



BITHORAI ECO DEVELOPMENT COMMITTEE

MANAS TIGER PROJECT

BANSBARI FOREST RANGE

MICRO-PLAN (2016-17 to 2025-26)

**Prepared by
Barengabari Eco Development Committee**

**Assisted by
Assam Forest Department
&
COMPELO
(IIE, RGVN and CML)**

July 2016

Approved

Field Director, Manas Tiger Project
Bansbari Forest Range

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
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	Joint Forest Management Committee
Kg	Kilogram
Km	Kilometre
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

BITHORAI ECO DEVELOPMENT COMMITTEE
Bansbari Forest Range

Micro-Plan for 10 Years
[Livelihood Development Plan & Forest Development Plan]

Table of Contents

Section No	Heading	Page No
1	Introduction	1
2	Village Socio-Economic Profile	2
3	Livelihood Opportunity Analysis	7
4	Livelihood Development Plan	10
5	Forest Development Plan	14
--	List of Appendices	21

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 micro planning 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 Bithorai EDC

This document gives the Micro-Plan for the Bithorai EDC, which is located in the Baksa district of Assam. The EDC falls under the jurisdiction of the Field Director, Manas Tiger Project. 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 1st July 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 Bithorai Eco Development Committee (EDC) has been formed to cover the existing community dwelling in Bithorai village. The area covered by the above EDC falls within the Bithorai VCDC, BAKSA district of Assam.

Appendix-1 gives the Village Map.

Key Information The key information of the EDC is furnished below.

Table-A: Key Information of the EDC

Name of the EDC	Bithorai
Habitation	Bithorai
Name of Revenue Village	Kahibari
Name of the VCDC	Bithorai
District	Baksa
Forest Division	Field Director, Manas Tiger Project, Barpeta Road
Forest Range	Bansbari
Forest Beat	Kahibari
Year Formed	2015
Description of Boundary of EDC	GPS Coordinates(Centre Point) N 26°39'31.6' E 91°01'43.1' North: Manas National Park South: Bahbari Village West: Barengabari Village East: Lahori Langdangparai Village

Source: 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 EDC are contained in the table, which is given below.

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

Name of President	Mr. Dipok Wary
Name of Secretary	Mr. Biren Rajbongshi
Name of Treasurer	Laxmi Kt Boro
Registration Number	MTP/EDC/04, Dated 10 th April, 2016
No. of Members in Executive Committee	Male: 9 Female: 5
No. of Members in the General Body	One member from each household

Source: EDC Records

**Households
Population
Structure**

The village has 105 households. The number of female headed households is nil. The total population is 635 of which 330 are male and the rest 305 are female members. Out of 105 HH all 92 belong to the ST-Plain., ethnically belonging to Bodo community and the rest 13 HH are Adivasi (Tea Tribe) belonging to OBC.

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 5.1.
- (2) The sex ratio is 924 females per 1000 males in the village.

**Education &
Skills
Development**

Over 55% 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 and graduated members.

Livelihood skills are usually acquired under various settings – formal & informal. In the EDC area, informal means for skills development is the traditional norm. People have traditional skills in the following areas:

- (a) Horticulture
- (b) Farming
- (c) Livestock rearing
- (d) Handloom

Government has been active in promoting formal skills development programmes in the country as well as in the state. The village has not reported receipt of benefits of any such programme has been carried out in the habitation or in nearby areas.

Soil

The soil type of the project area includes:

The fast flowing Manas river on entering the plains from the steep hills loses its speed and as a result deposits enormous quantities of boulders, stones, sand, silt and other debris that are carried down by the water and this leads to the formation of alluvial terraces, comprising deep layers of rocks and sands deposits. The soil is deep alluvial Himalayan wash. This type of soil can support different kinds of crops, as the soil is reported to be fertile on the whole.

Water

The Manas River flows through the west of the Park, where it splits into two separate rivers, the Beki and Bholkaduba, to join the River Brahmaputra some 64 km further south. These and five small rivers running through the Reserve carry enormous amounts of silt and rock from the foothills as a result of heavy rainfall, steep gradients and friable bedrock upstream.

Over the limestone and sandstone bedrock, boulders and gravels of the Bhabar savanna area to the north, flood waters have formed shifting channels and swamps and a soil of porous alluvial river terraces of coarse detritus under layers of sandy loam and humus where the water table is very low. The Terai grasslands in the south consist of deep deposits of fine alluvium with underlying pans where the water table lies very near the surface, making it potentially useful farmland. The Manas basin in the west of the Park is frequently flooded during the monsoon but never for very long due to the sloping relief.

**Climate:
Temperature
Rainfall**

The climate of Manas is moist tropical with an annual rainfall between 3000 mm to 4000 mm.

Winter (December-February): Characterized by cool weather and fog. The temperature remains 20°C + 5°C. January is the coldest month. Average total rainfall is 114 mm with relative humidity of 77% + 5.

Pre-monsoon (March-May): It is a transitional period between relatively dry winter and hot summer and is characterized by a rapid rise in temperature. As the season advances, the amount and frequency of rainfall increases due to frequent thundershowers with hailstorms. Average total rainfall during the season is 518.70 mm. The season is marked progressively by a greater number of cloudy days. Average temperature and humidity in this season are 23 °C + 5°C and 70% + 5 respectively.

Monsoon (June-September): It is the characteristic major rainy season of the year. The average monthly rainfall is 2860 mm. The average temperature during this season is 27.17°C with an average diurnal range of over 6°C. The humidity increases to 82% + 5. August is the hottest month.

Retreating monsoon (October-November): Towards the end of September, the monsoon weakens with an abrupt retreat followed by fair weather. With the advancing of the season the temperature falls and moving mist and fog appears. The average temperature is 27°C + 2. The average monthly rainfall is 1400 mm and the rainy days become fewer. Relative humidity is 82% + 5.

**Forest & Bio-
diversity**

The main tree species are Sida, Ajar, Gamari, etc found in Manas National park. The forests can yield a range of NTFP like leafy vegetables, ferns, lemons, medicinal plants, bamboo, thatch etc. Lemon trees are grown in abundance in this EDC village. Some other species as Arecanut Tree, Jack Fruit, Bamboo etc. are also grown. The most abundantly grown is lemon which also serves as bio fencing.

Land Use Pattern

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

- Cultivated wasteland (low line) 5.36%
- Manas river tributary 0.85%
- Paddy field 45.03%
- Road 2%
- Settlement with tree cover 32.48%
- Stream 0.14%

Land Holdings

The type of households as per land-holding is given at **Table-3** of Record-I. From the same, it is seen that:

- 0 % of the households are landless (0 HH)
- 87.57% of the households are marginal farmers (93 HH)
- 12.43% of the households belong to small and large categories.

Livestock The total number of livestock in the village is **1128**. The main types of livestock possessed by the households include:

Cows: 283
Goats: 143
Duck : 75
Hens : 548
Pigs : 80

Table-4 of Record-I may be referred to for the details in the above connection.

Village Infrastructure & Communication Facilities

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.

From the above table, the following have been noted with regard to village infrastructure:

Physical Infrastructure: The habitation is deprived of basic physical infrastructure like paved roads, electricity, water supply, mobile network etc.

Education & Health Facilities: There are minimal educational and no health facilities. Public transport is not available, and the community members have to use bicycles to move around.

Govt. Offices: The government offices (such as Police station, VCDC office, as the villagers do not have access to regular public transport from either the habitation or from nearby areas.

Financial Inclusion: Facilities for financial inclusion like bank and post office are located at a considerable distance from the habitation. The community members have accounts in faraway places.

Agricultural Crops

The details of the agricultural crops grown in the village is available at **Table-6** of Record-I.

The above shows that the following are the main crops grown in the village.

Kharif Crops: Sali Paddy, Yum

Rabi Crops: Mustard, pulses

Others: Lemon, Jack fruit, pomelo etc.

All the crops are rain fed.

Crop Production Profile

Table-7 of Record-I may be referred to for the production and yield details of the crops grown in the village.

The maximum numbers of households are involved in growing crops like rice and mustard.

The production and yield of these crops is given as follows:

(a)Paddy : Production 525 Quintals Yield 16 q/ha

Fodder Availability 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:

- (a) Crop residue
- (b) Household wastage
- (c) Green fodder

Markets **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:

- (a) Grocery / PDS: Inside Village
- (b) Weekly / Bi-weekly Market: : Bansbari at 4 km away
- (c) Major Market: : Bansbari at 4 km away

Water Resources The water resources are tabulated at **Table-10** of Record-I. The main water resources with the water availability is as follows:

- (a) Tube well (Water Availability: Perennial / ~~Seasonal~~)
- (b) River (Water Availability: ~~Perennial~~/ Seasonal)
- (c) Stream (Water Availability: ~~Perennial~~/ Seasonal)
- (d) Ring Well (Water Availability: Perennial/ ~~Seasonal~~)

Energy Consumption **Table-11** of Record-I shows the major sources of energy in the village. The same have been listed below.

- (a) FUEL WOOD- Households Depending 78 Nos. Source: *Outside forest trees near village*
- (b) KEROSENE-Households Depending: 78 Nos. Source: Open Market
- (c) LPG- Households Depending 27 Nos

Socio-economic status **Social set-up:** The village is inhabited by Bodo and Adivasi (tea tribe) community. They belong to ST while the Adivasi belongs to OBC. The society is not marked by deep social divisions. The observed position of women is satisfactory.

Economic Condition: The economic position is not satisfactory. The main livelihoods are Farming, Daily wages, Horticulture etc. Most households earn Rs. 18,000 to Rs. 55,000 per year. Agriculture is mostly destroyed by the wild animals mostly elephants, peacock etc.

There is some migration of the youth and others for livelihoods. Additional details are available at the next section.

Maps **Appendix-1** gives the following maps, based on PRA exercise:

- Village Map
- Village Social Map
- Village Resource Map

Impacts

Positive Input:

- 1) Soil water conservation
- 2) Economic benefit from tourism
- 3) Environmental improvements

Negative Inputs:

- 1) Human animal conflict
- 2) Cattle/crop destruction
- 3) Damage of property by wild elephants

3. Livelihood Opportunity Analysis

PRA Exercise

Team from IIE Guwahati carried out PRA exercise in Bithorai village as follows:

Date: 4th July, 2016 **Location:** Community Hall, Bithorai **Numbers Present:** 99

In Presence of: EDC office bearers, Village Headman, community members, 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. Horticulture
2. Agriculture
3. Livestock
4. Weaving

Ranking of EPA

Rank	Village EPA as ranked	Details (Appendix-3 has additional particulars)	Probable source of funding/deptt.
1.	Community Hall	Community meetings can be organised properly	Panchayat & Rural Development
2.	Electricity	Solar light facility to each HH	APFBC
3.	Road Connectivity	Black Topping of road From Bansbari to the village (~4 KM)	PMGSY/PWD
4.	School	Upper Primary School	SSA/ Elementary Education Deptt.

Livelihood opportunities

Livelihood Opportunities were identified as follows:

Agriculture & Horticulture
Livestock (Both for sale and self-consumption)
Handloom for weaving of
Traditional clothes and
utilitarian items.
Credit Facility

Agriculture & Horticulture

Additional discussion about the above has been given below.

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

The main constraint are:

- (a) Animal Depredation
- (b) Lack of irrigation facilities
- (c) Lack of agricultural infrastructure, modern tools and equipment's
- (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 programmes are:

- Tractor operation training
- Agri-skill development programme.
- Development of Bio-Fencing and solar lights.

Livestock

Table-13 Furnishes additional information about opportunities for livestock rearing.

The main constraints are:

- (a) Unable to buy fodder from market due to poor financial condition.
- (b) Threat from wild animals which destroys most of the livestock.
- (c) No veterinary care clinic.
- (d) Lack of knowledge about the proper rearing and breeding of livestock.

The opportunities are:

- (a) Higher income from livestock rearing.

The suggested programme is:

- (a) Piggery
- (b) Poultry

NWFP

As the village is located adjacent to protected area there is no scope for collection of NTFP.

Specialized Skills For skills development, the opportunities are tabulated at **Table-15** under Record-2

The main constraints are:

- (a) Lack of product diversification
- (b) Lack of research on product quality
- (c) Inactive male population

The opportunities are:

- (a) Young Entrepreneurs
- (b) Weaving Expansion
- (c) Financial assistance from govt.
- (d) Small scale industries like food processing, agarbatti

The suggested programme are:

- 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.

Credit Facility **Table-16** under Record-2 discusses this aspect.

The main constraints with the reasons are:

- (a) Financial exclusion
- (b) Higher rate charged by the private money lender.

The opportunities are:

- (a) Setting up modern financial institution
- (b) Adequate awareness.

The suggested programme is:

- (a) Training on Eco-tourism guide.
- (b) Guidance for eco-tourism facilities.

Strategic Interventions Summarizing the suggested programmes at above as strategic interventions for the Livelihood Development Plan:

1 **Agriculture & Horticulture:** Tractor operation training, Agri-skill development programme, Training on insecticides, pesticides, hybrid cultivation and bio fencing, small food processing industries.

2. **Livestock:** Piggery, Poultry

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.

Credit facility: Setting up modern financial institution in the nearby areas.

4. Livelihood Development Plan

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

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

NATURAL CAPITAL:

The major forest situated in the fringe of Bithorai EDC is Manas reserve park and two numbers of river namely Manas and Beki.

Majority of the people are dependent on the outside market and nearby villages for firewood, green fodder etc. For farming purpose and for livestock rearing, the villagers use the river water, hand pump and few negligible number of ring well.

PHYSICAL CAPITAL:

Majority of the households in the Bithorai EDC are involved in farming and horticulture activities and are 88% are marginal farmers with farming land of less than 2 ha. Detailed land holding pattern is described in the table 3/annexure 6.

The village has 7 numbers of pucca, 8 numbers for semi-pucca houses and the remaining 44 houses are thatch house/Kutch House. Among the various sources of energy consumption such as Biomass, kerosene, electricity, LPG and candle, villagers depend on the firewood and kerosene for household and other uses. Although, some of the household have LPG, but reliability is very less. (Refer to table 10, 11)

There is only 1 LP school present within the EDC area. No other education institution is present. (refer to table 5)

In case of water sources, 84 per cent HH have access to tube well, 16 percent HH have access to both ring well.

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

Only four female SHG and one Anganwadi Centre are there in the village. However, the village has no youth club and one temple where social meetings of the villages are held.

HUMAN CAPITAL 88 per cent of total population of the EDC are educated and 40 per cent of them have crossed upper primary level school education.

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

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

LIVELIHOOD CONTEXT Livelihood activities of the Bithorai EDC are identifies on the basis of following criteria:

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

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

Farm Sector :

1. Poultry and piggery
2. Agriculture
3. Horticulture

Non-Farm sector:

1. Driving
2. Handloom/ Weaving
3. Food processing
4. Electrician

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.

Summary of Action As attached in next page.
lan

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 KrishiSinchay 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 Bithorai EDC

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 food processing	1	Conducting Skill Development Training programme (40 days)	2,00,000.00
2	Skill Development Training Programme on livestock rearing	1	Conducting Skill Development Training programme (40 days)	2,00,000.00
3	Training on Eco-Tourism	1	3 days 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				
C1	Product improvement Through Value Chain Improvement			
1	Value Chain Improvement in food processing	1	10 days Training on processing activities	1,00,000.00
C3	Supply of modern tools			
	Supply of modern machineries for food processing and introducing the area as a lemon hub	5	supply of modern tools	1,50,000.00
	SDP on tour guide (5 nos.)	1	30 days SDP	1,50,000.00
	Total			4,00,000.00
E. Support for Access to Market				
D1	Linkage with institutional buyers and/or govt. Organizations. (throughout the year)	2	Creating platform for buyers and sellers' interactions (2 day)	80,000.00
D2	Setting Up Ban Bazar	Throughout the year	linkage through van bazar	1,00,000.00
D3	Eco-Tourism		Participation in one exhibition through forest department	1,20,000.00
D4	Access To Other Geographical Markets	1	Exposure visit	1,20,000.00

D5	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 of BITHORAI EDC

This Forest Development Plan has been prepared after a detailed PRA exercise at the village level as a part of the Micro-Plan of Bithorai EDC. 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 EDC; while meeting the consumption and livelihood needs of the community in a sustainable manner.

1. Status of the EDC Forests

The micro-plan takes into consideration the following categories of the EDC Forests of the Bithorai EDC:

- (a) Forest areas assigned to the EDC by the Forest Department.

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

1.1. Forest Soil Type

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

Table-2: Forest Soil Type in Bithorai EDC

Parameter	Status in Assigned Forests	Status in Other Planted Areas
Fertility Level	Fertile	Nil
Soil Erosion Status	low	Nil
Presence of:		
(a)Silt	Nil	Nil
(b)Mud-flat	Nil	Nil
(c)Newly accreted land	Low	Nil
(d)Sand dune	nil	Nil

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

For the Bithorai EDC; the salient points of the forest soil type are summarized below:

- (a) Loam soil
(b) Less fertile

1.2. Existing Composition of Flora

In the forests of the Bithorai EDC, the existing composition of the flora has been given as follows. It may be noted that the local forests are classified as ever green Forests.

Table-3: Existing trees in the Bithorai EDC

Parameter	Local Name(s)	Biological Name(s)
Major Forest Species		
Associates	Gamari	<i>Gmelina Arborea</i>
	Arjun	<i>Terminalia arjuna</i>
	Acacia	<i>Racosperma</i>
	Tora	<i>Angiosperm</i>
	Sonaru	<i>Cassia fistula</i>
Shrubs	Dhekia	<i>Ferns</i>
Medicinal Plants	Arjun	<i>Terminalia arjuna</i>
	Hilikha	<i>Terminalia Chebula</i>
	Neem	<i>Azadirachta indica</i>
	Amlakhi	<i>Phyllanthus emblica</i>
Others, if any	Jati Bah	<i>Bambusa Tulda</i>
	Bhuluka Bah	<i>Bambusa Balcooa</i>
	Amlakhi	<i>Emblica officinalis</i>
	Bijuli Bah	<i>Bambusa Pallida</i>
	Arjun	<i>Terminalia arjuna</i>
	Sachi	<i>Aquillaria agallocha</i>

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

2. Other Inputs for the Forest Development Plan

The following sub-sections discuss the other inputs for the Forest Development Plan of the Bithorai EDC.

2.1. Past Protection Measures of the EDC

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

- (a) Number of households involved: Not available
- (b) Number of people involved: Not available
- (c) Summary of the measures: Not available
- (d) Any formal mechanism: Not available

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

2.2. 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-4 (A): Domestic Requirement of Forest Produce per Household of the Bithorai EDC

Name of Forest Produce	Average Household Requirement		How met at Present	Source
	Frequency of Requirement	Approx. Qty		
Firewood	Frequent	35-38 kg	Purchase	From outside village
Timber for House	NIL	NIL	NIL	NIL
Small timber for Implements	NIL	NIL	NIL	NIL
Pole / Bamboo	NIL	NIL	NIL	NIL
Fodder from Forest	NIL	NIL	NIL	NIL
NTFP	- NIL	NIL	NIL	NIL
Other	- NIL	NIL	NIL	NIL

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

There are 105 households in the Bithorai EDC. From the above table and this number of households, it is inferred that the total annual requirements of the Bithorai village for own use met from purchase from the outside village is as follows:

Table-4 (B): Total Domestic Requirement of Forest Produce - All Households of the Bithorai EDC

Name of Forest Produce	Community Requirement (Kg per annum) (*)	Remarks
Firewood	100200	Purchase \Outside Village area
Timber for House	-	-
Small Timber for Implements	-	-
Pole / Bamboo	-	-
Fodder from Forest	-	-
NTFP	-	-

Other _____	-	-
-------------	---	---

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

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

2.3. Collection & Marketing of Forest Produce by Villagers

As forest is located near protected areas, village do not collect forest produce for sale.

Table-5 (A): Collection & Marketing of Forest Produce by Villagers of the Bithorai EDC

Name of For Produce	Collection for Marketing			Location of Collection
	Season Months	No of Households Collecting	Average Qty. Collected (Kg)	
Firewood	Throughout the year	65	1965	Purchase
Timber for House	-	-	-	-
Small timber for Implements	-	-	-	-
Bamboo	-	-	-	-
Pole	-	-	-	-
Fodder from Forest	-	-	-	-
NTFP	-	-	-	-
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 (B): Collection & Marketing of Forest Produce - Additional Information [Bithorai EDC]

Name of For Produce	Surplus Marketed (Kg)	How marketed	Average Income per HH from sale of Forest Produce
Firewood	-	Not Applicable	-
Timber for House	-	-	-
Small timber for Implements	-	-	-

Bamboo	-	-	-
Pole	-	-	-
Fodder from Forest	-	-	-
NTFP	-	-	-
Other	-	-	-

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

2.4. Total Requirements of Forest Produce - Domestic Use & Marketing

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

Table-6: Total Requirements of Forest Produce by Villagers of the Bithorai EDC

Name of For Produce	Community Requirement (Kg per annum) From Table-4(B)	Surplus Marketed (Kg) From Table5(B)	Total Requirements (Kg)
Firewood	100200	-	100200
Timber for House	-	-	-
Small timber for Implements	-	-	-
Bamboo	-	-	-
Pole	-	-	-
Fodder from Forest	-	-	-
NTFP	-	-	-
Other	-	-	-

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

3. Forest Protection Issues

3.1. Protection Problems

The protection issues of the forests of Bithorai EDC have been summarized below.

Table-7: Protection Problems of the Bithorai EDC

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	Nil	
Smuggling of Timber	Nil	
Accidental Fires	Nil	
Encroachment of Forest Lands	Nil	

Others	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 EDC are:

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

3.2. Reasons for Degradation of the Forest

In the Bithorai EDC, the reasons for degradation of forest are as follows:

- (a) No scientific Plan
- (b) Grazing of cattle

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

4. Components of the Forest Development Plan

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

4.1. Protection Plan

The Protection Plan given at below, discusses the measures for the protection of the forests of

Bithorai EDC from the issues discussed earlier at Sub-section 3.1

Table-8: Protection Plan of the Bithorai EDC

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]
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

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 Bithorai EDC (with high / medium priority) are as follows:

- (a) Fencing
- (b) Fire protection

4.2. Types of Operations Proposed

The types of operations proposed for the treatment of degraded areas of the EDC Forest of Bithorai EDC are given hereunder.

Table-9: Types of Operations Proposed in the Bithorai EDC

Treatment	Required (Yes/ No)	Responsibility of EDC (Yes / No)	Month / Year when can be done	Extent of Area proposed for Treatment (Ha)
Restoration of Degraded Forests	Yes	Yes	April - august	
Protection to Cut Stumps of Trees	No	No		
Watershed Treatment	Yes	Yes	All the year	
Water Reservoirs	No	No		
Grass & Silvi-pasture	No	No		
Bamboo Plantation	Yes	Yes	Jun- August	
Seed Sowing	Yes	Yes	All the year	
Root & Shoot Cutting & Plantation	Yes	Yes	All the year	
Cut Back & Coppice Treatment	No	No		
Physical Fencing	Yes		All the year	
Social Fencing	Yes		All the year	
Other Activities	Yes		All the year	

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 Bithorai EDC:

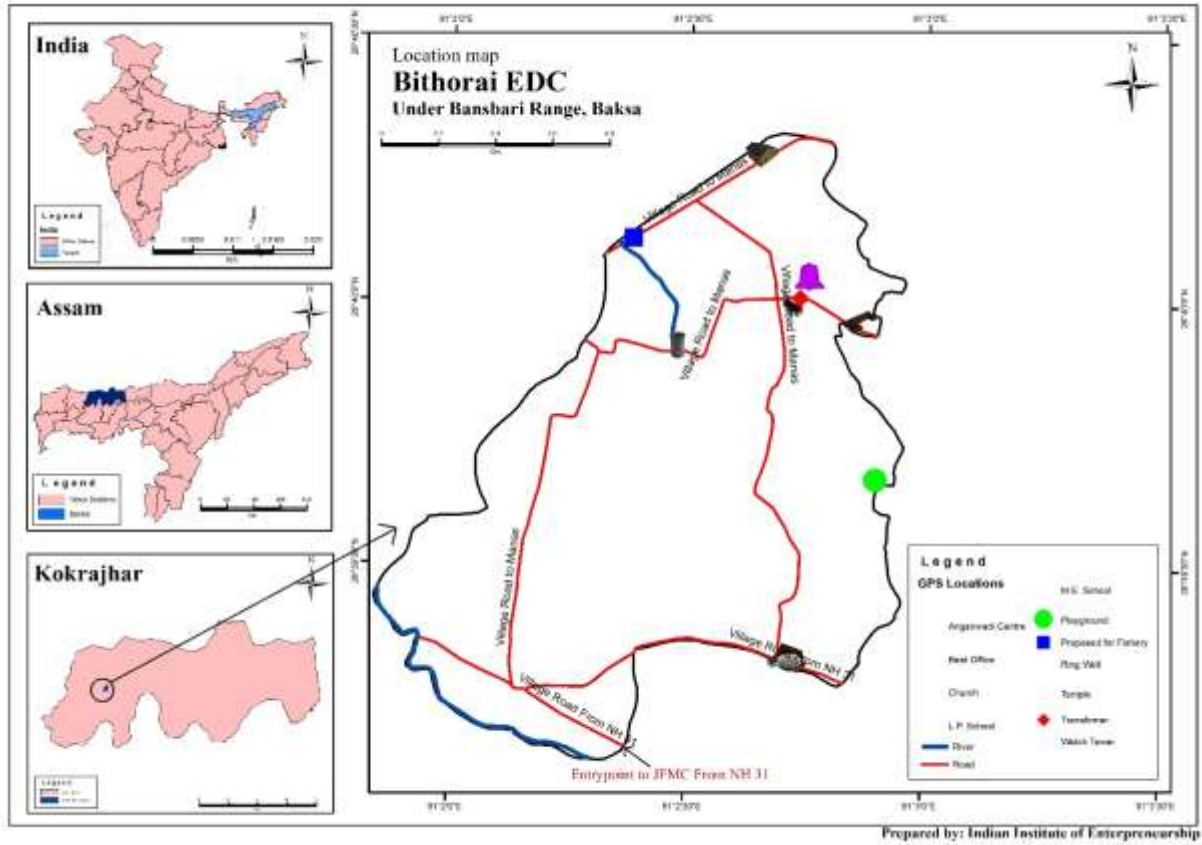
- (a) Seed Sowing/Mushroom Cultivation
- (b) Root & Shoot Cutting & Plantation

List of Appendices

Appendix No	Heading	Page No
1	Maps	22-23
	<i>Location Map</i>	22
	<i>Village Social Map</i>	23
	<i>Village Resources Map</i>	24
2	Land Use Map of Village (GIS)	25
3	PRA Exercise	26-34
	<i>Social Mapping</i>	26-27
	<i>Wealth Ranking</i>	28
	<i>Time Line review</i>	29
	<i>Seasonality of Livelihoods</i>	30-31
	<i>Venn Diagram</i>	32
	<i>Chapatti Diagram</i>	33
	<i>Priority Rankings-EPA and Potential Livelihoods</i>	34
4	Photographs	35-36
5	List of EDC Executive Members	37-38
	EDC Registration Certificate	39
6	Filled Up Tables (Proforma-1 to Proforma-4) Table Nos. 1-16	40-46

Appendix 1

1. Village Map:



2. Social map of Bithorai EDC

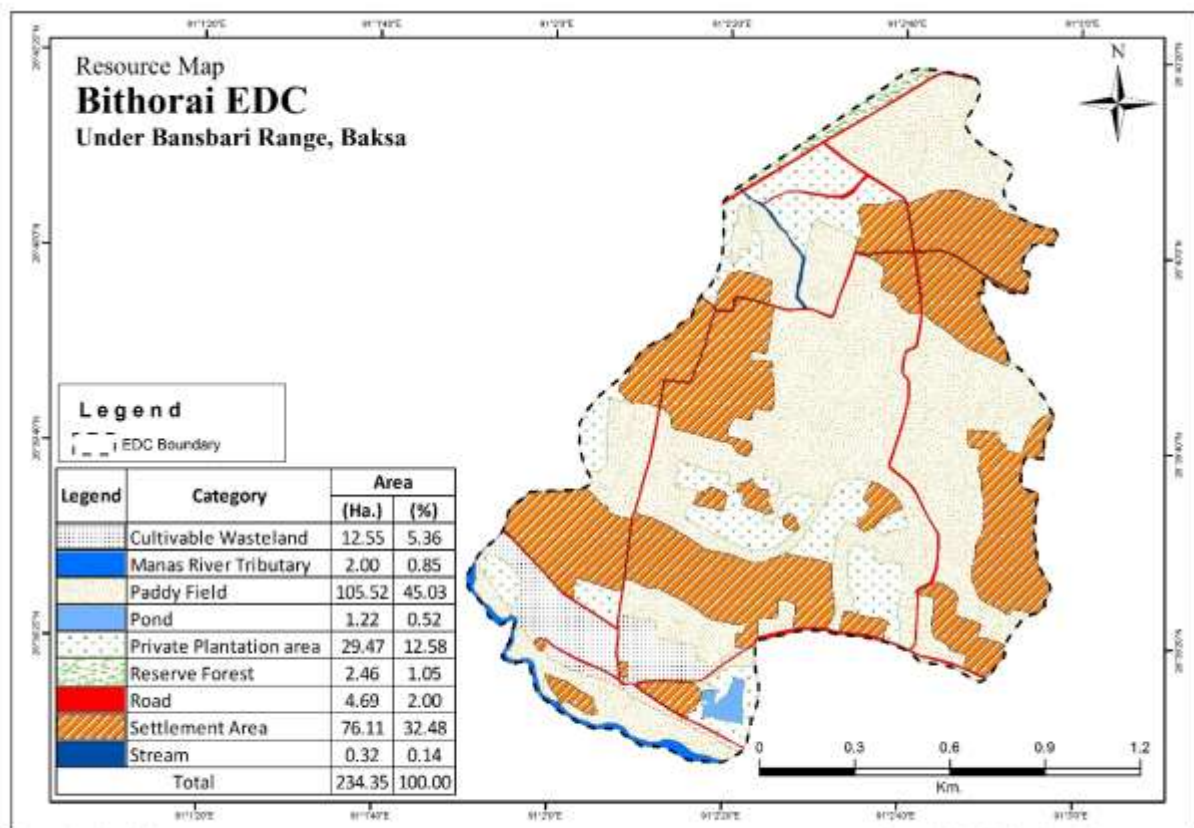


3. Resource Map: Bithorai EDC



Appendix 2

Land Use map of GIS



Source: Google earth Imagery

Prepared by: Indian Institute of Entrepreneurship

Appendix 3

PRA ACTIVITY

Location and Timing of Participatory Rural Appraisal:

Numbers of participants :	90
Time :	10.30 am, 4 th July 2016
Venue :	Community Hall (Bithorai village)

Table – 3.1*Brief about the villages under BITHORAI EDC*

Sl. No.	Name of the Village	No. of households	Population		
			Total	Male	Female
1	Bithorai	105	635	330	305
	Total	105	635	330	305

Source: Field

Different PRA tools used under the exercise of PRA technique are:

- a) Social Mapping
- b) Wealth Ranking
- c) Time Line Review
- d) Seasonality Analysis
- e) Chapatti diagram

3.1 Social Mapping:

Social mapping is used to visualise the socio-economic aspects of the Bithorai EDC 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 community hall. And due to time constraint and bad weather we have to skip the transect walk. The villagers were enthusiastic 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. All the villagers spotted their households in the map. After the mapping process the team members collected the information about the pattern of their household's namely pucca, semi pucca, and IAY and thatch house.

Table 3.2: Information about the villages

Social Information	Village →	Bithorai
	Total population	635
	Male	330
	Female	305
	Total households	105
	Numbers of Pucca Houses	14
	No of thatch house/Kutch House	85
	No's of semi pucca house	6
Land Marks	Bridges	
	Stream	
	River	1
	Playground	1
	Community hall	1
	Community Hand pump	4
	Well	
	Watch Tower	1
Check Dam	Nil	

Findings of social map:

- The participants of social mapping have identified all 105 households out of which 85 households are thatch house or kutch house. There is only 6 semi Pukka house and 14 Pucca House. No IAY household though the entire village come under BPL category. This signifies that the IAY scheme of Government has not achieved considerable coverage of poor people residing in rural area yet.
- Other than the class based division of the households, important places like community hall, schools, and playground, stream, well, embankment, check dam, hand pump and bridges are mapped.
- Main sources of water for the villagers are the community hand pump and the streams and the river which is used by villagers for their day to day use.
- Provision of Education facility is not satisfactory. There is one Anganawadi centre in the village but the interesting fact is that there is no infrastructure of the centre. They are running the centre in the community hall.
- Most of the people belong to the Bodo community which are of schedule tribe caste. There are also few Adivasi (tea tribe) community which belong to the OBC. The religion of all the villagers comprises of both Hinduism and Christians.

Learnings:

- Even though electricity is available inside the villages of the Bithorai EDC but its presence is negligible due to continuous power failure for more than 19-21 hours per day.

Most of the Household still dependent on forest and use firewood for their cooking purposes. They used to go to the forest for collecting the firewood which is still a concern for the forest department for degradation of the forest.

- The primary health centre along with post office is located in Salbari, which is 4 KM away from the EDC. The villagers have to cover a long distance for their health check-up.
- There is also one community hall available in the EDC where various meetings are held. Major meeting are – Gram panchayat meeting, village head meetings, forest department meetings and other political meetings.
- The availability of fodder for domestic animals depends on the nearby available outside village area and local market area. The village of the EDC are fully dependent on crop residue, green fodder, grasses, and green fodder. Field residues are materials left in an agricultural field after the crop has been harvested. These residues include stalks and stubble (stems), leaves, and seed pods.
- There are some grazing field where villagers use for their cattle rearing. These fields are available for a maximum of six months. Seasonal grazing incorporates “grazing animals on a particular area allows the land that is not being grazed to rest and allow for new forage to grow.
- Agricultural and livestock are mostly damaged by the wild animals that come from the national park where very poor fencing is being constructed throughout.
- The villagers of the Bithorai EDC have to move Bansbari, a distance covered with 4 km, for their weekly marketing activity. Domestic materials, utensils, bangles, cloths and stationeries are sold in different stalls.

3.2 Wealth Ranking:

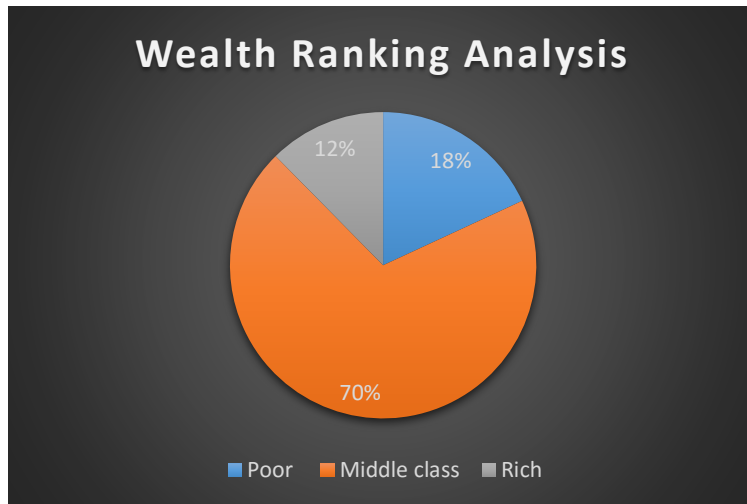
Wealth ranking, or well-being ranking, involves community members identifying and analysing the different wealth groups in a community. It enables evaluators to learn about the socioeconomic stratification of project beneficiaries and local people's definitions and indicators of wealth/wellbeing.

Wealth ranking was done with the help of the following criteria:

- a) Land holding
- b) Occupation

As such about 18 per cent people are poor, about 70 per cent are belonging to middle class and about 12 per cent are categorised to be rich. Poor people are mainly irregular wage earners, sometimes they lease (adhilua) others land. They also have good amount of agricultural land.

Figure 3.1: Wealth Ranking



3.3 Timeline Review

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 events.

Table 3.3: Timeline review

Year	Event	Type
1946	Severe flood destroyed the village agriculture and houses.	Environmental
1946	Animal human conflict where one person lost his life and most other injured.	Disaster and conflict
1980	First Primary School Constructed	Construction
1992	Primary School was registered under Assam Government.	Registration
1993-1996	There was a community clash in the village between Adivasi community and Bodo community.	Socio political
1996	Severe Flood in the village.	Environmental
2015	Formation of EDC	Environmental
2016	One person got killed and other injured by wild animal (Tiger).	Animal Conflict

3.4 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, labour 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 crops and the timing of three activities viz. sowing, 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 Sali rice, Mustard, Jute, Betel-nut, Ginger, and Maize etc.

The FGD conducted revealed that other major livelihood options available in the EDC are Livestock rearing (Piggery, poultry), shop-keeping, weaving, daily wage laborers, mason, tailoring, carpentry which are not seasonal in nature but is showed in the seasonal mapping.

Figure 3.2: Seasonal Map of Bithorai EDC

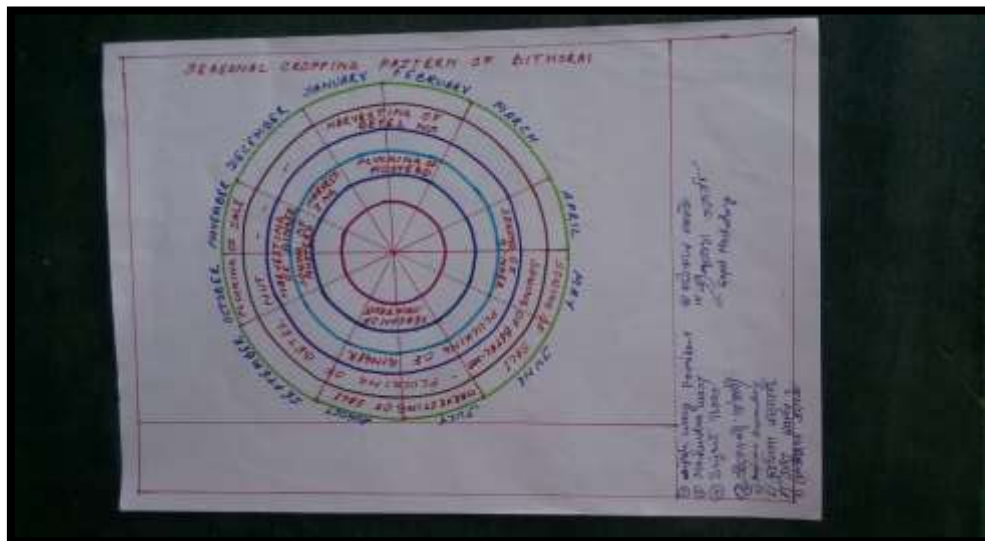
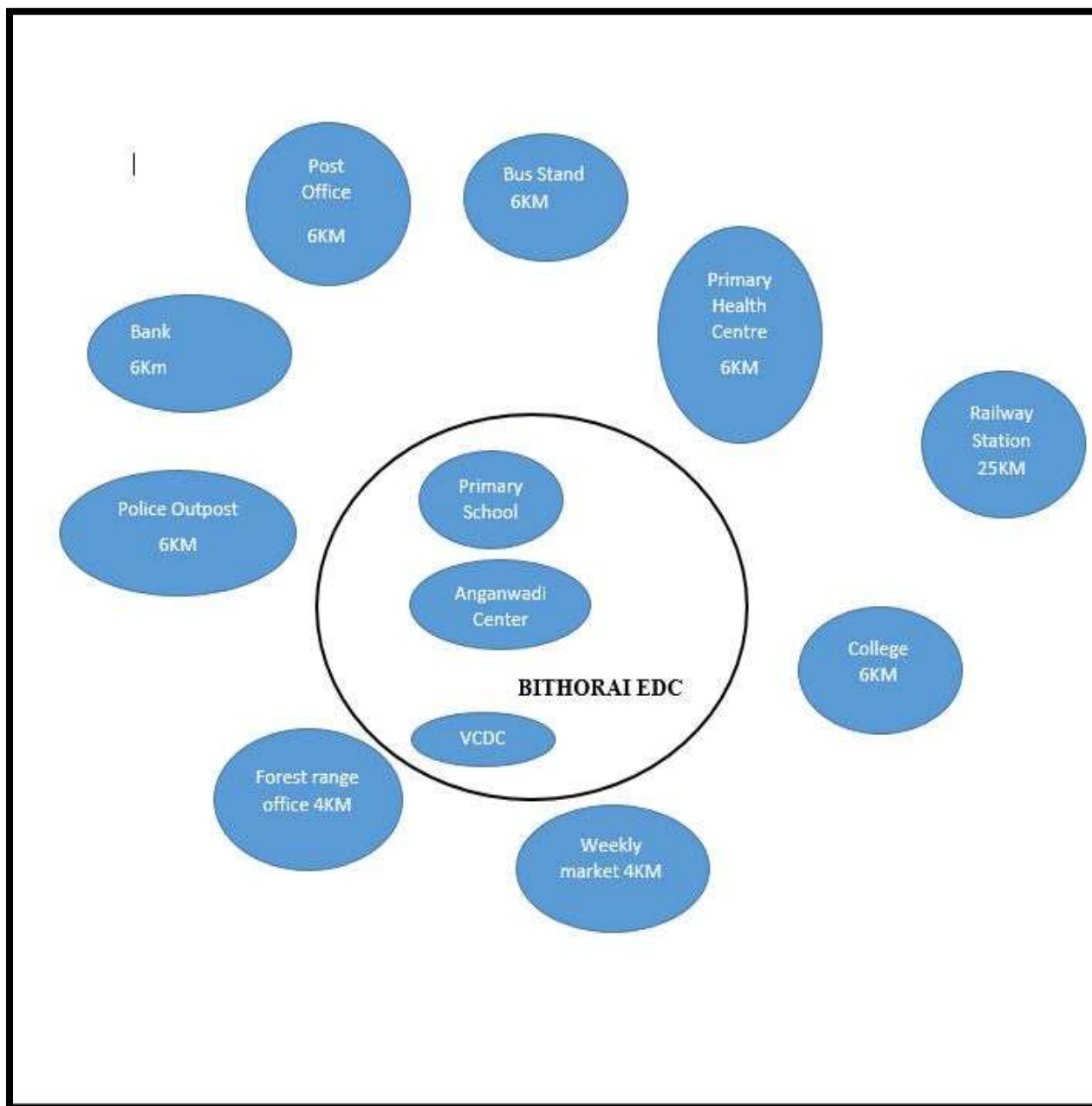


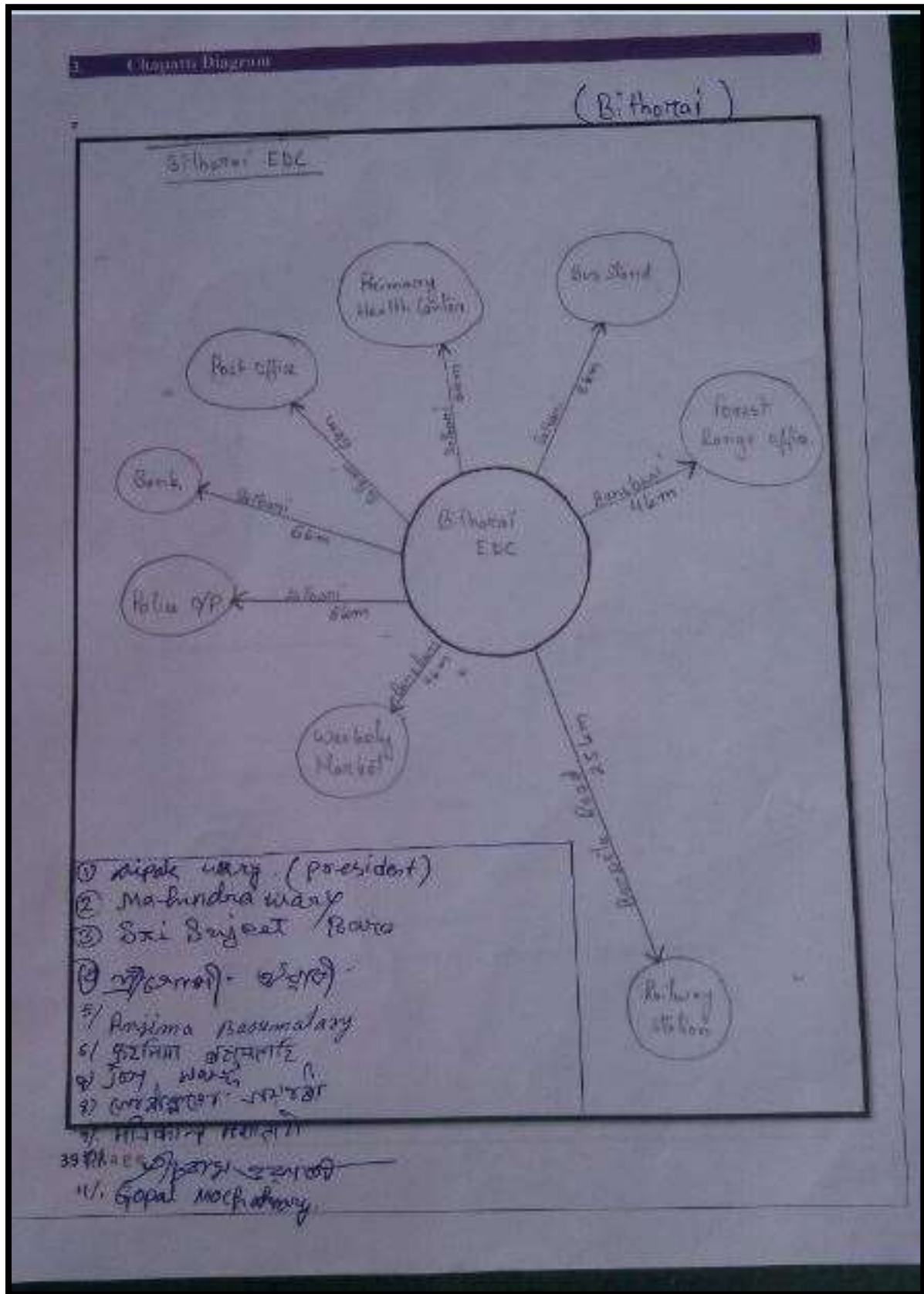
Table 3.4 Seasonal cropping pattern

Categories	Time of Activity			
		Sowing	Harvesting	Plucking
Farming	Sali	May-June	July-Aug	Oct-Nov
	Betel-Nut	May-June	Jan-Feb	July-Dec
	Mustard	Oct-Nov	Oct-Nov	Jan-Feb
	Turmeric	April-May	Oct-Dec	June-Sep
	Ginger	April-May	Oct-Dec	June-Sep
	Lemon	<i>Throughout the year</i>		
	Non-Farming	Weaving	<i>Throughout the year</i>	
Livestock Rearing				
Daily Wage Earning				
Shop-keeper				
Electrician				
Masonry				

3.5 Venn Diagram



3. Chapatti Diagram



4. Priority Ranking

(B. Thomas)

Priority Ranking: EPA and Livelihood

Livelihood Activities	Horticulture	Tailoring	Handloom	Driving	Livestock	Masonry	Carpentry	Electrician	Marks	Rank
	A	B	C	D	E	F	G	H		
Horticulture	X	X	A	A	A	A	A	A	8	1
Tailoring	B	X	X	C	D	E	B	B	4	5
Handloom	C	X	X	X	D	E	C	C	5	4
Driving	D	X	X	X	X	D	D	D	7	2
Livestock	E	X	X	X	X	E	E	E	6	3
Masonry	F	X	X	X	X	X	G	H	1	8
Carpentry	G	X	X	X	X	X	X	G	1	6
Electrician	H	X	X	X	X	X	X	X	2	7

EPA activity:

Entry Point Activities	Community Health Centre	Community Hall	Fabry	Electricity	Upper Primary	Drinking Water	JMC Office	Market Shed	Marks	Rank
	A	B	C	D	E	F	G	H		
Community Health Centre	A	X	A	A	A	A	A	A	8	1
Community Hall	B	X	X	C	D	E	B	B	4	5
Fabry	C	X	X	X	D	E	C	C	5	4
Electricity	D	X	X	X	X	D	D	D	7	2
Upper Primary	E	X	X	X	X	E	E	E	6	3
Drinking Water	F	X	X	X	X	X	G	H	1	8
JMC Office	G	X	X	X	X	X	X	G	1	6
Market Shed	H	X	X	X	X	X	X	X	2	7

- 1) Dipak wary (President)
- 2) Mahindra wary
- 3) Sai Sujat / Baxo
- 4) Sumanthi wary
- 5) Anjana Pasumathy
- 6) Sumanthi wary
- 7) Jay wary
- 8) Sumanthi wary
- 9) Sumanthi wary

- 10) Sumanthi wary
- 11) Gopal Mochary

Annexure 4

PHOTOGRAPHS



A church in the village




Timeline and Interaction with among the villagers



Annexure 5

List of EDC Executive Members



Executive Body of Bitorai Eco Development Committee

Village Covered: Kashibari
P.O. Salbari
Pin No. 781318
Dist. Baksa (BTAD), Assam

Sl. No.	Name	Address	Designation	Phone No.	Signature
1	Dipak Wary	Kahibari, Baksa (BTAD), Assam-781318	President	9613839677	<i>Dipak Wary</i>
2	Bolen Basumatary	Kahibari, Baksa (BTAD), Assam-781318	Vice President		<i>Bolen Basumatary</i>
3	Biren Rasbongshi	Vill & PO: Choudhurykhat, P.S. Chhaygaon, Dist. Kamrup Rural, Assam	Secretary	9854788566	<i>Biren Rasbongshi</i>
4	Darench Dharen Goyary	Kahibari, Baksa (BTAD), Assam-781318	Assistant Secretary		<i>Dharen Goyary</i>
5	Laxmi K. Boro	Kahibari, Baksa (BTAD), Assam-781318	Treasurer		<i>Laxmi K. Boro</i>
6	Mahindra Boro <i>Wary</i>	Kahibari, Baksa (BTAD), Assam-781318	Member	943573 463 945573663	<i>M. Wary</i>
7	Sujit Boro	Kahibari, Baksa (BTAD), Assam-781318	Member		<i>Sujit Boro</i>
8	Tireswar Boro	Kahibari, Baksa (BTAD), Assam-781318	Member		<i>Tireswar Boro</i>
9	Smt. Anjima Wary	Kahibari, Baksa (BTAD), Assam-781318	Member		<i>Anjima Wary</i>
10	Smt. Champa Goyary	Kahibari, Baksa (BTAD), Assam-781318	Member		<i>Champa Goyary</i>
11	Smt. Gaitry Basumatary	Kahibari, Baksa (BTAD), Assam-781318	Member		<i>Gaitry Basumatary</i>

12	Smt. Purnima Basumatary	Kahibari, Baksa (BTAD), Assam-781318	Member		গিৰিগোবিন্দ গগৈ, শিৱসিঙী
13	Madan Goyary	Kahibari, Baksa (BTAD), Assam-781318	Member	9859637588	Madan Goyary
14	Lokan Muchahary	Kahibari, Baksa (BTAD), Assam-781318	Member		Lokan Muchahary

Dipak Das,
 President/Secretary
 Bihari Eco Dev Committee
 Date _____

GOVT. OF ASSAM



BODOLAND TERRITORIAL COUNCIL
OFFICE OF THE FIELD DIRECTOR, MANAS TIGER PROJECT
Barpeta Road- 781315, Assam.

Registration No. MTP/EDC/04, dated 10th April' 2016

This is to certify that "BITORAI ECO-DEVELOPMENT COMMITTEE" under Bansbari Range of Manas Tiger Project, Barpeta Road which was Registered with the Office of the Field Director, Manas Tiger Project, Barpeta Road, Assam on 10th April' 2016 has been renewed upto 10th April 2017.

Signed under my hand & seal.



(H.K. Sharma, IFS)
Field Director, Manas Tiger Project
Barpeta Road, Assam.

Place: Barpeta Road.

Date: 10/04/2016.

Annexure 6 (Record I)

Table 1: Basic Data of the Village:

Table 1: Basic data of the EDC

Sl no	Name of the EDC	Date of establishment	No. of members in executive	Name of the president	Name of the secretary	Name of Treasurer	Contribution per family /per person	Social fencing used Yes / No	Remarks on special attainment	Grading %of success by RFO
1	Bitorai EDC	2015	14	Mr. Dipok Wary	Mr. Biren Rajbongshi	Laxmi Kt. Boro		No		

Table 2: Village wise population data:

Table -2: Demographic status of the project villages

Sl. No.	Name of village	Households (No.)	ST			OBC		Sex ratio (per 1000 male)	Avg. HH size
			Total	Male	Female	Male	Female		
1	Bitorai	105	635	300	280	30	25	924	5
	Total	105	635	300	280	30	25	924	5

Source: - Field survey report.

Table 3: Village wise farmer category on the basis of landholding:

Table 3: Village wise farmer category on the basis of land holding

Sl no	Name of the village	Type of famer according to land holding				
		Large farmer >10 ha.	Small farmer 2-10 ha.	Marginal farmer (household) <2ha.	Land less (household)	Total
1	Bitorai	-	12	93	-	105
	Total	-	12	93	-	105

Table 4: Cattle Population:*Table 4: Cattle Population of the EDC*

Sl no	Name of the village	village wise no of cattle's or type of animal							
		cows	buffaloes	goat	Sheep	bulls	camels	pig	Total
1	Bithorai	282	-	140	-	-	-	80	502
	Total	282	-	140	-	-	-	80	502

Table 5: Village wise Infrastructure:*Table 5: showing village wise infrastructure*

Sl no	Infrastructure	Location	Distance from village
1	Bus Stand	Salbari	6km
2	Primary Health Center	Salbari	6km
3	Primary School	Bithorai	0km
4	Middle School	Kahibari	.5km
5	Post office	Salbari	6km
6	High school	Salbari	6km
7	Bank	Salbari	6km
8	Anganabadi centre	Bithorai	0km
9	Police Outpost	Salbari	6km
10	Forest Range Office	Bansbari	4km
11	Railway Station	Barpeta Road	25km
12	College	Salbari	6km
13	Railway Station	Barpeta Road	25km
14	Weekly Market	Bansbari	4km
15	VCDC	Bithorai	0km

Table 6: Agricultural crops

	Rain Fed		Irrigation	
	Name of the crop	Area (in ha.)	Name of the crop	Area (in hac)
Kharif	Sali rice	40	NA	
Rabi	Mustard	4	NA	
Others	Vegetable, Fruits	9.3	NA	

Table 7: Crop production profile of BITHORAI EDC:*Table 7: Crop production profile of BITHORAI EDC*

Type of crop	Total Production (approx.) in quintals	No of household growing	Average production (quintal/ hac) approx	Area under crop (hac) approx
Paddy	625	75	18	52.50
Oil seeds	6	16	1.5	4
Vegetable	6.7	46	1	6.7
Fruits	2.6	46	1	2.6

Table 8: Fodder Availability (Animal)*Table 8: Fodder availability of the EDC*

types	1-3 month	3-6 month	>6 month
Crop residue			
Trees fodder	Not Applicable		
Grasses	Not Applicable		
Green Fodder	Not Applicable		
Grazing in Forest	Not Applicable		

Table 9: Location of market from the village*Table 9: Location of market from the village*

For Purchase	Location	Distance from village if in other village (in km)
Grocery shop	Bithorai	0km
Weekly Market	Bansbari	4km
Major Market	Bansbari	4 km
Forest Corporation Sale Depot.	NA	-
Tendu Patta PHAD	NA	-
Fish Market	Bansbari	4km
Medicinal Plant collection Centre	NA	-
Forest Corporation Medicinal plant Collection Centre	NA	-

Table 10: Water Resources Facility:*Table 10: showing the water resource facility available in the village*

Water source	number	Availability of water	Uses
Stream	1	Seasonal	Irrigation, livestock rearing
Tube well	12	Perennial	Domestic use
River	1	Seasonal	All type of use
Community ring well	-	-	-

Table 11: Energy consumption:*Table11: showing the Energy Consumption of the EDC*

Type of Fuel	Number of household depending	Number of months dependent	Sources (local, village, forest, other sources)	Major/ Secondary
Fuel wood	78	12	Outside protected area	Major
Kerosene stove		12	Market	Secondary
Gobar/Bio gas	NA	-	-	-
LPG	27	-	-	-
Electric Heater	NA	-	-	-

RECORD: II

LIVELIHOOD OPPORTUNITY ANALYSIS

Table 12: Agriculture and Horticulture:

Table 12: showing the agricultural and horticultural status

Constraints	Reason	Opportunities	Programme
Low Production	<ul style="list-style-type: none"> • Lack of fencing which is mostly important. • Only one crop undertaken annually (Sali) • Very negligible use of fertilizers and pesticides, insecticides. • Lack of irrigation facilities. • Lack of agricultural infrastructure, modern tools and equipment's viz, power tillers, tractors etc. • Non usages of high yielding seeds. 	<ul style="list-style-type: none"> • Introduction of Bio-Fencing process. • Introduction of new and advance technology. • 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. 	<ul style="list-style-type: none"> • Tractor operation training • Agri-skill development programme. • Training on insecticides, pesticides, hybrid cultivation
Storage and Production	<ul style="list-style-type: none"> • Lack of common storing place • Lack of cold storage facility due to non-availability of electricity 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Packaging • 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. 	<ul style="list-style-type: none"> • Buyers sellers meet

Table 13: Livestock

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. 	
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. • Availability of supplements like cattle “Milk Booster, Milk Plus” etc. can increase the production of milk in the area. 	
Milk market	<ul style="list-style-type: none"> • Less contact with the direct market for milk • Unaware of the market demand of different milk made products. 	<ul style="list-style-type: none"> • A huge demanded market for milk is available. 	

Table 14: NWFP

Table 14: NWFP

Constraints	Reasons	Opportunities	Programme
Less collection	<ul style="list-style-type: none"> • Not Applicable 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
Unsustainable extraction	<ul style="list-style-type: none"> • Not Applicable 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
Low rates	<ul style="list-style-type: none"> • Not Applicable 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
Value addition	<ul style="list-style-type: none"> • Not Applicable 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Table 15: Specialised Skill*Table 15: Specialised skills: Handloom*

Constraints	Reasons	Opportunities	Programme
Raw material availability	<ul style="list-style-type: none"> • Non-Availability of Raw Materials within reachable location (market 7km away) • No Storage 	<ul style="list-style-type: none"> • Common place for setting a raw material storage 	<ul style="list-style-type: none"> • Setting up a raw material bank
Product quality	<ul style="list-style-type: none"> • Shortage of High Quality Materials • Use of Traditional machineries 	<ul style="list-style-type: none"> • Developing Quality Products for new market exploration. 	<ul style="list-style-type: none"> • Training on Modern Tools and Equipment. • Providing modern technology to the villagers
Marketing potential	<ul style="list-style-type: none"> • No standardised market • No pricing policy • No linkage with the institutional buyers • No Product Diversification or New Product Development. 	<ul style="list-style-type: none"> • Exploring new markets with diversified products 	<ul style="list-style-type: none"> • Providing a bulk buy arrangement of the finished product with institutional buyers.
Credit facilities	<ul style="list-style-type: none"> • No linkage with the banks or post office saving banks. • Unaware of the development schemes of banks and government 	<ul style="list-style-type: none"> • Financial assistance by the Govt. • Providing easy access to credit. 	<ul style="list-style-type: none"> • Microfinance, Term Loans, Working Capital Arrangement
Product Diversification	<ul style="list-style-type: none"> • No Product Diversification or New Product Development. • Lack of concept for product diversification. 	<ul style="list-style-type: none"> • Developing Demand Based Products, as per the needs of the modern day market. 	<ul style="list-style-type: none"> • Skill Upgradation & Training on New Product Development and Product Diversification

Table 16: Credit facility*Table 16: Credit facility*

Constraints	Reason	Opportunities
Indebtness	Nil	<ul style="list-style-type: none"> • Setting up modern financial institution in the nearby areas.
Rate of interest	<ul style="list-style-type: none"> • Higher lending rates charged by the private money lender 	<ul style="list-style-type: none"> • Subsidised credit arrangement
Availability of loan	<ul style="list-style-type: none"> • Fear of risk taking • No knowledge of documentation 	<ul style="list-style-type: none"> • Start-ups entrepreneurial venture
Mortgage difficulty	<ul style="list-style-type: none"> • Unavailability of proper documentation of mortgaged property. 	<ul style="list-style-type: none"> • Proper awareness about documentation in the area