ACF	Ajith.N, ACF	Rohini. GR, ACF	V.P. Jayaprakash, ACF	Chinnu Janardhanan, ACF



Teams Region	11 Social Forestry, Northern Region, Kannur	12 Northern Circle, Kannur	13 Eastern Circle, Palakkad	14 Wildlife Circle, Palakkad	15 Research Division N and S, & Headquarters
Team Co-ordinators (Dr/Mr/Ms)	Madhavraj G. R	A. Karthikeyan	Rekha R Warriar	Rekha R Warriar	JP Jacob
Team Leaders (Dr/Mr/Ms)	K.N. Ashirth	R. Archana	S.Lalitha	A. Shanthi	K. Shanthi & Muhammad Ali Noushad
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Member	M. Jeyakumar	S.M. Paulraj	N. Sudha	A. Sathish	P. Vipin
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