



**KERALA FOREST & WILDLIFE DEPARTMENT**

**SITE SPECIFIC PLAN**

**RESTORATION OF DEGRADED FOREST IN  
ANANTHAN ESTATE OF KALLAR SECTION  
(15 HA)**

**SCHEME- COMPENSATORY AFFORESTATION  
USER AGENCY- KSEB LTD**

**SOUTHERN CIRCLE**

**Division Thiruvananthapuram**

**Range :Palode**



## SITE SPECIFIC PLAN FOR THE RESTORATION OF DEGRADED FOREST AT ANANTHAN ESTATE

### 1. Site particulars

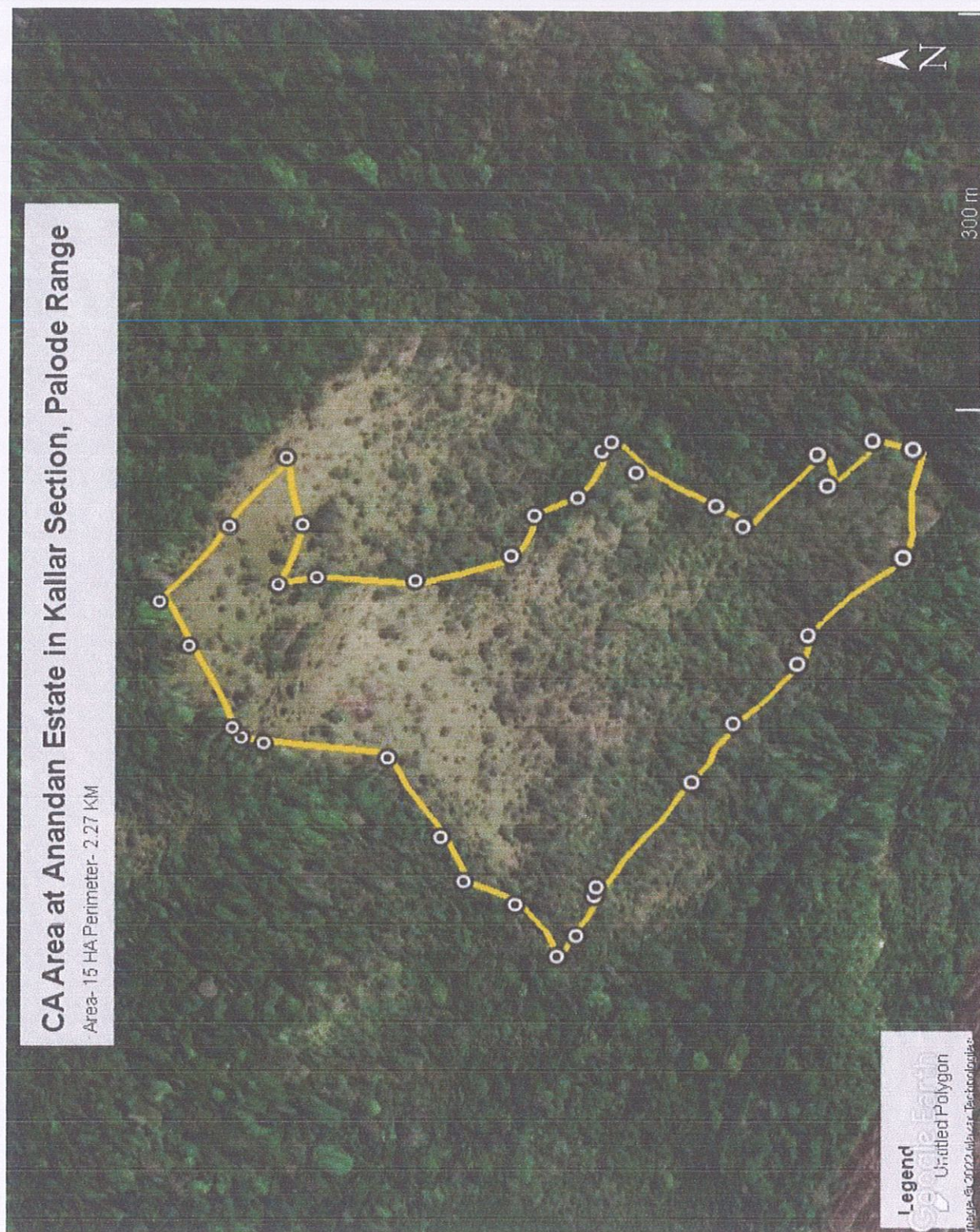
- a. Restoration Zone (ERZ) : Ananthan Estate
- b. Division : Thiruvananthapuram
- c. Range/Station : Palode
- d. Section : Kallar
- e. Reserve : Palode
- f. Extent : 15.00 Ha
- g. Plan : SSP for Restoration of Degraded Forest in Ananthan  
Estate
- h. Year of work : NA
- i. District/Taluk/Village : Thiruvananthapuram/Nedumangadu/Thenoor
- j. Catchment : Kallar River

### 2. History

The Treatment area is 15KM away from Kallar Section Headquarters. The area originally was moist deciduous forest patches in the southern part of Ponmudi Hills. This area is commonly known as Ananthan estate. In 18<sup>th</sup> Century, it was an estate owned by Travancore Kingdom and then under British Rule. In the later period they had abandoned the estate and became the part of Palode Reserve. At present the area is in a degraded state (forest cover 40%) due to biotic pressure and climatic changes. It is proposed

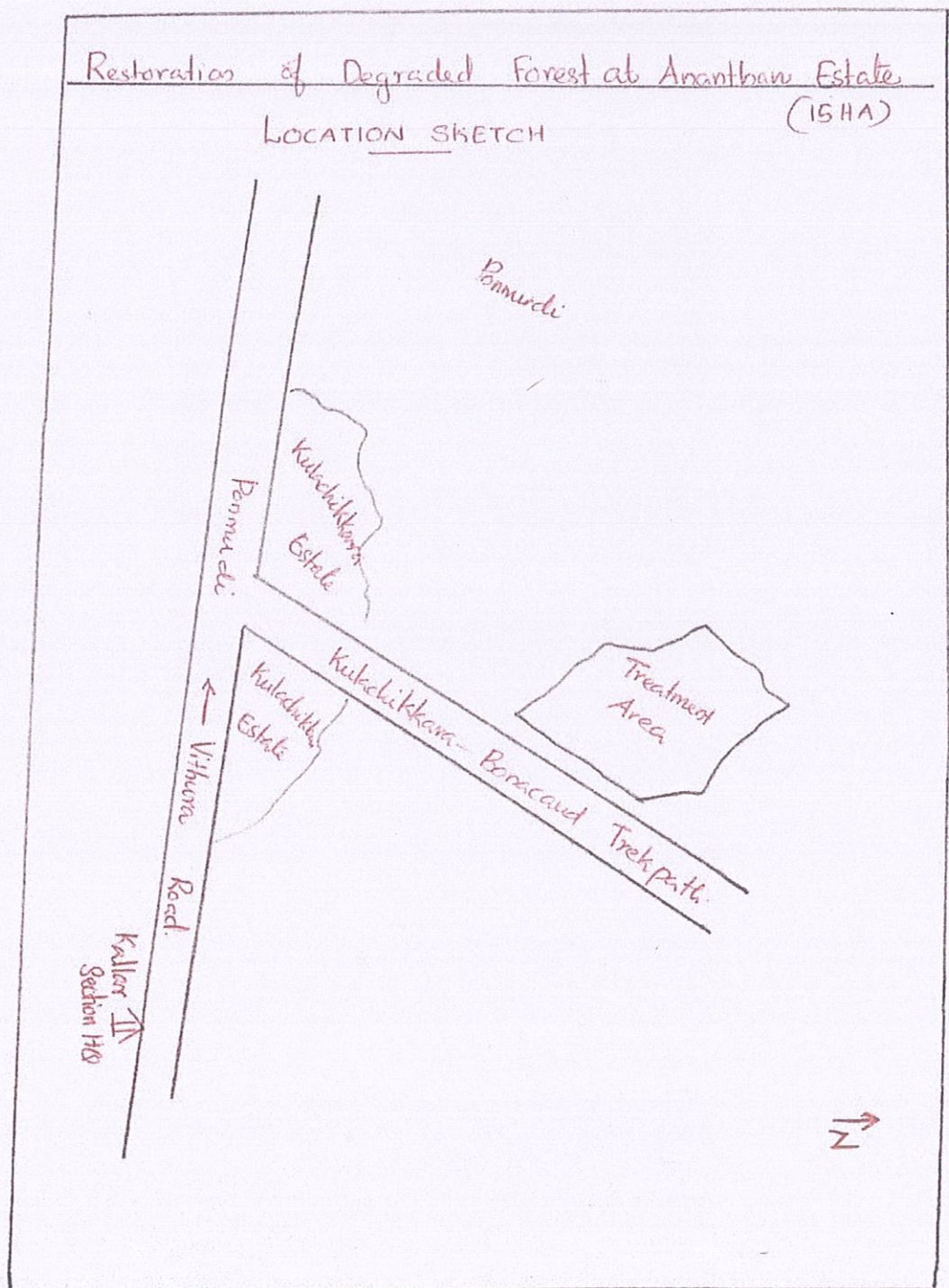
restore the above area as part of Compensatory afforestation scheme in connection with the proposal by KSEB LTD for the diversion of 7.5 Ha forest land as part of the project namely the Upgradation of 9.93 Km existing 66 KV Attingal- Palode SC feeder to 110 KV double circuit from Mithirmala to Palode in Palode Range of Thiruvananthapuram Forest Division.

### 3. GPS Survey Sketch



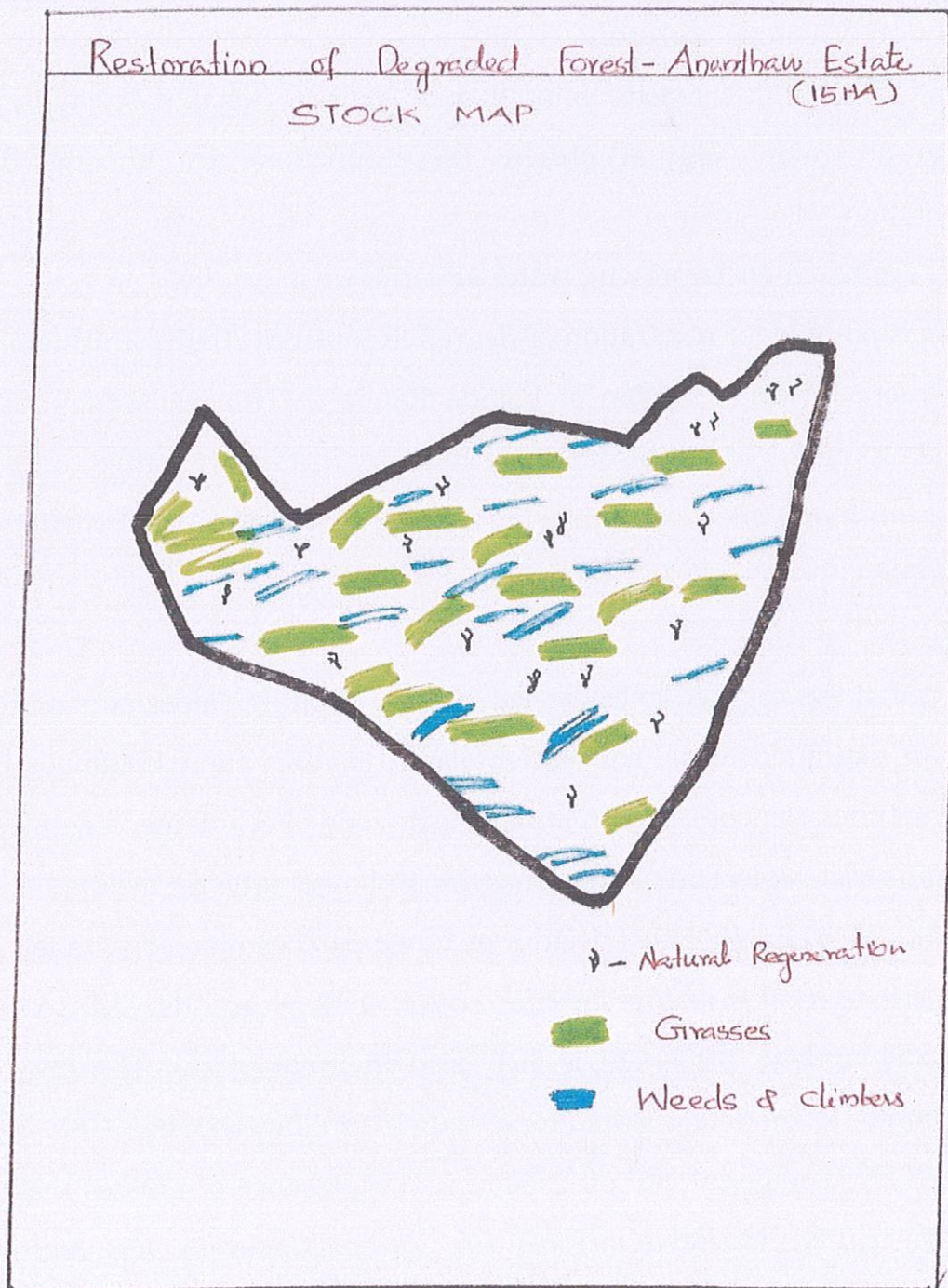


#### 4 Location Sketch





## 5 Stock Map of the area



## 6. General Information, Physiography, Geology and Climate

The repeated floods of 2018 & 2019 and the consequent devastation have brought to the fore issue of hydrological security of Kerala. To improve water security, forest ecosystem offers the best possibility for major intervention & course correction. Forests perform vital function such as interception of high intensity rainfall and facilitate deep percolation & retention of water. But at present these functions are impeded by fragmentation, degradation. Addressing these issues will be a cost-effective approach for improving water governance in Kerala.

This proposal is for restoration of degraded forest in Ananthan Estate at Kulachikkara in Kallar section of Palode Range of Thiruvananthapuram Forest Division. . It will also protect this area from forest fires, restore near-natural biodiversity, and provide employment and other benefits to local people.

The activities proposed to be carried out are, planting natural and native species in degraded areas, soil and moisture conservation treatment by digging contour trenches, constructing brush wood check dams, digging of ponds and strict protection of area from fire and other adverse factors.

The area is originally moist deciduous forest patches planted with tea in earlier period. Soil is loamy, lateritic, rocky, shallow and degraded with low humus content. Black soil is also seen in some places. The area is having gentle to moderate slope, temperature ranging between 10°C and 33°C with an average rainfall of 2,500mm. The presence of grasses makes the region highly vulnerable to forest fire. Biotic pressure is very high as the area is surrounded by human habitations and tourists. Grazing is common and fire occurs during summer.

## 7. Threat Factors

Major threat Factors in the augmentation Zone are the presence of heavy growth of weeds and Grasses like Elephant Grass, Thatching grass, Lantana, Eupatorium etc and also heavy regeneration of Acacia and Mangium.

### Degradation of the area

Presently there is only 40 percentage forest cover in the treatment area. The presence of grasses and weeds suppresses the growth of other natural seedlings and at present the area is in a degraded stage.

## 8. Status of Regeneration

The area was originally tea estate. Due to the presence of heavy grasses and weeds the growth of Natural Regeneration is very poor in the treatment area. The following species were found growing there- Vatta- *Macranga Peltata*. Thanni- *Terminalia bellirica* ,Poovam- *Schleichera oleosa*, Maruthi- *Terminalia Paniculata*, Venkotta- *Lophopetalum Wightianum*, Maruthi- *Terminalia Paniculata*, Pezhu- *Carex Arborea* etc

## Ecological Significance of the Eco Restoration Zone

This proposal is for the restoration of degraded forest in Ananthan Estate near Kulachikkara in Kallar Section. This area lies in the catchment of Kallar River. This eco-restoration will help in sustained water flow to the river and to the surrounding villages. It will also protect this area from forest fires, restore near-natural biodiversity, and provide employment and other benefits to local people. The Ecological importance of the area is highlighted as it provides solutions to solving challenges of food and water security and securing the livelihood of local community. It will reduce the land

degradation and drought. It also makes significant impact on challenges of global climate change.

### Species to be planted

(to be selected according to site specific conditions)

Sl.No.	Local Name	Scientific Name	Seeding time
1.	Vatta	<u>Macaranga peltata</u>	
2	Malaveppu	<u>Meliadubia</u>	October- February
3	Venga	<u>Pterocarpus marsupium</u>	February - April
4	Maruthi	<u>Terminalia paniculata</u>	April-june
5	Chenkurinji	<u>Gluta travancorica</u>	

### Slope and Soil Erosion

The Average slope of the Restoration Zone is 40-45. Due to the high slope of the area, soil's ability to maintain itself has been lost. Hence there is a degradation of top soil.

### Objective of the Plan

The restoration of the degraded forest area to near natural forest ecosystem will enhance the ecosystem services provided by the forest area. The density and diversity of the area can be improved by various activities such as protecting the area from fire, biotic interferences, augmentation planting with indigenous species, soil and moisture conservation etc. To convert the degraded forest to natural forest ecosystem so as to enhance the environmental and ecological benefits to the society. The objectives of the proposal are as follows.

To enhance the water retention capacity of the landscape, thereby improving the moisture regime of the soil.

Reversion of seasonal streams into perennial thereby ensuring steady flow of water throughout the year

To enrich the area with indigenous species and reducing monoculture crops especially exotic species

To improve biodiversity of the area

To protect the area from forest fire and other adverse factors and to enhance the ecosystem functions and biodiversity values of the area.

To improve the livelihood of local people through employment generation, NTFP collection etc.

## **9. Treatment Plan**

Restoration is proposed for the degraded forest at Ananthan Estate near Kulachikkara in Kallar Section. Regeneration of certain indigenous species is observed in the area. It is proposed to remove the heavy grasses and weeds to eradicate the regeneration of such species. It is proposed to nurture the natural regeneration of the indigenous species by planting the seedlings of native species. The area will be maintained for 3 years and effectively fire – protected for 10 years. Proposed activities

- 1) **Uprooting and removal of weeds-** Uprooting of weeds will be done - for three years
- 2) **Planting of indigenous pioneer species-** Due to the presence of heavy grasses and weeds, the natural regeneration of the indigenous species is very poor in the treatment area. It is proposed to plant indigenous natural seedlings in the degraded areas. The seedlings to be planted are Vatta, Maruthi, Venga, Malaveppu, Chenkurinji etc. For Planting seedlings will be collected from Central Nursery Kulathupuzha and

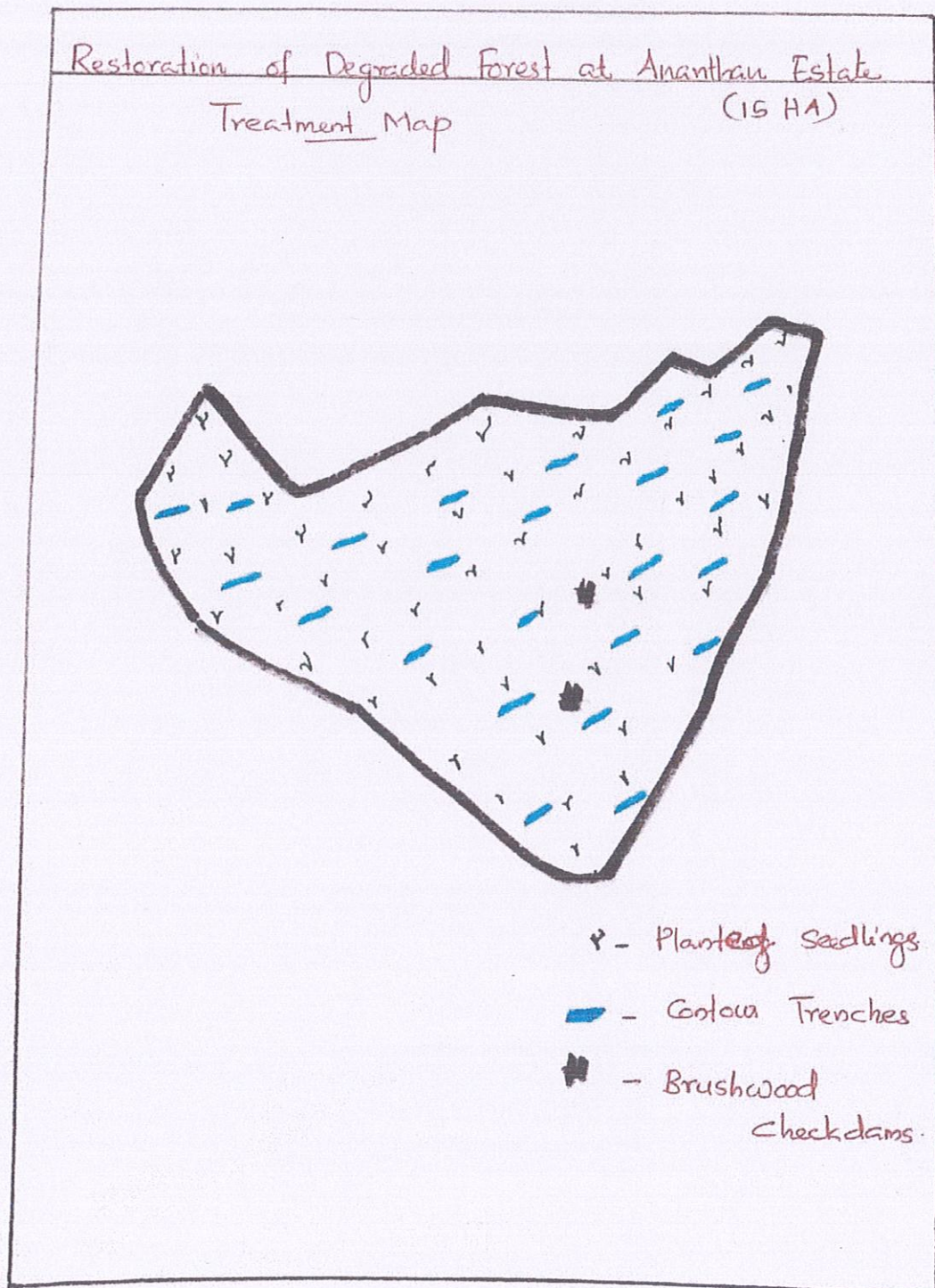
District Nursery Thiruvananthapuram. The total number of seedlings required is 3000 (ie; 200/Ha). The scheduled planting time is May-June.

**3) Cutting of climbers which suppressing natural regeneration**

- 4) **Soil and moisture conservation works-** Such as construction of brushwood check dams, gully plugging, digging water holes etc. The construction of Contour Trenches and water holes will be conducted through NREGS of Peringamala Panchayath. This will create additional 200 man days and thus benefit for local peoples.
- 5) Engaging protection mazdoor preferably tribes from nearby areas
- 6) Fire tracing and engaging fire gangs in the fire season
- 7) Participatory fire protection
- 8) Providing terrace or platforms for water conservation and clearance of area around the planted seedlings to make them grow free from weeds.
- 9) Construction of Brushwood Check Dams- 2 Nos
- 10) Creation of Contour Trenches-200 Nos through NREGS

**General & fire protection:-** This is an isolated site surrounded by human habitations and private Estates. Biotic pressure is very high in the area. Hence the entire area needs to be protected from the threats of illegal felling, encroachment and other activities. The site is away from the nearest Forest Station and therefore construction of a watch tower is proposed for close monitoring. During fire season, these watchtowers shall also act as fire watch towers to detect forest fire. To protect the area from fire, creation of fire breaks and deployment of the fire mazdoors are also proposed.

#### 4. Treatment Map





## 5. Availability of Labour Force, Institutional Arrangements

**State Forest Department**



**KSEB LTD- User Agency for CA**



Southern Circle  
Kollam



**Implementation at Field Level**



DFO TVM & RO Palode



Kallar Section Staff,  
Manali & Ponmudi VSS



management of this restoration area under the guidance of KFD. It will generate employment for the VSS members and tribal.

### iii). **Local Community**

There are about 50 households at a distance of 2Km from the project area out of which about 40 families are directly or indirectly depend upon the forest patch. Their average land holdings vary from 5 cents to 50 cents. Few Coffee estates and teaEstates also surrounds the forest fringe. Major crops in the area are Coffee,Clove,Tea, Banana etc. People of the fringes directly depend on the area for

- Firewood
- Fodder
- Forestry work Labours and VSS workers involved in Activities carried in the land
- Cattle grazing
- Paths inside forest

During the rapid rural assessment it was found that 5 % families live in small house with sheet roof, 30% families are living in house with roofing tiles and remaining 65% live in concrete roofed houses, which point to the relative economic status of the neighboring community.

Apart from the above direct benefits, people will enjoy indirect benefits of

- Increased water availability
- Good quality air
- Amelioration of climate
- NTFP collection and marketing

#### 14. Execution of Work, Inspection and Monitoring.

The work shall be executed through Vanasamrakshana Samithi under the supervision of SFO, Kallar and staff in accordance with advice, instruction and expertise given by the RFO, Palode and Superior Officers. The VSS is strictly ordered to engage their members and tribals who have previous experience in planting activities. The Divisional Forest Officer, Thiruvananthapuram shall inspect and monitor the progress of work and will give proper guidance. The Vigilance wing of the department will also monitor the progress of the work and its quality and quantity. Periodical evaluation of the operations shall be conducted to assess the impact of treatments done and it will be recorded in the journal. The scientific support and guidance from scientists of TBGRI/KFRI can be utilized when and where required. Proper documentation and data will be maintained by Range Forest Officer.

#### 15. Financial forecast

Year	Activity	Area/Length/ No.	Total Amount (in Lakhs)	Employment generated (Man days)
I year	1 The restoration in 15.00 Ha Ha (Including Survey, Enrichment planting, cost of seedlings, First Year I Weeding, Planting, Platform for planted seedlings, Construction of Temporary Shed, fire protection, protection mazdoor etc)	15.00Ha	10.12	900
	<b>SubTotal</b>		<b>10.12</b>	
	4 Brush wood check dams - 5 Nos	2 Nos.	0.22	24
	5 Contour Trenches --- through NREGS	200 Nos	-----	100

Year	Activity	Area/Length/ No.	Total Amount (in Lakhs)	Employment generated (Man days)
	<b>Total</b>		<b>10.34</b>	<b>1024</b>
	<b>II Year Maintenance</b>			
II year Maintenance	1 2 <sup>nd</sup> year Maintenance of 15 Ha restoration	15 Ha	1.5	300
	2 Fire protection with fire lines/ fire breaks	2Km	0.64	80
	3 Protection/Fire watchers 1 Nos. x 12 months	1 x 12 x 25	2.25	300
	<b>Total</b>		<b>4.39</b>	<b>680</b>
3rd year	1 3 <sup>rd</sup> year Maintenance of restoration weeding, casualty replacement etc	15 Ha	1.5	300
	2 Fire protection with fire lines/ fire breaks 45 Km	2Km	0.64	80
	3 Protection/Fire watchers 1 Nos. x 12 months	1 x 12 x 25	2.25	300.00
	5 <b>Total</b>		<b>4.39</b>	

The above table shows the amount for the treatment of restoration area in the first 3 years. In addition to this it is necessary to protect the area from forest fire for the next seven years. The total cost for the fire protection work for seven years is 8.68 Lakhs(Cost of 3 Month Man Mazdoor & 2 Km Fire line in each year).Total cost of the project is 27.80 Lakh Rupees and total employment generated will be 7569 Man days.

Yearly costs of the project are as follows:

Year	Financial requirement ( in Lakhs)
I year	10.34
II year	4.39
III year	4.39
(Cost of Fire protection for next 7 Years after III year mtce)	8.68
<b>Total</b>	<b>27.80</b>

## 6. DEGRADED AREA AT ANANTHANKADU-PHOTOGRAPHS





## 17. Species to be Parameters for Evaluation

Evaluation will be carried out regularly using the following parameters

- Density and Diversity of flora and fauna. The growth of trees will be recorded every quarter. Any natural regeneration will also be recorded.
- Quantification of change in ground water recharge through Ground Water Department and by measuring depth of water in open wells of neighboring households. Ten wells in neighborhood will be selected and the depth of water level will be measured on already decided dates.
- Fire occurrence data will be collected and evaluated
- Soil quality and organic matter content will be evaluated annually in the planted areas.

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## 18. Remarks/Modification of SSP - Nil

Submitted By



Range Forest Officer  
Palode

Verified By



Divisional Forest Officer  
Thiruvananthapuram

Approved By

Chief Conservator of Forests  
Southern Circle Kollam

