Ghanduri Concise 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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Programme/project description:
Indo-German Biodiversity Programme
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.
HP-FES

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GIZ is responsible for the content of this publication.

Micro plan for Ghanduri

Himachal Pradesh Forest Ecosystem Services
(HP-FES) Project

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Introduction

Forest Ecosystem Services Approach

Forests provide people with numerous services and goods like fuelwood, timber, fodder, fruits etc. They also regulate abundant aspects of the environment like water, air purity and micro climate which benefit people in many ways. These goods and services are together termed as "Ecosystem Services".

The ecosystem services derived from forests are referred to as "Forest Ecosystem Services" (FES). The FES approach states that forests are managed to produce services required for human well-being.

As demands and importance for these services differ much within society, a key element of the FES approach is to manage forests that enable a supply of FES prioritised by stakeholders, giving due importance to the remaining goods and services.

HP-FES Project Background

The Indian and German Governments are working together in many areas that are important for our society. GIZ, in collaboration with the Himachal Pradesh Forest Department (HPFD), is implementing the Himachal Pradesh Forest Ecosystem Services (HP-FES) Project on behalf of BMZ (GIZ's commissioning party). The HP-FES project aims at integrating the Forest Ecosystem Services (FES) approach into the state's forest management.

Important stakeholders are consulted to identify the set of ecosystem services for which the forest is managed. Together with them, the FES that are derived from the forest are listed and prioritised. Based on this, a management plan like this one is developed.

CHAPTER- 2

Ghanduri Forest Ecosystem Services Vision

Forests are ecosystems that need a long time for their development. The project can guide the plan for only two years or so. This is hardly anything, considering that the forests can be hundreds of years old. Therefore, it is important that a forest management has a long term vision and that the plan of today is in line with the long term vision.

Long Term Vision (30 years)

1. Water:

a. Irrigation water is available to all on fair basis.

2. Fuelwood and Fodder:

a. Fuel and fodder supply is sufficient to meet the changing demands of the local communities.

3. Forest composition and structure:

a. Degraded forest patches regenerate and there is increased natural regeneration.

Measures:

a. Effective protection of the water recharge zone in C1 with barbed wire fencing with angled iron fence posts along the ridge and stone wall fence along the Nala.

b. Group planting in gaps and enrichment planting in less stocked patches of C1 and C2. Tall planting will be done in a blank in C4 of Ghanduri reserve forest.

Mid Term Vision (15 years)

1. Water:

a. Increase of water supply in Telangana by 10%.

2. Fuelwood and Fodder:

a. The demand for fuelwood and fodder is decreased but is fully met with.

3. Forest composition and structure:

a. Degraded patches in groves are improved and show natural regeneration.

Measures:

a. Social and physical fencing is in place

b. Social regulation on water, fodder and fuelwood distribution is in place.

Short Term Vision (5 years)

1. Water:

a. Water flow is increased by 5 % of base line value.

2. Fuelwood and Fodder:

a. The demand for fuelwood and fodder is decreased but is fully met with.

3. Forest composition and structure:

a. Groves plantation at degraded patches survives and regenerates.

Measures:

a. Social and physical fencing is in place.
b. Social regulation on water, fodder and fuelwood distribution is in place.
c. Community realizes that forests are the primary drivers for irrigation-based crops. They should maintain the system under the microplan.

Project Period (Till 2020)

1. Water:

a. No reduction of water flow within the project period with similar rainfall conditions.

2. Fuelwood and Fodder:

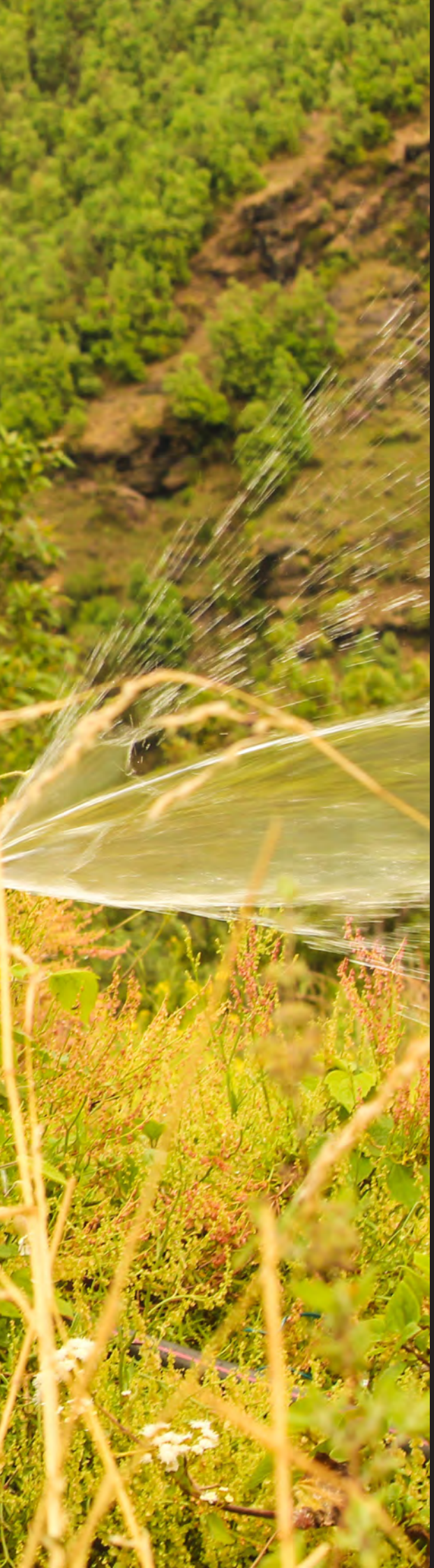
a. Current fuelwood and fodder regulation supply is maintained by community participation.

3. Forest composition and structure:

a. Enrichment planting done to fully stock the forest.

Measures:

a. Improvement of canopy density by group plantation in gaps.
b. Enrichment plantation.
c. Tall planting in blank areas.



Micro plan Objective

To incorporate the Forest Ecosystem Services (FES) approach into the forest management in R-5 Ghanduri, a reserve forest of Renuka Forest Division at 17 km from Nohradhar.

Methodology for data collection

1. The environmental data was collected based on structured field observation, local meteorological data, working plan of Renuka Forest Division.
2. Demographic data was collected by using **participatory rural appraisal (PRA)** approach, baseline survey report and records from other secondary sources like Gram Panchayats, Department of Animal Husbandry and local revenue office.
3. **Facilitation and matrix** were the tools used to collect information on seasonality and labour availability. Seasonality of engagement in agriculture, wage labour, migration, labour availability for project activities and rain and snowfall were recorded and information on the above was gathered by the PRA participants. The same tool was used to gather data for human wildlife conflict.

4. **Stakeholder map** was the tool used to collect data on various stakeholders. The participants were asked to write names of institutions falling in the three broader categories namely, civil society, private players and state actors, whom they considered potential in influencing the project.

CHAPTER- 3
Data Collection Results

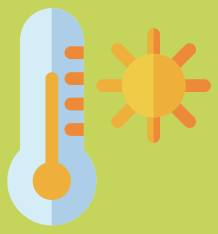
Environmental Data (Kalam, Kando, Ghanduri and Chhabion)

ELEVATION RANGE: 2000m - 2800m

Precipitation

Annual Average Precipitation:	645 mm
Rain % :	100%
Snow :	Common during winters
Period of Frost:	November to February
Dry months: (with precipitation < 50 mm)	November, April, May
Dry months: (with precipitation 50-52 mm)	October, January, March

Temperature



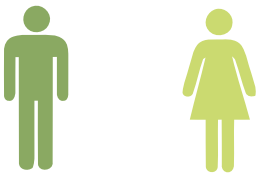
Extreme temperature: -4 °C during winters

Forest types and area

Area	Forest Type
12/C1b : 41.60 ha	Moru Oak and Fir/Spruce
12C1a : 122.20 ha	Ban Oak and scattered deodar
Total planning area: 163.80 ha	

Demographic Data (Ghanduri)

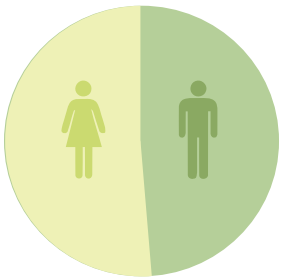
POPULATION



48.47%
887 Males

51.5%
943 Females

GENDER RATIO



There are 887 males against 943 females

LIVESTOCK

Sheep + Goat: 57 + 107

Cows: 103

Bullocks: 0

Horses + Mules: 8

Buffaloes: 8

OCCUPATION

S.No.	Job Type	No. of Individuals
1.	Government	No data could be collected
2.	Private	
3.	Self Employed	
4.	Agriculture/ Horticulture	
5.	Artisans	

LAND HOLDING

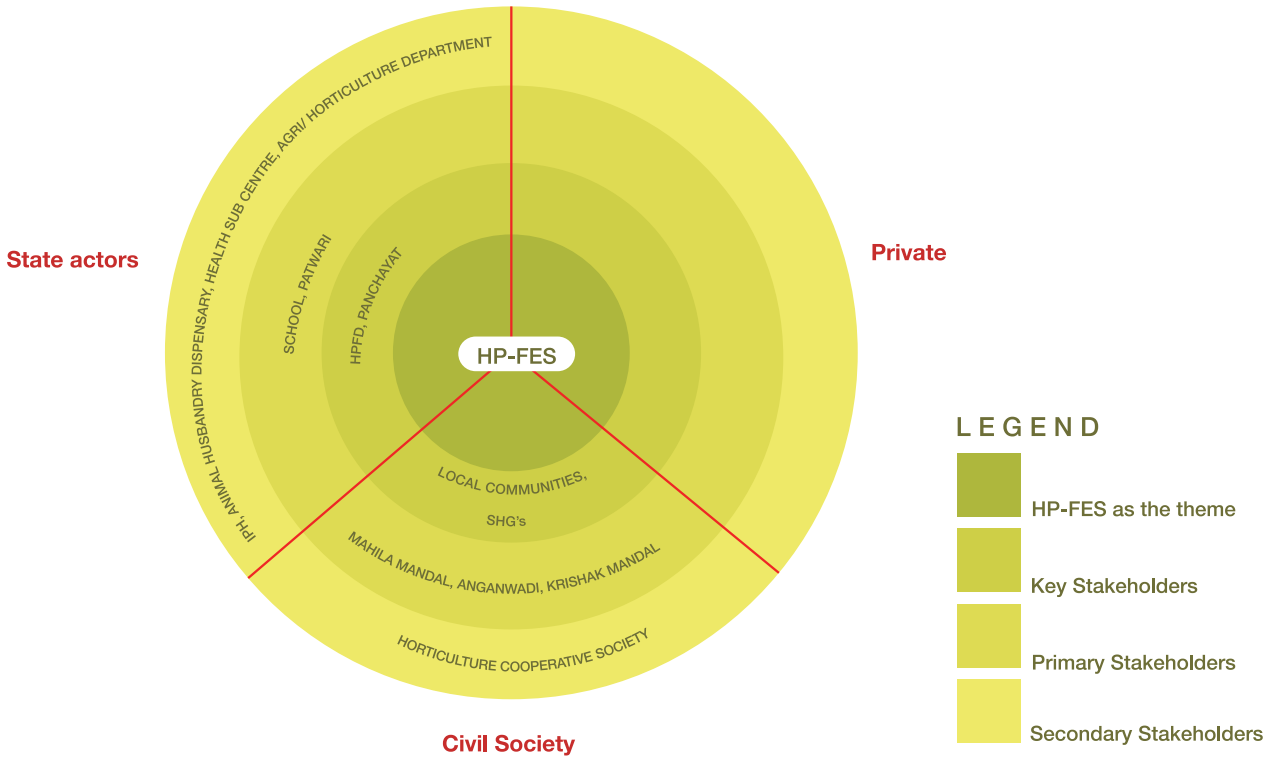
S.No.	Land Holding Type	No. of Households
1.	Marginal	No data could be collected
2.	Small	
3.	Medium	
4.	Large	

Seasonality calender of micro plan activities for Ghanduri

Partially Occupied (15 days/ month)

Fully Occupied (Full month)

Major Stakeholders



The inner most circle consists of the key stakeholders, followed by primary and seconday stakeholders with HP-FES as the theme.
The 3 categories represent as to which class does each stakeholder belong.

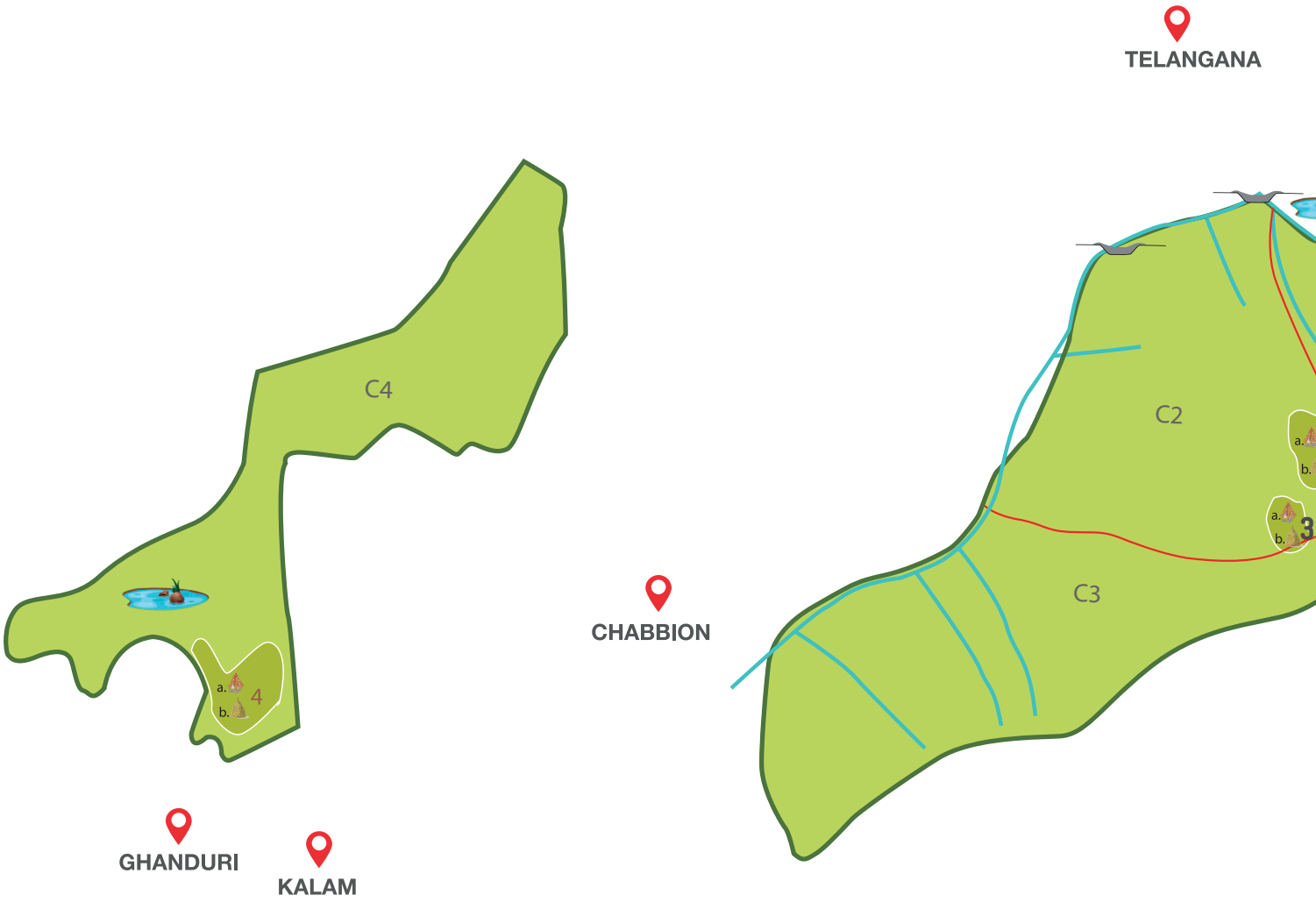
Category/ Class	Key Stakeholders	Primary Stakeholders	Secondary Stakeholders
Civil Society	Local communities, Self Help Groups (SHG's)	Mahila Mandal, Anganwadi, Krishak Mandal	Horticulture Cooperative Society
Private	—	—	—
State	HPFD, panchayat	School, Patwari (Revenue Department)	Deparrtment of Irrigation and Public Health (IPH) , animal husbandry dispensary, health sub centre, agriculture & horticulture department.

CHAPTER- 4

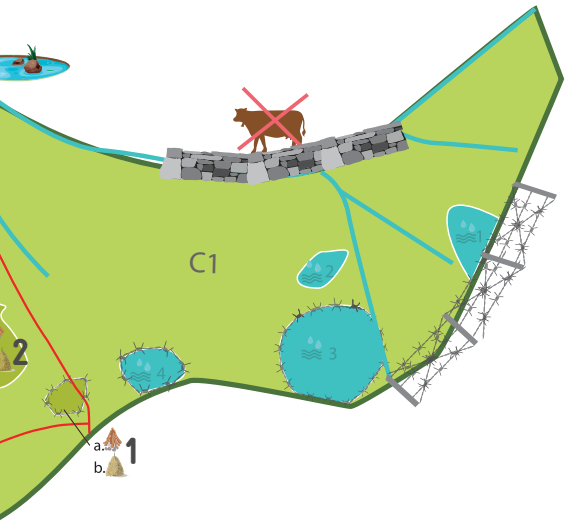
Rankwise Priority Forest Ecosystem Services

RANK	FOREST ECOSYSTEM SERVICE
1.	 Watershed protection
2.	 Climate (Clean air and rainfall)
3.	 Fuelwood
4.	 Fodder  Medicinal plants
5.	 Timber wood (Symbol Copyright: Jan Sosse)
6.	 Wild mushroom

Priority and Intervention Map



The above map consists of the forest boundary and the areas for the prioritised Forest Ecosystem Services.



N

LEGEND

	Water
	Fodder and fuelwood
	Barbed wire fencing
	Angled and barbed wire fencing
	Check dam
	Stone wall fence
	Sunken pond
	No cattle entry
	Streams
	Hamlets
	Compartment boundary
C1,C2	Compartment numbers
1,2,3	FES zone numbers
a.	Priority 1
b.	Priority 2

DISCLAIMER: This map is only for marking the forest boundaries and not for any legal purpose.

Zonewise Management

COMPARTMENT 1

FOREST ECOSYSTEM SERVICE

ZONES	INTERVENTION AND ACTIVITY
W-1	No separate fencing Broad leaved species at 2.5x2.5 m spacing
W-2	No separate fencing Enrichment planting of broad leaved species at 3x3 m spacing
W-3	Barbed wire fencing along the ridge (no fencing inside) Conifer Species Broad leaved species
W-4	Barbed wire with wooden poles in three strands Enrichment planting of deodar and broad leaved species at 3x3 m spacing
	Sunken ponds Size: 12x8x1.5 m Altitude: 2195 m
	Length: 424 m Barbed wire angle iron fencing along the ridge of C1 To prevent entry of migratory herds
	Stone Wall fence along the nala side boundary of C1 242m x 0.5m x 1.00 m
	Check dams along Telangana nala (along C2 Boundary)

The interventions above the yellow box are special interventions and do not fall under any zone

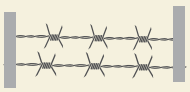
COMPARTMENT 2

FOREST ECOSYSTEM SERVICE 

ZONES	INTERVENTION AND ACTIVITY
a.  b.  1 FWf-1	 Conifer Species  Ban Oak  Hill Bamboo in depressions Perimeter 215 m
a.  b.  2 FWf-2	 Conifer Species  Ban Oak  Hill Bamboo in depressions Perimeter 405 m
a.  b.  3 FWf-3	 Conifer Species  Ban Oak  Hill Bamboo in depressions Perimeter 291 m

COMPARTMENT 4

FOREST ECOSYSTEM SERVICE 

ZONES	INTERVENTION AND ACTIVITY
a.  b.  4 FWf-4	 Deodar  Ban Oak  Robinia  Grass cut and carry system  Stone wall fence to strengthen  RCC post fence 415 m  No Grazing
	 Sunken ponds Size:15x10x1.5 m Altitude: 2000 m

Treatment Plan and Budgeting

Water conservation zone (Zone-1)

FES Zone	C No.	Name of Activity	Formation Cost (in ₹)		Maintenance Cost in Year (in ₹)					Other Expd.	Total Cost (in ₹)
			Fencing	Planting	1st	2nd	3rd	4th	5th		
W-1	C-1	Group -1 (C1)- Normal Planting 1100 plants/ha - 0.80 ha	0	25,986	4,104	2,784	2,112	1,456	1,456	0	37,898
W-2	C-1	Group -2 (C1) - Enrichment Planting 800 plants/ha - 0.40 ha	164	9,230	1,512	1,000	760	520	520	0	13,706
W-3	C-1	Group - 3 (C1) - Enrichment Planting 800 plants/ha - 3.00 ha	1,23,800	60,978	11,340	7,500	5,700	3,900	3,900	0	2,17,118
W-4	C-1	Group - 4 (C1) -Enrichment Planting 800 plants/ha - 0.60 ha & Perimeter - 320 m fencing in 3 strands)	30,583	13,096	2,268	1,500	1,140	780	780	0	50,147
	C-1	Barbed wire fencing with angle iron posts (50x50x5mm) on top of C1 (length - 423 rmt, 132 posts of 1.90 m with 5 strands of barbedwire)	2,30,868							0	2,30,868
	C-1	Stone wall fence along the Nala side boundary of C1 (200 rmt. - 0.5x1.00m)	85,523							0	85,523
	C-1	Construction of check dams in Telangana Nala - Ghanduri RF (C2 & C3)								60,132	60,132
	C-1	Construction of Sunken Pond at the confluence of C1 & C2 along Telangana Nala in Ghanduri RF								48,218	48,218
		Nursery cost of plants	0	81,774	18,789	11,487	7,399	4,089	4,089	0	1,27,626
		Total	**4,70,938**	**1,91,064**	**38,013**	**24,271**	**17,111**	**10,745**	**10,745**	**1,08,350**	**8,71,236**

Fuelwood and fodder zone (Zone-2)

FES Zone	C No.	Name of Activity	Formation Cost (in ₹)		Maintenance Cost in Year (in ₹)					Other Expd.	Total Cost
			Fencing	Planting	1st	2nd	3rd	4th	5th		
FWf-1	C2	Enrichment planting 800 plants/ha - Group 1 (C2) (Area - 0.30 ha & Perimeter - 215 m. fencing in 3 strands)	20,531	7,298	1,134	750	570	390	390	0	31,063
FWf-2	C2	Enrichment planting 800 plants/ha - Group 2 (C2) (Area - 0.85 ha & Perimeter - 405 m fencing in 3 strands)	38,703	17,927	3,213	2,125	1,615	1,105	1,105	0	65,793
FWf-3	C2	Enrichment planting 800 plants/ha - Group 3 (C2) (Area - 0.55 ha & Perimeter - 291 m fencing in 3 strands)	27,801	12,129	2,079	1,375	1,045	715	715	0	45,859
FWf-4	C4	Tall Planting 1100 plants/ha Group 4 (C4) (Area 2.24 ha & Perimeter-415 m with RCC fence posts in five strands and 80 m for stone wall)	1,33,951	78,828	7,182	4,872	3,696	2,548	2,548	0	2,33,625
	C4	Construction of sunken pond in C4 above approach road to Telangana above Ghanduri hamlet	0	0	0	0	0	0	0	48,218	48,218
		Nursery cost of plants for Zone - 2 (Fuelwood and Fodder Zone)	0	95,132	20,986	12,798	8,285	4,637	4,637	0	1,46,475
		Total	**2,20,986**	**2,11,314**	**34,594**	**21,920**	**15,211**	**9,395**	**9,395**	**48,218**	**5,71,033**

Human capacity building

SHG Livelihood Improvement: Training budget (two workshops a year)

S. No.	Particulars	No of SHGs	No of Persons	Rate (in ₹)	Amt. (in ₹)	1st Yr.		2nd Yr.		Total	
						Phy.	Fin. (in ₹)	Phy.	Fin. (in ₹)	Phy.	Fin. (in ₹)
1	Refreshment/Lunch	14	12	160	26,880						
	Stationary	14	12	30	5,040						
	Resource Person (Honorarium and Travel)	2	4	2,500	20,000						
	Banner and Photography	2	2	250	1,000						
	Total				52,920	168	52,920			168	52,920
2	Refreshment/Lunch	12	12	160	23,040						
	Stationary	12	12	30	4,320						
	Resource Person (Honorarium and Travel)	2	4	2,500	20,000						
	Banner and Photography	2	2	250	1,000						
	Total				48,360			144	48,360	144	48,360
			Grand Total			**168**	**52,920**	**144**	**48,360**	**312**	**1,01,280**

CHAPTER- 5

Monitoring and Evaluation

1. Increase of water supply in springs of Telangana Nala

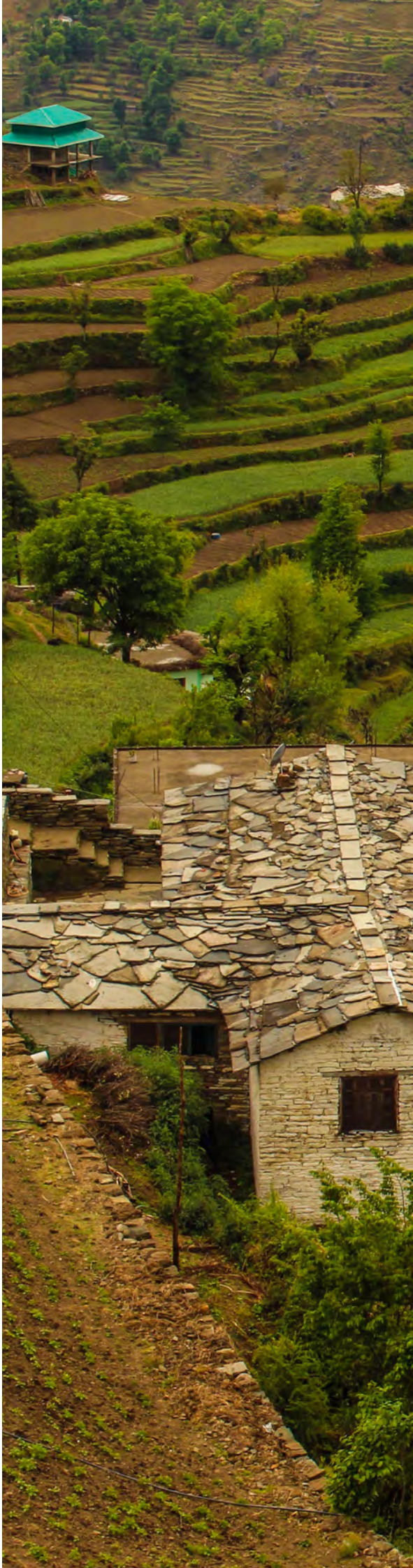
a. Availability of water flow and seasonality from a water source especially during summers.

2. Fodder: Improved fuel or fodder supply

a. All the blank areas are fully stocked with plantation.

3. Livelihood

a. Formation of women SHGs



VISITOR'S FEEDBACK

S. No.	Name	Address/ E-mail	Feedback

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