# Alha 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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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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# Micro plan for Alha

Himachal Pradesh Forest Ecosystem Services
(HP-FES) Project

PAGE NUMBER

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# CHAPTER- 1
# 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

## Alha 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. Increased flow of water in springs/ water sources in Panchpula & Goon Nalas at intake point of Irrigation and Public Health (IPH) Department.
b. In head zone of Panchpula Khad, increased water flow in springs / water sources at intake points of piped water supply schemes in Jari Naki Nala.
c. Increased water flow in Panchpula Khad at tanker filling points in Jiunta and Osal Panchayats.

#### 2. Soil Conservation

a. Deepening and widening of gullies/nullahs is contained.
b. With reduction in depth and width of eroded features banks of drainage lines are stabilized and soil erosion controlled.

#### 3. Forest Crop Composition:

a. Visible changes in crown density and forest structure
b. Increase in natural regeneration by 10% in the stands.
c. Plantations in forest attains pole stage.

#### Measures:

a. Alha Catchment Forest Management Society (ACFMS) ensures equitable usufruct sharing, regulated use of forest and protection against fire and illicit felling.

### Mid Term Vision (15 years)

#### 1. Water:

a. Increased flow of water in Goon and Jarp Naki Nalas sustains flow of water in Panchpula Khad.

#### 2. Soil Conservation:

a. Soil erosion is contained.
b. Banks of drainage lines are stabilized

#### 3. Forest Crop Composition:

a. Regenerated areas in 25 ha have attained sapling/pole stage forest with moderate density.

#### Measures:

a. ACFMS strictly protects plantation against lopping/ illicit cutting.
b. ACFMS is encouraged through appreciation of good protection work undertaken.

## Short Term Vision (5 years)

### 1. Water:

a. Reduced silt load in run-off from Jari Naki Nala originating from Kikar gali.
b. Water availability in springs/water sources at intake points of flow water supply schemes / channels increases up to 5 % of base discharge

### 2. Soil Conservation:

a. Reduced silt load in run-off due to increased grass & vegetation cover.

### 3. Forest Crop Composition:

a. Treated areas have well grown sapling stage plantations with 90% survival.

### Measures:

a. ACFMS supports effective protection of forest and plantation against grazing, fire and use of forest area for recreation by tourist etc. by putting watchmen on duty.
b. Potential future conflicts on water sharing will be resolved by ACFMS.
c. ACFMS is strengthened to raise funds from end users of FES, donors and other cooperating agencies.

## HP-FES Project Period (first 2 years of 5-year period)

### 1. Water:

a. Planned activities towards soil and water conservation implemented as per agreed timelines.
b. Set up a baseline and system for measuring stream water flows and run off silt load.

### 2. Soil Conservation:

a. Soil and moisture conservation activities are implemented as per agreed timelines.
b. Reduction in biotic interference resulting in decreased silt load in water runoff.

### 3. Forest Crop Composition:

a. ACFMS ensures protection of plantation against grazing and fire.
b. Plantation of suitable tree species carried out with survival percentage up to 80%.
c. Grass/ground cover in treated area increased upto 30%.
d. More forest area closed for grazing.
e. VFMS members are motivated for active involvement in forest protection and management.

### Measures:

a. Degraded and denuded areas are brought under regeneration and plantation
b. Rules for protection and FES sharing are in place and followed.
c. Soil and water conservation measures are planned and implemented

## Micro plan Objective

To incorporate the Forest Ecosystem Services (FES) approach into the forest management of Alha Catchment Forest.

## Methodology for data collection

1. The environmental data was based on field measurements, Working Plan of Dalhousie Forest Division and Compartment History File (CHF) of NDPF Alha catchment forest in Jandrighat beat of Dalhousie forest block, Range & Division.
2. Demographic data was collected from the Municipal Council office in Dalhousie.

3. Stakeholder mapping 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: Alha Catchment

**ELEVATION RANGE: 2080m - 2580m**

#### Precipitation

| | |
|---|---|
| Annual Average Precipitation: | 2045.2 mm |
| Rain %: | 100% |
| Maximum Rainfall Recorded: | 3074 mm in 2003 |
| Minimum Rainfall Recorded: | 1237 mm in 1999 |
| Period of Frost: | Nil |

#### Temperature

Data not available but the climatic conditions conform to temperature 1

**Dry months:** (with precipitation < 50 mm) — October, November, December

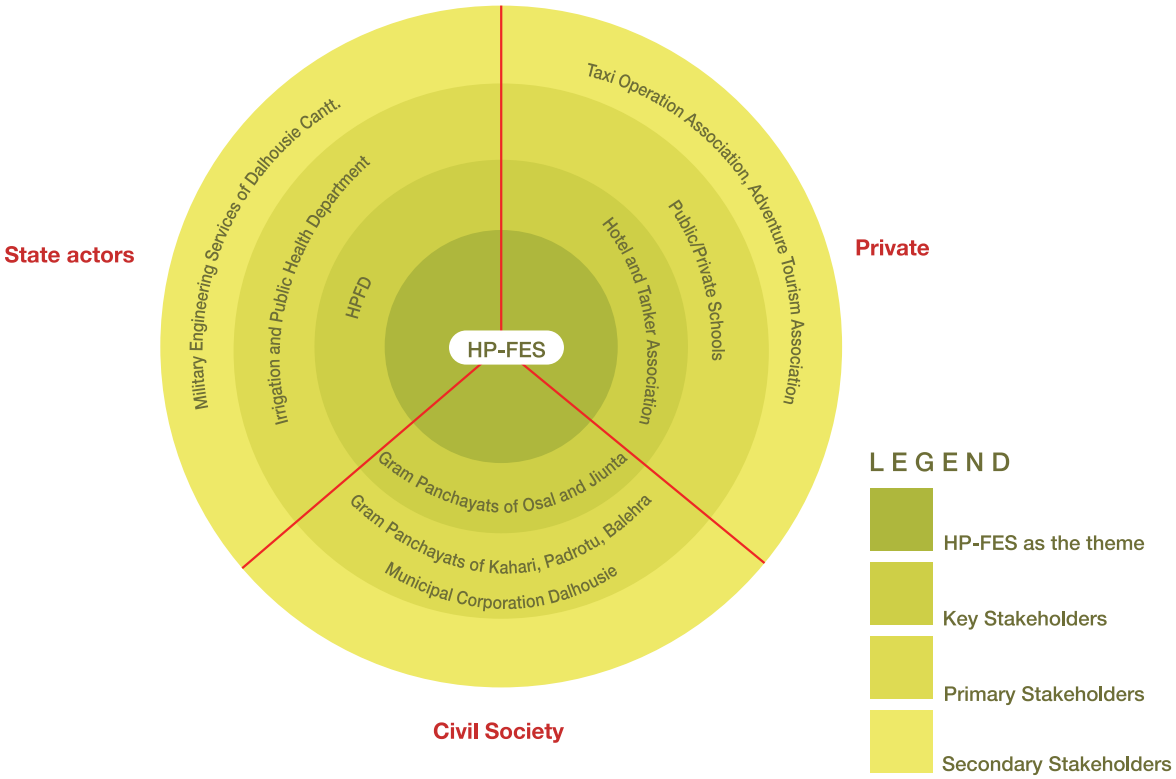
#### Forest types and area

| Area | Forest Type |
|---|---|
| 12C1c: 20.34 ha | Moist Deodar forests |
| 182 ha | Spruce mixed forest |
| Total planning area: 202.34 ha | |

# Demographic Data (Dalhousie)

| Ward | Males | Females | Total |
|---|---|---|---|
| Bakrota (1) | 1506 | 994 | 2450 |
| Lohali (2) | 320 | 324 | 644 |
| GPO (3) | 307 | 282 | 589 |
| Hindu Lane (4) | 359 | 355 | 714 |
| Upper Sadar Bazar (5) | 155 | 128 | 283 |
| Kathlig (6) | 249 | 221 | 470 |
| Convent School (7) | 140 | 481 | 621 |
| Moti Tibba (8) | 505 | 306 | 811 |
| Dalhousie Club (9) | 280 | 189 | 469 |
| **Total** | **3821** | **3230** | **7051** |

# 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 | Gram Panchayats of Osal and Jiunta | • Gram Panchayats of Kahari, Padrotu and Balehra<br>• Municipal Corporation Dalhousie | — |
| Private | • Hotel Association<br>• Tanker Association | Public/Private Schools | • Taxi Operators Association<br>• Adventure Tourism Association |
| State | Himachal Pradesh Forest Department (HPFD) | Irrigation and Public Health Department | Military Engineering Services of Dalhousie Cantt. |

# CHAPTER- 4

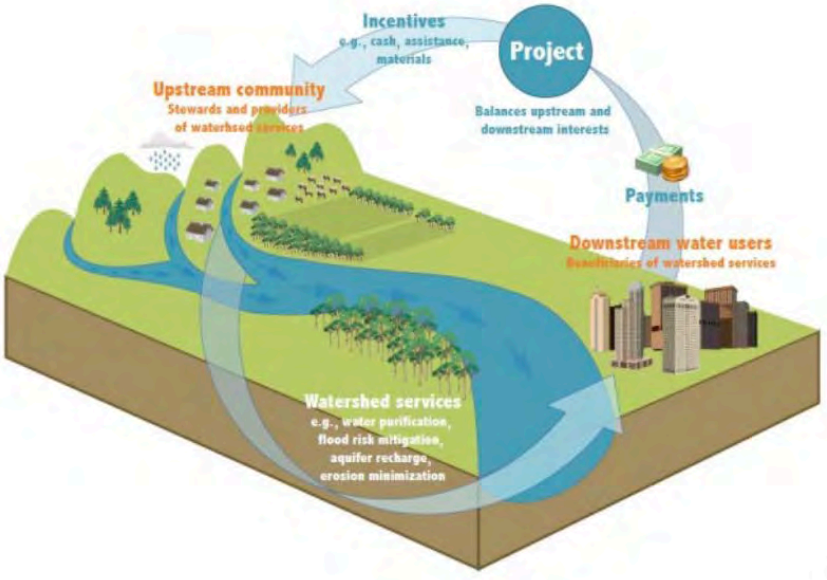
# Payment for Ecosystem Services (PES): Concept and Approach in Alha Catchment Forest

## What is PES?

A widely quoted definition[1] of a PES is that it is:
1. a voluntary transaction where
2. a well-defined ecosystem service (or a land use likely to secure that service)
3. is "bought" by a (minimum of one) ecosystem service buyer
4. from a (minimum of one) ecosystem service provider; if and only if
5. the service provider secures ecosystem service provision (conditionality).

## Concept of PES

The basic idea behind PES is that those who provide any ecosystem services should be paid for doing so. PES involves a series of payments to land or other natural resource managers in return for a guaranteed flow of ecosystem services (or, more commonly, for management actions likely to enhance their provision) over-and-above what would otherwise be provided in the absence of payment. The PES concept[2] in relation to payments for watershed services is given in the figure below.




**PES Concept in Relation to Payments for Watershed Services**

[1] PES: A Practical Guide to Assessing Feasibility of PES Projects, CIFOR

[2] Payment for Ecosystem Services: A Best Practice Guide, DEFRA

# PES Model for Alha Catchment Forest

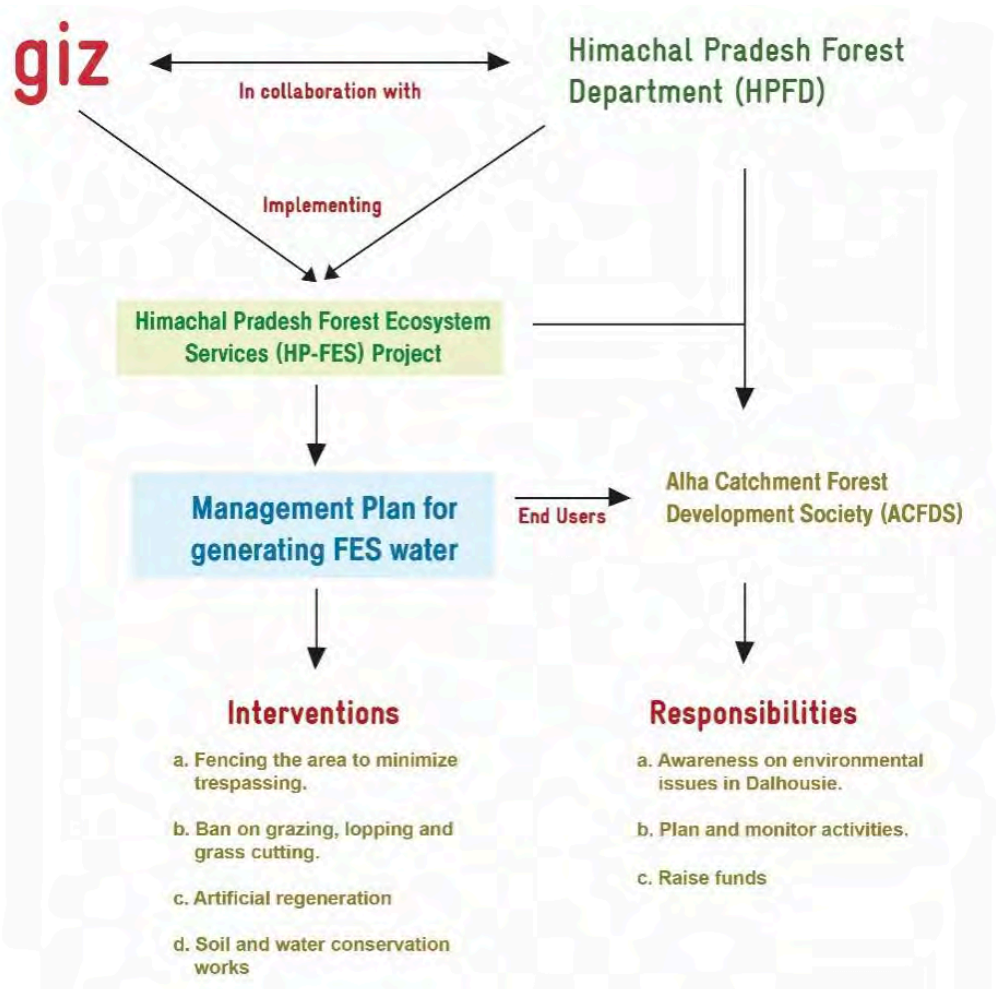
During the Participatory Rural Appraisal exercise, users and providers of the FES water from Alha forest were identified; users being **Hotel Associations, Tanker Associations, Public Schools, Gram Panchayats of Osal and Jiunta** and the **provider being the Himachal Pradesh Forest Department.** It was agreed that users of water will contribute towards the costs for implementing the activities identified in the microplan to improve the water regeneration, sanitation and overall management of Alha Catchment Forest for enhancing its water provisioning services.

Subsequently, Alha Catchment Forest Management Society (ACFMS) Dalhousie was registered with local administration as the nodal institution, under the aegis of HPFD. ACFMS will be the custodian of a collection created for the purpose of forest management activities in Alha forest. Contributions in the form of donations and membership fee will be sought from end users who are also the members of ACFMS. Grants from other donors, including HPFD and HP-FES will also contribute to the collection. The objectives of ACFMS are:

a. To create awareness on environmental issues,

b. Plan and monitor activities and raise funds to support implementation of activities enlisted in the microplan, etc.

The technical inputs for the preparation of microplan have been provided by HP-FES and HPFD. The implementation of activities identified in the microplan will be done by HPFD. The figure below shows the PES Model to be implemented in Alha Catchment Forest.



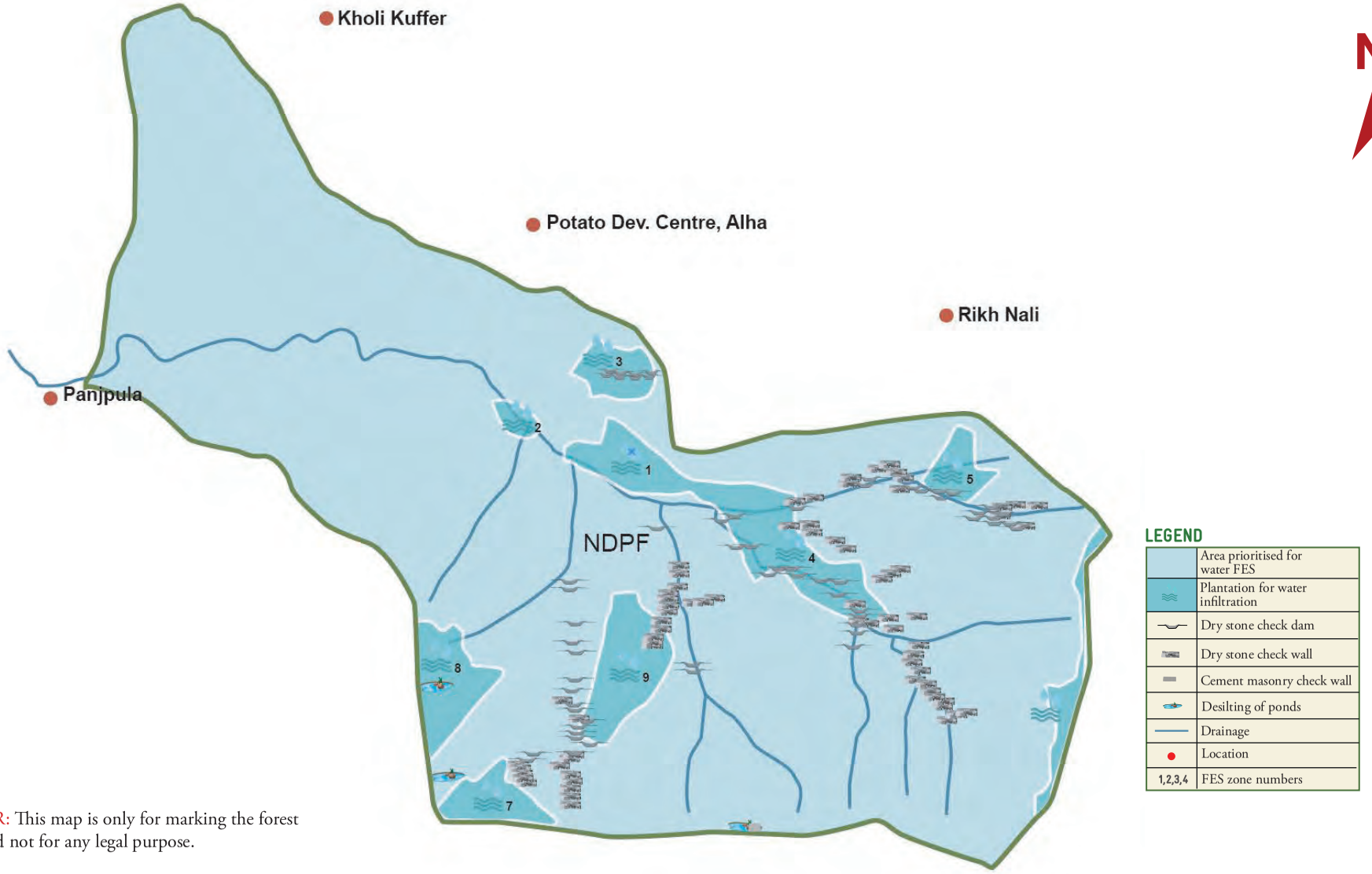

**PES Model for Alha Catchment Forest**

# CHAPTER- 5

## Rankwise Priority Forest Ecosystem Services

| RANK | FOREST ECOSYSTEM SERVICE |
|---|---|
| 1. |  **Watershed protection:** Soil moisture conservation & water regeneration |
| 2. |  **Air:** Cool and clean breathing air |
| 3. |  **Aesthetics:** Greenery |

# Priority and Intervention Map




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

# Zonewise Management

**COMPARTMENT: NDPF**

| FES ZONE | PRIORITY FES | TREATMENT |
|---|---|---|
| 1 | | Plantation of Deodar and Ban Oak |
| 2 | | Plantation of Deodar and Ban Oak |
| 3 | | Plantation of Deodar and Ban Oak |
| 4 | | Plantation of Deodar and Ban Oak |
| 5 | | Plantation of Fir and spruce |
| 6 | | Plantation of Fir and spruce |
| 7 | | Plantation of Deodar |
| 8 | | Plantation of Deodar |
| 9 | | Plantation of Deodar and spruce |

# Activity Plan and Budgeting

## Activity Plan for Enhancing Infiltration of Water into Ground and Soil Erosion Control

| S. No. | Activities | Location | Year-I | | Year -II | | Year - III | | Year - IV | | Year -V | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy | Fin. (Rs.) | Phy | Fin. (Rs.) | Phy | Fin. (Rs.) | Phy | Fin. (Rs.) | Phy | Fin. (Rs.) | Phy | Fin. (Rs.) |
| 1 | Check walls in dry stone masonry | Panchpula Nala origin, Goon nala, Jari Naki Nala | - | - | 17 | 1,36,000 | 30 | 2,40,000 | 30 | 2,40,000 | 30 | 2,40,000 | 107 | 8,56,000 |
| 2 | Check wall in cement masonry | NDPF Alha Top ridge | 1 | 35,000 | - | - | - | - | - | - | - | - | 1 | 35,000 |
| 3 | Check dams in dry stone masonry | Panchpula Nala origin, Goon nala, Jari Naki Nala | - | - | 9 | 1,08,000 | 20 | 2,40,000 | 20 | 2,40,000 | 20 | 2,40,000 | 69 | 8,28,000 |
| 4 | Desilting of Ponds | NDPF Alha upper zone | 1 | 20,000 | - | - | - | - | 1 | 15,000 | 1 | 15,000 | 3 | 50,000 |
| 5 | Staggered Contour Trenches 1m x 45m x 45m In forest (Rm) | NDPF Alha upper zone over an area of 10 ha. approx. | - | - | 5,000 | 2,07,684 | 5,000 | 2,07,684 | 5,000 | 2,07,684 | 5,000 | 2,07,684 | 20,000 | 8,30,736 |
| 6 | Staggered contour bunds 20cm rise (Rm) | NDPF Alha upper zone over 5ha of area | - | - | 1,500 | 18,750 | 1,500 | 18,750 | 1,500 | 18,750 | 1,500 | 18,750 | 6,000 | 75,000 |
| | | **Total (6.2)** | - | **55,000** | - | **4,70,434** | - | **7,06,434** | - | **7,21,434** | - | **7,21,434** | - | **26,74,736** |

# Activity Plan for Plantations of Coniferous Species & Water Infiltration Measures for Increasing Stream Water in Springs/Nalas

| S. No. | Activities (e.g.) | Year-I | | Year -II | | Year - III | | Year - IV | | Year -V | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Phy | Fin. (INR) | Phy (ha) | Fin. (INR) | Phy (ha) | Fin. (INR) | Phy (ha) | Fin. (INR) | Phy | Fin. (INR) | Phy (ha) | Fin. (INR) |
| 1 | Digging, trenching and planting* | 25.25 ha (Tall & normal plants) | 11,28,445 | | - | - | - | - | - | - | - | 25.25 | 11,28,445 |
| 2 | **Labour cost (trenching & planting)** | **25.25 ha** | **11,28,445** | | | | | | | | | **25.25** | **11,28,445** |
| 3 | Material & supply (New) | | 4,02,687 | - | - | - | - | - | - | - | - | - | 4,02,687 |
| 4 | **Total (labour & M&S)** | **25.25 ha** | **15,31,132** | - | - | - | - | - | - | - | - | **25.25** | **15,31,132** |
| 5 | Plant cost (new planting) Normal | 25500 no. | 1,06,425 | - | - | - | - | - | - | - | - | 25500 | 3,61,845 |
| | Plant cost (new planting) Tall | 3000 no. | 1,50,420 | - | - | - | - | - | - | - | - | 5000 | 1,50,420 |
| 6 | **Grand Total (New Planting)** | **25.25** | **20,43,397** | - | - | - | - | - | - | - | - | **25.25** | **20,43,397** |
| 7 | Maintenance of plantation (3 yr.) | - | - | 25.25 | 1,21,705 | 25 | 67,418 | 25.25 h | 40,400 | - | - | 25.25 | 1,04,535 |
| 8 | **Total maintenance cost (3yr) (B)** | - | - | **25** | **1,21,705** | **25** | **67,418** | **25** | **40,400** | - | - | **25.25** | **1,04,535** |
| | | | | | | | | | | | **Total FES water (6.2+ 6.3)** | | **49,47,656.00** |

Note: *Digging, 60 $cm^3$ and 45$cm^3$ filling pits & Planting of Ban oak (*Quercus incana*), Deodar (*Cedrus deodara*), Fir (*Abies pindrow*), Spruce (*Picea smithiana*), Horse chestnut (*Aesculus indica*), barbed wire fencing.

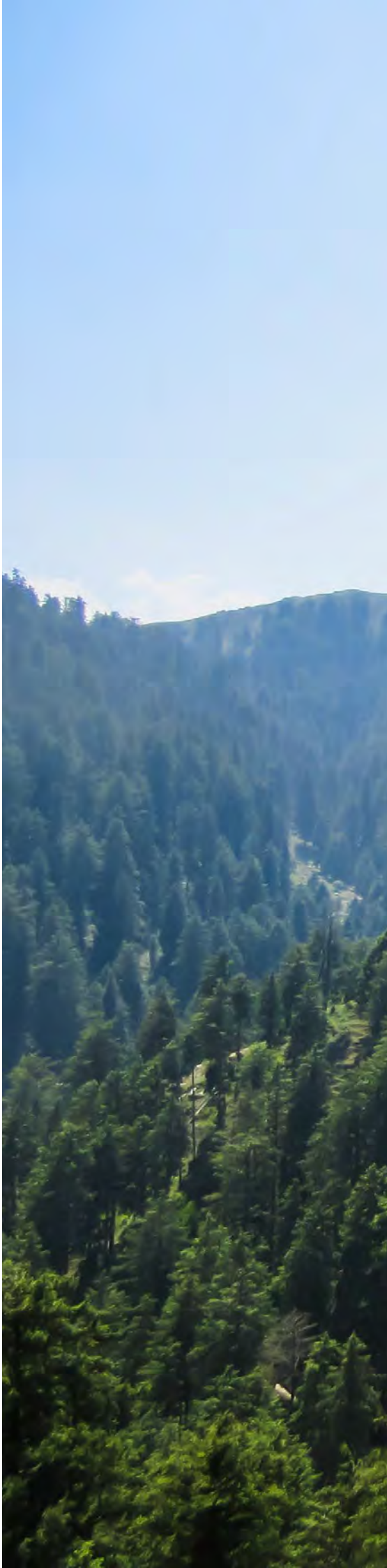
# CHAPTER- 6

## Monitoring and Evaluation

### 1. Increase of water flow in water resources, springs and streams

a. Flow of water in springs/sources of water supply and Panchpula Nala (source of water supply) in dry seasons of the year (April to mid-June and October to mid-December)

b. Measurement of silt runoff in streams originating from the forest during rainy season.



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