

KARWALANGRU JOINT FOREST MANAGEMENT COMMITTEE (JFMC)

West Haflong Forest Division, Dima Hasao Forest Circle

MICRO-PLAN

(2016-17 to 2025-26)

Prepared by Karwalangru Joint Forest Management Committee

**Assisted by
Assam Forest Department**

&

**COMPELO
(IIE, RGVN and CML)**

July 2016

Approved

**Divisional Forest Officer
Dima Hasao Forest Division (West)
Haflong**

List of Acronyms

Acronym	Full Form
APFBC	Assam Project on Forest and Biodiversity Conservation
AFD	<i>Agence France de Développement</i>
BPL	Below Poverty Line
BTC	Bodoland Territorial Council
COMPELO	Consortium for Micro Planning and Enhancing Livelihood Opportunities
EPA	Entry Point Activities
GIS	Geographical Information System
Ha	Hectare
IIE	Indian Institute of Entrepreneurship
EDC	Eco Development Committee
Kg	Kilogram
Km	Kilometre
Manas NP	Manas National Park
Manas TP	Manas Tiger Project
NGO	Non-Governmental Organization
NTFP	Non Timber Forest Product
PDS	Public Distribution System
PRA	Participatory Rural Appraisal
Rs.	Indian Rupees
SHG	Self Help Group
VCDC	Village Council Development Committee

JOINT FOREST MANAGEMENT COMMITTEE

[Livelihood Development Plan]

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1. Introduction

About the Project

The vision of the Assam Project on Forest and Biodiversity Conservation (APFBC) is ‘to enable sustainable forest and biodiversity conservation and management in Assam through multi-scale integrative planning and involvement of forest dependent communities in target areas and giving fillip to their livelihood activities through sustainable use of forest and non-forest resources’. The project’s objective has been stated as: ‘In collaboration with the forest dependent communities, to restore forest eco-systems to enhance the forest dependent community’s livelihoods and ensure conservation and sustainable use of biodiversity’.

The above project is being mainly funded by the *Agence France de Développement* (AFD) - i.e. the French Development Agency, with co-funding from the Government of Assam. The Assam Project on Forest and Biodiversity Conservation Society (APFBC Society) has the mandate for planning, implementation, monitoring, coordination and management of all the activities under the above mentioned project.

Micro-Planning & Livelihood Development

In order to promote livelihood activities through market potential based value addition; the present project intends to take up activities like entrepreneurship promotion, product processing value addition and marketing under this project. This has become necessary on account of the pressures on existing forest resources due to the growth of population. There is a need to explore value addition to the existing forest and biodiversity products and services, based on the market potential. In addition, non-forest based livelihoods need to be explored and the capacities of the community members need to be built-up through skills development initiatives.

A consortium comprising of Indian Institute of Entrepreneurship (IIE) Guwahati, *Rashtriya Gramin Vikas Nidhi* (RGVN) and Centre for Microfinance and Livelihood (CML) has been formed to implement (*inter-alia*) the microplanning and livelihood development under the above project. The above consortium has been titled as ‘Consortium for Micro Planning and Enhancing Livelihood Opportunities’ - COMPELO in short.

As per project guidelines, this micro-plan includes ‘**various operations of village and forest development, livelihood support of forest dependent members and keeping sustainable forest management as the broad objective**’. It includes both forest development and livelihood development.

Micro-Plan for the Karwalangru JFMC

This document gives the Micro-Plan for the Karwalangru JFMC, which is located in the Dima Hasao district of Assam. The JFMC falls under the jurisdiction of the West Haflong Forest Division of the Dima Hasao Forest Circle. The profile of the community is given in the next section.

The present micro-plan has been prepared by members of the community, including both male and female members. This document has emerged as an outcome of a Participatory Rural Appraisal (PRA) process undertaken by the community and personnel of Indian Institute of Entrepreneurship (IIE) Guwahati in June 2016. The micro-plan has been compiled by IIE based on the project guidelines. The document has been discussed and finalized for adoption in July 2016.

2. Village Socio-Economic Profile

Location The Karwalangru Joint Forest Management Committee (JFMC) has been formed to cover the existing community dwelling in Lonkupur and Lorulangso villages located on the fringe of the Panimur Unclassed State Forest (USF). The area covered by the above JFMC falls within the Haflong forest division of Dima Hasao District of Assam.

Appendix-1 gives the Village Map.

Key Information

The key information of the JFMC is furnished below. **Table-A:**

Key Information of the JFMC

Name of the JFMC	Karwalangru
Habitation	Lonkupur and Lorulangso
Name of Revenue Village	nil
Name of the Gram Panchayat / VCDC	nil
Revenue Circle	Nil
District	Dima hasao
Forest Division	West Haflong
Forest Range	Panimur
Forest Beat	Nil
Year Formed	2015-16
Description of Boundary of JFMC	As below North: Lanka Umrungso Road South: USF West: USF East: Langri Nala

Source: JFMC Records & Discussions during PRA Exercise in June 2016

Additional details are given at **Table-1** of Record-I. (Given at Annexure)

Brief Details of the Executive Committee & General Body

The brief details of Executive Committee & General Body of the JFMC are contained in the table, which is given below.

Table-B: Brief Details of Executive Committee & general Body

Name of President	Mairendra Kemprai
Name of Secretary	Jononjoy Haflongbar
Name of Treasurer	Roponon Naiding
No. of Members in Executive Committee	Male:12 Female:3
No. of Members in the General Body	Male: Female:

Source: JFMC Records

Households Population Structure

& The villages have 36 households, of which all households are BPL (Below Poverty Line) households. There is no female headed households.

The total population is 207, of which 117 are male and the 90 are female members. The population includes cent percent ST (hills) people.

Table-2 of Record-I may be referred for further details in the above regard.

From this, it is inferred that:

- (1) The average number of persons in a household is 5.3.
- (2) The sex ratio is 987 females per 1000 males in the village.

Education & Skills Development

Over 71.98% of the population is reported to be literate. Most of the community members have received school level education. On the other hand, relatively fewer households have college educated members.

Livelihood skills are usually acquired under various settings – formal & informal. In the JFMC area, informal means for skills development is the traditional norm. People have traditional skills in the following areas: (a) Livestock rearing
(b) Handicraft
(c) Tailoring
(d) Farming

Government has been active in promoting formal skills development programmes in the country as well as in the state. However, no such programme has been carried out in the habitation or in nearby areas.

Soil

The soil type of the project area includes:

- Sandy Loam in hilly area
- Latrice towards south in hilly area

Both types of soil can support different kinds of crops, as the soil is reported to be fertile on the whole.

Water

The area is drained by River Kopili. Kopili is an interstate river in Northeast India that flows through the states of Meghalaya and Assam and is the largest south bank tributary of the Brahmaputra in Assam. This river originates from Borail.

The Barak Valley is also marked by the presence of wetland, locally called as 'beels', which are rich in fish and other aquatic resources.

Climate: Temperature Rainfall

& The maximum temperature during the summer is 30° C. The minimum temperature during the winter is 8 ° C.

The annual rainfall is about 2200 to 2700 mm. About two-thirds of the rainfall usually occurs during the rainy season (June-September). The village has high levels of humidity (87 %) during the rainy months and low levels in the winter (Below 70%).

Forest & Bio-diversity

The local forests have been broadly classified as Unclassified state forest (USF). The main tree species are Haldu, Gamari, Titachopa, Nahar, Bonsum, Bogipoma, Bola, Koroi, Bhelu, Makri, Sal etc. The forests can yield a range of NTFP like spices, leafy vegetables, ferns, medicinal plants, bamboo, cane, thatch, fodder, broom stick etc.

Additional details in this regard are given at the 'Forest Development Plan'.

Land Use Pattern	<p>Appendix-2 gives the land-use pattern of the village. From the same, it is seen that the land-use in the village is as follows:</p> <p>Crop Land (Shifting cultivation) : 30%</p> <p>Tree Cover: 20 %</p> <p>Habitation: 8 %</p> <p>Water Bodies: 17 % (incl. water logged areas)</p> <p>Barren Land: 19 % Other: 6 %.</p>
Land Holdings	<p>The type of households as per land-holding is given at Table-3 of Record-I. From the same, it is seen that:</p> <ul style="list-style-type: none"> • None of the households are landless; • 50 % of the households are marginal farmers (less than 2 Ha) (18 HHs); □ 50 % of the households are small farmers (2-10 Ha) (18 HHs).
Livestock	<p>The total number of livestock in the village is 255. The main types of livestock possessed by the households include:</p> <p>Cows: 85</p> <p>Hen/ cock: 115 Pigs: 55</p>
Village Infrastructure & Communication Facilities	<p>Table-4 of Record-I may be referred to for the details in the above connection. In any community; the availability of basic infrastructure enables the development of sustainable livelihood options. The present condition of infrastructure in the village is not satisfactory. This is borne out by Table-5 of Record-I, which gives the present status of the village infrastructure.</p> <p>From the above table, the following have been noted with regard to village infrastructure:</p> <p>Physical Infrastructure: The habitation is deprived of basic physical infrastructure like paved roads, electricity, water supply, mobile network etc.</p> <p>Education & Health Facilities: There are minimal educational and health facilities. Public transport is not available, and the community members have to use bicycles to move around.</p> <p>Govt. Offices: The government offices (such as Police station, Gram Panchayat office, Revenue office, Forest Beat office etc.) are located at a far distance, which gets amplified as the villagers do not have access to regular public transport from either the habitation or from nearby areas.</p> <p>Financial Inclusion: Facilities for financial inclusion like bank and post office are located at a far distance from the habitation. Hence, the community members do not have bank accounts or postal savings accounts.</p>
Agricultural Crops	<p>The details of the agricultural crops grown in the villages are available at Table6 of Record-I.</p> <p>The above shows that the following are the main crops grown in the village.</p> <p>Kharif Crops: Paddy, Sesame Seed, Chilly</p> <p>Rabi Crops: Ginger, Broom stick Others: Horticulture</p> <p>All the crops are rain fed.</p>

Crop Profile	<p>Production Table-7 of Record-I may be referred to for the production and yield details of the crops grown in the villages.</p> <p>The maximum numbers of households are involved in growing crops like rice Broom stick and sesame seed.</p> <p>The production and yield of these crops is given as follows:</p> <ul style="list-style-type: none"> (a) Paddy : Production 40.67 Quintals Yield 20 q /ha (b) Vegetables : Production 3 Quintals Yield 3.5 q/ha
Fodder Availability	<p>The matter of fodder availability in the village is dealt with at Table-8 of Record-I. The above shows that the main sources of fodder in the village are as follows:</p> <ul style="list-style-type: none"> (a) Household wastage (b) Grazing in forest (c) Crop residue (d) Green fodder
Markets	<p>Table-9 of Record-I shows the location of the different markets from the village. The main markets used by the community are as follows:</p> <ul style="list-style-type: none"> (a) Grocery / PDS: Panimur Bus shed at 12 km away. (b) Weekly / Bi-weekly Market: : Umrongso at 40 km away (c) Major Market: : Umrongso at 40 km away
Water Resources	<p>The water resources are tabulated at Table-10 of Record-I. The main water resources with the water availability is as follows:</p> <ul style="list-style-type: none"> (a) Natural tunnel (1 No) (Water Availability: Perennial / Seasonal) (b) Water Reservoir (2 Nos.) (Water Availability: Perennial/ Seasonal)
Energy Consumption	<p>Table-11 of Record-I shows the major sources of energy in the village. The same have been listed below.</p> <ul style="list-style-type: none"> (a) Fuel wood- Households Depending: 36 Nos. Source: Local forest
Socio-economic status	<p>Social set-up: The village is inhabited by tribal community. They do not have a caste system. The society is not marked by deep social divisions. The observed position of women is satisfactory.</p> <p>Economic Condition: The economic position is not satisfactory. The main livelihoods are Farming, Daily wages, Livestock rearing etc. Most households earn Rs. 8,000 to Rs. 12,000 per year.</p> <p>There is no large-scale migration of the youth and others for livelihoods. Additional details are available at the next section.</p>
Maps	<p>Appendix-1 gives the following maps, based on PRA exercise:</p> <ul style="list-style-type: none"> • Village Map • Village Social Map (with the names and particulars of members in PRA) □ Village Resource Map

3. Livelihood Opportunity Analysis

PRA Exercise Team from IIE Guwahati carried out PRA exercise in Karwalangru JFMC as follows:

Date: 12th June 2016 **Location:** Village locality **Numbers Present:** 20

In Presence of: JFMC office bearers, Village Headman, community members, Forest Department personnel, etc.

Objective of PRA

The objective was to study the existing household conditions and obtain other primary data about the community for developing the livelihood options and the forest development plan.

Tools Used Outcomes of the PRA

& Different tools were used and outcomes obtained. These include:

Social Mapping
Wealth Ranking
Time Line review
Seasonality of Livelihoods Venn Diagram

Appendix-3 furnishes detailed information of the above.

Ranking

Ranking exercise has been done for the following:

□ **Livelihoods & Skills Development** □ **Entry Point Activities (EPA)**

Appendix-3 elaborates the above. From the same, it is stated that:

Ranking of Livelihoods & Skills Development

1. Agriculture
2. Livestock
3. Weaving/ Tailoring

Ranking of EPA

	Village EPA as ranked	Details (Appendix-3 has additional particulars)	Probable source of funding/dep't.
1.	Village Road	Provide motorable road from villages to the Panimur market area/ Bus stoppage.	PMGSY/PWD
2.	Health Centre	Sub-Centre within the village	NHM/ H & FW
3.	Solar Connection	Provision of solar connection in every HH will be beneficial for the whole society. Low cost	NABARD

		and distribution is uniform.	
4.	LPG connection	LPG substitutes for wood fuel. Efficient and effective cooking method as well as environment friendly and low cost.	Pradhan mantri Ujjwala Yojana scheme
5.	Sanitation	Providing HHL (House Hold Latrine)- Low cost ,septic and sanitary type.	Swachh Bharat Mission/ PHE

- An arrangement of working capital worth Rs.2 Lakhs should be arranged from the EPA fund of promoting livelihood activities.
- A community work shed cum JFMC office to be setup within the JFMC boundaries.
- A low cost livestock rearing shed have to be arranged from the EPA fund for promoting a common community livelihood activity.

Livelihood opportunities

Livelihood Opportunities were identified as follows:

Agriculture & Horticulture

Livestock

NTFP

Skills Development Credit

Facility

Additional discussion about the above has been given below.

Forest Development Opportunities

In Karwalangru JFMC, ranking has been done in order to understand how people are aware regarding opportunities lead to forest development. The following details provide the rank wise forest development opportunities in the project area. (Matrix ranking is given in Annexure)

1. Plantation of firewood, 2. Demarcation of land, 3. Plantation on medicinal NTFP etc. 4. Plantation of tree raising of nursery, 5. Development of degraded forest, 6. Plantation of bamboo 7. Forest protection 8. Natural regeneration 9. Fodder cultivation

Agriculture Horticulture

& **Table-12** under Record-2 may be seen in this connection for opportunities in the areas of agriculture and horticulture.

The main constraints are:

- (a) Very negligible use of fertilizers and pesticides, insecticides.
- (b) Lack of irrigation facilities
- (c) Lack of agricultural infrastructure, modern tools and equipment's viz, power tillers, tractors etc.
- (d) Non usages of high yielding seeds etc.

The opportunities are:

- (a) Application of proper and controlled pesticides and insecticides.
- (b) Introduction of new and advance technology
- (c) Well-structured training programme. The villagers are inherited with the skill of cultivation. All they need is improvisation of their skill level.

The suggested programme is:

- Tractor operation training
- Agri-skill development programme.
- Training on insecticides, pesticides, hybrid cultivation etc.

Livestock	<p>Table-13 furnishes additional information about opportunities for livestock rearing.</p> <p>The main constraints are: Unable to buy fodder from market due to poor financial condition. (b) Trees fodder n crop residue are available only for 3-6 months. Green fodder is also not available for the whole year. (c) No veterinary care clinic (d) Lack of knowledge about the proper rearing of live stock The opportunities are:</p> <p>(a) Higher income from livestock rearing. (b) A huge demanded market for milk is available as Karbi anglong and Nagaon district is too far from the JFMC. Moreover the JFMC area shares boundary with Meghalaya state.</p> <p>The suggested programme is:</p> <p>(a)Piggery (b)Poultry</p>
NTFP	<p>The opportunities for NTFP are tabulated at Table-14 under Record-2</p> <p>The main constraints are: (a) Less availability of NWFP (b) No technical know-how (c) No processing units</p> <p>The opportunities is: (a) Availability of fertile fallow land</p>
Specialized Skills	<p>The suggested programme is: (a)Plantation of Food plants, (b)Medicinal Plant etc.</p> <p>For skills development, the opportunities are tabulated at Table-15 under Record-2</p> <p>The main constraints are: (a) Lack of product diversification (b) Lack of research on product quality (c) Lack of TQM techniques.</p> <p>The opportunities are:</p> <p>(a) Providing good communication facility (b) Training of the skill holder (c) Financial assistance from govt.</p> <p>The suggested programme are:</p> <ul style="list-style-type: none"> • Training on Modern Tools and Equipment • Providing modern technology to the villagers • Skill Up gradation & Training on New Product Development and Product Diversification

	<ul style="list-style-type: none"> • Setting up a raw material bank • Providing a bulk buy arrangement of the finished product with institutional buyers.
Credit Facility	<p>Table-16 under Record-2 discusses this aspect.</p> <p>The main constraints with the reasons are:</p> <p>(a) Financial exclusion</p> <p>(b) Higher rate charged by the private money lender.</p> <p>The opportunities are:</p> <p>(a) setting up modern financial institution (b) Adequate awareness.</p> <p>The suggested programme is:</p> <p>(a) Setting up modern financial institution in the nearby areas.</p>
Strategic Interventions	<p>Summarizing the suggested programmes at above as strategic interventions for the Livelihood Development Plan:</p> <p>1 Agriculture & Horticulture: Agri-skill development programme, Training on insecticides, pesticides, hybrid cultivation.</p> <p>2.Livestock: Piggery, Poultry</p> <p>3.NWFP : Plantation of Food plants, Medicinal Plant etc</p> <p>4. Specialized Skills: Training on Modern Tools and Equipment, Providing modern technology to the villagers, Skill Up gradation & Training on New Product Development and Product Diversification, Setting up a raw material bank, Providing a bulk buy arrangement of the finished product with institutional buyers.</p> <p>5. Credit facility: Setting up modern financial institution in the nearby areas</p>

Framework of livelihood Opportunity Analysis has been done with the help of the following criteria:

- A) Livelihood assets
- B) Livelihood context
- C) Priority ranking on potential livelihood

The livelihood situation of Karwalangru JFMC has been analysed during the PRA exercise using sustainable livelihood framework of DFDI (Department of Funding for International Development). The existing livelihood situation of JFMC is outlined in terms of –

- Natural Capital
- Physical Capital
- Social Capital
- Human Capital
- Financial Capital

NATURAL CAPITAL:

The major natural capital of Karwalangru JFMC is Panimur Unclassified State Forest. Majority of the people are dependent on the forest for firewood, green fodder, timber etc. For farming purpose and for livestock rearing, the villagers use the river water. (Refer table 10, 11, table 3 of FDP for further details)

PHYSICAL CAPITAL:

Majority of the households in the Karwalangru JFMC are involved in farming activities and are marginal farmers with farming land of less than 2 ha. Detailed land holding pattern is described in the table 3/annexure 6.

All the houses of the village are kuccha. Among the various sources of energy consumption such as Biomass, kerosene, electricity, LPG and candle, villagers depend only on firewood for household and other uses. No households have LPG connection. (Refer to table 10, 11) There is only LP school present within the JFMC area. No other education institution is present. (Refer to table 5)

In case of water sources, cent percent of the households are depends on the Water reservoir (2 Nos.) and Diyung River.

SOCIAL CAPITAL:

The villagers are not fully involved in the JFMC functioning due to lack of awareness on their roles, functions, and specific benefits they are going to receive.

There is no formal SHGs are present in the village. Generally the social meeting are held inside the church locality.

HUMAN CAPITAL:

71.68% per cent of total population of the JFMC are educated and 28.32 per cent of them have crossed upper primary level school education.

FINANCIAL CAPITAL:

There is no government bank or lending institution available in the JFMC area or in the nearby areas. However, villagers lend from informal lending groups, relatives etc.

Very less numbers of people have bank account in commercial banks, but they are not aware of the benefits of financial inclusion.

Livelihood Context:

Livelihood activities of the Karwalangru JFMC are identifies on the basis of following criteria:

- a) Contribution of particular livelihood activity in the total income of the JFMC
- b) Percentage involvement of income group in a particular livelihood activities
- c) Priority ranking of the potential livelihood activities

4. Livelihood Development Plan

Income Generating Activities The main income generating activities as planned at the village are:

Farm Sector :

- 1.poultry and piggery
2. lac cultivation 3.Horticulture

Non-Farm sector:

- 1.Handloom/ Weaving
2. Electrician
3. Driving
4. Sericulture

SHG Activities

SHGs of the village can plan the following activities:

1. To create awareness.
2. To organise and form group
3. To involve the villagers in Livelihood Activities collectively.

Exposure Trips

The following exposure trips are planned:

NIL

Summary of Action Plan

As attached in next page.

Convergence

The planned initiatives may be converged with the following schemes of the Government of India:

- (a) National Rural Employment Guarantee Scheme - for rural employment
- (b) Rashtriya Krishi Vikas Yojana (RKVY) - for agricultural and allied development
- (c) Rashtriya Krishi Sinchay Yojana (RKSJ) - for irrigation, including watershed development
- (d) National Rural Livelihoods Mission
- (e) Skills Development schemes
- (f) Other schemes for rural development and livelihoods as found appropriate.

The above convergence will yield synergies for the present plan, as well as help in sustaining the planned works in the post-project period.

**Action plan for Karwalalgru JFMC, Panimur Range,
West Haflong Division**

Sl. No.	Activity	Numbers	Method	Amount (in Rs.)
A. Participatory Micro Planning				
1	Preparation of Micro Plan	1	PRA, Baseline Survey	1,00,000.00
	Total			1,00,000.00
B. Organize Producers and Build Entrepreneurial and Technical Capacities (Capacity Building)				
1	Awareness Build-up Programme	1	Awareness Programme	20,000.00
B1	Training on Skill development			
1	Skill Development Training Programme on Tailoring & weaving (15 Nos.) and Nursing (15 Nos.)	1	Conducting Skill Development Training programme	2,00,000.00
2	Skill Development Training Programme on and Bee Keeping	1	Conducting Skill Development Training programme (40 days)	2,00,000.00
3	Training on Entrepreneurship Orientation	1	3 days Entrepreneurship Orientation programme	50,000.00
	Total			4,70,000.00
C. Social Mobilization				
1	Awareness generation camp on Formation of collective units (e.g. SHGs, Societies, NGOs, Bodies, Producers Companies)		4 days awareness camp on formation of collective units through cooperative experts	50,000.00
2	Hand Holding guidance support and linkage promotion programme for self-employment and placement		Hand holding support from IIE experts throughout the year upto march 2017	50,000.00
	Total			1,00,000.00
D. Value Chain Improvement				
D1	Product improvement Through Value Chain Improvement			
1	Value Chain Improvement in weaving products	1	10 days Training on processing activities	50,000.00
D3	Supply of modern tools			
1	Supply of modern looms			1,50,000.00
2	Supply of Bee Box			90,000.00
D4	Training programme on medicinal plantation and process of NTFP etc.			110,000.00
	Total			4,00,000.00
E. Support for Access to Market				
E1	Linkage with institutional buyers and/or govt. Organizations. (throughout the year)	2	Creating platform for buyers' and sellers' interactions (2 day)	80,000.00
E2	Setting Up Ban Bazar	Throughout the year	linkage through van bazar	1,00,000.00
E3	Exhibition Participation	1	Participation in one exhibition through forest department	1,20,000.00
E4	Access To Other Geographical Markets	1	Exposure visit	1,20,000.00
E5	Publicity through E-portal, brochure, catalogue etc	1	2 day training and awareness programme taken by marketing expert	60,000.00
	Total			4,80,000.00
	Grand Total			15,50,000.00

5. Forest Development Plan

This Forest Development Plan has been prepared after a detailed PRA exercise at the village level as a part of the Micro-Plan of Karwalalgru JFMC. The objective of this plan is to provide for the sustenance of the conservation and bio-diversity values, environmental functions and productive potential of the forests assigned to the JFMC; while meeting the consumption and livelihood needs of the community in a sustainable manner.

5.1 Status of the JFMC Forests

The micro-plan takes into consideration the following categories of the JFM Forests of the Karwalalgru JFMC:

- (a) Forest areas assigned to the JFMC by the Forest Department; and
- (b) Areas planted / to be planted on community lands and other lands outside the notified forest area.

The status of both the above categories of JFMC forests is briefly discussed below.

5.2 Forests & Their Conditions

The details of the status of forest areas assigned to the JFMC have been furnished at Table-3.1 under Proforma-3 ('Forest Development Plan'), which has been attached as Annexure to this micro-plan. After considering other areas planted (or to be planted), the conditions of the forests of the Karwalalgru JFMC have been summarized below.

Table-5.1: Conditions of the Forests of Karwalalgru JFMC

Identification	Area of JFMC Forest (Ha)	Distance from Village (Km)	Condition of Forest [Good - Forest with crown density of 40% of more Else 'Degraded']	Frequency of Use by Community [2-3 m / 3-6 m / 6-9 m / Over 9 m]
(A) Assigned Forest				
RF / PF Name: Panimur Range, Dima Hasao West Division Beat: Compartment:	100 Ha	0Km	Good Area: - 72 Ha Degraded Area: 28 Ha	2-3m
(B) Other Planted Area				
Location: Type of Forest: Deciduous Moist VF / Other _____	NIL	NIL	Good Area: - Nil Degraded Area: Nil	NIL
TOTAL	100 Ha	NIL	Good Area: - 72 Ha Degraded Area: 28 Ha	NIL

Source: Proforma-3, Table 3.1 / Discussions with Forest Department personnel & Community members

It is seen that the Karwalalgru JFMC has 100 Ha under its forests, of which 72 Ha is ‘**Good**’ and 28 Ha is ‘**Degraded**’.

5.3 Forest Soil Type

The forests of Karwalalgru JFMC are located in loamy type(s) of soil. Some salient points of the forest soil type have been given in the following table.

Table-5.2: Forest Soil Type in JFMC

Parameter	Status in Assigned Forests	Status in Other Planted Areas
Fertility Level	2.8 to 2.88% organic. The available N, P205 and K20 content of the Soil is comparatively less.	-
Soil Erosion Status	-	-
Presence of:	-	-
(a) Silt	20%	-
(b) Mud-flat	40%	-
(c) Newly accreted land	Low	-
(d) Sand dune	40%	-

Source: Proforma-3, ‘B. Forest Soil Type’ / Discussions with Forest Department personnel & Community members.

For the Karwalalgru JFMC; the salient points of the forest soil type are summarized below:

1. Entisol (25.3%)
2. Inceptisol (51.3%)
3. Alfisols (16.3%)
4. Ultisols (7.1%)

5.4 Existing Composition of Flora

In the forests of the Karwalalgru JFMC, the existing composition of the flora has been given as follows. It may be noted that the local forests are classified as deciduous moist Forests.

Table-5.3: Existing Composition of Flora in the Karwalalgru JFMC

Parameter	Local Name(s)	Biological Name(s)
Major Forest Species	Teak	<i>Tectona grandis</i> Linn
Associates	Gamari	<i>Gmelina Arborea</i>
Shrubs	Dhekia	<i>Ferns</i>
	Bhot jalakia	<i>Capsicum chinense</i>

Medicinal Plants	Arjun,	<i>Terminalia arjuna</i>
	Hilikha	<i>Terminalia Chebula</i>
	Neem	<i>Azadirachta indica</i>
	Amlakhi	<i>Phyllanthus emblica</i>
Produces		
Others, if any	Jori bet	<i>Calamus erectus</i>
	Jati bet	<i>Calamus tenuis</i>
	Raidang bet	<i>Calamus rotang</i>
	Chuli bet	<i>Calamus flagellum</i>
	Lejai bet	<i>Calamus floribundus</i>
	Kako Bah	<i>D. hamiltonii</i>
	Pahari Jati Bah	<i>Oxytennera parvifolia</i>
	Dulu Bah	<i>Schizostachyum dulloa</i>
	Amlakhi	<i>Emblica officinalis</i>
	Halakh	<i>Terminalia myriocarpa</i>
	Hollong	<i>Dipterocarpus macrocarpus</i>
	Arjun	<i>Terminalia arjuna</i>
	Agar	<i>Aquillaria agallocha</i>

Source: Proforma-3, 'C. Composition of Existing Fauna & Flora' / Discussions with Forest Department personnel & Community members.

5.5 Other Inputs for the Forest Development Plan

The following sub-sections discuss the other inputs for the Forest Development Plan of the Karwalalgru JFMC.

5.6 Past Protection Measures of the JFMC

The measures taken by the Karwalalgru JFMC for forest protection in the past have been discussed as follows.

- (a) Number of households involved: 36
- (b) Number of people involved: 36 (1 Person Per House hold)
- (c) Summary of the measures: Not available
- (d) Any formal mechanism: Not available

[Source: Proforma-3, 'JFMC Status - viii + ix' / Discussions with Forest Department personnel & JFMC members]

5.7 Domestic Requirements of Forest Produce

The dependency of the local community on forest produce for household requirements is available in the table given at below.

Table-5.4 (A): Domestic Requirement of Forest Produce per Household of the Karwalalgru JFMC

Name of Forest Produce	Average Household Requirement		How met at Present	Source
	Frequency of Requirement	Approx. Qty		
Firewood	Frequent	80-90 kg	-	Forest
Timber for House	Once in a year	4 nos.	-	Forest
Small timber for Implements	-	-	-	-
Pole / Bamboo	Once in a month	3-6 bamboo / per month	-	Forest
Fodder from Forest	Frequent	4-10 kg per day	-	Forest
NTFP	Frequent	3-9 kg per day	-	Forest
Other _____	-	-	-	-

Source: Proforma-3, Table-3.2 / Discussions with Forest Department personnel & Community members

There are 310 households in the Karwalalgru JFMC. From the above table and this number of households, it is inferred that the total annual requirements of the Karwalalgru village for forest products for own use is as follows:

Table-5.4 (B): Total Domestic Requirement of Forest Produce - All Households of the Karwalalgru JFMC

Name of Forest Produce	Community Requirement (Kg per annum) (*)	Remarks
Firewood	90200	Throughout the year
Timber for House	110 nos.	Dec - Jan
Small Timber for Implements	-	-
Pole / Bamboo	280 bamboo	Dec - Jan
Fodder from Forest	90420	Throughout the year
NTFP	231000	Throughout the year
Other _____		

Source: Table - 4(A) at above & Total Household Number from Community records

(*) = Approx. Qty. of Average Household Requirement (from Table-4 (A) x 65 Households

5.8 Collection & Marketing of Forest Produce by Villagers

Apart from use in the households, the community dependency on forest produces also includes the collection of such items for sale in local markets. The collection and marketing of forest produce by villagers of Karwalalgru JFMC is given in the following table.

Table-5.5 (A): Collection & Marketing of Forest Produce by Villagers of the Karwalalgru JFMC

Name of Forest Produce	Collection for Marketing			Location of Collection
	Season / Months	No of Households Collecting	Average Qty. Collected (Kg)	
Firewood	Throughout the year	36	442	Forest
Timber for House	Dec - Jan	36	2 nos.	Forest
Small timber for Implements	-	-	-	-
Bamboo	Dec - Jan	36	10 nos.	Forest
Pole	-	-	-	-
Fodder from Forest	Throughout the year	36	7 kg per day	Forest
NTFP	Throughout the year	36	9-12 kg per day	Forest
Other	-	-	-	-

Source: Proforma-3, Table-3.3 / Discussions with Forest Department personnel & Community members

In the above connection, the following table gives additional pertinent information.

Table-5.5 (B): Collection & Marketing of Forest Produce - Additional Information [Karwalalgru JFMC]

Name of Forest Produce	Surplus Marketed (Kg)	How marketed	Average Income per HH from sale of Forest Produce
Firewood	96000 kg/year	Umrongso market	1150-2170/month
Timber for House	-	-	-
Small timber for Implements	-	-	-
Bamboo	30-60 pc/month	Umrongso market	483-973/month
Pole	-	-	-

Fodder from Forest	800 kg /year	Umrongso market	870-1250/month
NTFP	-	-	-
Other	-	-	-

Source: Proforma-3, Table-3.4 / Discussions with Forest Department personnel & Community members

5.9 Total Requirements of Forest Produce - Domestic Use & Marketing

The total requirements of forest produce by the community members of the Karwalalgru JFMC have been summarized below - based on the information in the previous sub-sections.

Refer to: Tables 4 (B) & 5 (B) of this Section, given at the previous pages

5.10 Forest Protection Issues

5.11 Protection Problems

The protection issues of the forests of Karwalalgru JFMC have been summarized below.

Table-5.7: Protection Problems of the Karwalalgru JFMC

Type of Problem	Relevant (Yes / No)	Significant (Yes / No)
Grazing - Local Animals	Yes	Yes
Grazing - Animals from Other Area	Yes	Yes
Illicit Felling of Timber	No	No
Smuggling of Timber	Yes	Yes
Accidental Fires	Yes	Yes
Encroachment of Forest Lands	Yes	Yes
Incident of Snake bites/life threats/risks while protecting forest	Yes	Yes
Theft of Medicinal Plants	Yes	Yes

Source: Proforma-3, Table-3.5 / Discussions with Forest Department personnel & Community members

Thus, it is seen that the significant forest protection issues facing the above JFMC are:

- (a) Grazing - Local Animals
- (b) Grazing - Animals from Other Area

5.12 Reasons for Degradation of the Forest

In the Karwalalgru JFMC, the reasons for degradation of forest are as follows:

- (a) No Scientific Plan
- (b) Traditional Cultivation of Tribal People
- (c) Extremist problem in hill sides

[Source: Proforma-3, Table-3.6 / Discussions with Forest Department personnel & Community members]

5.12 Components of the Forest Development Plan

The following sub-sections discuss the main components of the Forest Development Plan of Karwalalgru JFMC; viz. the plans for Protection, Forest Improvement (Treatment), Nursery Development, Maintenance and Miscellaneous Operations.

5.13 Protection Plan

The Protection Plan given at below, discusses the measures for the protection of the forests of Karwalalgru JFMC from the issues discussed earlier at Sub-section 3.1

Table-5.8: Protection Plan of the Karwalalgru JFMC

Protection Work [to be filled from Table 3.7 of Proforma-3 as applicable]	Location in Forest Area	Quantification of the Measures [Length, Area, Size etc.]	Timing	Priority / [High / Medium Low]
1. Engagement of Watcher	R.F.	2 km	6pm-6am	High
2. Informers award	R.F.	2 km	Anytime	High
3. Fire Protection	R.F.	2 km	Anytime	High

Source: Proforma-3, Table-3.7 / Discussions with Forest Department personnel & Community members

Thus, it is seen that the significant protection measures planned to be undertaken in the Karwalalgru JFMC (with high / medium priority) are as follows:

- (a) Fencing
- (b) Fire protection

5.14 Types of Operations Proposed

The types of operations proposed for the treatment of degraded areas of the JFMC Forest of Karwalalgru JFMC are given here under.

Table-5.9: Types of Operations Proposed in the Karwalalgru JFMC

Treatment	Required (Yes/ No)	Responsibility of JFMC (Yes / No)	Month / Year when can be done	Extent of Area proposed for Treatment (Ha)
Restoration of Degraded Forests	Yes	Yes	June - July	100 Ha
Protection to Cut Stumps of Trees	Yes	Yes	All the Year	100 Ha
Watershed Treatment	Yes	Yes	All the Year	3 Ha
Water Reservoirs	Yes	Yes	All the Year	2 Ha

Grass and Silvi Pastoral activities	Yes	Yes	All the Year	-
Bamboo culture and earth piling	Yes	Yes	All the Year	R.F
Seed Sowing	Yes	Yes	All the Year	-
Treatment	Required (Yes/ No)	Responsibility of JFMC (Yes / No)	Month / Year when can be done	Extent of Area proposed for Treatment (Ha)
Root & Shoot Cutting & Plantation	Yes	Yes	All the Year	-
Cut Back & Coppice Treatment	Yes	Yes	All the Year	-
Stone wall fencing/live Hedge fencing	Yes	Yes	All the Year	80 Ha
Social Fencing	Yes	Yes	All the Year	80 Ha
Other Activities(Protection of Elephants)	Yes	Yes	All the Year	R.F

Source: Proforma-3, Table-3.9 / Discussions with Forest Department personnel & Community members

Thus, it is seen that the following are the treatment operations which have been proposed in the forest area of the Karwalalgru JFMC:

- (a) Seed Sowing
- (b) Root & Shoot Cutting & Plantation etc.

5.15 Forest Improvement Plan - Advance Works & Creation

The pertinent details in the above connection have been tabulated as follows.

Table-5.10: Forest Improvement Planned in the Karwalalgru JFMC

Treatment	Area in Ha under Plantation Module	Priority for Block Plantation	Species	Spacing (metre x metre)
Assisted Natural Regeneration (with plantation in gap)	20 Ha ANR by APFBC	-	Non Sal NTFP	2/2
Block Planting	-	-	-	-
Sowing of Neem, Amla, Mahua, Bahera (Medicinal Plants)	10	-	Medicinal Plants	-
Enrichment Plantation/ Sowing	-	-	-	-
Direct Plantation	-	-	-	-
Other	-	-	-	-
Total Area (in Ha.)	30 Ha	-	-	-

Source: Proforma-3, Table-3.8 / Discussions with Forest Department personnel & Community members

5.16 Forest Improvement - Annual Targets

Table-5.10 (A) and (B): Annual Targets of Forest Improvement in Karwalalgru JFMC (Year-1 to Year-5) and (Year-6 to Year-10)

The annual targets in the above connection are given below for a ten year period.

Name of Plantation	: Block Plantation of Saal Mixed with Associates
Plantation Period	: 2016-17 to 2025-26 (10 Years)
Plantation Area	: 100 ha
Spacing	: 3m X 3 m-1100 plants per ha
No. of Plants to be Raised	: 110000 (11000 approx. annually)
Number Blocks	: 10 Numbers(10 ha each)
Species	: Saal ; Associates-Gamari, Sissoo, Titasopa, etc.
Rates	: As Approved by APFBCS(to be increased by 20% every two years)

Action Plan for Creation of Plantation		
Financial Year	Activities	Amount
2016-17	Identification of suitable site for regeneration-examine possibilities of natural seed fall-determine intensity and nature of biotic interference-Area Not Less than 100 ha, Demarcation of land during the month of December/January, Partition of land in 4 blocks, Land development, Soil Working @ Rs 1000/ha	100000
2017-18*	Block Plantation 3m x 3m, 1111 plants/ha-during the season of April-June ; GPS marking of the area	497000
2018-19*	Block Plantation 3m x 3m, 1111 plants/ha-during the season of April-June ; GPS marking of the area	497000
	1st Weeding; Replacement of dead/struggling saplings raised in the previous year	61600
2019-20*	Block Plantation 3m x 3m, 1111 plants/ha-during the season of April-June ; GPS marking of the area	596400
	2nd Weeding; Replacement of dead/struggling saplings raised in the previous year	73920
2020-21*	Block Plantation 3m x 3m, 1111 plants/ha-during the season of April-June ; GPS marking of the area	596400
	3rd Weeding	147840
2021-22*	4th Weeding; Replacement of dead/struggling saplings raised in the previous year	266112
2022-13*	5th Weeding; Replacement of dead/struggling saplings raised in the previous year	354816
2023-24*	6th Weeding; Replacement of dead/struggling saplings raised in the previous year	266112
2024-25*	7th Weeding	266112
2025-26*	8th Weeding	266112
Total Budgetary Requirement		3989424

* Silvicultural thinning to be undertaken on intervals of five years post plantation

Source: Proforma-3, Table-3.10 / Discussions with Forest Department personnel & Community members

Name of Plantation : Block Plantation of Teak Mixed with Associates, Firewood and Bamboo
 Plantation Period : 2016-17 to 2025-26 (10 Years)
 Plantation Area : 100 ha
 Spacing : 2m X 2 m-2500 plants per ha
 No. of Plants to be Raised : 110000 (11000 approx. annually)
 Number Blocks : 10 Numbers(10 ha each)
 Species : Teak; Associates-Ajar, Khoroi, Khayer, Sissoo, Jia, Arjun, Ghora Neem, Bamboo(Jaati, Kako, Bholoka, Bijili), etc

Action Plan for Creation of Plantation		
Financial Year	Activities	Amount
2016-17	Identification of suitable site for regeneration-examine possibilities of natural seed fall-determine intensity and nature of biotic interference-Area Not Less than 100 ha, Demarcation of land during the month of December/January, Partition of land in 4 blocks, Land development, Soil Working @ Rs 1000/ha	100000
2017-18*	Block Plantation 2m x 2m, 2500 plants/ha-during the season of April-June ; GPS marking of the area	262500
2018-19*	Block Plantation 2m x 2m, 2500 plants/ha-during the season of April-June; GPS marking of the area	262500
	1st Weeding; Replacement of dead/struggling saplings raised in the previous year	26950
2019-20*	Block Plantation 2m x 2m, 2500 plants/ha-during the season of April-June; GPS marking of the area	315000
	2nd Weeding; Replacement of dead/struggling saplings raised in the previous year	32340
2020-21*	Block Plantation 2m x 2m, 2500 plants/ha-during the season of April-June; GPS marking of the area	315000
	3rd Weeding	64680
2021-22*	4th Weeding; Replacement of dead/struggling saplings raised in the previous year	266112
2022-13*	5th Weeding; Replacement of dead/struggling saplings raised in the previous year	155232
2023-24*	6th Weeding; Replacement of dead/struggling saplings raised in the previous year	116424
2024-25*	7th Weeding	116424
2025-26*	8th Weeding	116424
Total Budgetary Requirement		2149586

* Silvicultural thinning to be undertaken on intervals of five years post plantation

5.17 Nursery Development Plan

The Nursery Development Plan for the Karwalalgru JFMC depends on the following types of Nurseries:

- (a) JFMC Nurseries (incl. Departmental Nursery) (b)
Other Nurseries - SHG & Private.

The details are given below.

JFMC Nurseries

The following table gives the details of the nurseries of the Karwalalgru JFMC. This includes the Departmental Nursery involved in JFMC works.

Table-5.11 (A): JFMC Nurseries of the Karwalalgru JFMC

Location of Nursery	Species	Year of Development	Number of Seedlings	Remarks
Karwalalgru JFMC	Varieties	2016	8,28,000	Proposed

Source: Proforma-3, Table-3.11 / Discussions with Forest Department personnel & Community members

Other Nurseries

The following table gives the details of other nurseries near the Karwalalgru JFMC.

Table-5.11 (B): Other Nurseries near the Karwalalgru JFMC

Name of Nursery	Species	Year of Development	Number of Seedlings	Remarks
Karwalalgru JFMC	Varieties	2016	8,28,000	Proposed

Source: Proforma-3, Table-3.12 / Discussions with Forest Department personnel & Community members

5.18 Maintenance Plan - 10 Years

The maintenance plan for plantations raised in the Karwalalgru JFMC is given below. This covers a period of ten years.

(A) Timber Species Sal , Gamera, Tik

Table-5.12 (A): Maintenance Plan of Teak Plantation in the Karwalalgru JFMC

Year(s)	Treatment
1 st Year	Periodic weeding and removal of creepers Ring formation
2 nd Year	Removing of all dominating weeds affecting supply of sunlight Gap filling Training the plants for straight pole formation
3 rd Year	Removal of side branches
4 th Year	Pruning the nearby trees

(B) NTFP / Medicinal Plantation

Table-5.12 (D): Maintenance Plan of NTFP / Medicinal Plantation in the Karwalalgru JFMC

Year(s)	Treatment
1st Year	Weeding around the seedlings Ring formation Nipping of terminal Disbudding to delay the fruit set to next season
2nd Year	Weeding around the seedlings Ring formation Nipping of terminal Disbudding to delay the fruit set to next season
3rd Year	Collection of fruits, Seeds and minimal pruning to remove dead
4th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches
5th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches
6th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches
7th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches
8th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches
9th Year	Collection of fruits Minimal pruning for removal of criss-crossing, overcrowding branches

5.19 Miscellaneous Operations Plan

The miscellaneous operations planned in the Karwalalgru JFMC are given below.

Table-13): Miscellaneous Operations in the Karwalalgru JFMC

Operation	Required (Yes / No)	Responsibility	Month / Year	Area (Ha)
(i) Medical/Health care Camp	Yes	VSS	Feb-Mar	JFMC
(ii) Centre For Non-Formal education	Yes	VSS	Feb-Mar	JFMC
(iii) Promotion of Fuel Saving Devices	Yes	VSS	Feb-Mar	JFMC
(iv) Cattle improvement/health improvements	Yes	VSS	Feb-Mar	JFMC

Source: Proforma-3, Table-3.13 / Discussions with Forest Department personnel & Community members

Marketing Operations

For produce from the Karwalalgru JFMC, the planned marketing operations are:

- (a) Linkage will be established with traders inside and outside the district
- (b) Selling to the Ban Bazar
- (c) Participation in Exhibition

Expected Benefits

This sub-section furnishes the benefits expected from the forests protected by members of the Karwalalgru JFMC, as well as the sharing mechanism for the usufruct benefits.

5.20 Expected Benefits Related to Wood & Grass

The above has been tabulated below for the Karwalalgru JFMC. The benefits are expected from the forests protected by its members under this Forest Development Plan.

Table-5.14: Expected Benefits from Forests Protected by Members of Karwalalgru JFMC

Item	Month	Year (Indicative)	Quantity
Firewood	12 month		60-75 Kg/month
Timber for House	-	-	-
Small timber for Implements	-	-	-
Bamboo	12 month	32-50 pc/ month	801 -1240 Kg/month
Pole	-	-	-
Fodder from Forest Trees & Grass	12 month	-	1508-2040 Kg/month
NTFP	3-4 month	-	20-30 Kg/Year
Wages	12 month	200 -300 Rupees/Day	Forest
Other	-	-	

Source: Proforma-3, Table-3.14 / Discussions with Forest Department personnel & Community members

5.21 Sharing Mechanisms

The sharing mechanism for the benefits is indicated below for members of the Karwalalgru JFMC.

Table-5.15: Sharing Mechanism for Karwalalgru JFMC

Method	Items
To be shared equally	Collected Individually
To be freely collected by the members	Medicinal Plants, Fodder, Broom Stick
Other Methods	Na

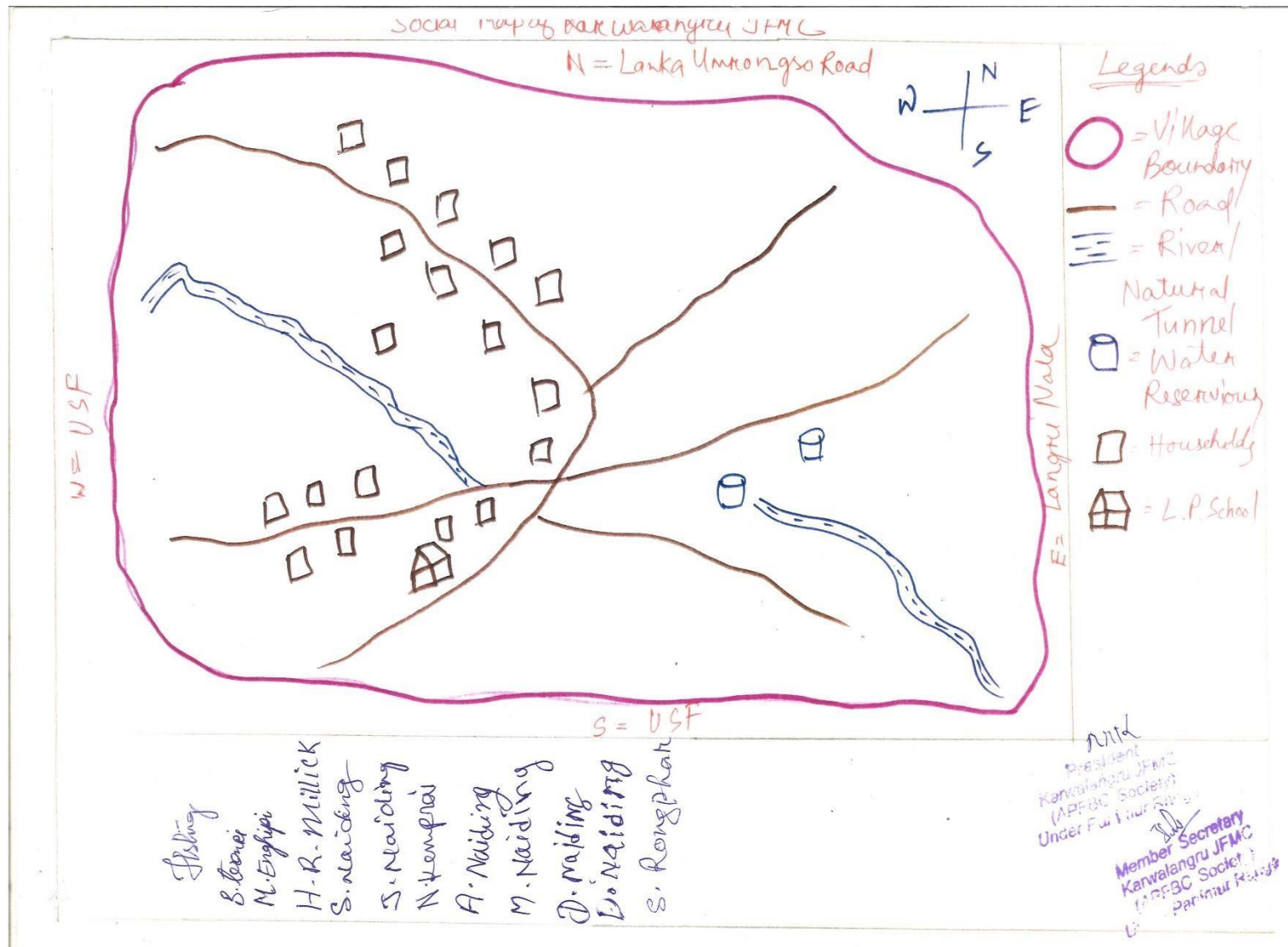
Source: Proforma-3, Table-3.15 / Discussions with Forest Department personnel & Community members.

List of Appendices

Appendix No	Heading
1	Maps Village/Social Map Village Resources Map
2	Land Use Map of Village (GIS)
3	PRA Exercise Social Mapping Wealth Ranking Time Line review Seasonality of Livelihoods Venn Diagram Priority ranking and EPA
4	List of JFMC Members
5	Photographs
6	Filled Up Tables (Proforma-1 to Proforma-4) Table Nos. 1-37

Village Map/

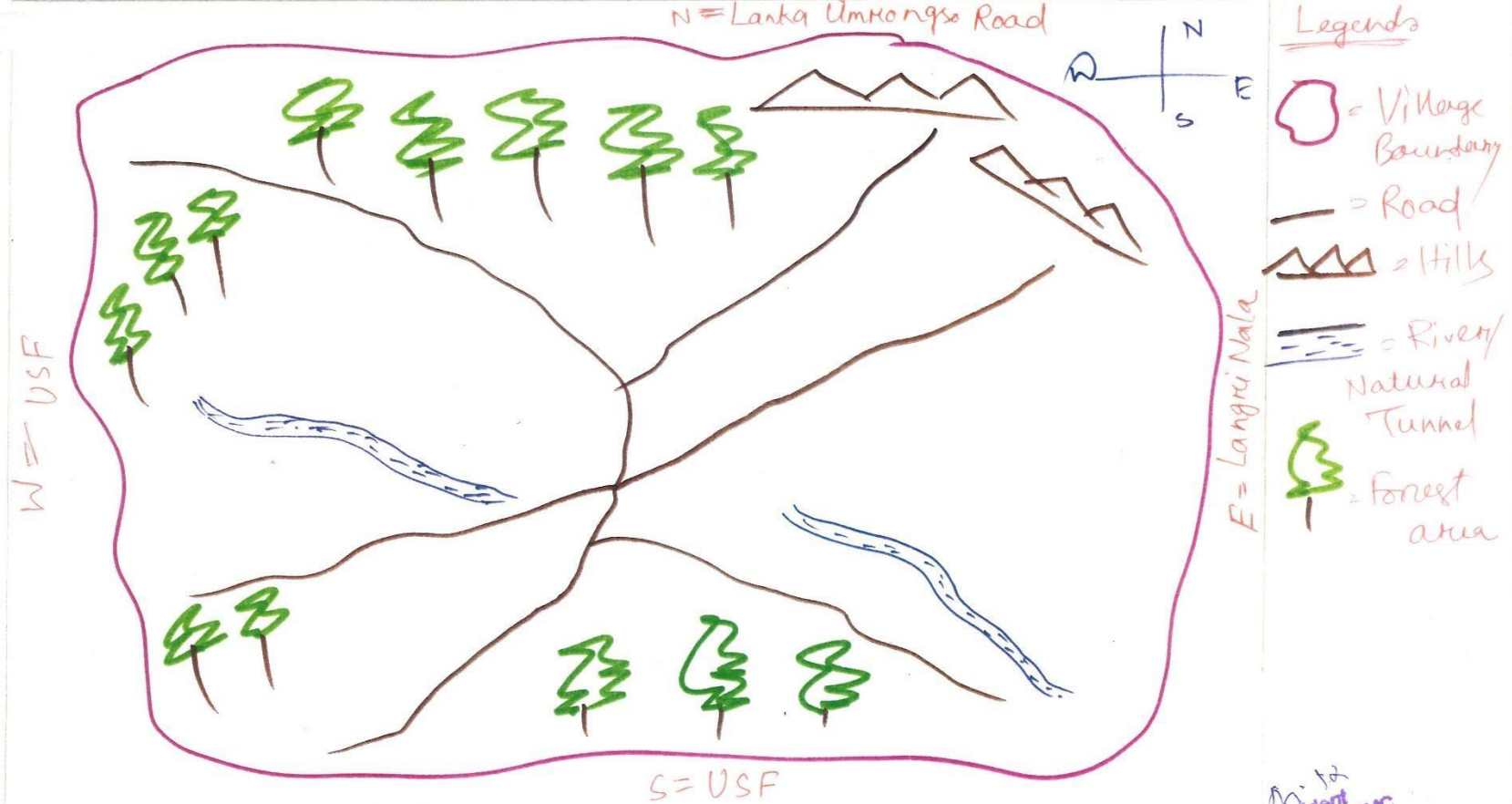
Social Map:



2. Resource Map:

Resource Map of Kanwalangru JFM

N = Lanka Umkongso Road



- ## Legends
- = Village Boundary
 - = Road
 - = Hills
 - = River/ Natural Tunnel
 - = Forest area

Fishing

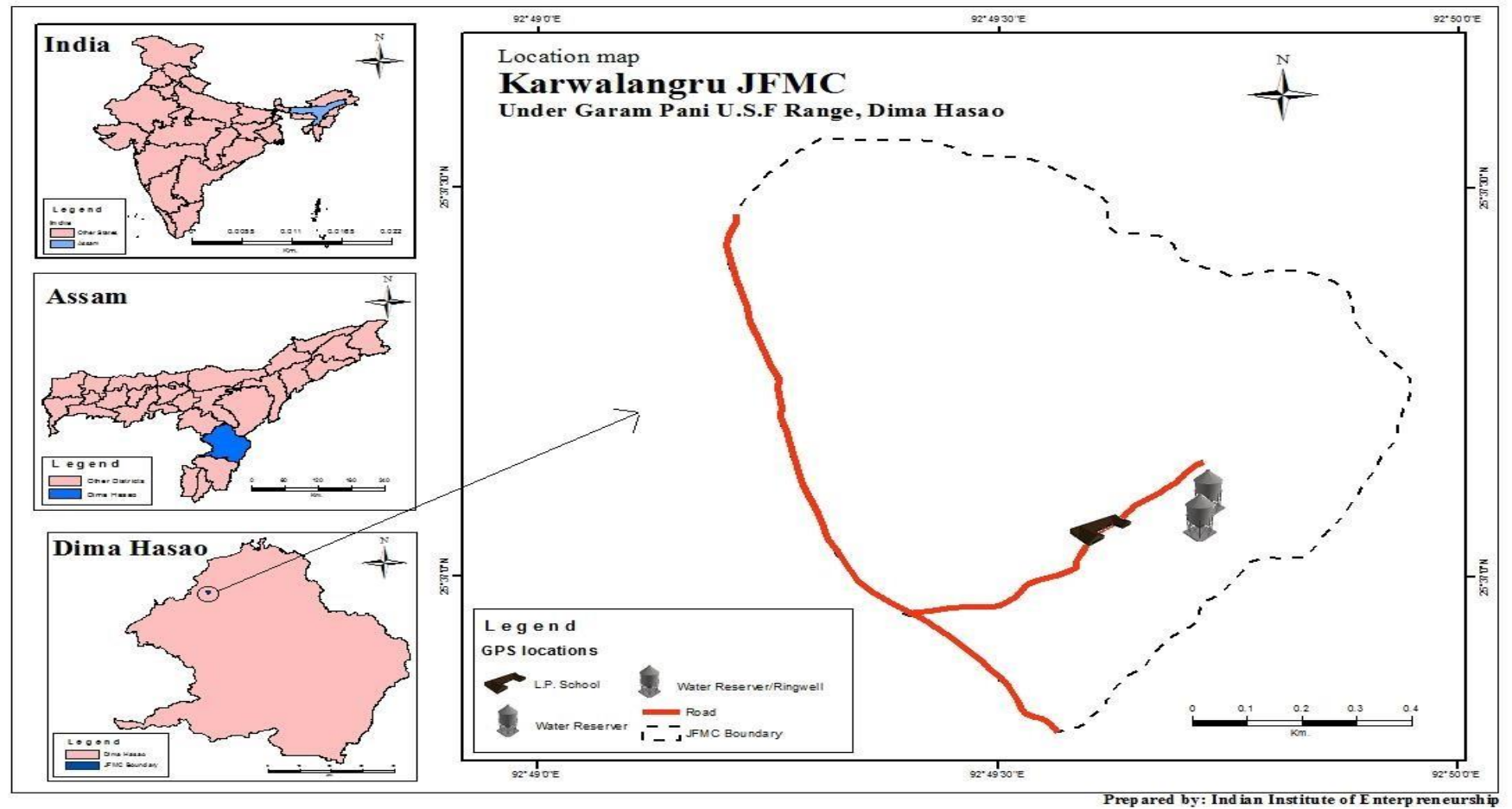
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M. Engiso
H. R. Millick
S. Naeding
J. Naeding
N. Kumpao
A. Naeding
M. Naeding
D. Naeding
D. Naeding
S. Rongphor

M. B.
President
Kanwalangru JFMC
(APFBC Society)
Under Panimur Range

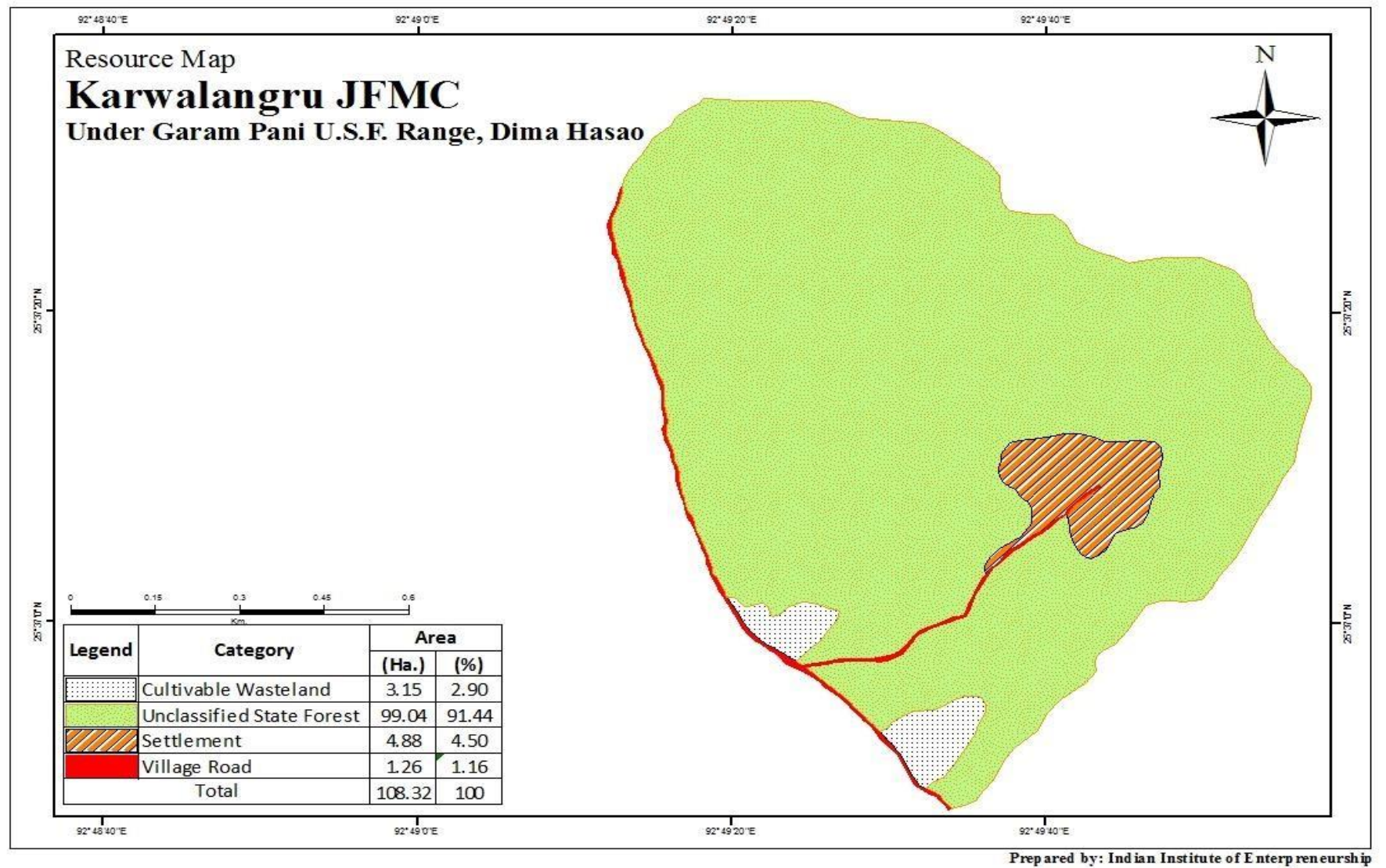
J. B.
Member Secretary
Kanwalangru JFMC
(APFBC Society)
Under Panimur Range

Appendix 2

Location map of GIS



Land Use map of GIS



Appendix 3

PRA ACTIVITY

Location and Timing of Participatory Rural Appraisal:

Numbers of participants : 20
Time : 11 am, 12th June 2016 Venue : Village
chairman's house

Table – 3.1 Brief about the villages under Karwalangru JFMC

Sl. No.	Name of village	Households (No.)	Population (No.)			Sex ratio	Avg. HH size
			Total	Male	Female		
1	Lonkupur	18	97	59	38	644	5.4
2	Lorulangso	18	110	58	52	897	6.1
	Total	36	207	117	90	769	5.8

Source: Field Survey

Different PRA tools have been used under the exercise of PRA technique.

- Social Mapping
- Wealth Ranking
- Time Line Review
- Seasonality Analysis

3.1 Social Mapping:

Social mapping is used to visualise the socio-economic aspects of the Lonkupur village where the housing patterns of the households, the numbers of schools, social infrastructure, and religious beliefs among households. Awareness camp about the project was carried out beforehand. So it was easy to gather people for the PRA process in the village chairman's house. And due to time constraint we have to skip the transect walk. The villagers are enthusiasms about the mapping process and they actively participated in the process.

At first, the people of villagers were asked to draw the main roads of the village and then asked them to locate their houses and locate the important social places and government offices with help of the PRA team members. Two of them voluntarily came out to draw and they were assisted by other villagers and the team members.

The map depicts a village layout with the following features:

- Roads:** A thick orange line at the bottom represents the 'Kachan Road'. A network of yellow lines represents 'Village Roads' branching out from the bottom road.
- Fields:** Green rectangular patches with horizontal lines represent 'Natural Fields'.
- Trees:** A dense row of green trees with black trunks runs along the left edge. A line of trees with black trunks runs along the top edge.
- Buildings:**
 - Small black houses with red roofs are scattered throughout the village, some numbered 1 through 16.
 - A large white building with a triangular roof and columns represents the 'L.P. School'.
 - Two small blue houses with white roofs represent 'Thak's houses'.
- Water Features:** A blue line winding through the village represents a 'Water Reservoir'.
- Topography:** A mountain range is shown at the top right, and a single tree represents the 'Forest Area'.
- Legend:** A box in the bottom right corner titled 'LEGENDS' lists the symbols used: Kachan Road (orange line), Village Road (yellow line), L.P. School (white building with columns), Natural Fields (green patch), Thak's house (black house), Water Reservoir (blue line), Mountain (mountain icon), Forest Area (tree icon), and Grazing field (grass icon).
- Compass:** A four-pointed star compass rose is located in the top right corner, with 'N' for North, 'S' for South, 'E' for East, and 'W' for West.

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Table 3.2: Information about the villages

Social	Village	Lonkupur	Lorulangso
information	Total Population	97	110
	Male	59	58
	Female	38	52
	Total households	18	18
	Numbers of kuccha	18	18
	Houses		
Landmarks	Natural tunnel	1	0
	LP School	1	1
	Water reservoir	2	2
	Church / Religious institution	0	1

- The participants of social mapping have identified 18 households in Lonkupur village. All the Households are kuccha in JFMC area. There are also Tin Roof Households are also present in JFMC area, but the percentage is very less.
- Other than the class based division of the households, important places like schools, water reservoirs, and location of transformers, mountain, stream and forest / gazing area are mapped.
- Main sources of water for the villagers are the water reservoirs and the stream which is used by villagers for their day to day use.
- Provision of Education facility up to LP school level is satisfactory in the village as there are three are only primary school in the village. For higher education villagers have to move long distance from JFMC area.
- In Lonkupur village, all people are from ST hills community (Dimasa Kochari) and in Lorulangso village, all are Christian community. Since the JFMC is composed from mix community, so there are some perceptual gap exists among them.

3.2 Wealth Ranking:

Wealth ranking, or well-being ranking, involves community members identifying and analysing the different wealth groups in a community. It enables evaluators to learn about the socioeconomic stratification of project beneficiaries and local people's definitions and indicators of wealth/well-being.

The most common version of this technique involves a series of individuals, a focus group of community members, ranking their entire community (or a particular section of the community if there are too many households to rank it all-say more than 100-or if the participants are familiar with only their own neighbourhood. The PRA facilitators introduce the technique using local terms for wealth and poverty and encourage participants to first discuss how they define these terms and how they would describe a poor household or a rich household (that is, their criteria for assessing a household's relative wealth).

Wealth ranking was done with the help of the following criteria

- a) Occupation
- b) Land holding
- c) Types of living house

In the whole JFMC area, all the Households are under BPL category having annual income less than Rs. 11000 (approx. Rs. ~9000) in each family. All people are mainly depending on shifting cultivation (Jhum) methods in hill area.

Figure 3.2: Wealth Ranking

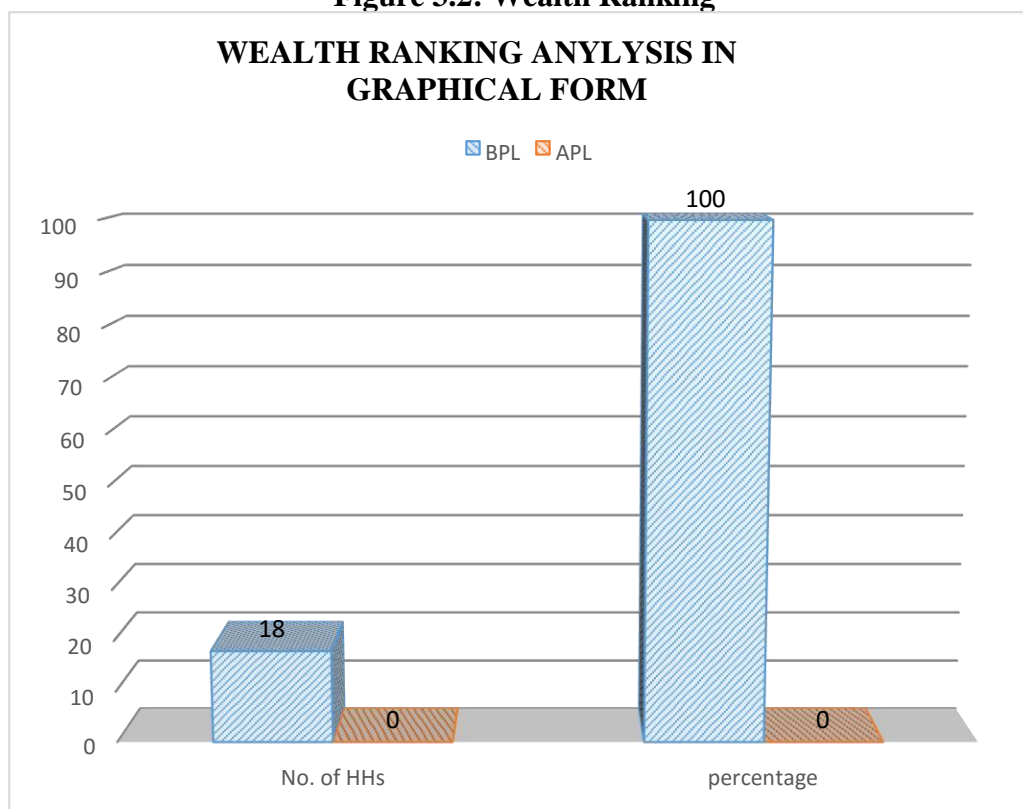
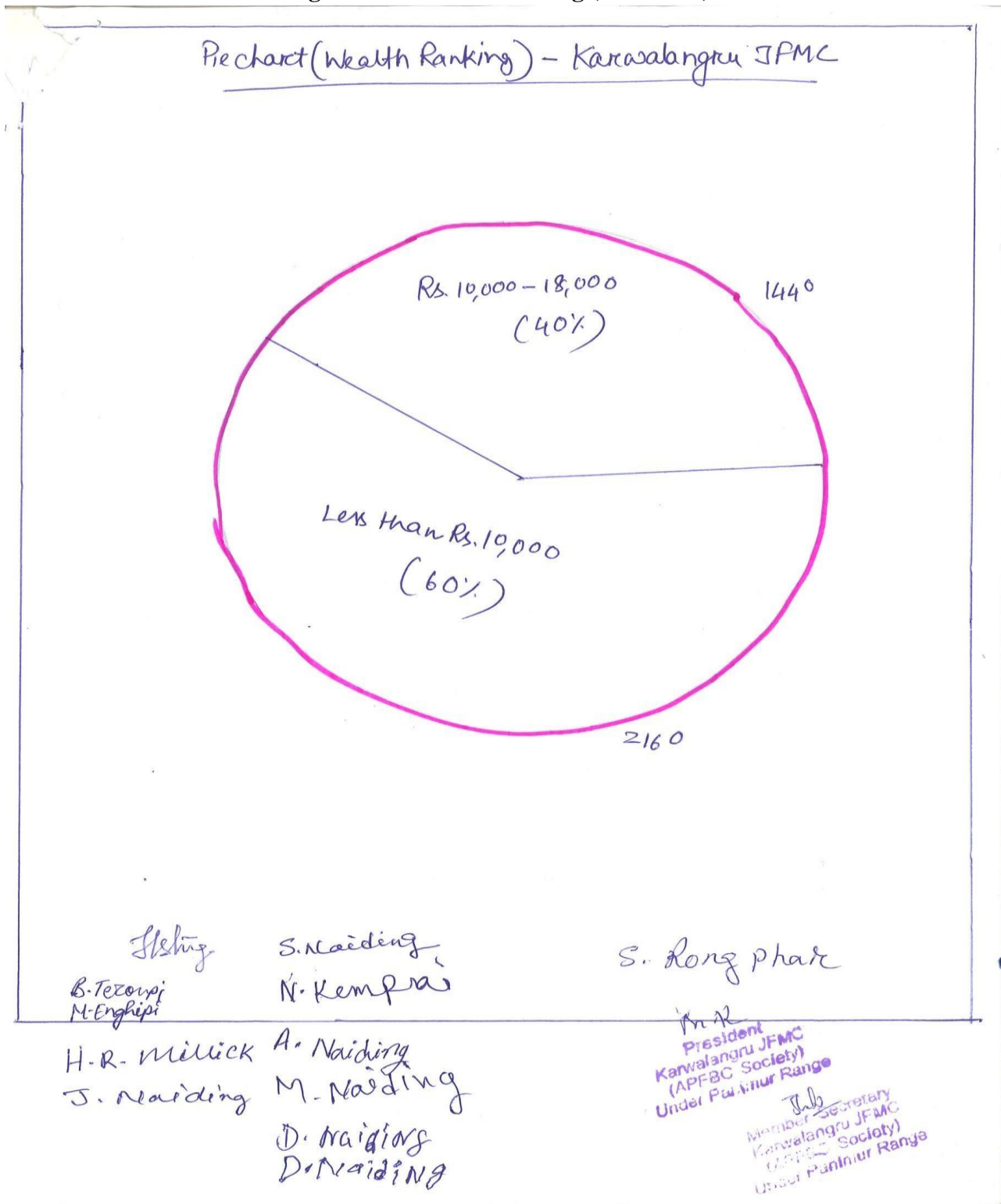


Figure 3.3: Wealth Ranking (Pie Chart)



Learning:

From wealth ranking analysis it has been observed that the economic conditions of the households of the entire JFMC is very poor. Most of the families have very less or nil monthly income. These people solely based on forest area and try to earn livelihood depending on forest.

3.3 Time Line Review:

Table 3.3: Timeline review

Year	Event	Type
1950	Earthquake	Environmental
1955	First Village road was constructed	Construction
1975	Lonkupur LP school was started	Educational
1987	Thunderstorm and lightening destructed the forest area	Environmental
2015	JFMC established	Social environmental

In order to know the past important cum historical events over time, the team has conducted the timeline analysis. The team members discussed about the local events to the village head, elderly persons and also to some young people to have an idea about how they dealt with those situations and what was the impact of those events on their lives as well as on the development of the village. Our time line illustrates the following points:

Since the two villages are situated in very remote area having less transportation facility, so, the developmental activities are not done up to certain extent. 1950's earthquake is one of the major environmental disaster in these villages. Due to hilly area, earthquake did lots of damage in these villages. In 1955 first village road is constructed, which is still at not motorable condition. In 1975, Lonkupur LP School is constructed inside the village. In the year 1987 a huge thundersome affected the whole forest area in the JFMC.

Learning:

- The villagers are aware of the fact that post cutting down of the trees, the number of animals becomes less in the forest which indicates the forest preserving awareness of the people.
- The processes of conserving the forest area start mainly after the formation of JFMC.

4.5 Seasonal Mapping of livelihood activities:

Seasonal calendars drawn by the local people are very useful means of generating information about seasonal trends within the community and identifying periods of particular stress and vulnerability. Best undertaken in the context of a group discussion (to help verify the information obtained), seasonal calendars are often drawn on the ground with the relative trends depicted using stones or seeds, as in a preference-ranking matrix. In other instances, simple line graphs can be drawn to show seasonal increases or decreases. A whole series of seasonal variables can be included in one calendar to give an overview of the situation throughout the year. These variables can include: rainfall, crop sequences, labor demand, availability of paid employment, out-migration, incidence of human diseases, expenditure levels, and so on. Important periods, such as festivals, can also be shown.

Seasonal mapping mainly covers the seasonal variation of crops. In seasonal mapping, we considered agricultural crop and the timing of three activities viz. showing, cropping and harvesting

criteria and collected the details throughout the year. From the seasonal mapping, it has been noticed that the main crops grown in the village are Broom stick (Jharu), Ginger and chilly.

Figure 3.3: Seasonal Agricultural Pattern

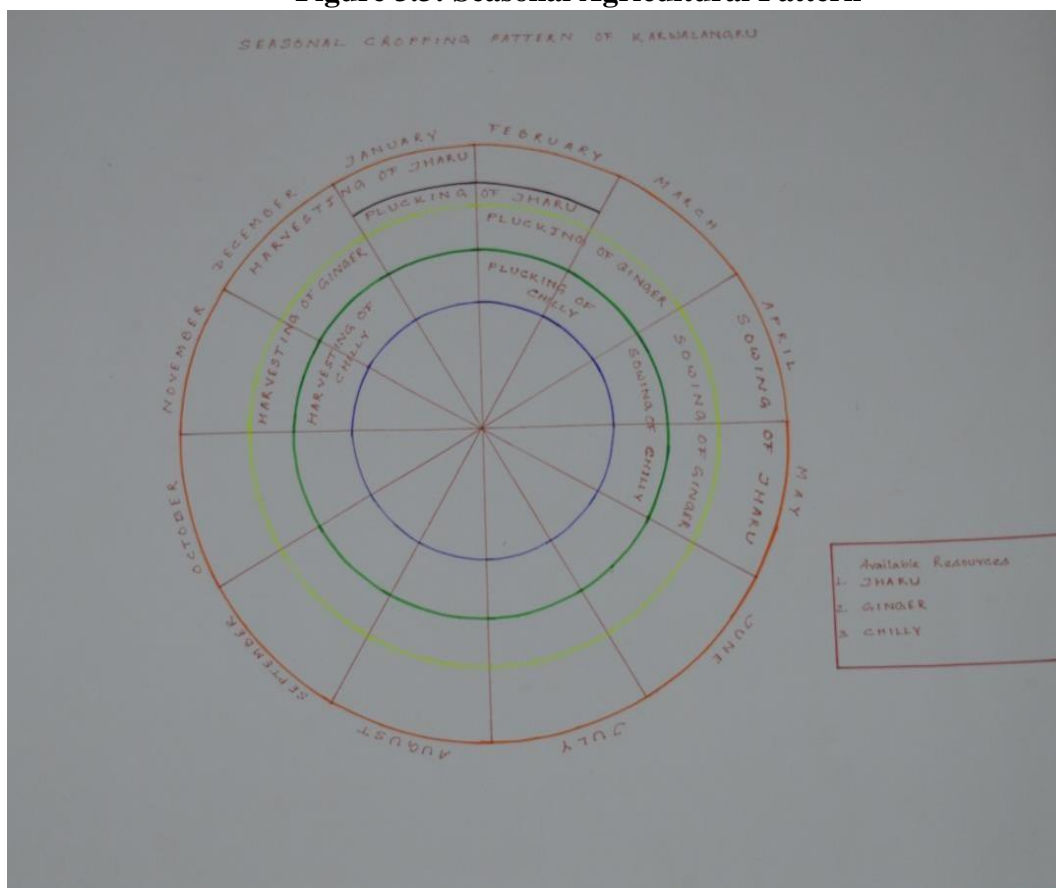


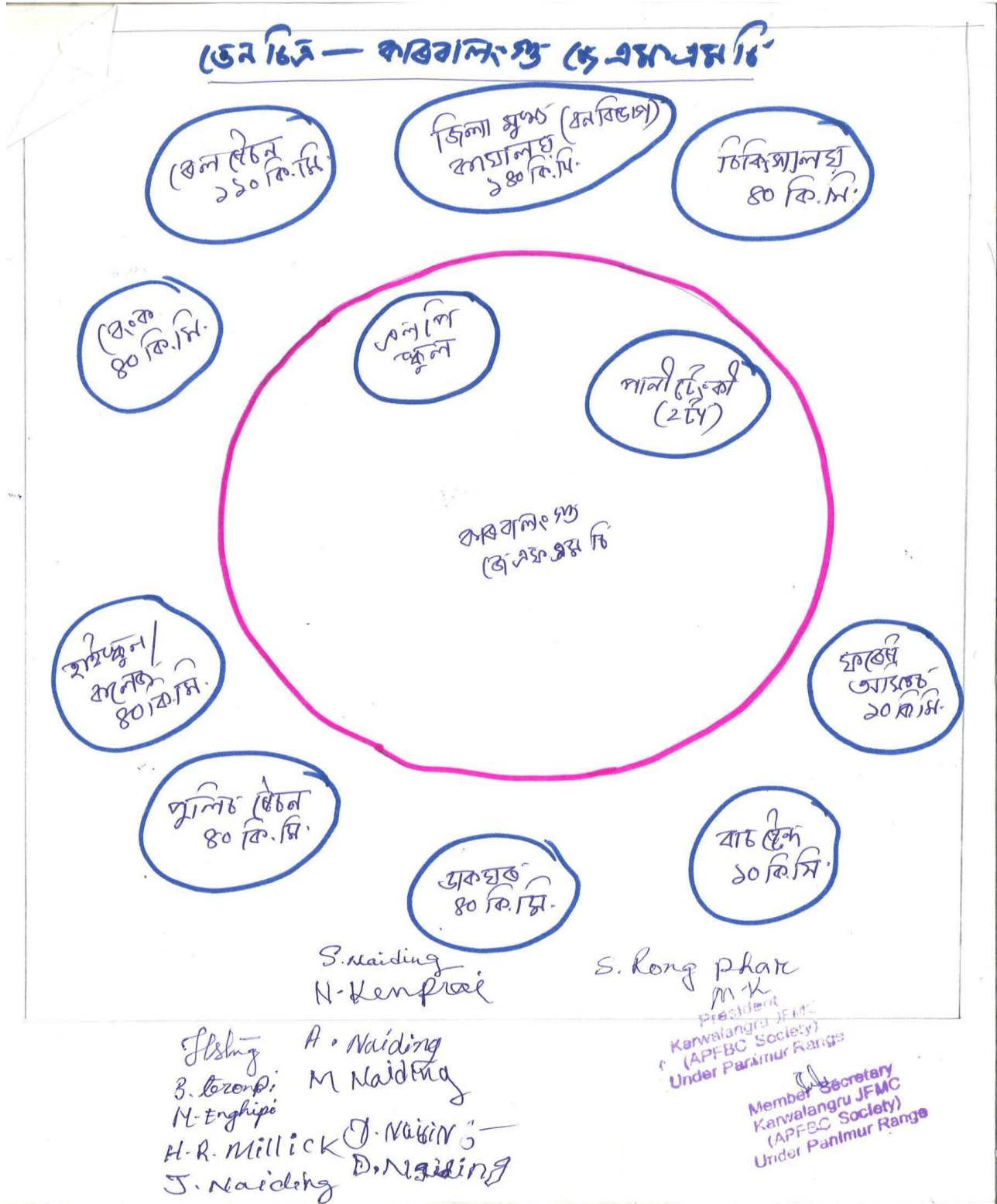
Table 3.4 Seasonal cropping pattern

Agricultural crop	Sowing	Plucking	Harvesting
Broom stick	May - June	January-February	July- December
Ginger	April – May	October – December	June- September
Chilly	April – May	November- December	February- March
Horticulture	Throughout the year		
Rice	Throughout the year		

Learnings:

- Water availability is less during the period September to March, so agricultural productivity become less in this period. Moreover, lack of agricultural knowledge also negatively affects the cropping pattern. Because all the villagers are mainly depending on shifting cultivation in intercropping mood.

3.5 Venn Diagram



3.6 Priority Ranking- EPA and Livelihood

EPA

EPA activities		Village Road	Health Centre	Solar Connection	LPG Connection	Water reservoir	Marketing Shed	Sanitation	Community Hall	Marks	Rank
		A	B	C	D	E	F	G	H		
Village Road	A	x	A	A	A	A	A	A	A	7	1
Health Centre	B	x	x	B	B	B	B	B	B	6	2
Solar Connection	C	x	x	x	D	C	C	C	C	4	4
LPG Connection	D	x	x	x	x	D	D	G	D	3	5
Water reservoir	E	x	x	x	x	x	I	E	E	5	3
Marketing Shed	F	x	x	x	x	x	x	F	F	2	6
Sanitation	G	x	x	x	x	x	x	x	G	1	7
Community Hall	H	x	x	x	x	x	x	x	x	1	7

Livelihood

Potential Livelihood Activities		Livestock	Tailoring	Agriculture	Horticulture	Lac Cultivation	Carpentry	Driving	Cane & Bamboo	Marks	Rank
		A	B	C	D	E	F	G	H		
Livestock	A	x	A	A	A	A	A	A	A	7	1
Tailoring	B	x	x	B	B	B	B	B	B	6	2
Agriculture	C	x	x	x	C	C	C	C	C	5	3

Approved

Divisional Forest Officer
 Dimas Hasao Forest Division (West)
 Haflong

Horticulture	D	x	x	x	x	E	D	G	D	2	4
Lac	E	x	x	x	x	x	I	E	E	2	4
Cultivation	F	x	x	x	x	x	x	G	H	1	5
Carpentry	G	x	x	x	x	x	x	x	G	1	5
Driving	H	x	x	x	x	x	x	x	x	1	5
Cane & Bamboo											

Annexure 4

LIST OF JFMC MEMBERS

Name of JFMC- Karwalalgru

Division- West haflong

Range- Garampani

Sr. No.	Name	Father's / Husband's name	Age	Male / Female	Education	SC/ST / BC/OBC
1	Mairendra Kemprai		47	Male	ME School	ST
2	Jononjoy Haflongbar		52	Male	ME School	ST

Annexure 5 (photographs)



Photograph 1: Inauguration of PRA exercise at Karwalangru JFMC, Date- 12/06/2016



Photograph 2: Water Tank at Karwalangru JFMC, Date- 12/06/2016



Photograph 3: Inauguration of SDP at Karwalangru JFMC, Date- 07-09-2016



Photograph 4: Theory session of Mixed livestock rearing SDP at Karwalangru JFMC, Date- 11-09-2016

Annexure 6
RECORD – I: VILLAGE SOCIO-ECONOMIC PROFILE

TABLE-1: BASIC DATA OF VILLAGE/JFMC

Sl.No	Name of JFMC/Village	Date of Establishment	No. of Members In	Name of President	Name of Secretary	Money in village Dev. Fund	VDF Contribution per family	Social fencing used Yes/No	Remarks on special attainments	Grading % of Success of JFMC	by RFO
1	Karwalan gru	2015-16	10	Mairendra Kemprai	Jononjoy Haflongbar	Nil	Nil	Nil	Nil	Nil	

Source: PRA

TABLE-2: VILLAGE WISE POPULATION DATA

Name of Village	No. of House hold	SC		ST		OBC		General		Total-all category
		Male	Female	Male	female	Male	Female	Male	Female	
Lonkupur	18	NIL	NIL	59	38	NIL	NIL	NIL	NIL	97
Lorulangso	18	NIL	NIL	58	52	NIL	NIL	NIL	NIL	110

Source: PRA

TABLE-3: VILLAGE WISE FARMERS CATEGORY ON THE BASIS OF LAND HOLDING

S.No	Name of Village	Type of Farmers according to land holding				Total
		Large Farmer > 10ha.	Small Farmer 2 – 10 ha.	Marginal Farmer <2 ha.	Land Less	
1	Lonkupur	0	8	10	0	18
2	Lorulangso	0	10	8	0	18

Source: PRA

TABLE-4: CATTLE POPULATION

S.No	Name of Village	Village – wise No. of cattles or Type of animals								Total
		Cows (Milching)	Buffaloes (Milching)	Goats	Sheep	Bulls/Oxen	Camels	Hens / Cocks	Others Pig	
1	Lonkumpur	40	0	0	0	0	0	50	25	115
2	Lorulangso	45	0	0	0	0	0	65	30	140

Source: PRA

TABLE-5: VILLAGE WISE INFRASTRUCTURE

S.No	Infrastructure	Location	Distance from village, if in another location (in Kilometers)	Condition and status of present use
1	Main Road	Panimur	15 KM	Poor
2	Electricity	Nil	Nil	Nil
3	Gas connection	Nil	Nil	Nil
4	Transport	Nil	Nil	Nil
5	Primary Health Centre	Umrongso	40 KM	Poor
6	School (LP)	Yes	Under Village area	Good
7	Post Office	Umrongso	40 KM	Poor
8	Bank	Umrongso	40 KM	Poor
9	Phone	Nil	Nil	Nil
10	Anganwadi Centre	Nil	Nil	Nil
11	Gram Panchayat Office	Nil	Nil	Nil
12	Revenue Office	Nil	Nil	Nil
13	Police Office	Umrongso	40 KM	Poor
14	Forest Office (Beat)	Nil	Nil	Nil
15	Post Office	Umrongso	40 KM	Poor
16	Bus facility	Panimur	15 KM	Poor
17	Railway Station	Lanka	110 KM	Good
18	Drinking Water	Water reservoir (2 Nos.)	Under Village area	Poor

19	JFMC community assets hall petromax loudspeaker utensils etc.	Nil	Nil	Nil
20	District Quarter Head	Haflong	125 km	Poor

Source: PRA

TABLE-6: AGRICULTURAL CROPS

	Rain fed		Irrigation	
	Name of Crop	Area in ha.	Name of Crop	Area in ha.
Kharif	Paddy, Chilly	15 Ha, 3 Ha	-	-
Rabi	Ginger, Jharu (Broom stick)	2 Ha, 20 Ha, 2 Ha	-	-
Others	Horticulture	-	-	-

Source: PRA

TABLE-7: CROP PRODUCTION PROFILE OF THE VILLAGE

Crop	Total production (approx)	Number of households growing	Average production(quantal per/ha)
Paddy	33 Qt.	36	
Wheat	-	-	-
Oil seeds	-	-	-
Vegetables	3 Ha.	36	
Pulses	-	-	-
Small millet	-	-	-
Fruit orchards	-	-	-
Others, Til, Jharu, Ginger, Corn	-	36	-

Source: PRA

TABLE-8: FODDER AVAILABILITY

Sl. No.	1 – 3 months	3 – 6 months	> 6 months
Crop residue	-	✓	-
Trees fodder	-	✓	-
Grasses	-	-	✓

Green fodder	-	-	✓
Grazing in forest	-	-	✓

Source: PRA

TABLE-9: FODDER AVAILABILITY

For purchase	Location	Distance from village if in other village kilometre
Grocery Shop/PDS center	-	-
Weekly Market	Umrongso	40 KM
Major Market	Umrongso	40 KM
Forest corporation sale depo.	-	-
Tendu Patta PHAD	-	-
Fish Market	-	-
Medicinal Plant Collection Center	-	-
Forest Corporation Medicinal	-	-
Plant Collection Center	-	-
Other Specify	-	-

Source: PRA

TABLE-10: WATER RESOURCES FACILITIES

Water Source	Number	Water Availability (Adequacy, seasonality)	Uses (drinking, irrigation, livestock bathing)
Water Harvesting Structure	-	-	-
Check dam	-	-	-
Tube well	-	-	-
River/Nala	-	-	-
Spring	-	-	-
Canal	-	-	-
Water Reservoir	2	Adequacy	drinking

Other, pl specify, Ring well	-	-	-
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Source: PRA

TABLE 11: ENERGY CONSUMPTION

Type of fuel	Number of household depending	Number of months dependent	Source (local village, forest, other source)	Major/Secondary
Fuel wood	100% (36 HHs)	12 month	Forest	Major
Kerosene stove				
Gobar/Bio Gas				
Cow dung cake				
LPG				
Electric Heater				
Other, pl specify, Solar	10 % (4 HHs)	12 months	Individual	Secondary

Source: PRA

RECORD: II LIVELIHOOD OPPORTUNITY ANALYSIS

Table 12: showing the agricultural and horticultural status

Constraints	Reason	Opportunities	Programme
Low Production	<input type="checkbox"/> Traditional way of cultivation. <input type="checkbox"/> Only one crop undertaken annually (Sali) <input type="checkbox"/> Very negligible use of fertilizers and pesticides, insecticides. Lack of irrigation facilities. <input type="checkbox"/> Lack of agricultural infrastructure, modern tools and equipment's viz, power tillers, tractors etc. <input type="checkbox"/> Non usages of high yielding seeds.	<input type="checkbox"/> Application of proper and controlled pesticides and insecticides. <input type="checkbox"/> Introduction of new and advance technology. <input type="checkbox"/> Well-structured training programme. The villagers are inherited with the skill of cultivation. But an improvisation of skills is the need of the hour. Usage of high yielding seed programme.	<input type="checkbox"/> Tractor operation training Agri-skill development programme. <input type="checkbox"/> Training on insecticides, pesticides, hybrid cultivation
Storage and Production	<input type="checkbox"/> Lack of common storing place <input type="checkbox"/> Lack of cold storage facility due to nonavailability of electricity	<input type="checkbox"/> Helpful in preserving unsold products for a longer period of time. They can store their product and sell it when there is a higher demand.	<input type="checkbox"/> Packaging <input type="checkbox"/> Transportation and distribution.

Marketing	<ul style="list-style-type: none"> □ □ Lack of transporting facilities for carrying products □ Less contact with the direct market; much dependency upon middle man No knowledge on marketing know-how, dependence on traditional system of selling. 	<ul style="list-style-type: none"> □ Smooth transportation facility will help the farmers to carry their products to the nearby markets. □ Generate highest market price by removing middle men. □ More knowledge about the current market situation as well as the current value of their products. They can sell their products outside of the state, as the JFMC is located in Assam West Bengal border and Bhutan border is also not far from it. 	<ul style="list-style-type: none"> □ Buyers sellers meet
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Table 13 Livestock

Constraints	Reasons	Opportunities	Programme
Less grazing land	<ul style="list-style-type: none"> □ Not Applicable 		
Availability of fodder	<ul style="list-style-type: none"> • Unable to buy fodder from market due to poor financial condition • Trees fodder n crop residue are available only for 3-6 months. Green fodder is also not available for the whole year. 	<ul style="list-style-type: none"> • Higher income from livestock rearing. • The villagers can make it as an alternative livelihood opportunity if they have the easy access of livestock fodder. 	Linkage with veterinary department for better opportunities in livestock sector.
Veterinary care facility	<ul style="list-style-type: none"> • No veterinary care clinic • Lack of knowledge about the proper rearing of live stock 	<ul style="list-style-type: none"> • Disease control • Increases the life span of cattle. • It will also help to aware the villagers and will encourage them for livestock rearing. 	
Production of milk	<ul style="list-style-type: none"> • Less availability of fodder • No scientific knowledge on cattle rearing to increase the milk production. 	<ul style="list-style-type: none"> □ Training on the milk production can enhance the skill of milk production. 	
		<ul style="list-style-type: none"> □ Availability of supplements like cattle “Milk Booster, Milk Plus” etc. can increase 	

		the production of milk in the area.	
Milk market	<input type="checkbox"/> Less contact with the direct market for milk Unaware of the market demand of different milk made products.	<input type="checkbox"/> A huge demanded market for milk is available as Kokrajhar district head quarter and West Bengal state is too far from the JFMC.	

Table 14 NWFP

Constraints	Reasons	Opportunities	Programme
Less collection	<input type="checkbox"/> Less availability of NWFP	<input type="checkbox"/> Availability of fertile fallow land	<ul style="list-style-type: none"> • Plantation of Food plans, Medicinal Plant etc. • Improve in processing of NTFP
Unsustainable extraction	<input type="checkbox"/> NA	<input type="checkbox"/> Availability of fertile fallow land	
Low rates	<input type="checkbox"/> NA	NA	
Value addition	<ul style="list-style-type: none"> • No processing units • Non availability of required resources • No technical know-how 	NA	

Table 15: Specialised skills: Handloom

Constraints	Reasons	Opportunities	Programme
Raw material availability	<input type="checkbox"/> Non-Availability of Raw Materials within reachable location (market 7km away) <input type="checkbox"/> No Storage	<input type="checkbox"/> Common place for setting a raw material storage	<input type="checkbox"/> Setting up a raw material bank
Product quality	<input type="checkbox"/> Shortage of High Quality Materials <input type="checkbox"/> Use of Traditional machineries	<input type="checkbox"/> Developing Quality Products for new market exploration.	<input type="checkbox"/> Training on Modern Tools and Equipment. <input type="checkbox"/> Providing modern technology to the villagers
Marketing potential	<input type="checkbox"/> No standardised market <input type="checkbox"/> No pricing policy No linkage with the institutional buyers <input type="checkbox"/> No Product Diversification or New Product Development.	<input type="checkbox"/> Exploring new markets with diversified products	<input type="checkbox"/> Providing a bulk buy arrangement of the finished product with institutional buyers.

Credit facilities	<input type="checkbox"/> No linkage with the banks or post office saving banks.	<input type="checkbox"/> Financial assistance by the Govt.	<input type="checkbox"/> Microfinance, Term Loans, Working Capital Arrangement
	<input type="checkbox"/> Unaware of the development schemes of banks and government	<input type="checkbox"/> Providing easy access to credit.	
Product Diversification	<input type="checkbox"/> No Product Diversification or New Product Development. <input type="checkbox"/> Lack of concept for product diversification.	<input type="checkbox"/> Developing Demand Based Products, as per the needs of the modern day market.	<input type="checkbox"/> Skill Upgradation & Training on New Product Development and Product Diversification

Table 16 Credit facility

Constraints	Reason	Opportunities	Programme
Indebtness	Nil	<input type="checkbox"/> Setting up modern financial institution in the nearby areas.	Linkage with financial institution for better credit facility with financial inclusion.
Rate of interest	<input type="checkbox"/> Higher lending rates charged by the private money lender	<input type="checkbox"/> Subsidised credit arrangement	
Availability of loan	<input type="checkbox"/> Fear of risk taking <input type="checkbox"/> No knowledge of documentation	<input type="checkbox"/> Start-ups entrepreneurial venture	
Mortgage difficulty	<input type="checkbox"/> Unavailability of proper documentation of mortgaged property.	<input type="checkbox"/> Proper awareness about documentation in the area	