Cheola Micro Plan

Himachal Pradesh Forest Ecosystem Services (HP-FES) Project

Ministry of Environment, Forest and Climate Change

Himachal Pradesh Forest Department

german cooperation
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Conservation and Sustainable Use of Biodiversity in India - Himachal Pradesh Forest Ecosystem Services Project (HP-FES)
The project aims to enable the Forest Department of Himachal Pradesh to introduce the Forest Ecosystem Services (FES) approach in the state's forest management system.

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Micro Plan for Cheola

Himachal Pradesh Forest Ecosystem Services (HP-FES) Project

Table of Contents

List of Tables

List of Figures

List of Maps

List of Annexures

List of Abbreviations

ACWADAM	Advanced Center for Water Resources Development and Management
BMZ	German Federal Ministry for Economic Cooperation and Development
BPL	Below Poverty Line
CBD	Convention on Biological Diversity
CHF	Compartment History File
DBH	Diameter at Breast Height
ES	Ecosystem Service
FES	Forest Ecosystem Services
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HH	Household
HPFD	Himachal Pradesh Forest Department
HPFES	Himachal Pradesh Forest Ecosystem Services
IPH	Irrigation and Public Health
LPG	Liquefied Petroleum Gas
M&E	Monitoring & Evaluation
MT	Metric Ton
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
NTFP	Non-timber Forest Product
PES	Payment for Ecosystem Services
PFM	Participatory Forest Management
PRA	Participatory Rural Appraisal
RCC	Reinforced Cement Concrete
SHG	Self Help Group
SWC	Soil and Water Conservation
VFMS	Village Forest Management Society
WP	Working Plan

1 Introduction

1.1 Forest Ecosystem Service (FES) Approach

The ecosystem approach, as defined by the Convention on Biological Diversity (CBD) in 2000, is the integrated management of ecosystems to promote conservation and sustainable use of the services and goods provisioned by these ecosystems to be enjoyed equitably by all sections of society. These services and goods are together termed as "Ecosystem Services".

The ecosystem services derived from forests came to be referred to as "Forest Ecosystem Services" or FES. The FES Approach may be defined as "Forest Management that aims at sustainable provision of a set of ecosystem services based on stakeholder choices".

The FES Approach states that stakeholders prioritize ecosystem services based on their needs.

The forest management under FES Approach will be guided by the ecosystem service/s thus prioritized, with due importance given to the remaining goods and services.

1.2 Himachal Pradesh Forest Ecosystem Service (HP-FES) Project

1.2.1 Project Background

The German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to partner with the Himachal Pradesh Forest Department (HPFD) to integrate FES Approach in forest management. The project activities started from April 2016. Using the FES approach in a microplan can facilitate institutionalizing of the approach in management and planning processes of HPFD.

1.2.2 Project Objective

The overall objective of the HP-FES Project is to enable HPFD to introduce the ecosystem approach into its forest management.

For this purpose, Cheola is selected as a demonstration site. Microplan for Cheola is prepared with the FES prioritized by the dependent communities which includes water, soil and water conservation, fuel and fodder and few non-timber forest produce (NTFP).

1.3 Role of Microplan in New Working Plan Code

Since 1837, the Indian forests are managed under working plan (WP) guidelines. However, it evolved with changing society and policy demands. Until the National Working Plan Code (2004), the major focus of these codes was on timber extraction which in turn determined the amount to be planted and harvested. The Honourable Supreme Court of India with its ruling (Dec 1996) towards a blanket ban on green tree felling triggered a policy evolution, of which the first step was the Forest Working and Management Plan Code (2014). This Code facilitates management of Indian forests to improve the provision of ecosystem services to dependent population. This enabled FES approach in forest management. The FES approach makes participatory forest management plans (now known as microplans) essential in the new working plan code.

The National Working Plan Code 2014 has made provisions for use of microplans as tools for participatory forest management for forest areas under Joint Forest Management Committees (JFMCs) and working circle within the scope of the Forest Right Act 2006 and the Biodiversity Act 2002.

1.3.1 Objectives of the Microplan

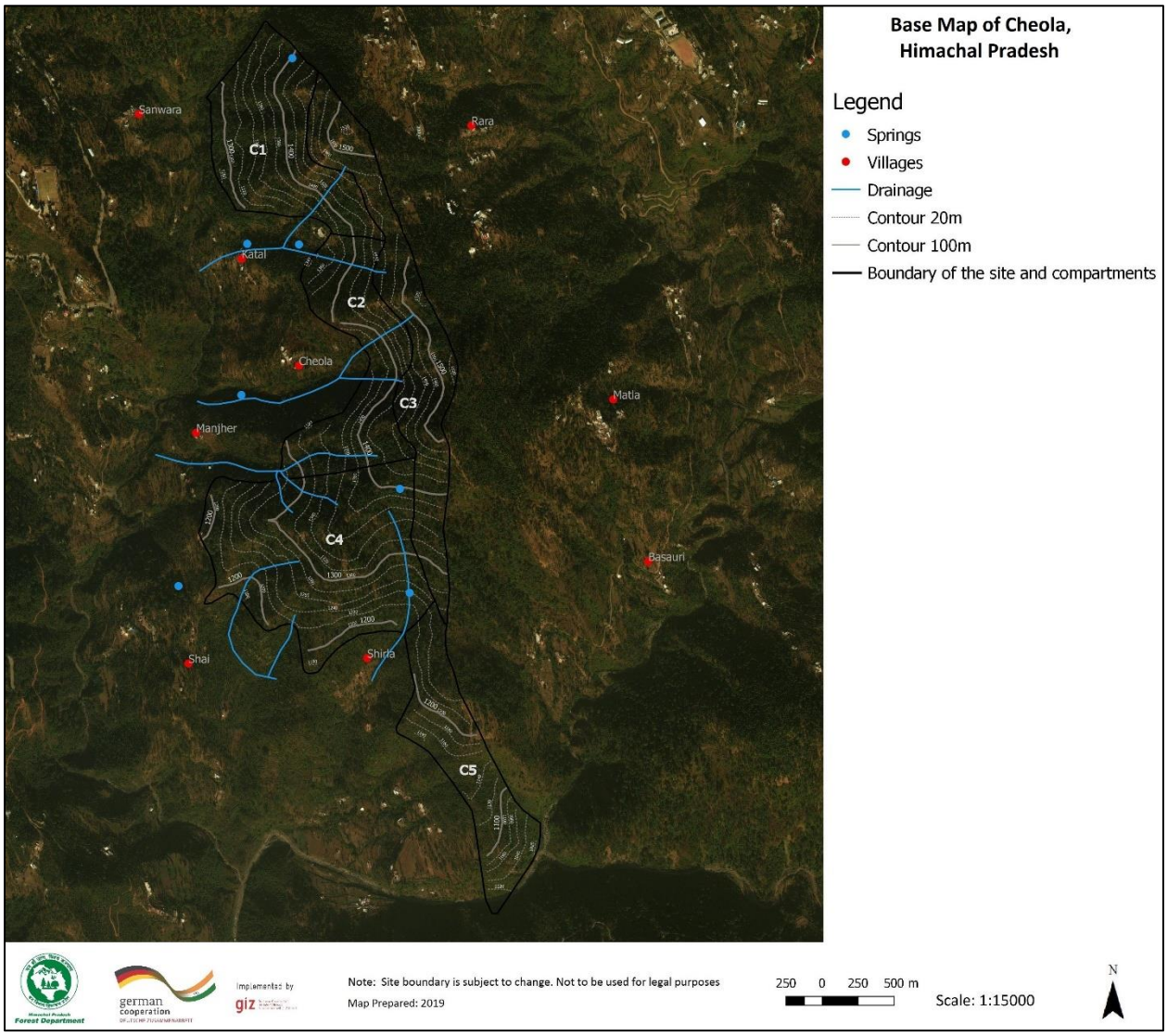
The objective of this microplan is to incorporate ecosystem services into the forest management in the D-244 Cheola, a demarcated forest of Solan Forest Division on the outskirts of Dharampur. Forest assessment and PRA exercise were carried out as a base to formulate the management objectives of the plan provided in Chapter 5.

1.3.2 Description of Subsequent Chapters of the Microplan

Chapter 2 describes the planning site. It also includes data collection and results of data collection process. Chapter 3 provides the list of elected members of the VFMS Cheola along with their phone numbers. Chapter 4 discusses the aims of forest management clearly spelling out the short-term management objectives that leads to mid-term forest management objectives, resulting in long-term objectives of forest management. It is to be ensured that these objectives are in line with the visioning exercise undertaken with stakeholder participants during the PRA exercise. Chapter 5 dwells into the details of activities undertaken for meeting the short-term forest management goals for the prioritized FESs. Chapter 6 discusses the Monitoring and Evaluation plan for activities undertaken to meet the short-term forest management objectives. This chapter will also enlist the indicators for ex-post assessment of the project and its long-term impacts. This is followed by Annexures that support the microplan.

2 Description of the Planning Site

The project site Cheola is about 3 kms from Range Office Dharampur, about 5 kms from Jabli on Kalka Shimla Highway NH 22. It falls in Gram Panchayats Garkhal Kasauli and Jabli of Dharampur Development Block, District Solan. It falls in Kadon beat of Dharampur Range of Solan Forest Division (Map 2.1).



Map 2.1: Base Map of Cheola

Name of hamlets falling within the planning site are Katal, Cheola, Manjher, Shai and Manjh. The nala originating from the Thana curve forms the North Western Boundary (Map 2.1). The watershed is marked with various nalas referred by the village names of their origin. Katal nala originates above the village of Katal, Cheola nala originate from C2 passing through Cheola village to Manjher village, Manjher nala forming boundary between C3 and C4 comes down to the south of village Manjher and there are two Sherla nalas: one originates from above C5 coming down to village Shai and another Sherla nala goes towards the village of Sherla towards the Southern boundary of the Forest or planning site. The Compartments from C1 to C3 and

upper portions of C4 and C5 consists of Chir Pine (*Pinus roxburghii*) forests while the major part of C4 consists of broad-leaved forest interspersed with Kachnar (*Bauhinia vahlii*). The lower side of C5 is an inferior sub-tropical scrub forest.

The Chir Pine forest has been used for resin tapping and salvage removals through Himachal Pradesh State Forest Development Corporation Ltd (HPSFDC). The local community from the hamlets of Katal, Cheola, Manjher and Shai-Manjh have been using the forest for fodder (cutting grass), collecting fuelwood and also for seasonal grazing.

Katal and Manjher nalas are the only source of water for household consumptions and lifesaving irrigations to vegetable crops. There is huge paucity of water during summer season. It is occasionally supplemented by both piped supply and supply through water tankers by the Irrigation and Public Health (IPH) Department. The fuelwood requirement of local households is supplemented by liquefied petroleum gas (LPG) cylinders available in Jabli market. There is a need for undertaking substantial work for improvement towards the conservation of water in the catchment areas in all compartments denoted in Map 2.1. The latitude and longitude values of extreme points of the project boundary to North, South, East and West are given in the Table 2.1. The elevation range varies from 958 m to 1556 m.

Table 2.1: Coordinates of Planning Site in Cheola

Direction	Latitude	Longitude
Northern-most Point	$30^0$53'39.20" N	$77^0$00'42.35" E
Southern-most Pint	$30^0$52'03.67" N	$77^0$01'11.12" E
Eastern-most Point	$30^0$53'03.04" N	$77^0$01'06.07" E
Western-most Point	$30^0$52'38.33" N	$77^0$00'35.17" E

2.1 Methodology

2.1.1 Environmental Data

Environmental information key to planning process is listed here. The data for Cheola site is collected from official records, analyzed and listed in Table 2.3 in section 2.2.1 of this plan. This data has been collected based on field measurements, Working Plan of Solan Forest Division and Compartment History File of D-244 Cheola forest in Dharampur Forest Range. There is no meteorological station located at or near Cheola or Dharampur. Therefore, the data record of meteorological station at UHF Nauni, Solan were used as mentioned in the Working Plan.

2.1.2 Demographic Data and User Rights

The demographic data is displayed in Table 2.4. The data was collected using Participatory Rural Appraisal (PRA), baseline survey report, and other secondary sources like documents from the Gram Panchayats, Department of Animal Husbandry and Local Revenue Office.

Mapping and facilitation were the tools used to gather information regarding forest user rights. A google image or map of forest D-244 Cheola C1 to C5 was displayed to the PRA participants. The results of the

baseline survey information on forest user rights of six villages namely Kotla, Cheola, Manjher, Shai, Manjh and Sherla were verified and recorded in Table 2.5 under section 2.2.2.

2.1.3 Seasonality of Labour Distribution

Facilitation and matrix were the tools used to collect information on seasonality and labour availability. Materials used were charts and sketch pens. Seasonality of engagement in agriculture, horticulture, wage labour, migration, labour availability for project activities and rain and snowfall were recorded. The calendar was displayed in front of the PRA group and information of months of occurrence; type of work and its availability was gathered and indicated against the corresponding period or month. Response for various variables were probed and recorded in the Table 2.6 under section 2.2.3.

2.1.4 Stakeholder Mapping

Facilitation and stakeholder map were the tools used during stakeholder mapping. The PRA participants were briefed about the concept of stakeholder. A diagram (Figure 2.1) on a chart with four concentric circles and three lines or axes emerging from the central theme of HP-FES was shared with the PRA participants. Almost equal sections were formed with HP-FES. The participants were asked to write names of institutions falling in the three broader categories namely civil society, private institutions and state institutions, which they considered potential in influencing the Project. The participants provided information that was recorded on the map and translated into Table 2.7 under section 2.2.4.

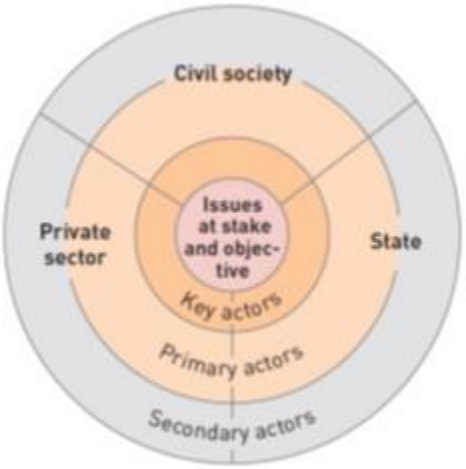


Figure 2.1: Stakeholder Diagram

2.1.5 Institutional Mapping

Through Facilitation and a Venn Diagram (Figure 2.2), the institutional mapping was undertaken to understand how the community members perceive institutions both within the community (in terms of decision making, accessibility, and services) and outside the community (in terms of participation, accessibility, and services). It also helped in identifying potential entry points for strengthening or improving relationships between key social actors while undertaking implementation of the plan.

On the site, the PRA participants identified government institutions as relevant to their procuring the forest ecosystem services and other dependent occupation. The information thus gathered is provided in Table 2.8 under section 2.2.5.

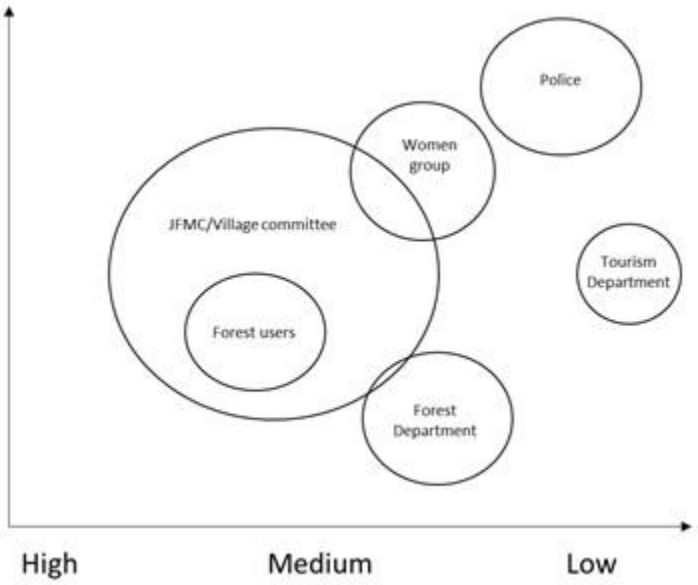


Figure 2.2: Example of Venn Diagram [The big circle is the group for which the relations to institutions is looked at (Village Forest Management Committee or Village community)]

2.1.6 Forest

Data on forest was collected through forest assessment during baseline survey and from documents of HPFD like the Divisional Working Plans, Compartment History Files (CHF), etc.

2.1.6.1 Forest Assessment during Baseline Survey

This section states in brief the methodology for forest assessment used in the baseline survey. The forest assessment served three objectives as given below:

i) Knowing the regenerating tree species
ii) Knowing the human impacts on different forest types
iii) Information of the basal area for each forest type

The assessment was based on circular plots arranged on a transect. A forest type was represented by at least two transects. The transects were placed in a way that they represent the forest type. Stands or parts of the forest type that were significantly different from other parts were assessed separately.

Allocation of the Transect: The investigator chose a spot representative of the forest type at the beginning of the transect in the forest 10 m from the edge. The transect was oriented along the longest site of the forest type. The first plot was allocated 30m away from the starting point of the transect and all subsequent plots were placed at similar intervals. Holes, riverbeds and similar locations unrepresentative of the stand were skipped and plots installed 30 m further along the transect.

Assessment of Regeneration: Regenerating tree individuals of different sizes were assessed in circular plots of different sizes. Details are shown in Table 2.2. For analysis, the existing data were combined into two categories: seedlings and saplings.

Table 2.2: Plot Size and Data Collected for Different Sizes of Regeneration Trees

Type	Definition	Plot used for assessment	Area of each plot	Data collected (Same for all plots)
Seedling 1	Tree species >0-0.30 m height	Circular plot (r=1 m)	3.14 sq. m	• Species Name • Number of individuals • Number of individual grazed/burnt/cut/others • Number of coppiced individuals • Photo number of species • Herbarium sheet number
Seedling 2	Tree species >0.30 m-1.3 m height	Circular plot (r=1.5 m)	7.06 sq. m	
Sapling 1	Tree species >1.3 m height and DBH <3.18 cm	Circular plot (r=2.5 m)	19.62 sq. m	
Sapling 2	Tree species DBH >3.18 cm-<7 cm	Circular plot (r=4 m)	50.24 sq. m	

Assessment of Human Impact: Signs of human impact (trampling, fire, livestock dung, lopping, resin tapping) were assessed using ocular method within 12m radius and noted as present or absent.

Assessment of Basal Area: Basal area gives an insight about the number and size of trees in an area. The basal area was assessed with the Angle Count Method in seven locations in each forest type. This method calculates the basal area for one tree based on the distance between the tree and the investigator and the diameter at breast height (dbh). The investigator counts the trees that fall in a certain range of dbh (count factor 4 or 2) while turning 360°. The number of trees counted in this manner are multiplied by the chosen count factor to get the basal area for the stand. The figures of all locations were averaged to get the value for the forest type.

2.1.6.2 HPFD Documents like Divisional Working Plan and Compartment History Files

Documents of HPFD used in planning and forest management were also referred. The Compartment History File (CHF) and Divisional Working Plans were referred to study the management objectives used historically, as well as forest use rights and practices by local communities.

2.1.7 Assessment of Forest Ecosystem Services (FES)

Information on the extent of FES use, the quantity used by different households (hhs) and information on the trends of FES demand and availability were gathered and verified during the PRA exercise. Information on the factors or drivers for these trends was also gathered. PRA group was further probed if the FES received were sufficient to fulfill the current demand. All information thus collected is presented in Table 2.11 under section 2.2.7.

2.1.8 Human-Wildlife Conflict

Human-Wildlife conflicts often hamper the well-being of people and information on the same was collected during the PRA. Facilitation and matrix were the tools used in collecting this. Wild animals causing damage to crop were enlisted, and details of the type and extent of damage were discussed. The result of this exercise is given in Table 2.12 under section 2.2.8.

2.1.9 Conflict Management

Conflicts on FES use was discussed with PRA participants. Facilitated focus group discussion and matrix were the tools used to gather data. Issues of conflict with parties were identified and recorded along with their intensity. The PRA group was asked to narrate the conflicts (apparent and latent) on FES which occurred in the past or are ongoing. The information is recorded in Table 2.13 under section 2.2.9.

2.2 Results

This chapter provides the results of the data collected as described under the section 2.1 and includes information generated in PRA, baseline survey, census data and forest records. It is reproduced in this section in the form of tables and figures, supported by text.

2.2.1 Environmental Data

The results of environmental data are discussed in Table 2.3.

Table 2.3: Environmental Characteristics of Cheola

Features	Value	Source
Name of the Site	Cheola	-
Name of Hamlets	Katal, Cheola, Manjher and Shai - Manjh	PRA and Topo Sheet
Elevation Range (m)	958 m to 1556 m (from bottom to top of project site)	CHF - Topo sheet
Annual Average Precipitation (mm)	From 533 mm in 1984 to 2438 mm in 1988 (1984 to 2001) Recorded at UHF Nauni (Solan)	WP (2002-03 to 2016-17)
As Rain (%)	100% Bulk of rainfall during the rainy season from July to August; winter rains received from December to February	WP & PRA
As Snow (%)	Very Rare	PRA
Dry Months (with precipitation <50 mm)		
Average Number of Frost Days	NA	PRA
Period of Frost	During December to February	PRA
Extreme Events	No extreme events were neither recorded in the WP nor narrated by PRA	WP & PRA
Features	**Value**	**Source**

Temperature (°C/No. of days)	1.8 to 19.8^{0}C in January and 15.4 to 32.20^{0}C in May	WP - At UHF Nauni
Planning Area (ha)	136.80	CHF
Forest Type and Area (ha)	• Chir Pine (101.80 ha) • Broadleaved/Scrub (35 ha)	CHF
Total Area (ha)	136.80	CHF

2.2.2 Demographic Data and User Rights

The villagers are not economically well off. Most of the population is dependent on farming, animal husbandry and wage-labour. Out of the total 62 families, 22 belong to the below poverty line (BPL) category. Katal Cheola has majority of BPL families (almost 50%). More than 90% families are marginal farmers with land holding less than one hectare. The total population of the site in Cheola is 264 comprising 133 males and 88 females. The demographic data of Cheola site is presented in Table 2.4.

Table 2.4: Demographic Data at Cheola

Particulars		Katal	Manjher	Manjh	Sherla	Source
Population (number)	Female (y)	44	13	48	22	PRA and Panchayat Records
	Male (x)	41	12	48	24	
	Children (below 6 years)	-	1/8	9/12	7/6	
Gender ratio (adult > 14 years) (number)	x/y	41/44	12/13	39/36	17/16	
Livestock (number)	Cow	33	20	26	17	Panchayat Records
	Buffaloes	-	-	4	-	
	Bullocks	2	6	7	-	
	Sheep & goat	-	-	8	8	
	Horses & mules	1	-	-	-	
Occupation	Government job	2	1	-	-	PRA and Community member's effort
	Private job	5	3	2	-	
	Self employed	1	2	-	1	
	Agriculture/ Horticulture	14	9	14	7	
	Artisan	3	-	1	4	
Land holding (no of HH) Total 25	Marginal	21	6	17	0	PRA and Panchayat Records
	Small	4	3	0	11	
	Medium	0	0	0	0	
	Large	0	0	0	0	
Land use (%)	Agriculture	Mostly agriculture	Mostly agriculture	Mostly agriculture	Mostly agriculture	

The local communities have the internal rights to the Provisioning FES without any external encumbrances. The information on existing rights and their use by villagers as gathered in PRA is given in Table 2.5. The 'Others' column in the table below includes water.

Table 2.5: Forest Use Rights of Communities in Cheola

Village Name	Timber		Fuelwood		Grazing		Fodder		Others	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
Katal	×	✓	×	✓	×	✓	×	✓	×	✓
Cheola	×	✓	×	✓	×	✓	×	✓	×	✓
Manjher	×	✓	×	✓	×	✓	×	✓	×	✓
Shai-Manjh	×	✓	×	✓	×	✓	×	✓	×	✓
Sherla	×	✓	×	✓	×	✓	×	✓	×	✓

(Ext. = user right holders outside Cheola; Int. = user right holders inside Cheola; × = No; ✓= Yes)

Source: PRA at Cheola, forest settlement records and facilitation through interview/transect walk

2.2.3 Seasonality of Labour Distribution

The information on seasonality of labour distribution is important for planning the implementation of activities. In Cheola, agriculture activities are at the peak during the months of April for Rabi crop harvesting; July and August for cash crop of Tomato; and during October and November for the sowing of Rabi crop and grass cutting. Rest of the year people are available for wage labour. The information collected during PRA using the season calendar is presented in Table 2.6.

Table 2.6: Seasonal Calendar for Microplan Activities for Cheola

Seasonal activity & climatic events	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Wage Labour												
Agri/Horticulture												
Rains												
Snow/Winter Rains												
Frost												
Legends												
	Fully Occupied											
	Partially Occupied											

2.2.4 Stakeholder Mapping

There are a series of stakeholders who needs to be considered in the planning site. Among them the local communities and HPFD are the key stakeholders including groups such as the Self-Help Groups (SHG), an effective vehicle for women empowerment who could play an important role in regulating the FES use. The results from stakeholder analysis exercise of PRA are presented in Table 2.7.

Table 2.7: Stakeholders of Cheola

Type	Key	Primary	Secondary
Civil Society	• Local Communities • Van Vikas Samiti	• Self Help Groups • Anganwadi • Mahila Mandal	Ward Sudhar Sabha
Private	Bamboo Weavers	Leaf Plate Makers (*Bauhinia* leaf)	Use of Flower Buds of Kachnar and Amla Fruits for Pickles etc.
State	• HPFD • Panchayat • HPSFDC	Watershed Project	• IPH • Agriculture & Horticulture Department

2.2.5 Institutional Mapping

Many institutions are identified in the planning site and were put together graphically in the form of an institutional map during the PRA. The institutions, their importance, relevance and relations with local communities and with each other were probed. The results of the exercise are presented in Table 2.8.

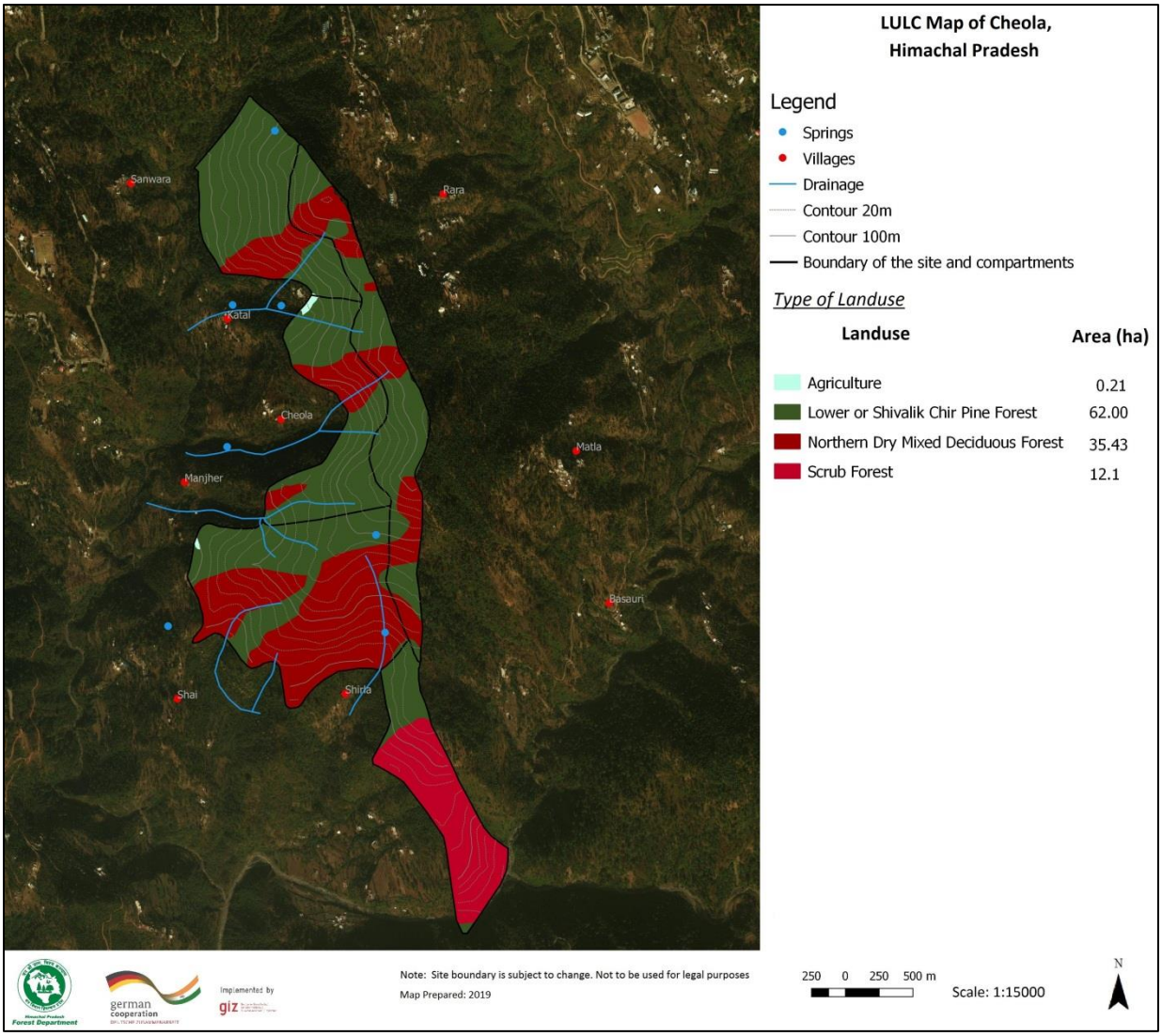
Table 2.8: Institutional Mapping of Cheola

Particulars/ Item	Institutions			
	HPFD	HPSFDC, IPH	Mahila Mandal/SHGs	Agriculture & Horticulture
Importance	H	M	M	M
Relevance	H	M	M	L
Relation	G	M	G	L
Conflict	L	N	N	N

Note: H: High, M: Moderate, L: Low, G: Good, N: None

2.2.6 Forest

The site consists basically of two forest types: Northern Dry Mixed Deciduous Forest and Lower or Shivalik Chir Pine Forest (Map 2.3). A total of five plots were laid each of the forest types for the assessment of the human disturbance, tree species regeneration and basal area.



Map 2.3: Landuse/Landcover Map of Cheola

2.2.6.1 Forest Assessment during Baseline Survey

- Human disturbances in different forest types of Cheola

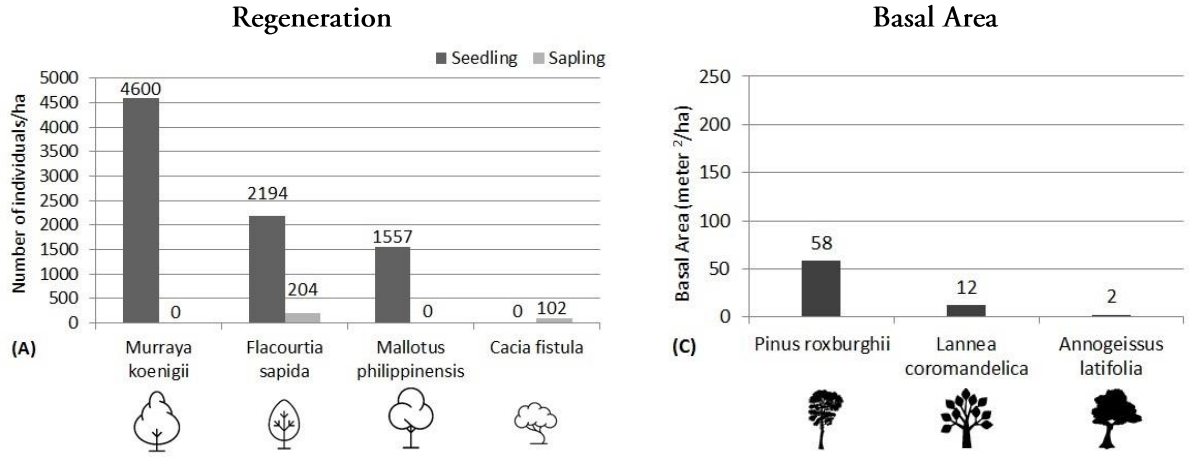
  Forest fire was associated with both the forest types but it was found to be high in Lower or Shivalik Chir Pine Forest. The Chir Pine Forest is used for extracting resin tapping from the Chir Pine trees. Northern Dry Mixed Deciduous Forest was found to be heavily lopped as compared to Chir Pine Forest. Table 2.9 shows percentage of plots having signs of human interference in each of the forest type.

Table 2.9: Percentage of Plots in which Signs of Human Interference were observed in Cheola

Forest Type	Fire	Cutting	Trampling	Lopping	Resin	Track	Dung
5B/C2 Northern Dry Mixed Deciduous Forest	40	20	100	80	0	100	100
9/C1a Lower or Shivalik Chir Pine Forest	100	80	100	20	80	100	60

- Regeneration in different forest types of Cheola (Figure 2.3)
  - Regeneration in Northern Dry Mixed Deciduous Forest: In this forest type, *Murraya koenigii* was found to regenerating in high numbers followed by *Flacourtia sapida.* However, only saplings of *Flacourtia sapida* were found.
  - Regeneration in Lower or Shivalik Chir Pine Forest: The species having highest number of seedlings were *Pinus roxburghii* followed by *Murraya koenigii* but no saplings were found to be regenerating.

- Basal Area in different forest types of Cheola (Figure 2.3)
  - Basal Area in Northern Dry Mixed Deciduous Forest: *Pinus roxburghii* has the highest basal area in this forest type followed by *Lannea coromandelica*.
  - Basal Area in Lower or Shivalik Chir Pine Forest: *Pinus roxburghii* is the only species found in Chir Pine forest with a basal area of 196 m^2/ha.



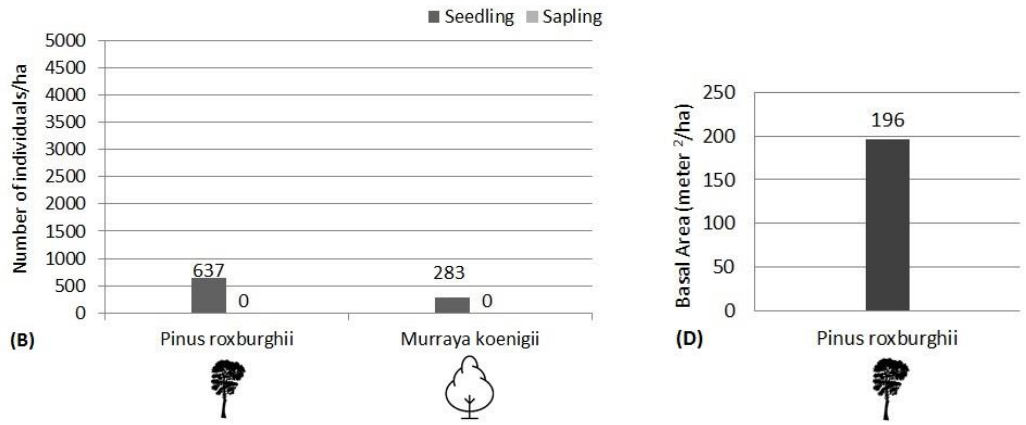


Figure 2.3: Regeneration and Basal area in different forest types of Cheola [A: Regeneration in Northern Mixed Dry Deciduous Forest, B: Regeneration in Lower or Shivalik Chir Pine Forest, C: Basal area in Northern Mixed Dry Deciduous Forest, D: Basal area in Lower or Shivalik Chir Pine Forest.

2.2.6.2 HPFD Documents like Divisional Working Plan, Compartment History Files and PRA

The description of each of the compartment in the Cheola is shown in Table 2.10. Most of the area is covered by pure Chir Pine (*Pinus roxburghii*) forest. Some of the area shows Chir Pine forest with a mixture of other species.

Table 2.10: Description of Forest Compartments at Cheola

Compartment	Forest Type	Area (ha)	Vegetation structure & composition
C1	9/C1a Lower or Shivalik Chir Pine forest	24	• A pure Chir Pine (*Pinus roxburghii)* forest having young to middle aged trees and some scattered mature trees throughout the compartment. • Regeneration of Chir pine has come up very well and has established itself at many places. • A few trees of Jhingan (*Lannea grandis)* are present adjoining Katal village. • A few trees of Kainth *(Pyrus pashia),* Baloje *(Sapium insigne)* are found. • Moderate growth of bushes mainly *Berbaris*, *Lantana*, *Carissa, Zanthoxylum*, *Euphorbia* etc. is also found.
C2		22.40	• A pure Chir Pine (*Pinus roxburghii)* forest having middle aged to mature trees. • Density is better above Katal village with a lot of regeneration underneath. • To the south of Cheola village, the forest consists of an open crop of Chil with deficient

Compartment	Forest Type	Area (ha)	Vegetation structure & composition
			regeneration. • A small portion of the compartment to the south of Katal village and above Cheola village has a patch of Chhal trees. • A few trees of Kainth *(pyrus pashia),* Baloje *(Sapium insigne)* are found in the forest. • Moderate growth of bushes mainly *Berbaris*, *Lantana*, *Carissa, Zanthoxylum*, *Euphorbia* etc. is also found.
C3		28.40	• A pure Chir Pine (*Pinus roxburghii)* forest having variable density. Trees are Middle to mature age classes. • Regeneration of Chir is better along the main Cheola ridge and adjoining C2. • The portion abutting C5 has a few broad-leaved species like Chhal and Jhingan and has moderate infestation of Lantana bushes. • A few trees of Jhingan (*Lannea grandis)* Chhal, Kangu and Baloje are found in the forest as underwood/ undergrowth. • Moderate growth of bushes mainly *Berbaris*, *Lantana*, *Carissa*, *Euphorbia* etc. is also found.
C4	• 9/C1a Lower or Shivalik Chir Pine Forest • 9/DS1 Himalayan Sub-tropical scrub.	35.2	• A pure Chir Pine (*Pinus roxburghii)* forest with an open crop of scattered older middle aged and mature trees. • Poor density is due to a lot of salvage removals in the past. • Better regeneration in depressions and upper reaches. • The central portion above Manjh village has a very open crop of Chil with few broad-leaved species like Chhal, Jhingan, Kangu etc. in depressions. • The southernmost extremity above Sherla village and that adjoining to C5 has mainly scrub vegetation with a few Chil trees sprinkled on the ridges. • This also has heavy infestation of Lantana bushes, especially in lower reaches. • Trees of Kainth, Jhingan (*Lannea gradndis),* Daru, Khair, Kamal, Kangu and Baloje are

Compartment	Forest Type	Area (ha)	Vegetation structure & composition
			found in the forest as underwood/ undergrowth. • Moderate growth of bushes mainly *Berbaris*, *Lantana*, *Carissa*, *Rubus*, Kangu etc. is also found.
C5	5B/C2 Northern Dry Deciduous Forest	26.80	• A poor-quality scrub forest which has a few scattered trees of miscellaneous broad-leaved species like Jhingan, Kachnar, Kangu etc. • A few trees of Chil are sprinkled on the ridges. • A small patch of pure Chil occurs on a hillock adjoining Thari village in the North of the forest. • The whole compartment has been invaded by *Lantana* and other bushes and calls for restocking. • The climber *Bauhinia vahlii* and Sariyali are present in large numbers.

Source: Compartment History File and HPFD

2.2.6.3 Forest Data from CHF & PRA

In compartment C4 and C5, some area was planted in the past with bamboo and broadleaved species. It is shown to have come up well but due to devastating fire the entire area was burnt, and the plantation destroyed. There are some survivals that stand witness to the earlier plantation work. For any future plantation work proper fire protection measures needs to be taken. The communities need to be more vigilant towards fire protection and plantation protection.

2.2.7 Forest Ecosystem Service

Water as a regulatory forest ecosystem service has been established as most prioritised ecosystem service. 50-80% households use fuel and fodder from Cheola DPF. Water Source of Katal, Manjher, Shai-Manjh and Sherla hamlets are being sourced by Cheola DPF. This was validated during the PRA meeting. The FES derived from Cheola, its trend and drivers are presented in Table 2.11.

Table 2.11: Forest Ecosystem Services: its rank, trends and drivers

Category	Service	Rank	Sub-category	% HH using FES (Approx.)	Annual amount used		Quantity sufficient (Y/N)	Trend	Driver
					Total	Avg. no. of HH using FES			
Provisioning	Fodder	2	Green Leaves & grass	80%	NA	80%	Y	↓	Lantana and Congress Grass
	Fuelwood	3	Dry trees/ twigs	50%	NA	50%	Y	↓	Lantana infestation
	Timber	5	Construction purpose	20%		20%	N	↓	Drying and falling of Chil Trees, Resin Tapping
	NTFP	4	Construction purpose	20%	NA	20%	N	↓	Lantana Invasion and other bushes
Regulating	Watershed protection	1	Soil and moisture conservation	100%	NA	100%	N	↓	Decreasing Rainfall, less percolation
		1	Water Purification	50%	NA	50%	N	↓	Poverty and lack of running Tapped water
Cultural	Aesthetic	8	Ecotourism	None	NA	NA	NA	↔	-
	Recreational	7	Picnic/Social Gathering	None	NA	NA	NA	↔	-
	Spiritual	6	Diety's Forest	40%	NA	Communities from Manjher and Shai Manjh	Y	↔	Biennial worship of Forest Deity

Note: Trend – Decreasing: ↓ Increasing: ↑ No change: ↔, ND: No Data available

As an additional input from ACWADAM study report, aquifer recharge zones were identified for each spring (bawaris). Based on this report and PRA exercise on forest resource use, a priority map for FES was prepared in a participatory approach. This map depicts the prioritized zones for harvesting water, fodder and fuel as prime forest ecosystem services. The prioritization also laid down regulations on current practices which involves high opportunity cost due to change in practices. However, villagers confirmed to abide by these proposed rules so as to maximize the FES output from these zones.

2.2.8 Human-Wildlife Conflict

Human-Wildlife conflicts often hamper the well-being of people and information on the issue was facilitated during the PRA exercise. Information about wild animals causing damage to crop and livestock in the project site was gathered and is given in Table 2.12.

Table 2.12: Human Wildlife Conflict: Type and Extent of Damage

List of Wild animals	Type of Damage	Extent of damage
Monkeys	From Crop sowing to harvesting[1]	H
Langur	Same as above[1]	H
Wild Boar	Potato, Colocasia, Turmeric and Onion on ripening [1]	M
Porcupine	Maize and Potato on ripening[1]	L
Barking Deer, Sambar Deer	Initial stages of crops and Tomato[1]	L
Hare/ Rabbit	Capsicum, Maize, Wheat and Peas on germination[1]	M
Leopard	Cattle and Pets[2]	L
Peacock, Red Jungle Foul, Parrots	At the time of crop sowing and Pepper fruit[1]	M

Note: Type of Damage – 1: Crop Raiding, 2: Livestock Damage
Extent of Damage - H: High, M: Medium, L: Low

2.2.9 Conflict Management

During the PRA it was gathered that some outside villages of Matla encroach upon the planning area for grazing. Cross grazing by internal villages in the planning area also takes place occasionally (Table 2.13).

Table 2.13: Intercommunity Conflict for FES at Cheola

Conflict type	Conflict with	Intensity
Water	Rationing of the Water within village during lean season	H
Migratory graziers	None	-
Local Graziers	Grazing by Matla villagers (from outside Planning Site)	M
Local Graziers	Katal and Sherla villagers grazing in Manjher & Shai Manjh Forest areas	M

Note: Intensity - H: High, M: Medium, L: Low

3 Village Forest Management Society (VFMS) Cheola

Village Forest Management Society (VFMS) of Cheola Project Area consisting of communities from Katal, Cheola, Manjher and Shai – Manjh hamlets was constituted on 1st July 2018 and is registered under Himachal Pradesh Society Registration Act, 2006 with the office of the Sub-Divisional Magistrate Solan. There are more than twenty members in the Society. The society has an executive consisting of 13 members whose name, designation (within the society) and contact details are given in Table 3.1.

Table 3.1: Details of Executive Members of Cheola VFMS

S. No.	Name & Fathers'/ Husbands' Name	Address (P.O. Jabli, Tehsil Kasauli, Distt. Solan, HP Pin 173209)	Designation	Occupation & Mobile No.
1	Shri Som Dutt Sharma S/O L/Sh. Nand Kishore	Village Manjh	President	Farmer 9418104639
2	Smt. Kiran Bharadwaj W/O Manohar Lal	Village Manjh	Vice President	House Wife 9816027164
3	Shri Surender Kumar Thakur S/O L/Sh. Hari Singh	Village Manjher	Member Secretary	Farmer/ Social Worker 8894884567
4	Smt. Anita Sharma W/O Ravinder Attri	Village Manjher	Executive Member	House Wife/ PT Teacher 9418005306
5	Shri Bahadur Singh S/O Sh. Choudhary Ram	Village Katal P.O. Mandodhar	Joint Secretary	Pensioner/ Farmer 9882647275
6	Smt. Lalita Devi W/O Vinod Kumar	Village Manjh P.O. Jabli	Executive Member Pradhan MM	House Wife/ Farmer 8894312947
7	Smt. Satya Devi W/O Rakesh Kashyap	Village Manjh	Executive Member SHG Member	House Wife 9736208826
8	Shri Pradeep Sharma S/O Ghanshyam Dutt	Village Manjh	Executive Member	Private Job 7018252110
9	Smt. Hem Lata W/O Shri Devinder Singh	Village Manjher	MM/ SHG Member	House Wife 98572139
10	Shri Krishan Dutt S/O Shri P. S. Bharadwaj	Village Manjh	Executive Member	Private Job 8894858766
11	Forest Guard	Mando Beat	Ex- Officio Member	7018057023
12	Prem Kumar Dy Ranger	Dharampur Forest Block	Ex- Officio Treasurer	9459514457
13	Savitri Devi, Ward Member of Jabli Panchayat	Ward Member of Jabli Panchayat	Ex-officio Member	-

4 Aims of the Management Plan

Based on PRA, the forest vegetation assessment and discussions with all stakeholders, the objectives for long-term, mid-term and short-term planning periods are defined (Table 4.1). The long-term and short-term planning sets the context for the orientation of this microplan and determines the measures suggested. The plan is an endeavour to maximize the FES derived from D -244 Cheola by communities from village Katal, Cheola, Manjher, Manjh, Shai and Sherla.

Table 4.1: Management Plan for Cheola

Plan Term	Water	Fuel & Fodder	Forest composition & structure	Measures
Long Term (30 years)	Water supply is increased by 20%	• Fuelwood and fodder supply sufficient for local communities. • Their dependence on imported fodder reduced tangibly	Improvements of tree cover in Water recharge Zones & Fuelwood Fodder Zones of different micro-watershed systems under the plan	Closure, Enrichment Tall Planting & Staggered Contour Trenches in Water Recharge Zones and overall Fire Protection measures with the participation of communities
Mid Term (15 years)	Water supply increased by 10%	Less dependence on imported fodder	Incidence of fire and grazing minimized	Communities involved in fire protection and stopping of free grazing
Short Term (5 years)	Water flow is increased by 5 % of base line value	The improved economic status of communities' results in people increasingly using LPG for fuel	Success of plantations and increased moisture regime	Communities involved in fire Protection and preventing free grazing in the forests
Project Period (till April 2020)	Improved percolation and recharging indicated by extended period of water availability	Improvement in availability of fuelwood & fodder with effective fire protection measures	Effective closure and fire protection by community participation through SHGs	Enrichment Tall Plantation with Barbed Wire fencing with RCC fence posts in Water Recharge Zones

Source: PRA

5 The Plan (for 5 years)

During the PRA it emerged that most of the FES derived from D-244 Cheola comprise of water, fodder and fuelwood. Therefore, the activity plan revolves around augmentation of water in the springs and improvement in the availability of fodder and fuelwood. Capacity building measures around fire management and women SHGs has been proposed. A watershed approach has been adopted in suggesting the likely activities. The entire forest area forms the micro-watershed for various springs in village Katal, Cheola, Manjher, Manjh, Shai and Sherla. These micro-watersheds are delineated in accordance with the water springs they feed into.

A zone-wise management approach was evaluated with the community based on the zones used for accessing the forest ecosystem services (Table 5.1). As per ACWADAM (2018) for water recharge area of springs, the areas delineated as recharge zone have been marked as such in these micro-watersheds. The remaining area has been categorized as fuelwood and fodder zones with water recharge overlaps. For water recharge zones, enrichment tall planting with staggered contour trenching and closure of the area are suggested. For other zones, enrichment planting with wider spacing is suggested. For zones with overlapping water recharge functions, staggered contour trenching is suggested. Due to financial constraints, only 'water recharge zones' are taken up under the HP-FES project by GIZ. All FES zones for water, fodder and fuel are demarcated on the base map (Map 5.1).

Based on Table 5.1, physical and social interventions are planned and evaluated with the help of the community as it would need their support as following strict regulations. These interventions are aimed to achieve augmentation of FES and hold any degradation in near future. It has resulted in intervention map (Map 5.2) built on base map. Table 5.2, Table 5.3 and Table 5.4 provides summary of physical treatments planned for Katal, Cheola and Majher Microwatershed, respectively.

Table 5.1: Zone-wise Management Plan of Cheola

FES Zones	Priority FES	Area (Ha)	Compartment No.	Description	Treatment planned	Proposed Species
WT-1	Water	3.85	C1 and C3	• Southern aspect • Rocky & steep slope • Bl species with scattered Chil	• SWC plus plantation: Staggered contour trenching (SCT) - 50 No. in flatter pockets with broad leaved Enrichment Tall Plantation in groups with 800 plants per ha. • Complete Protection: No fodder, no fuelwood/ timber extraction. RCC fence Posts.	BL species, preferably Non-palatable & fast growing and Bamboo in depressions. Perimeter- 956 m
F-1	Fodder	5.20	C2 and C1	• South Western • Shallow soil & Steep slope • Dense Chil going thinner upwards.	• Grass seeding and Enrichment plantation for fodder species- 400 plants per ha • Bamboo planting in depressions • No grazing, Grass Cut and Carry system **Not provisioned under the GIZ**	Grass Seeding, fodder species and Bamboo. Perimeter 1035 m
WT-2	Water	2.50	C2	• Northern slope • Medium depth soil & gentle slope. • Thick Chil crop mostly in pole stage.	• SCT -30 No and Plantation - Ban oak and BL species in Groups and Bamboo in depressions • Enrichment Tall Planting with 800 plant per ha. RCC Fence Posts • No fodder, no fuelwood/ timber extraction. Fire Protection.	Ban Oak, Pyrus pashia (Kainth) and bamboo. Perimeter – 697 m

FES Zones	Priority FES	Area (Ha)	Compartment No.	Description	Treatment planned	Proposed Species
Fwt-1	Fodder and Water	3.50	C3	• Gradual South west along ridge, • Shallow soil. • Open canopy Chil crop.	• SCT - 30 No plus plantation: SCT on flatter regions with Fodder tree plantation with legume grass seedings. • Enrichment plantation - 400 plants per ha. • No grazing, fodder harvest under cut and carry system. **Not provisioned under the GIZ.**	BL Fodder species. Perimeter – 1150 m
FWf-1	Fuelwood & Fodder with Water	7.14	C2 and C3	• South & South West • Gentle slope with steeper towards the upper line. • BL *Anogeissus latifolia* mainly being used for Grass Cut and Carry.	• SCT – 30 No on gentle slopes & Planting with Fuelwood & Fodder species • Bamboo in depressions. Enrichment plantation with 400 plants per ha in groups. **Not provisioned under the GIZ.**	BL species for fuelwood & fodder and Bamboo. Perimeter – 1271m
Fwt-2	Fodder and Water	5.44	C2 and C3	• Northern with • Medium soil.	• SCT - 30 and Enrichment Tall Planting – 800 plants per ha with BL for water conservation • Protection with Grass Cut and Carry System. • Ban Oak and Bauhinia in Group plantation and bamboo in depressions. • Two check Dams in the Nala. RCC Fence posts.	BL species. Ban, (Q *leucotrichophora*), Bauhinia and Bamboo. Perimeter – 1285 m

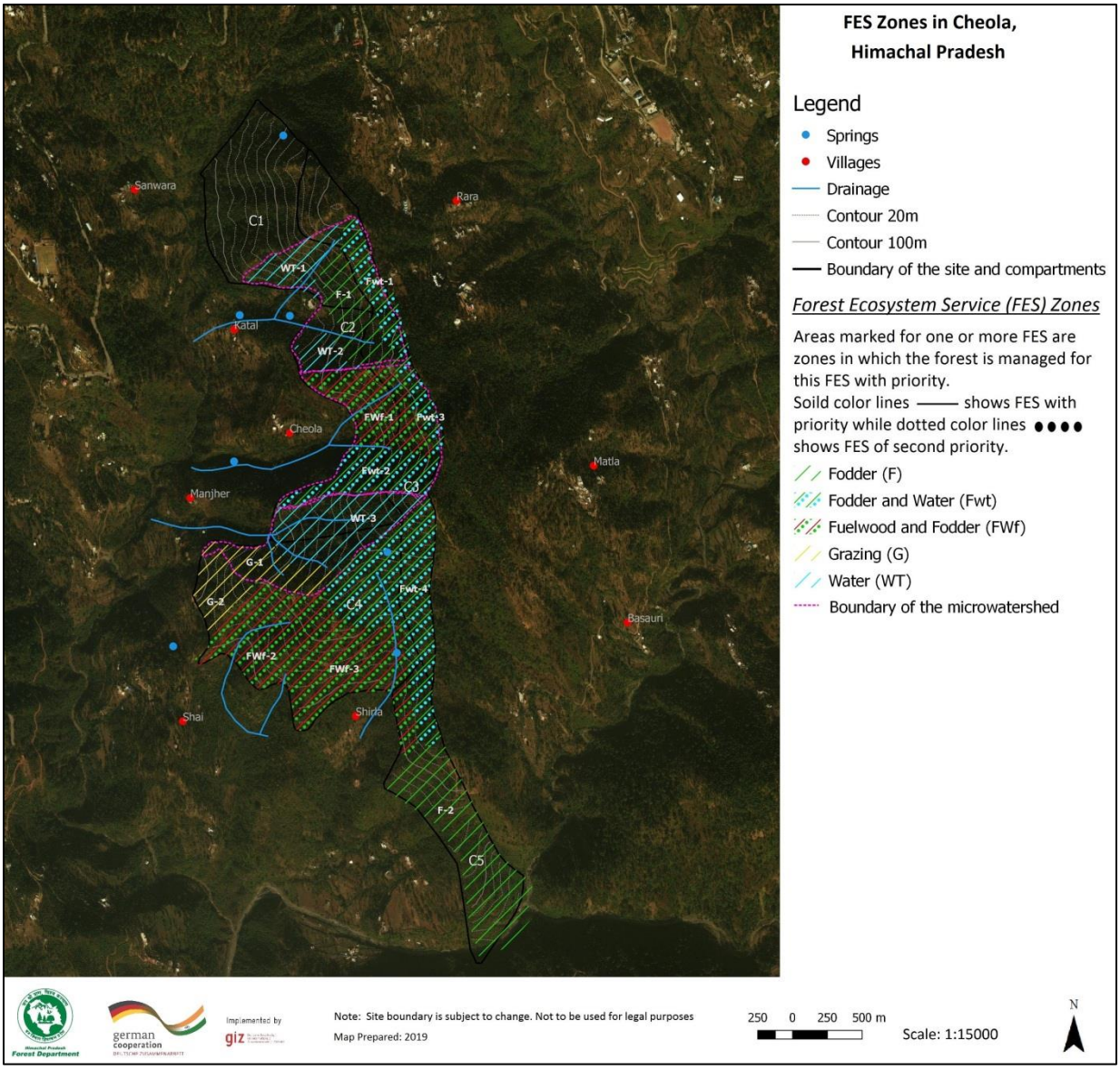
FES Zones	Priority FES	Area (Ha)	Compartment No.	Description	Treatment planned	Proposed Species
Fwt-3	Fodder and Water	1.95	C3	• Gradual to steep South West along the ridge • Shallow soil.	• SCT - 20 with Enrichment plantation with 400 plants per ha in groups • Fodder species and legume grass seedings • No open grazing, fodder harvest under cut and carry system **Not provisioned under the GIZ.**	BL Fodder Species. Perimeter - 841 m
WT-3	Water	8.75	C2, C3 and C4	• Southern and South western • Moderate slope • Broad Leaved trees with Chil (Dense Chil in the Middle).	• SWC (SCT – 60 No in flatter pockets) and Enrichment Planting with 500 plants per ha • BL species in lower region with group planting in middle and top region. • Two Check dams in the main Nala • Complete protection from grazing and fire. Grass Cut and Carry.	BL species, preferably Nonpalatable & known for proliferous growth. Perimeter - 1339 m 518 m common
G-1	Grazing	3.85	C4	• North and North western • Moderate slope • Fairly dense Chil crop.	• The area is adjacent to Manjher private lands and habitation • May be left for grazing. **No treatment suggested.**	Perimeter – 1134 m
G-2	Grazing	3.10	C4	• Western Aspect. Above village Manjh and PS Manjh • Scattered Chil Trees	• Not forming part of any MWS. May be left for occasional Grazing **No treatment suggested.**	Perimeter – 785 m

FES Zones	Priority FES	Area (Ha)	Compartment No.	Description	Treatment planned	Proposed Species
FWf-2	Fuelwood & Fodder with Water	10.5	C4	• Southern and South Western • Gentle slope • Heavy infestation of *Lantana* towards lower side	• Enrichment Tall Plantation with 200 plants per ha • BL species for Fuelwood and fodder by creating space inside *Lantana* • Bamboo in depressions towards lower side **Not provisioned under the GIZ.**	Tall Plants of BL Fuelwood and fodder species and Bamboo Perimeter – 1657 m
Fwt-4	Fodder and Water	13.7	C3 and C4	• South Eastern and Southern • Deep soil in the middle • Open crop of Chil in the upper portion, good patch of Chil in the middle and scattered Chil trees with BL towards lower side with Lantana infestation.	• SCT – 100 No and Enrichment Tall Plantation with 500 plants per ha in groups with BL species • Bamboo in depressions. Grass Cut and Carry in the upper portion **Not provisioned under the GIZ.**	Bl species and Bamboo in Nala and depressions on lower side. Perimeter – 2123 m 419 m common with Manjher W-3
FWf-3	Fuelwood & Fodder	9.45	C4	• Southern predominantly • Scattered Chil and BL trees with heavy infestation of *Lantana*	• Enrichment Tall Plantation with 200 plants per ha • BL species for Fuelwood and fodder by creating space inside *Lantana* • Bamboo in depressions and along Nala **Not provisioned under the GIZ.**	Tall Plants of BL Fuelwood and fodder species and Bamboo. Perimeter – 1792 m

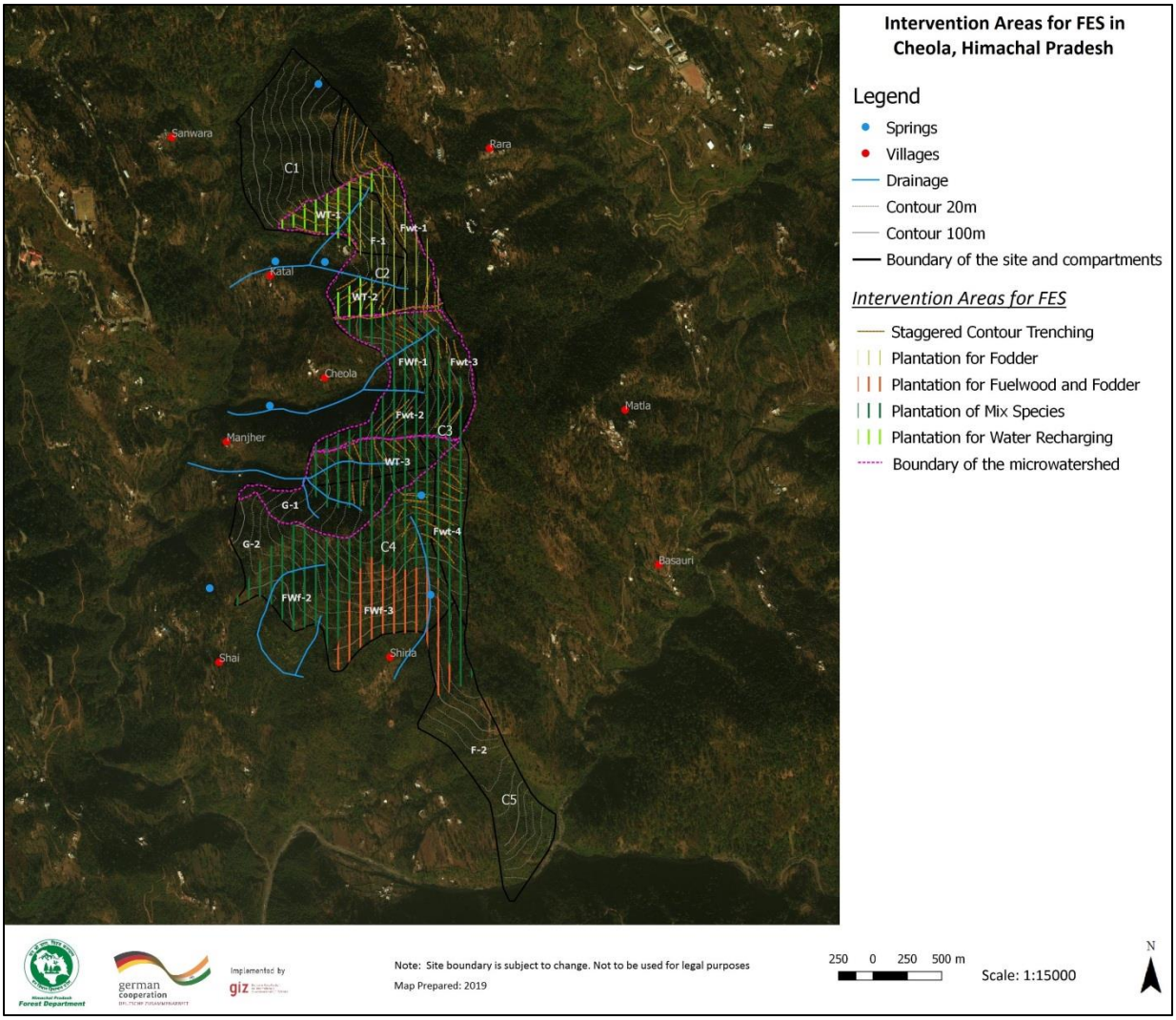
FES Zones	Priority FES	Area (Ha)	Compartment No.	Description	Treatment planned	Proposed Species
F-2	Fodder	13	C5	Area lying above Sherla village towards **Kaushalya** river.	The area may be left for grazing and fuelwood. No treatment suggested. **Not provisioned under the GIZ.**	Perimeter – 1949 m.

Note: * Solid colour lines show the priority FES while the dotted colour lines show the FES of second priority. The combination of two lines shows that the zone has two FES, with different priorities

Items shown as "Not provisioned under HP-FES" is not included in the financial cost of the project. These could be considered under other schemes of the HPFD.



Map 5.1: FES Zone Map of Cheola



Map 5.2: Intervention Map of Cheola based on 5-year plan

5.1 Summary of Physical Treatment at Katal Microwatershed

Table 5.2: Summary of treatment plan for Katal Microwatershed

FES Zone	C No.	Name of Activity	Formation Cost (INR)		Maintenance Cost in Year (INR)					Other Expdt.	Total Cost (INR)
			Fencing	Planting	1st	2nd	3rd	4th	5th		
W-1	C1 and C3	Zone -1 Tall Enrichment Planting 800 Plants per Ha - 3.85 ha	2,61,784	2,37,495	14,553	9,625	7,315	5,005	5,005	0	5,40,782
W-2	C2	Zone -3 Enrichment Tall Planting 800 Plants per Ha - 2.50 ha	1,91,289	1,55,493	9,450	6,250	4,750	3,250	3,250	0	3,73,732
		Nursery cost of plants for Katal MWS	0	1,99,695	45,993	27,910	18,083	10,221	10,221	0	3,12,123
		Total	**4,53,073**	**5,92,683**	**69,996**	**43,785**	**30,148**	**18,476**	**18,476**	**0**	**12,26,637**

5.2 Summary of Physical Treatment at Cheola Microwatershed

Table 5.3: Summary and treatment plan for Cheola Microwatershed

FES Zone	C No.	Name of Activity	Formation Cost (INR)		Maintenance Cost in Year (INR)					Other Expdt.	Total Cost (INR)
			Fencing	Planting	1st	2nd	3rd	4th	5th		
Fwt-3	C3	Zone -2 Cheola Enrichment Tall Planting 800 Plants per Ha - 5.44 ha	3,52,709	3,28,083	20,563	13,600	10,336	7,072	7,072	0	7,39,435
		Nursery cost of plants for Cheola MWS	0	1,71,077	39,310	23,586	15,331	8,648	8,648	0	2,66,600
		Check Dams in Cheola Manjher Nala (N=3)			27,993						27,993
		Total	**3,52,709**	**4,99,160**	**87,866**	**37,186**	**25,667**	**15,720**	**15,720**	**0**	**10,34,028**

Note: The above Summary of expenditure is inclusive of Nursery cost of plants as per HPFD rates for 2018-19 (Annexure VIII)

5.3 Summary of Physical Treatment at Manjher Microwatershed

Table 5.4: Summary and treatment plan for Manjher Microwatershed

FES Zone	C No.	Name of Activity	Formation Cost (INR)		Maintenance Cost in Year (INR)					Other Expdt.	Total Cost (INR)
			Fencing	Planting	1st	2nd	3rd	4th	5th		
W-3	C2, C3 and C4	Zone -1 Enrichment Tall Planting 500 Plants per Ha - 8.75 ha	1,71,188	1,34,567	33,075	21,875	16,625	11,375	11,375	0	4,00,080
		Nursery cost of plants for Manjher MWS	0	60,378	14,190	8,514	5,534	3,122	3,122	0	94,860
		Check Dams in Manjher Nala (N=3)	-	23,911	-	--	-	-	-	-	23,911
		Total	**1,71,188**	**2,18,856**	**47,265**	**30,389**	**22,159**	**14,497**	**14,497**	**0**	**5,18,851**

5.4 Summary of Human Capacity Building

Women are a major forest ecosystem service dependent section. They directly interact with the resources during their day to day activities such as fetching water, fodder and fuel for household. Therefore, measures need to take up to motivate them to participate in forest management. This could increase their financial situation as well as provide them a separate platform for discussing issues of forest resource use. Self-help group (SHG) can act as an important vehicle for the same. For this purpose, a minimum of two-day capacity building programme for SHG members in two batches of 6 SHGs each year is proposed. The financial projections are as given in Table 5.5.

Table 5.5: SHG Livelihood Improvement: Training Budget (two workshops a year)

S. No.	Particulars	No of SHGs	No of Persons	Rate (INR)	Amt. (INR)	1st year		2nd year		Total	
						Phy.	Fin. (INR)	Phy.	Fin. (INR)	Phy.	Fin. (INR)
1	Refreshment/Lunch	6	12	170	12,240	-	-	-	-	-	-
	Stationary	6	12	30	2,160	-	-	-	-	-	-

S. No.	Particulars	No of SHGs	No of Persons	Rate (INR)	Amt. (INR)	1st year		2nd year		Total	
						Phy.	Fin. (INR)	Phy.	Fin. (INR)	Phy.	Fin. (INR)
	Resource Person (Honorarium and Travel)	2	4	2500	20,000	-	-	-	-	-	-
	Banner and Photography	2	2	250	1,000	-	-	-	-	-	-
	Total	-	-	-	35,400	72	35,400			72	35,400
2	Refreshment/Lunch	6	12	170	12,240						
	Stationary	6	12	30	2,160						
	Resource Person (Honorarium and Travel)	2	4	2500	20,000						
	Banner and Photography	2	2	250	1,000						
	Total	-	-	-	35,400	-	-	144	48,360	144	48,360
Grand Total						**72**	**35,400**	**72**	**35,400**	**144**	**70,800**

5.5 Summary of Activities with Physical and Financial Projections

The summary of physical and financial projections for proposed activities in various micro-watersheds of Cheola forest under different Zones is as given in Table 5.6. The rates for various works are as per sanctioned Schedule Rates for Solan Forest Circle. The rates for nursery plants are as per sanctioned HPFD rates for 2018-19. The Nursery Plant rates are provided in Annexure VIII.

Table 5.6: Summary of Plans (Physical and Financial) for Cheola for 6 Years

S. No.	FES	Name of MWS or Participants Type	1st Yr		2nd Yr	3rd Yr		4th Yr		5th Yr		6th Yr		Total	
			Phy.	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy
1	Wr*, G/Fd*	Katal MWS	6.35	10,45,756	-	69,996	-	43,785	-	30,148	-	18,476	-	18,476	6.35

S. No.	FES	Name of MWS or Participants Type	1st Yr		2nd Yr	3rd Yr		4th Yr		5th Yr		6th Yr		Total	
			Phy.	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy	Fin. (INR)	Phy
2	Wr*, G*/Fd*, Fw	Cheola MWS	5.44	8,51,869	-	87,866	-	37,186	-	25,667	-	15,720	-	15,720	5.44
3	Wr*, G*/Fd* & Fw*	Manjher	12.6	3,90,044	-	47,265	-	30,389	-	22,159	-	14,497	-	14,497	12.6
4	Fp*-CB*	Communities & FLS of HPFD	-	52,470	-	0	-	0	-	0	-	0	-	0	0
5	LI*\ (SHG) CB*	12 SHG * 2 days*2.,(12x12 =144 members)	72	35,400	72	35,400	-	0	-	0	-	0	-	0	144
Grand Total			-	**23,75,539**	**72**	**240,527**	**0**	**111,360**	**0**	**77,974**	**0**	**48,693**	**0**	**48,693**	**168.39**
HP-FES Contribution (1st yr)			**23,75,539 INR**												

Note: Fw - fuelwood; Fd - fodder; G - grass; LI (SHG) - livelihood improvement through SHGs; Wr - water recharging; CB – capacity building; Fp - fire protection)

6 Monitoring and Evaluation (M& E) Framework

A participatory framework is established to monitor the efforts made by the stakeholders. It will also monitor the flow of ecosystem service and related forest management goal. The participatory framework will be segregated in two sections:

- M&E by FD (in-house/outsourced infrastructure support): This will timely evaluate vegetation and other related ecosystem service flow through GIS based map of joint forest management areas, with village boundaries.
- Participatory Unit: Such unit can provide ground truthing of vegetation growth and related ecosystem service flow development and protection measures. Every two years, an assessment of improvement in livelihoods through socio-economic survey needs to be undertaken. It clearly mentions, agreed protocol on rights and responsibilities of all stakeholder parties.

The Monitoring and Evaluation Plan with Indicators are provided in Table 6.1.

Table 6.1: Monitoring and Evaluation Plan

S. No.	FES	Measures to be monitored	Baseline value	Target value	Indicator	Means of verification	Responsibility
1	Water: Increase of water supply of spring at Katal & Manjher	M1: Availability of water flow and seasonality from a water source especially during summers.	0	Atleast 5% increase in flow in similar monsoon precipitation level in 5 year.	Litre flow per second	Record keeping on monitoring by Participatory Monitoring Unit	Participatory Monitoring unit (part of VFMC unit)
2	Fodder: Improved fodder supply by 10%	M2: Empowerment of Women SHGs. Women being main user of Fuel & Fodder. Part of C2,	0	10% reduction in purchased grass fodder from outside in similar monsoon ppt in 5 year.	Weight/Bundles/money spent	Record keeping/ Survey of number of headloads of fodder.	PMU of VFMC

S. No.	FES	Measures to be monitored	Baseline value	Target value	Indicator	Means of verification	Responsibility
		C3, C4 & C5 being used for grass cut and carry.					
3	Livelihoods	Formation of women SHGs	0	Microfinance value increase by 10%	Increase in fund from microfinance	Increase in SHG finance operations	PMU of VFMC

7 Recommendations

It is recommended to undertake studies to understand the impact of Forest Ecosystem Services approach on increase in water availability in springs earmarked.

8 Annexures

Annexure I: Katal Micro-watershed: Detailed Cost Estimates for W1 and W2

Annexure 8.1: Details of work of Enrichment Tall Planting (800 plants/ha in groups; Area: 3.85 ha & Perimeter- 956 m for RCC fence post and barbed wire in five strands) in Katal (Water Recharging) Area (W1)

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
A	**Survey, Demarcation and Fencing**				
1	Survey and Demarcation of Plantation Area	ha	3.85	102.35	394.05
2	Lay out of Pits	ha	3.85	170.60	656.81
3	Cost of RCC fence posts	No	320	425.00	1,36,000.00
4	Transport of RCC fence posts O/D of 2.5 km by manual labour	L/S	320	75.00	24,000.00
5	Preparation/ Digging of holes of 20 to 30 cm diameter and 45 cm deep for posts	No	320	9.07	2,902.40
	Fixing of RCC posts i/c strutting	No	320	6.96	2,227.20
	Stretching and fixing of barbed wire with U- staples in four strands	Rmt	4,730	4.85	22,940.50
6	Transport of barbed wire over 2.5 km uphill side by manual labour	Qtls.	6.757	170.60	2,881.92
7	Interlacing of thorny bushes with barbed wire	Rmt	946	4.15	3,925.90
8	Cost of barbed wire	Qtls.	6.757	7,000.00	47,300.00
9	Cost of U-staple	Qtls.	0.084	7,000.00	591.25
10	Survey and Demarcation of Plantation Area	ha	3.85	102.35	394.05
11	Lay out of Pits	ha	3.85	170.60	656.81
				Total	**2,43,820.00**
	Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 3, 4, 10 &11.				17,964.38
				Total A (Survey, Demarcation and Fencing)	**2,61,784.00**
B	**Trenching and Planting**				
1	Digging of Pits 60cmX60cmX60cm	No	2,980.	17.45	52,001.00

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
2	Filling of Pits 60cmX60cmX60cm	No	2,980	3.54	10,549.20
3	Preparation of Staggered Contour Trenches - 3.00 x 0.45 x 0.45 mt.	No	50	112.05	5,602.50
4	Transport of plants in P/bags from Nursery to road head near to work site O/D 15 km - 8"x15" p/bags three trips by truck	No	4	1200.00	4,800.00
5	Transport of plants in P/bags from road head to work site O/D 2.5 km - 8"x15" uphill	No/ Km	3,080	8.18	62,986.00
6	Planting of tall plants i/c ramming	No	3,080	6.54	20,143.20
7	Mulching of Plants	No	3,080	0.60	1,848.00
8	Irrigation as per need/ topography etc.	L/S	-	-	3,000.00
				Total	**1,60,929.90**
	Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 4 & 8.				76,564.95
				Total B (Trenching and Planting)	**2,37,495.00**
				Grand Total (A+B)	**4,99,279.00**
C	**Maintenance**				
1	Maintenance 1st year - 23% - 710 plants	-	3.85	3,780.00	14,553.00
2	Maintenance 2nd year - 14% - 430 plants	-	3.85	2,500.00	9,625.00
3	Maintenance 3rd year - 9% - 280 plants	-	3.85	1,900.00	7,315.00
4	Maintenance 4th - 5% - 160 plants	-	3.85	1,300.00	5,005.00
				Total C (Maintenance)	**41,503.00**
				Grand Total (A+B+C)	**5,40,782.00**

Annexure 8.2: Details of Work of Enrichment Tall Planting (Area: 2.50 ha & Perimeter- 697 mt. for RCC fence post & barbed wire in five strands- 800 plants/ha in groups) in Katal (Water Recharging) Area (W2)

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
A	**Survey, Demarcation and Fencing**				
1	Survey and Demarcation of Plantation Area	ha	2.50	102.35	255.88
2	Lay out of Pits	ha	2.50	170.60	426.50
3	Cost of RCC fence posts	No	233	425	99,025.00
4	Transport of RCC fence posts	L/S	233	75	17,475.00
5	Preparation/ Digging of holes of 20 to 30 cm diameter and 45 cm deep for posts	No	233	9.07	2,113.31
	Fixing of RCC posts i/c strutting	No	233	6.96	1,621.68
	Stretching and fixing of barbed wire with U- staples in five strands	Rmt	3485	4.85	16,902.25
6	Transport of B/ wire over 2.5 km uphill side by manual labour	Qtls.	4.979	170.6	2,123.36
7	Interlacing of thorny bushes with barbed wire	Rmt	697	4.15	2,892.55
8	Cost of barbed wire	Qtls.	4.979	7000	34,850.00
9	Cost of U-staple	Qtls.	0.062	7000	435.63
10	Survey and Demarcation of Plantation Area	ha	2.50	102.35	255.88
11	Lay out of Pits	ha	2.50	170.60	426.50
				Total	**1,78,121.00**
	Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 3, 4, 10 &11.				13,167.69
				Total A (Survey, Demarcation and Fencing)	**1,91,289.00**
B	**Trenching and Planting**				
1	Digging of Pits 60cmX60cmX60cm	No	1940	17.45	33,853.00
2	Filling of Pits 60cmX60cmX60cm	No	1940	3.54	6,867.60
3	Preparation of Staggered contour Trenches - 3.00 x 0.45 x 0.45 m.	No	30	112.05	3,361.50
4	Transport of plants in P/bags from Nursery to road head near to work site O/D 15 km - 8"x15" p/bags (three trips by truck)	No	3	1200	3,600.00
5	Transport of plants in P/bags from road head to work site O/D 2.5 km - 8"x15" uphill	No/	2000	8.18	40,900.00

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
		Km			
6	Planting of tall plants i/c ramming	No	2000	6.54	13,080.00
7	Mulching of Plants	No	2000	5.97	11,940.00
8	Irrigation as per need/ topography etc.	L/S	-	-	3,000.00
				Total	**1,16,602.10**
				Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 4 & 8.	55,001.05
				Total B (Trenching and Planting)	**1,71,603.00**
				Grand Total (A+B)	**3,62,892.00**
C	**Maintenance**				
1	Maintenance 1st year - 23% - 460 plants	-	2.50	3780	9,450.00
2	Maintenance 2nd year - 14% - 280 plants	-	2.50	2500	6,250.00
3	Maintenance 3rd year - 9% - 180 plants	-	2.50	1900	4,750.00
4	Maintenance 4th - 5% - 100 plants	-	2.50	1300	3,250.00
5	Maintenance 5th - 5% - 100 plants	-	2.50	1300	3,250.00
				Total C (Maintenance)	**26,950.00**
				Grand Total (A+B+C)	**3,89,842.00**

Annexure 8.3: Summary of Nursery Cost for Katal MWS

S. No.	Name of Plantation Area	No of Plants and Cost						Total No./Cost
		Formation	Maintenance Cost in Year					
			1st	2nd	3rd	4th	5th	
1	Zone -1 Enrichment Tall Planting (800 plants per ha for 3.85 ha)	3,080	710	430	280	160	160	4,820
2	Zone -3 Enrichment Tall Planting (800 plants per ha for 2.50 ha)	2,000	460	280	180	100	100	3,120
Total		**5,080**	**1,170**	**710**	**460**	**260**	**260**	**7,940**
Cost of Tall Nursery Plants @ Rs. 39.31 per plant		1,99,695	45,993	27,910	18,083	10,221	10,221	3,12,123
Total Plants		**5,080**	**1,170**	**710**	**460**	**260**	**260**	**7,940**
Grand Total		**1,99,695**	**45,993**	**27,910**	**18,083**	**10,221**	**10,221**	**3,12,123**

Annexure II: Cheola Micro-watershed

Annexure 8.4: Details of Work of Enrichment Tall Planting (Area - 5.44 ha & Perimeter - 1285 m. with RCC fence post & B/Wire in five strands - 800 plants per ha in groups) in Zone -2 Cheola (Fwt-3)

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
A	**Survey, Demarcation and Fencing**				
1	Survey and Demarcation of Plantation Area	ha	5.44	102.40	556.78
2	Lay out of Pits	ha	5.44	170.60	928.06
3	Cost of RCC fence posts	No	429	425.00	1,82,325.00
4	Transport of RCC fence posts O/D of 2.5 km by manual labour	L/S	429	75.00	32,175.00
5	Preparation/ Digging of holes of 20 to 30 cm diameter and 45 cm deep for posts	No	429	9.07	3,891.03
	Fixing of RCC posts i/c strutting	No	429	6.96	2,985.84
	Stretching and fixing of barbed wire with U- staples in four strands	Rmt	6425	4.85	31,161.25
6	Transport of B/ wire over 2.5 km uphill by manual labour	Qtls.	9.18	170.6	3,914.66
7	Interlacing of thorny bushes with barbed wire	Rmt	1285	4.15	5,332.75
8	Cost of barbed wire	Qtls.	9.179	7,000.00	64,250.00
9	Cost of U-staple	Qtls.	0.115	7,000.00	803.13
10	Survey and Demarcation of Plantation Area	ha	5.44	102.40	556.78
11	Lay out of Pits	ha	5.44	170.60	928.06
				Total	**3,28,324.00**
	Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 3, 4, 10 &11.				24,385.44
				Total A (Survey, Demarcation and Fencing)	**3,52,709.00**
B	**Trenching and Planting**				
1	Digging of Pits 60cmX60cmX60cm	No	4292	17.45	74,895.40
2	Filling of Pits 60cmX60cmX60cm	No	4292	3.54	15,193.68
3	Preparation of staggered contour trenches - 3.00 x 0.45 x 0.45 mt.	No	30	112.10	3,361.50
4	Transport of plants in P/bags from Nursery to road head near to work site O/D 15 km - 8"x15" p/bags (three trips by truck)	No	4	1,200.00	4,800.00

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
5	Transport of plants in P/bags from road head to work site O/D 2.5 km - 8"x15" uphill	No/ Km	4352	8.18	88,998.40
6	Planting of tall plants i/c ramming	No	4352	6.54	28,462.08
7	Mulching of Plants	No	4352	0.60	2,611.20
8	Irrigation as per need/ topography etc.	L/S	-	-	3,000.00
				Total	**2,21,322.26**
				Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 4 & 8.	1,06,761.10
				Total B (Trenching and Planting)	**3,28,083.00**
				Grand Total (A+B)	**6,80,792.00**
C	**Maintenance**				
1	Maintenance 1st year - 23% - 1000 plants	-	5.44	3,780.00	20,563.20
2	Maintenance 2nd year - 14% - 600 plants	-	5.44	2,500.00	13,600.00
3	Maintenance 3rd year - 9% - 390 plants	-	5.44	1,900.00	10,336.00
4	Maintenance 4th - 5% - 220 plants	-	5.44	1,300.00	7,072.00
5	Maintenance 5th - 5% - 220 plants	-	5.44	1,300.00	7,072.00
				Total C (Maintenance)	**58,643.00**
				Grand Total (A+B+C)	**7,39,435.00**

Annexure 8.5: Summary of Nursery Cost for Cheola Micro-watershed

S. No.	Name of Plantation Area	No of Plants and Cost						Total No./Cost
		Formation	Maintenance Cost in Year					
			1st	2nd	3rd	4th	5th	
1	Zone -2 Cheola Enrichment Tall Planting 800 Plants per Ha - 5.44 ha	4,352	1,000	600	390	220	220	6,782
Total		4,352	1,000	600	390	220	220	6782
Cost of Tall Nursery Plants @ Rs. 39.31 per plant		1,71,077	39,310	23,586	15,331	8,648	8,648	2,66,600
Total Plants		**4,352**	**1,000**	**600**	**390**	**220**	**220**	**6,782**
Grand Total		**1,71,077**	**39,310**	**23,586**	**15,331**	**8,648**	**8,648**	**2,66,600**

Annexure 8.6: Construction of Check Dams in Cheola - Manjher Nala (C2)

S. No.	Particulars	Measurements			No	Vol	Rate (INR)	Amount (INR)
		L	B	D/H				
1	Construction of Check Dams in Dry Stone Masonry in Cheola- Manjher Nala	4.8	1.2	2.1	2	24.19	256.65	6,209
2	Additional 30% of Item No. 1 for wing walls	-	-	-	-	7.258	256.65	1,863
3	Collection of Boulder Stones - As per Item No. 1+2	-	-	-	-	31.45	175.3	5,513
4	Breaking of B/Stone 50% of Item No. 3	-	-	-	-	15.73	112.5	1,769
5	Transport of Stone for Upto 200 m . @ 526/- per km/ m^3	-	-	-	-	31.45	526	3,308
							Total	**18,662**
Provision for 50% increase in labour charges due to inflation(from 150 INR to 225 INR)								9,331

Annexure III: Manjher Micro-watershed

Annexure 8.7: Details of Work of Enrichment Planting (8.75 ha & Perimeter (1139-518=621m) for RCC fence post in five strands - 500 plants/ha in groups) in Zone -1 Manjher (Water Recharging & Fodder) Area (W3)

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
A	**Survey, Demarcation and Fencing**				
1	Survey and Demarcation of Plantation Area	ha	8.75	102.35	895.56
2	Lay out of Pits	ha	8.75	170.60	1,492.75
3	Cost of RCC fence posts	No	207	425.00	87,975.00
4	Transport of RCC fence posts O/D of 2 km by manual labour	L/S	207	70.00	14,490.00
5	Preparation/ Digging of holes of 20 to 30 cm diameter and 45 cm deep for posts	No	207	9.07	1,877.49
	Fixing of RCC posts i/c strutting	No	207	6.96	1,440.72
	Stretching and fixing of barbed wire with U- staples in four strands (1339-518=621 m -deduction for common boundary with Cheola Zone -2)	Rmt	3105	4.85	15,059.25
6	Transport of B/ wire over 2 km uphill side by manual labour	Qtls.	4.436	170.60	1,513.47
7	Interlacing of thorny bushes with barbed wire	Rmt	621	4.15	2,577.15
8	Cost of barbed wire	Qtls.	4.436	7,000.00	31,050.00
9	Cost of U-staple	Qtls.	0.055	7,000.00	388.13
10	Survey and Demarcation of Plantation Area	ha	8.75	102.35	895.56
11	Lay out of Pits	ha	8.75	170.60	1,492.75
				Total	**1,58,760.00**
	Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 3, 4, 10 &11.				12,428.44
				Total A (Survey, Demarcation and Fencing)	**1,71,188.00**
B	**Trenching and Planting**				
1	Digging of Pits 60cmX60cmX60cm	No	4255	9.54	40,592.70
2	Filling of Pits 60cmX60cmX60cm	No	4255	2.73	11,616.15
3	Preparation of staggered contour trenches - 3.00 x 0.45 x 0.45 mt.	No	60	112.05	6,723.00
4	Transport of plants in P/bags from Nursery to road head near to work site O/D 15 km - 8"x15" p/bags (three trips by truck)	No	2	1,200.00	2,400.00

S. No.	Particulars of work	Unit	Quantity	Rate (in INR)	Amount (in INR)
5	Transport of plants in P/bags from road head to work site O/D 2.5 km - 8"x15" uphill	No/ Km	4375	1.64	14,350.00
6	Planting of tall plants i/c ramming	No	4375	2.18	9,537.50
7	Mulching of Plants	No	4375	0.60	2,625.00
8	Irrigation as per need/ topography etc.	L/S			4,000.00
				Total	**91,844.35**
				Provision for 50% increase in labour charges due to inflation (from 150 INR to 225 INR) except on item Nos. 4 & 8.	42,722.18
				Total B (Trenching and Planting)	**1,34,567.00**
				Grand Total (A+B)	**3,05,755.00**
C	**Maintenance**				
1	Maintenance 1st year - 23% - 1000 plants	-	8.75	3,780.00	33,075.00
2	Maintenance 2nd year - 14% - 600 plants	-	8.75	2,500.00	21,875.00
3	Maintenance 3rd year - 9% - 390 plants	-	8.75	1,900.00	16,625.00
4	Maintenance 4th - 5% - 220 plants	-	8.75	1,300.00	11,375.00
5	Maintenance 5th - 5% - 220 plants	-	8.75	1,300.00	11,375.00
				Total C (Maintenance)	**94,325.00**
				Grand Total (A+B+C)	**400,080.00**

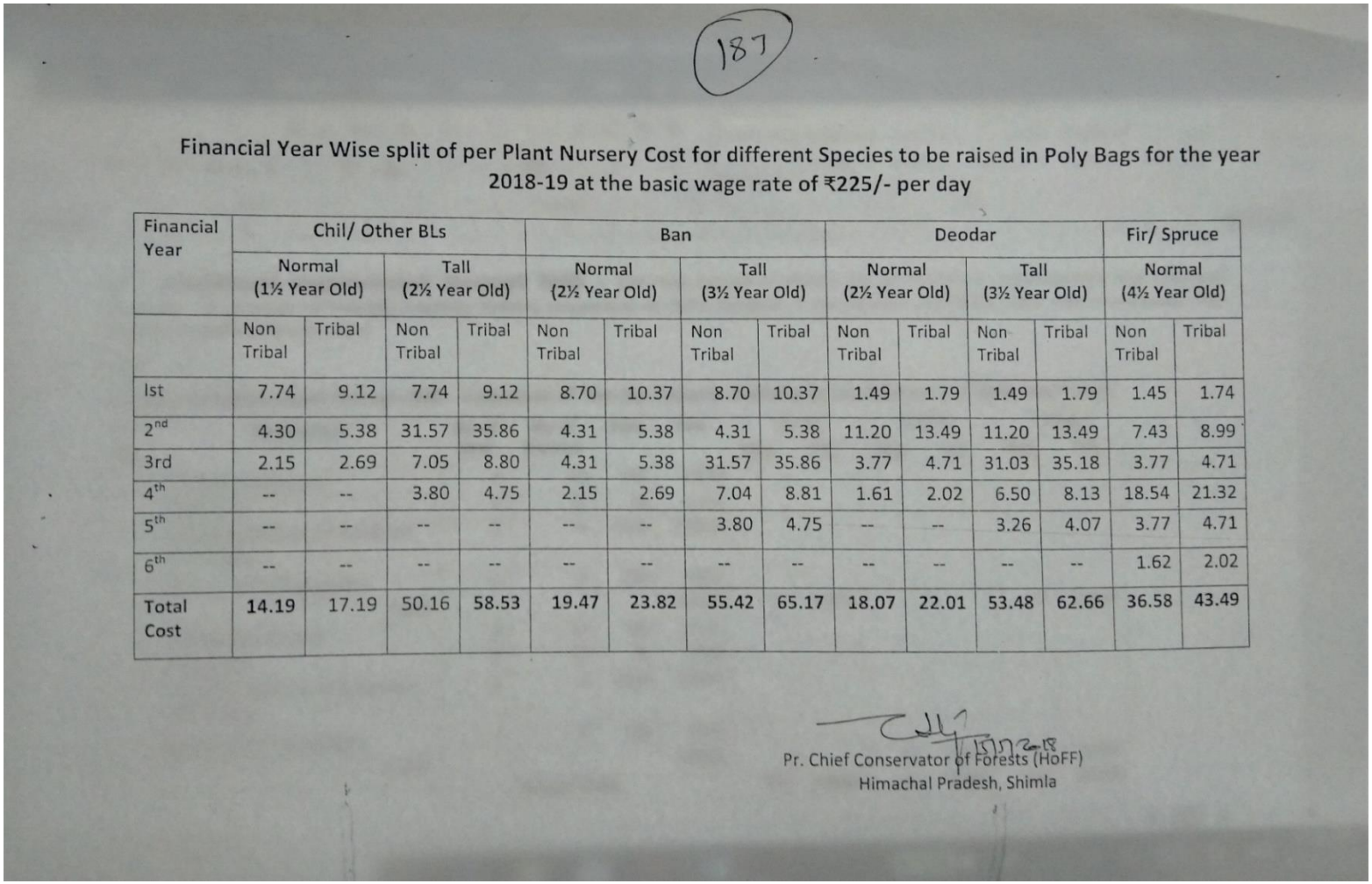
Annexure 8.8: Summary of Nursery Cost for Manjher Micro-watershed

S. No.	Name of Plantation Area	No of Plants and Cost						Total No./Cost
		Formation	Maintenance Cost in Year					
			1st	2nd	3rd	4th	5th	
1	Zone -1 Manjher Enrichment Planting 500 Plants per Ha - 8.75 ha	4,255	1,000	600	390	220	220	6,685
Cost of Tall Nursery Plants @ Rs. 14.19 per plant		60,378	14,190	8,514	5,534	3,122	3,122	94,860
Grand Total		**60,378**	**14,190**	**8,514**	**5,534**	**3,122**	**3,122**	**94,860**

Annexure 8.9: Construction of Check Dams in Cheola - Manjher Nala (C2)

S. No.	Particulars	Measurements			No	Vol	Rate (INR)	Amount (INR)
		L	B	D/H				
1	Construction of Check Dams in Dry Stone Masonry in Manjher Nala	4.2	1.20	2.05	2	20.664	256.65	5,303
2	Additional 30% of Item No. 1 for wing walls -					6.199	256.65	1,591
3	Collection of Boulder Stones - As per Item No. 1+2					26.863	175.30	4,709
4	Breaking of B/Stone 50% of Item No. 3					13.432	112.50	1,511
5	Tranport of Stone for upto 200 m @ 526/- per km/ m^3					26.863	526.00	2,826
							Total	**15,941**
Provision for 50% increase in labour charges due to inflation(from 150 INR to 225 INR)								7,970
Grand Total								**23,911**

Annexure IV: Nursery Plant Rates of HPFD for 2018-19



187

Financial Year Wise split of per Plant Nursery Cost for different Species to be raised in Poly Bags for the year 2018-19 at the basic wage rate of ₹225/- per day

Financial Year	Chil/ Other BLs				Ban				Deodar				Fir/ Spruce	
	Normal (1½ Year Old)		Tall (2½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (4½ Year Old)	
	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal
Ist	7.74	9.12	7.74	9.12	8.70	10.37	8.70	10.37	1.49	1.79	1.49	1.79	1.45	1.74
2nd	4.30	5.38	31.57	35.86	4.31	5.38	4.31	5.38	11.20	13.49	11.20	13.49	7.43	8.99
3rd	2.15	2.69	7.05	8.80	4.31	5.38	31.57	35.86	3.77	4.71	31.03	35.18	3.77	4.71
4th	--	--	3.80	4.75	2.15	2.69	7.04	8.81	1.61	2.02	6.50	8.13	18.54	21.32
5th	--	--	--	--	--	--	3.80	4.75	--	--	3.26	4.07	3.77	4.71
6th	--	--	--	--	--	--	--	--	--	--	--	--	1.62	2.02
Total Cost	14.19	17.19	50.16	58.53	19.47	23.82	55.42	65.17	18.07	22.01	53.48	62.66	36.58	43.49

15/1/2018

Pr. Chief Conservator of Forests (HoFF)
Himachal Pradesh, Shimla

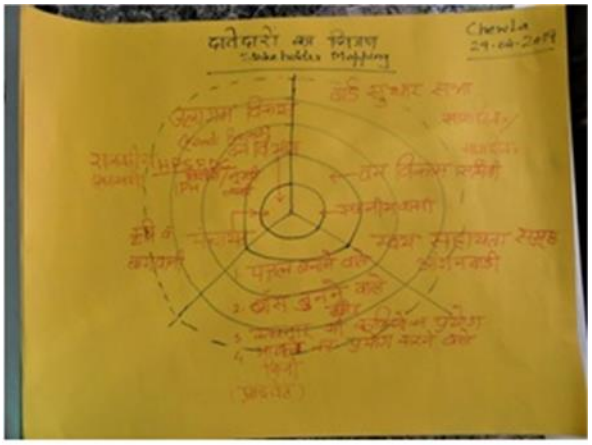
Annexure V: Photo Documentation of PRA

Figure 8.1: Photo Documentation of Microplan Approval (22-11-2018)

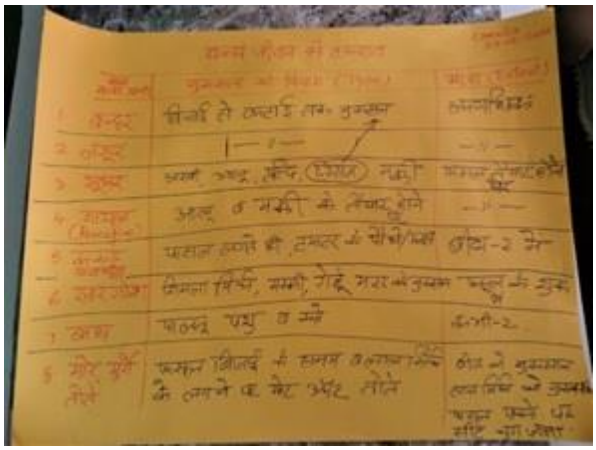
Figure 8.2: Resolution to Approve the Proposed Microplan (22nd November 2018 at Katal and Manj)

Annexure VI: Photo documentation of PRA Exercise Charts at Cheola

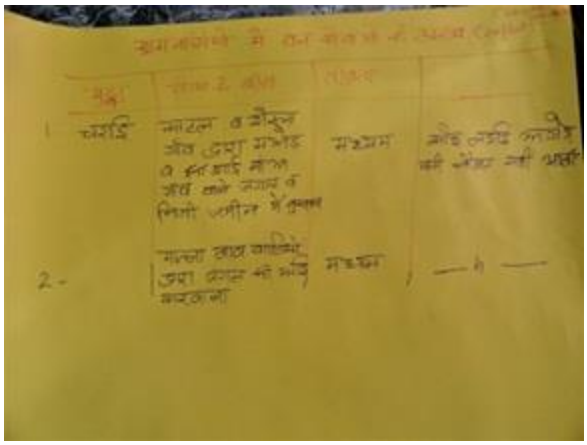
Seasonality of labour at Cheola



Stakeholder mapping at Cheola



Human wildlife conflict assessment



Inter community conflict for FES at Cheola

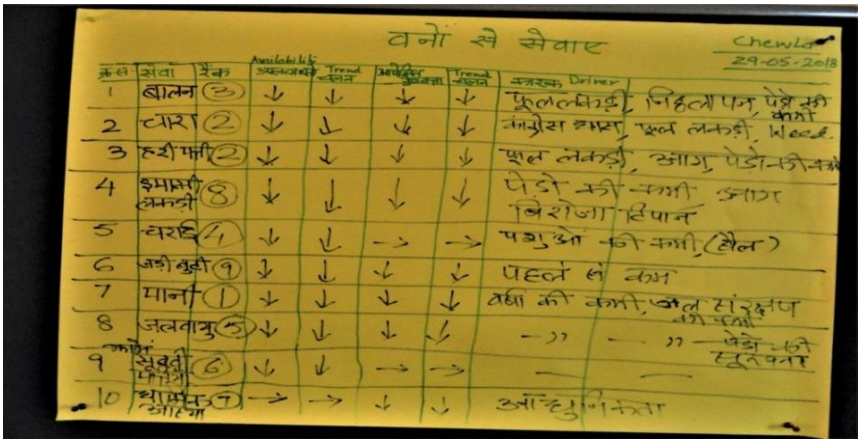


Figure 2.3: FES Assessment Exercise at PRA, Cheola

Annexure VII: Society Registration Certificate

3/15/2019 coophp.nic.in/Registration/ApproveMemo_DA/Print?qs=2XQvS9T9byjszxXplnoXJg%3D%3D

Registration No : HPCD-773

Certificate of Registration of Societies

हिमाचल प्रदेश सरकार

Himachal Pradesh Societies Registration Act 2006 (Act No. 25 of 2006)

This is certified that the **Cheola Village Forest Management Society** located at **Village Manjher, Post Office Jabli, Tehsil Kasauli, District Solan, H.P.** has been registered under the provisions of the Himachal Pradesh Societies Registration Act, 2006 (Act No. 25 of 2006) on the **15th** day of **March 2019** (15/03/2019).

Given under my hand and seal at **SDM Office, Solan**, Himachal Pradesh.

SUB DIVISIONAL OFFICER (CIVIL) ★ DEPUTY REGISTRAR OF SOCIETIES Solan Distt. Solan (H.P.)

Deputy Registrar of Societies
Sub Divisional Office (Civil)
Solan, Distt. Solan (H.P.)

SDM -cum- Deputy Registrar of Societies
Himachal Pradesh

http://coophp.nic.in/Registration/ApproveMemo_DA/Print?qs=2XQvS9T9byjszxXplnoXJg%3D%3D 1/1

Annexure VIII: Memorandum of Understanding (MoU)/Memorandum of Agreement (MoA)*

HIMACHAL PRADESH FOREST ECOSYSTEM SERVICES (HP-FES) PROJECT

Memorandum of Understanding

between

The Cheola Village Forest Development Society

and

the Himachal Pradesh Forest Department

for Village Forest Management.

Whereas

The Cheola Village Forest Management Society (hereinafter called "Society") has been constituted as per procedure described in the HP PFM Regulations notified by Govt. of HP vide No. No FFE-C *(9). 112001* dated 23.8.2001, registered under the Himachal Pradesh Societies Registration Act, 2006 by the villagers of Cheola under Forest Division Solan in the district Solan of Himachal Pradesh and has an elected Executive Committee (hereinafter called "EC") to implement the Micro Plan for Forest Management and Village Resource Development (hereinafter called "Plan") for protection, rehabilitation and management of the specified forest areas that has been prepared by the Society and the Solan Forest Division; the Plan contains details of activities to be undertaken for management and development of forest areas using a Forest Ecosystem Services (FES) approach and also description of equitable distribution of products and services obtained from the allocated forest areas and public resources of the village; the Plan has been approved by the Officer in Charge of the Forest Division (hereinafter called "Forest Officer") on behalf of the Government of Himachal Pradesh;

Now herewith

The Solan Forest Division and the Society have mutually agreed on this MoU, and consequently, this MoU is executed with the following articles:

1. Purpose of the Memorandum of Understanding

This Memorandum of Understanding (hereinafter called "MoU") details the responsibilities of the Society regarding management and protection of forest area(s) and village(s) resource development, in the manner specified in the Plan and for equitable distribution of benefits amongst its members/ working groups in the manner specified in the Plan. It further entails payments and support to be provided by the project (HP-FES) and other associated conditions.

2. Responsibilities of the Society

With regard to its Constitution, working, powers, duties and benefits, the Society agrees to act in accordance with the HP Government Notification No. Fts. II (B) 15.10.87 dated 23.08.2001 and other relevant Government orders and instructions.

2.1 The Society agrees to provide all necessary assistance to the Forest Officer in selection of intervention area(s) to be allotted to it for forest management so that there is no dispute regarding areas of common use of nearby villages.

2.2 The Society, pursuant to the approval of Micro plan by the DFO agrees to develop a 6-month (Activity & Budget) Plan, get it approved by the General House of the Society, and submit to the Forest Officer for release of funds.

2.3 The Society agrees to carry out works laid out in the Plan for the forest area as per the approved schedule of rates of work and labour and in doing so, follow the principles of management of forest and wildlife specified therein, also taking into account the guidelines of the Government, prevalent legal provisions and technical principles. The Society will ensure that no existing acts/ rules of forest/ wildlife management are being violated.

2.4 The Society agrees to contribute to the cost of works proposed through a 10% cash/ kind contribution of total investment, to be collected by the VFDS from its members/ User Groups and deposited in the SB Account held by it. The amount of contribution so deposited by the VFDS will be returned along with interest accrued to the VFDS at the end of the project period and the VFDS will be free to spend the amount as jointly decided by them. This community contribution is to be made within 6 (six) months of the commencement of the Plan.

2.5 The Society agrees, after completion of the related works, to protect the forest area from fire, grazing, illicit felling, illicit transport, illicit mining, encroachments and poaching and shall help the forest department in this regard.

2.6 The Society agrees to pass the information regarding person(s) engaged in harming the wild animals and forests or those engaged in illegal activities on to the Forest Department. The Society agrees to help forest employees in apprehending such person(s) and provide all possible assistance in protecting any seized produce etc.

2.7 The Society agrees to rectify any shortcomings found during review of its works by the Forest Officer/ Monitoring Agency.

2.8 The Society agrees to keep accounts of income and expenditure of the funds from various sources, present it to the Forest Officer or his representative when required, and to get regular annual audits done by the agency assigned by the Forest Officer.

2.9 The Society agrees to maintain the records specified by the Forest Officer regularly and in prescribed formats.

2.10 The Society agrees that the distribution of products and services generated as a result of implementation of the Plan among its members/User Groups is done in an equitable

manner. If the Forest Officer points out any mismanagement or irregularity in the equitable distribution of such products and services, then the Society agrees to implement the necessary corrections/ improvements suggested by the Forest Officer.

2.11 The society agrees to ensure that there is no misuse of funds allocated from the Forest Department for implementation of the activities under this project.

3. Responsibilities of the Forest Department

3.1 The Forest Department will provide to the Society the related input materials required to carry out the works specified in the Plan, such as saplings, fencing materials, etc. in a timely manner.

3.2 The Forest Department will provide the funds specified in the Plan to the Society for implementation of works carried out in the forest area on the basis of the Plan in a timely manner Subsequent to approval of the Plan, a 6-month (Activity & Budget) Plan will be developed by the VFDS and got approved by the General House. After acceptance of this 6-month plan, the DFO will transfer the budgeted amount into the general account of the VFDS prior to commencement of works.

3.3 Funds from other department's schemes as the Panchayat may be able to converge/ garner, may also be used for activities that help meet the project's objectives.

3.4 The Forest Department shall provide the necessary advice and guidance to the Society for implementation of works carried out in the forest area on the basis of the Plan.

3.5 The Forest Department shall NOT be responsible for any loss in any of the works related to implementation of the Plan and no claim of any sort can be presented against Forest Department

3.6 In the event of any misutilization of the funds at the level of the VFMS, the Forest Department shall initiate proper legal action against the former.

4. Support by the Project

4.1 The Project (HP-FES) will provide to the DFO the funds (after signing the Financing Agreement with GIZ) for specified activities in the approved Plan for implementation of works carried out in the forest area (s). These funds will be disbursed by the DFO to the Society considering the 6-month plan submitted by the Society.

4.2 The Project (HP-FES) will provide training and other capacity building measures to the Society members, as well as support for income generating activities as specified in the approved Plan.

4.3 The funds earmarked for plantations, fencing etc. (mentioned in the approved Plan) will be credited into the general bank account with the VFDS as per accepted 6-month plans derived from the Plan.

4.4 Payment and receipt of funds will be strictly by means of cheques or bank transfers to the account of the Society. All disbursals by the Society to VFDS members will also be

executed through bank transfers.

5. Rights and Benefit Sharing

5.1 The Rights of right holders as admitted in the Forest Settlement will remain unaffected due to constitution of the Society and will continue to be exercised as such.

5.2 The Benefits which the Society members and their User Groups will be entitled to after closure of plots/ patches in the forest for various project interventions are as follows:

- 5.2.1 Group members responsible for protection and maintenance of different closed patches will harvest and share among themselves grass and fodder from those patches;
- 5.2.2 Group members responsible for nurturing and protecting fodder/ firewood lots raised by them will be entitled to collect fodder/ firewood from these lots and share it amongst themselves equitably;
- 5.2.3 Grass and hay production areas will be harvested and shared amongst the groups/ villagers as decided by the EC or in rotation;

5.3 The Society will be entitled to sale proceeds of all intermediate and final harvest of NTFPs, as laid out in the PFM Regulations of HP, 2001.

6. Monitoring &Evaluation

6.1 Monitoring and Evaluation of project activities will be done at different levels, including by the EC, a monitoring committee, the Forest Officer or his representative, and an independent third party.

6.2 The EC or any of its members will monitor progress and quality of work during execution of various works. The Member Secretary will record the date, places and names of EC members who checked the work(s) and whether works were satisfactory and any instructions given.

6.3 A participatory monitoring committee made up of members of the Society, a member from Panchayat as well as a representative from the Forest Department (e.g. Deputy Range Officer) will on quarterly basis review objectives, inputs and work progress and report to the whole Society. Their reports will then be sent to the Forest Officer for information.

6.4 Where Society groups have carried out or are responsible for activities like fencing, plantations and maintenance of plantations (all the works according to the Plan), annual monitoring will be carried out by Project-approved monitors (Third Party) and the results of this monitoring will determine the quantum of release of incentive payments as per the norms/scheme agreed upon in the approved Saving Book Approach Guidelines.

6.5 Settlement of Disputes: Settlement of disputes and conflict resolution will be governed as laid out under section 49 & 50 of the Bye Laws of Society.

7. Memorandum of Understanding

We are aware that the terms of this agreement will be valid and benefits mentioned in this agreement shall be available to the Society only when it discharges its duties, responsibilities and works in a satisfactory manner and this is certified by the Forest Officer every year. However, if the Forest Officer fails to fulfill conditions mentioned in para 3 and 4 of this agreement and there is a cause for the Committee not able to discharge its responsibilities and works, the same will be kept in mind while evaluating the works of the Committee every year.

I , President, Village Forest Management Society, declare on behalf of the Society, that I am committed to follow all the conditions mentioned in this MoU and am signing this memo after reading/understanding all conditions mentioned herein, literally and in their original meaning.

(Name, Seal and Signature of the President, VFDS) On behalf of VFDS

Witness

1.

2.

I, DFO SOLAN [position] undertake, on behalf of ------Forest Department, to implement all duties/responsibilities of the Forest Department mentioned in this memorandum.

(Name, Seal and Signature of the Divisional Forest Officer) On behalf of Forest Department

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Matsubara Building, Village Sargheen
(Near HFRI), Shimla - 171013
Himachal Pradesh (India)

For further Information
Principal Chief Conservator of Forest, Forest Department,
Himachal Pradesh, Talland, Shimla- 171001, India