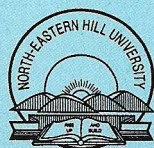


# SMALL AND MEDIUM FOREST BASED ENTERPRISES IN RI BHOI DISTRICT OF MEGHALAYA



Regional Centre  
National Afforestation & Eco-Development Board  
North-Eastern Hill University, Shillong

2010

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National Afforestation and Eco-Development Board  
North-Eastern Hill University  
Shillong-793022**

**2010**

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## PREFACE

Recent researches and estimates have revealed that hundreds of millions of people depend on forests for subsistence production and environmental services and forests play a significant role in poverty alleviation and livelihood enhancement (TEEB, 2008). Trade in forest products and services are vital for economic growth as well as for safeguarding sustainable livelihood in rural areas. Therefore, micro enterprise development using forest produce as raw materials in the forest fringe villages seems to be the most suitable option for enhancement of livelihood of the forest dwelling tribals and other communities. Keeping this in view, the Ministry of Environment and Forest, Government of India is operating National Afforestation Programme (NAP) utilizing the delivery Mechanism of Forest Development Agency (FDA) and Joint Forest Management Committee (JFMC). The overall objective of the programme is to develop the forest resources with people's participation with focus on improvement in livelihoods of the forest fringe communities, especially the poor.

In order to provide research input from field based research, the Regional Centre, National Afforestation and Eco-Development Board (NAEB), North-Eastern Hill University, Shillong in collaboration with Social Forestry wing of State Forest Department and Forest Development Agency (FDA), Ri Bhoi, undertook Small and Medium Forest based Enterprises (SMFE) development activities in the two clusters of villages in Ri-Bhoi district of Meghalaya on a pilot scale. This is one of the seven initiatives taken up throughout the country. It is envisaged that based on the successful piloting, the initiative will be made an integral part of the National Afforestation Programme (NAP).

The report is based on research conducted during 2007-2009 in two clusters of villages in Ri Bhoi district of Meghalaya, India inhabited by the Khasi and Karbi tribes. The two clusters are located in Umling and Umsning Community Development blocks with Umden Khasi, Khulia, Diwon, Umshit and Umkon forming the first cluster and Mawtneng, Mawbri, Umket, Umpowin Pdeng and Umtngam forming the second cluster. The socio-economic profiles of both the clusters were analyzed at the beginning of the research study and subsequently, the possibility of different livelihood options and potential resources for Small and Medium Forest Enterprises were identified. The Business Development Strategies for selected clusters on their preferred SMFE models were also discussed with the communities before finalizing them: The present endeavour is a modest effort to develop a Small and Medium Forest Enterprises model in this area.

This report embodies data and information on people and forests of the study area, describes the process followed in development of SMFE and finally, it provides a glimpse of the functioning of the enterprises evolved through this effort.

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Professor B. K. Tiwari  
Coordinator

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## 1. INTRODUCTION

In North-Eastern India, forests play an important role in the livelihoods of rural people even though agriculture is the predominant occupation and about 80% of the people are farmers (CUTS, 2002). Forests provide a wide variety of additional products for generation of cash income as well as for subsistence use (Tiwari *et al*, 2009). Timber and some Non-Timber Forest Products (NTFPs) like broom grass, bay leaf, cane, rattan, wild pepper etc., are sold for cash income, while firewood, wild edibles and medicinal plants are mostly used in the household. Estimates suggest that hundreds of million of people depend on forest for subsistence production and environmental services like watersheds, soil erosion control, micro-climate, biodiversity and cultural services (FAO, 2010). Trade in forest products and services are vital for economic growth as well as for safeguarding sustainable livelihoods in rural areas. Therefore, micro enterprise development using forest produce as raw material in the forest fringe villages seems to be the most suitable option for the enhancement of livelihoods of forest dwelling poor tribal and other communities.

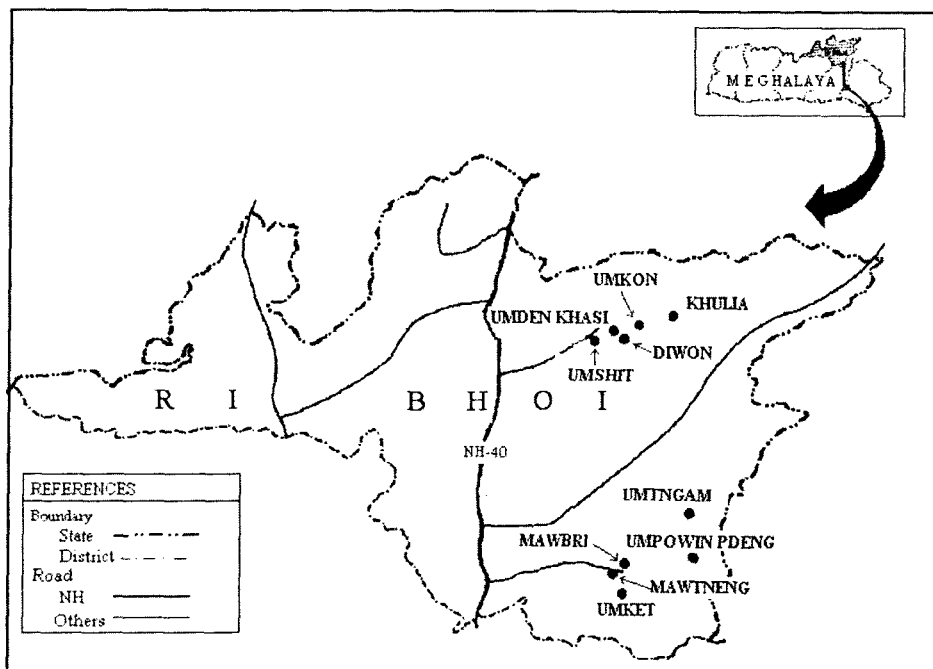
Keeping the above in view, the Regional Centre, National Afforestation and Eco-Development Board (NAEB), North-Eastern Hill University, Shillong in collaboration with Social Forestry wing of State Forest Department, Forest Development Agency (FDA), Ri Bhoi undertook Small and Medium Forest based Enterprises (SMFE) development activities in the two clusters of villages in Ri Bhoi district of Meghalaya on a pilot scale. This initiative is one of the seven such initiatives taken up throughout the country. Based on the successful piloting, the initiative is proposed to be integrated into the National Afforestation Programme (NAP) during the 11th plan period. Ten villages in the two clusters of Ri Bhoi district of Meghalaya were chosen for the study.

The objectives of the study are as follows: (i) To analyze the socio-economic condition of the villages included in the study; (ii) To assess forest resources in the study area and to identify the potential resources that could be promoted for the establishment of small and medium forest enterprises; (iii) To appraise the status of Self-Help Groups (SHGs) and their functioning in the study area and (iv) To prepare a Business Development Strategy (BDS) to ascertain viable activity and required market linkages.

## 2. STUDY AREA

The study was conducted in Ri Bhoi district of Meghalaya. Ten villages were chosen for the study (Fig.1). These villages were located in two clusters. Each cluster comprised of five Small and Medium Forest Based Enterprises villages. The two clusters are located in Umling and Umsning community development block. The villages Umden Khasi, Khulia, Diwon, Umshit and Umkon villages formed the first cluster and Mawtneng, Mawbri, Umket, Umpowin Pdeng and Umtnngam were included in the second cluster. There are few perennial rivers and streams in the studied villages. These rivers and streams are sources of water for farmers in these villages. Besides the rivers there are also natural springs and ponds in the villages. Few ponds in the villages are used for rearing of fishes.

Ri Bhoi district is bounded in the north by the Kamrup district of Assam, in east by the Karbi Anglong district of Assam, and in south by the East Khasi Hills district and in the West by the West Khasi Hills district of Meghalaya. The district lies between 91°40' 16" East longitude and 25°40" and 26°20" North latitude. The district covers an area of 2448 sq. km with a population of 2, 58,380 (2011 Census). Nongpoh is the headquarter of Ri Bhoi and is located 53 km away from the state capital, Shillong and 50 km from Guwahati (Assam). The soil type of Ri Bhoi district can be broadly divided into hill and plain soil consisting patches of red loamy and silt. The forest type in all the villages studied was mostly sub-tropical forest with few deciduous elements such as *Bombax ceiba*, *Shorea robusta*, *Ficus* sp., Nangsal, *Cedrella toona*, *Tectona grandis* etc. Besides, there is good presence of secondary forests that comprise species like *Mallotus* sp. *Bambusa* sp. and *Musa* sp., Forest covers a large part of the geographical area of Ri Bhoi district. Dense forest covers an area of 665 km<sup>2</sup> and open forest covers 1113 km<sup>2</sup> of the total forest area.



**Fig. 1 : Location map of the study area**

### 3. METHODOLOGY

Three standard questionnaires were developed on focused group discussion (FGD), household survey and assessment of SHGs and their functioning. A focused group discussion in line with PRA was conducted to assess the land use pattern, status of major resources of the village, general profile of the village, education and income generating activity of the village. The questionnaire on household survey assessed the household production and consumption patterns from different landuses, their annual income and bank linkages. The production and consumption pattern of NTFPs like bamboo, bamboo shoot, broom grass, thatch grass etc., were quantified using this questionnaire. The questionnaire on SHG assessed the past and present status of SHGs. A resource map showing various landmarks, natural resources, settlements, land use and land cover of the village was prepared with the help of the villagers which was later verified through a transect walk across the village.

### 4. DEMOGRAPHIC PROFILE

Diwon was the most populated village (1048 individuals and 200 households) followed by Umpowin Pdeng (1000). Umshit village was the smallest village with a population of 186 individuals in 26 households (Table 1). The average family size in both the clusters was 7 persons per household.

Table 1. Population, number of households and family size in the study villages			
Village	Population	Number of households	Avg. family size
<b>Cluster I</b>			
Umden Khasi	550	61	7
Khulia	300	47	6
Diwon	1048	200	5
Umshit	186	26	7
Umkon	800	110	6
<b>Cluster II</b>			
Mawtneng	848	168	7
Umket	815	145	8
Mawbri	900	110	7
Umpowin Pdeng	1000	98	7
Umtngam	506	76	7

### 5. OCCUPATIONAL STRUCTURE

Daily wage labour formed the major occupation of the people in the studied villages. In Diwon, Mawtneng and Mawbri a good number of persons are in government jobs. The other occupations in which people of the area were engaged were: private jobs, business and agriculture (Table 2).

Village	Govt. job	Private job	Daily wage labour	Business
<b>Cluster I</b>				
Diwon	60	0	50	30
Khulia	5	0	20	3
Umden Khasi	12	0	30	2
Umkon	10	0	450	10
Umshit	0	4	52	3
<b>Cluster II</b>				
Mawbri	75	0	300	15
Mawtneng	67	31	122	8
Umket	40	10	400	8
Umpowin Pdeng	6	0	400	4
Umtngam	8	13	50	6

## 6. BASIC AMENITIES

The basic amenities like schools, electricity, road connectivity, fair price shops, water supply are present in both the clusters of villages. However, amenities like veterinary facility, police station and post offices were lacking in the area (Table 3).

Village	1	2	3	4	5	6	7	8	9	10	11	12	13
Diwon	1	1	1	0	1	1	0	7	0	0	0	PHE	22
Khulia	1	1	1	0	0	1	0	2	0	0	0	PHE	37
Mawbri	1	0	0	1	1	2	0	7	0	0	0	PHE	4
Mawtneng	1	1	0	0	0	0	0	3	0	0	0	PHE	3
Umden Khasi	1	0	0	0	1	1	1	1	4	1	0	PHE	21
Umket	1	2	0	0	0	1	0	3	0	0	0	PHE	4
Umkon	1	1	0	0	0	0	0	3	0	0	0	PHE	23
Umpowin Pdeng	2	0	0	0	0	0	0	3	0	0	0	PHE	18
Umshit	1	1	0	0	0	0	0	2	0	0	0	PHE	21
Umtngam	1	1	0	0	0	1	0	2	0	0	0	PHE	30

1. Lower Primary; 2. Middle School; 3. High School; 4. Higher Secondary School; 5. Health facility; 6. Fair price shop; 7. Pharmacy; 8. Grocery; 9. Vegetable shop; 10. Post office; 11. Police station; 12. Water supply; 13. Distance from bank (km)

## 7. LAND OWNERSHIP

The major land holdings found in the study area are community lands, private lands and Joint Forest Management Committee (JFMC) lands (Table 4). Private land ownership is also common in this area. Khulia has the largest area under private ownership followed by Diwon, while Umshit had the lowest area under private ownership among the studied villages. Umtngam has the largest area (1000 ha) under community ownership.

Categories					
Cluster I	Umden Khasi	Khulia	Diwon	Umshit	Umkon
Private	400	3600	2200	62	150
Community	15	35	600	60	5
JFMC	10	10	45	7	10
Cluster-II	Mawtneng	Umket	Mawbri	Umpowin Pdeng	Umtngam
Private	162	800	300	600	-
Community	5	5	7	200	1000
JFMC	10	20	102	50	181

## 8. LAND USE

Four types of land use viz. settled agriculture; shifting cultivation, homestead and pond (fishery) were recorded in the study villages (Table 5). Umtngam has the highest area under settled agriculture, Diwon has the largest area under shifting cultivation and Khulia has maximum area under ponds among the studied villages.

Village	Settled Agriculture	Shifting cultivation	Homestead	Pond
<b>Cluster-I</b>				
Umden Khasi	500	500	24	0.4
Khulia	50	320	8	20
Diwon	200	600	100	0
Umshit	40	140	8	0.3
Umkon	500	80	22	0.4
<b>Cluster-II</b>				
Mawtneng	150	80	48	3
Umket	70	100	180	0.16
Mawbri	150	200	20	0
Umpowin pdeng	300	40	250	10
Umtngam	1000	100	35	0

## 9. AGRICULTURAL PATTERN

People in this area practice mainly two types of agriculture viz., settled agriculture and shifting cultivation (Table 6). Shifting cultivation is usually practised in the upland while most settled agriculture is in the plains. The shifting cultivation lands are generally owned by the private individuals except for Umtingam in the second cluster which is owned by the community (Village Dorbar) which allots the land for jhum cultivation to the village residents. Settled agriculture is mainly in the form of wet paddy cultivation which is usually done during the rainy season (June to July). Private ownership of the land under wet paddy cultivation is the norm in both the clusters.

**Table 6. Important features of agriculture in the two clusters of villages**

	Season of Cultivation (Month)	Ownership	Fallow Period (Year)	Crops grown
<b>Cluster-I</b>				
Shifting Cultivation	March-April	Private	3-4	Broom grass, ginger, paddy, maize, bamboo, colocasia, banana, pumpkin, turmeric, maize, chili, sesame and tapioca
Wet paddy cultivation	June-July	Private	-	Paddy, tomato and capsicum
<b>Cluster-II</b>				
Shifting Cultivation	March-April	Private and community (Umtingam)	3-4	Broom grass, ginger, paddy, maize, bamboo, colocasia, banana, pumpkin, turmeric, maize, chili, sesame, tapioca, sweet potato, cucumber, brinjal and soyabean.
Wet paddy cultivation	June-July	Private	-	Paddy, tomato, capsicum, beans, chili, potato and radish.

'-' indicates absence

## 10. LIVESTOCK

The livestock found in the studied villages include: cow, buffalo, pig, goat and poultry (Table 7). Fishery is also practiced in few villages. The first cluster has livestock population of 4667 while the second cluster had 7180 livestock.

Table 7. Livestock population (Numbers) recorded in the two clusters of villages						
Cluster I	Umden Khasi	Khulia	Diwon	Umshit	Umkon	Total
Cow	240	200	20	18	50	528
Buffalo	4	0	0	0	10	14
Pig	60	30	100	20	50	260
Poultry	350	900	1000	1000	545	3795
Goat	0	50	0	0	20	70
<b>Total</b>						<b>4667</b>
Cluster II	Mawtneng	Umket	Mawbri	Umpowin Pdeng	Umtngam	
Cow	70	80	50	200	50	450
Buffalo	8	2	0	20	0	30
Pig	100	50	100	200	80	530
Poultry	300	1000	1000	1000	2000	5300
Goat	10	0	0	10	0	20
Fish (kg)	850	0	0	0	0	850
<b>Total</b>						<b>7180</b>

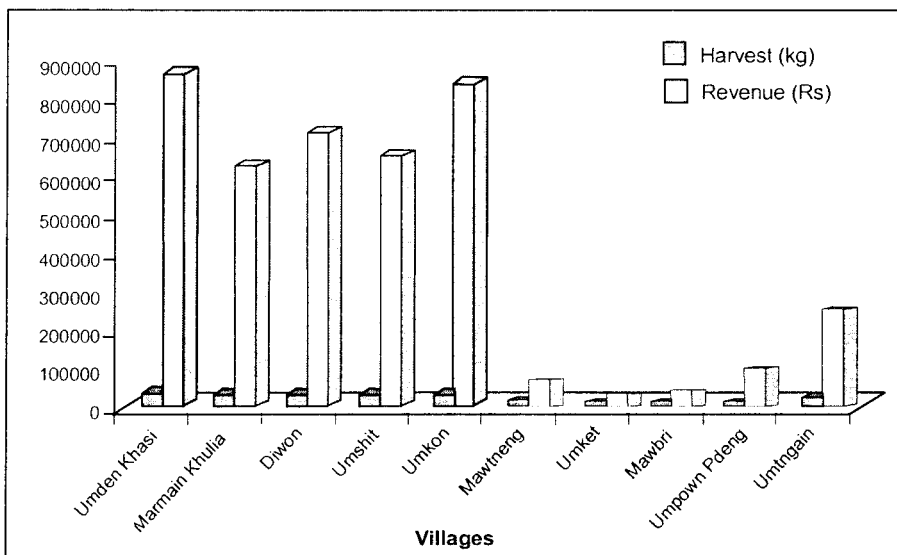
## 11. LIVELIHOOD OPTIONS

### 11.1.FOREST RESOURCES

Ri Bhoi district is blessed with a large number of economically important plant species that are used for various purposes by the local people. The forest resources available in the studied villages include broom grass, bamboo, bamboo shoot, bayleaf, medicinal plants, honey and wild edibles. The agricultural produce such as turmeric and ginger also play an important role in the livelihood of the people of this area.

#### 11.1.1. BROOM GRASS (*THYSANOLAENA MAXIMA*)

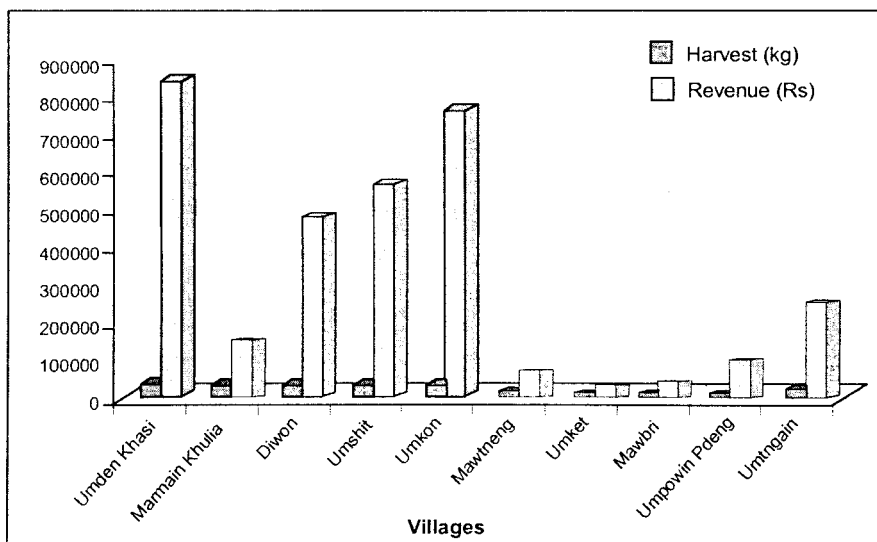
Broom grass bears long inflorescence which is used in making brooms. Total production of broom grass was estimated during the year 2007-2008. In the studied villages, Umden Khasi and Umkon produce large quantity of broom grass (approx. 35000 kg/annum). Umden Khasi generates the highest revenue (Rs.8, 59,750 per annum) from broom (Fig.2). Cluster-I produces more broom grass than the cluster II. The low production of broom grass in cluster 2 might be due to the farmers' interest towards agricultural production in this cluster.



**Fig. 2. Production and revenue earned per year from broom grass in the study villages**

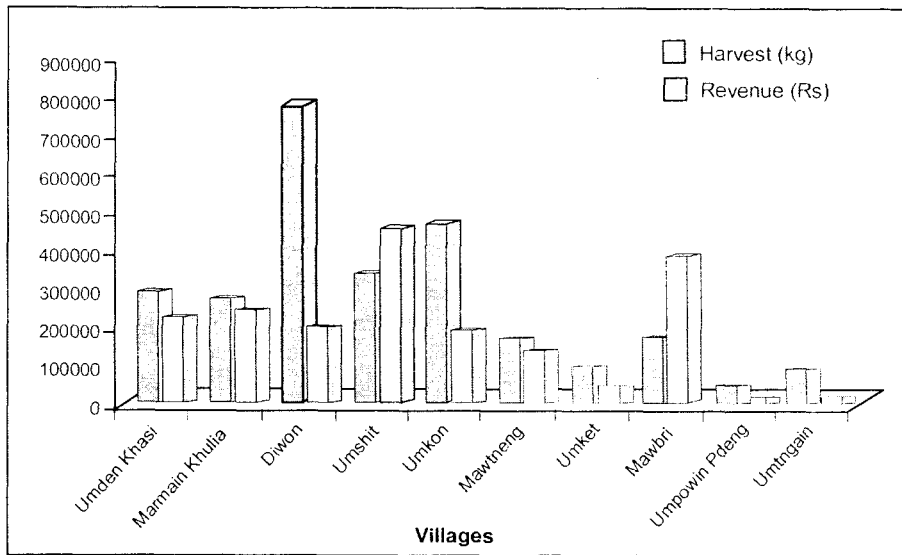
### 11.1.2. BAMBOO AND BAMBOO PRODUCTS

Bamboo is another important bioresource available in the study area. The production of bamboo during the years 2007-2009 in the cluster-I was 60240 kg per year. Umkon produces the highest quantity of bamboo (80000 culms), but Umden Khasi earns the maximum income from selling of bamboo (Fig. 3) because local household utilization of bamboo and bamboo products in Umkon village is higher than Umden Khasi village.



**Fig. 3. Production and revenue earned per year from bamboo in the study villages**

In the study area, bamboo shoots are also marketed in good quantity. The village Diwon harvests the highest amount of bamboo shoots per year (90500 kg/year), while Umshit earns the highest revenue (Rs. 22,000 per annum) out of bamboo shoots (Fig. 4). This is due to high consumption by the villagers themselves as Diwon village has much higher population than the other villages (Table 1). It is worthwhile to mention here that the bamboo shoot is having very good market and tourists prefer to buy this product while going from Shillong.



**Fig. 4. Quantity harvested and revenue earned per year from bamboo shoot in the study villages**

### 11.1. 3. MEDICINAL PLANTS

The survey suggests that medicinal plants are found in abundance in the wild in both the clusters. They are generally collected in an unorganized and unscientific manner by the traditional healers of the area. The revenue earned from medicinal plants is only recorded from the villages Umkon and Umpowin Pdeng. The Umkon village earns the highest revenue amounting to Rs. 72,000. Some of the important medicinal plants found in this area include: *Cinnamomum tamala*, *Acorus calamus*, *Saraca asoca*, *Rauvolfia serpentina* and *Emblca officinalis*.

### 11.2. OTHER LIVELIHOOD OPTIONS

Beside NTFPs, some of the SHGs in this area practice sericulture and weaving as alternative source of livelihood and the families are earning good income from this small cottage based eco-friendly industry.

Cultivation of horticultural crops is another source of livelihood for the people in this region. Fruits such as papaya, jack fruit, pineapple, pamelos, pear, guava, etc. are grown by the people of this region. Vegetables such as colocasia, tapioca, sweet potato, cucumber, brinjal, etc., are commonly cultivated in both the clusters. Turmeric and ginger are also among the important cash crops grown in large areas in the study villages (Table 6).

## 12. MARKET

Shillong and Nongpoh are the main markets for the cluster I apart from the local markets. The village Khulia sells most of its products in Jagiroad and Sonapur markets of Assam. The main markets for the cluster II are Bhoiryabong and Tyro besides Shillong.

## 13. VILLAGE INCOME (PER HOUSEHOLD PER ANNUM)

The details of income generated from different sources were documented for both the clusters (Table 8). Daily wage labor and sale of forest produce contribute maximum to the income of village people in both the clusters, followed by earnings from livestock and salaries of the people engaged in government and other jobs (Table 8).

<b>Source of Income</b>	<b>Cluster I</b>					<b>Total</b>
<b>Items</b>	<b>Umden Khasi</b>	<b>Marmain Khulia</b>	<b>Diwon</b>	<b>Umshit</b>	<b>Umkon</b>	
Horticulture	559	470	1000	1780	532	<b>4341</b>
Forest produce	59515	24728	41700	50920	60145	<b>237008</b>
Agriculture	500	547	667	520	2400	<b>4634</b>
Livestock	6290	5806	2200	5800	2450	<b>22546</b>
Non-farm produce	323	581	5793	0	0	<b>6697</b>
Salary	25161	7742	144000	0	23000	<b>199903</b>
Business	1548	1742	60000	43200	20000	<b>126490</b>
Daily wage labour	20323	13548	1600	43680	260000	<b>105151</b>
<b>Total Income</b>	<b>114219</b>	<b>55164</b>	<b>256960</b>	<b>145900</b>	<b>368527</b>	<b>706770</b>
<b>Source of Income</b>	<b>Cluster II</b>					<b>Total</b>
<b>Items</b>	<b>Mawtneng</b>	<b>Umket</b>	<b>Mawbri</b>	<b>Umpowin Pdeng</b>	<b>Umtngam</b>	
Horticulture	3218	4081	3203	1828	2209	<b>14539</b>
Forest produce	6397	17116	27038	9389	18622	<b>78562</b>
Agriculture	7410	11690	61456	6890	41554	<b>129000</b>
Livestock	14573	6500	16759	28100	14000	<b>79932</b>
Non-farm produce	3600	0	267	31644	0	<b>35511</b>

Salary	268000	160000	300000	24000	32000	<b>784000</b>
Business	18400	18000	10000	40000	27000	<b>113400</b>
Daily wage labour	51240	168000	126000	168000	168000	<b>681240</b>
<b>Total Income</b>	<b>372838</b>	<b>38537</b>	<b>544723</b>	<b>309851</b>	<b>303385</b>	<b>1916184</b>

#### 14. FINANCIAL INSTITUTIONS

The banks available for the cluster I are Meghalaya Cooperative Apex Bank, Indian Bank, State Bank of India and Meghalaya Rural Bank located at Nongpoh while the villages from the cluster II bank with Meghalaya Rural Bank, Meghalaya Cooperative Apex Bank located at Bhoirybong and State Bank of India at Barapani.

#### 15. SELF HELP GROUP (SHG)

A total number of 38 SHGs were active in the study villages (Table 9). The SHGs are mostly women groups though few male SHGs are also present. There are very few mixed SHGs comprising both male and female members. The Diwon village has the maximum number of SHGs compared to other villages. The membership was usually 10 per SHG. Some SHGs were formed as early as in the year 1994, while the rest were newly constituted. The activities taken up by these SHGs are: raising plantation, investing in tea shop, handloom, fishery, weaving, sericulture, renting power tiller and vermicomposting. Raising plantation, however, was found to be more prominent activity. Based on the past performances, 20 SHGs were selected from the two clusters for the establishment of Small and Medium Forest Based Enterprises (SMFE).

**Table 9. Self Help Groups in different villages of Cluster I and II**

<b>Cluster I</b>	<b>Total No. of SHG</b>	<b>SHG Selected</b>
Umden Khasi	2	1
Marmain Khulia	5	2
Diwon	8	3
Umshit	1	1
Umkon	4	2
<b>Total</b>	<b>20</b>	<b>9</b>
<b>Cluster II</b>		
Mawtneng	3	1
Umket	2	2
Mawbri	5	2
Umpowin Pdeng	5	4
Umtngam	3	2
<b>Total</b>	<b>18</b>	<b>11</b>

## **16. POTENTIAL RESOURCES IDENTIFIED FOR SMALL AND MEDIUM FOREST ENTERPRISE**

### **16.1. BAMBOO RESOURCE**

#### **16.1. 1. BAMBOO ENTERPRISE DEVELOPMENT**

Bamboo has multiple uses. It is a renewable resource and has positive impact on environment. From the ecological point of view bamboos have the following characteristics:

- Bamboo is most suited for rehabilitation of degraded forest land and for other soil conservation purposes including control of land slides, flash floods and siltation.
- Bamboo is a good carbon sequester.
- Bamboo is known accumulator of potassium.

The most important applications of bamboo in our daily life are as follows:

- (a) Bamboo is used as a construction material.
- (b) It provides raw material for cottage and tiny industries like agarbati sticks, chopsticks etc.
- (c) Bamboo shoots are used as vegetables and pickles.
- (d) It is used for production of handicrafts.
- (e) It is used in the manufacture of bamboo boards, furniture, activated carbon and charcoal.
- (f) It is used as raw materials for paper industries.
- (g) Bamboo is used in bamboo charcoal making.

#### **16.1. 2. BAMBOO UTILIZATION IN THE PRESENT SCENARIO**

At present, only a small percentage of bamboo resource of Meghalaya (28,315 MT/ annum) is harvested mostly for local construction, paper mills and tiny handloom and handicrafts manufacturing units. Estimates suggest that annual market opportunity in India for value-added bamboo products is Rs 4,463 crores, whereas the current market size is Rs. 2,043 crores. The world market is projected to grow at the rate of 15-20 per cent and will reach Rs. 26,000 crores by 2015 (Sampemane, 2005). More than half of the world's production of bamboo is in China. China's export of bamboo products is about 10,000 crores. There is huge potential for enhancing production of bamboo in the northeastern region of India.

### 16.1. 3. DETAILS OF BAMBOO PROCESSING MACHINERY

The types and tentative costs of machines required in bamboo works are listed in Table 10. Some of the related national and international agencies manufacturing bamboo processing machinery in India are as follows:

- i. Technology Information Forecasting and Assessment Council (TIFAC), New Delhi
- ii. International Network for Bamboo and Rattan (INBAR), New Delhi
- iii. Building Materials Technology Promotion Council (BMTPC), New Delhi
- iv. Indian Plywood Industries Research and Training Institute (IPIRT), Bangalore
- v. Engineering Resource Group (ERG), Bangalore and
- vi. National Institute of Design (NID), Ahmedabad.

<b>Machine</b>	<b>Costs</b>	<b>Man power required</b>	<b>Power required</b>
Bamboo cross cutting	0.40	2	2 HP
Bamboo splitting	2.80	1	5 HP
Knot removing	1.40	1	2 HP
Bamboo slicing	0.65	1	2 HP
Bamboo stick making	3.85	1	2 HP
Bamboo stick sizing	0.47	1	1 HP
Bamboo stick polishing	0.60	1	1 HP
Grinder	0.30	1	1 HP

### 16.1. 4. BAMBOO CHARCOAL MAKING

Charcoal made from bamboo has good properties, similar to wood and other lingo-cellulosic biomass in terms of carbon content and calorific value. Charcoal is produced by heating biomass in a controlled supply of air. This can be done by the conventional pit method, in brick or metal kilns or in drums. Heating can be direct by igniting the biomass or it can be indirect. Carbonization in a brick kiln produces uniform quality with low investment.

Bamboo charcoal has excellent potential to meet rural energy needs for heating and cooking, as industrial fuels and to make products such as activated carbon. Any species of bamboo can be used in making charcoal. Four to five years old bamboo makes the best charcoal when it attains maximum biomass and their moisture and starch content is lowered.

The investment costs as well as the operational costs required in charcoal making from bamboo species are summarized in Table 11.

<b>Table 11. Economics of charcoal making from bamboo (in Rs)</b>	
<b>I. Investment cost</b>	<b>Cost</b>
Construction cost of 5 kilns (including cost of material and installation)	75,000
<b>II. Operational costs</b>	<b>Cost</b>
Monthly raw material requirement (approx.90 tons)	90,000
Monthly labour charges	4,500
Minor maintenance and miscellaneous expenses	2,500
Total monthly expenditure	97,000
Monthly production of charcoal (approx.22 tons)	1,32,000
Annual net revenue with an operation of 8 months per year	2,80,000

#### **16.1. 5. BAMBOO INCENSE STICK MAKING**

The most important bamboo based cottage industry is making of 'bamboo sticks' which is used in manufacturing incense stick. Bamboo sticks are exported to South India to be used in making incense sticks. Machine-made bamboo sticks have huge potential. There are 400 traders in India who are involved in marketing of incense sticks. It is estimated that in India the present requirement of round bamboo sticks is around 2000 tones per month.

#### **16.1. 6. BAMBOO HANDICRAFT**

Bamboo craft occupies important place in the economy of the region. The products of bamboo and cane are mostly of two types viz., (i) articles required for day to day use and of medium quality more suited to local requirement and (ii) articles of finer quality, both decorative and functional to meet the requirement of more sophisticated markets. Bamboo craft items include: baskets, open weaving carrying basket, closed weaving carrying basket, small storage baskets, coiled cane containers, large storage baskets, rain shield and headgears, winnowing trays and fans, mud shovel etc.

#### **16.1. 7. BAMBOO SHOOT**

In this region, pickles made of bamboo shoot are commonly used in every household and extensively used as a main ingredient in different fish preparations (curry, dry fish etc.). They are also used in some dishes made of meat. The bamboo shoots are ground and fried before using them in certain 'Daal' preparations.

Processed bamboo shoots have high market demand within the state and the region as well as abroad. Kolkata is a major centre in India for consumption of bamboo shoots.

The bamboo shoots are supplied mainly from north-east to different hotels and restaurants in India. Large quantity is also exported to Taiwan, China and Thailand from where they are reexported to other parts of the world.

## **16.2. BROOM GRASS**

Broom grass (*Thysanolaena maxima*) is an important minor forest produce found in hilly regions of northeast India. Broom grass is cultivated mainly for making broom for cleaning and sweeping, using the inflorescence of the plant. Besides, the leaves of the plant are used as fodder, stem as raw material in paper industries and small scale cottage industry for making of mats (Tiwari, 2001). However, full utility potential of the broom stem in industries is yet to be explored. In addition to this, the broom grass having fibrous root can bind the soil particles and prevent soil erosion. Broom grass grows on a wide range of soil types ranging from sandy to sandy loam. It can even grow in crevices of broken rocks having very little soil. Broom grass grows in tussocks. On an average 4-5 tussocks may be found in 10 m x 10 m area (Barik *et al.*, 1996). The culms arise centrifugally during the peak growing season (June-July) and bear inflorescence at the end of vegetative growth (October). The appearance and growth of culms in a tussock depict a characteristic order which probably controls the position and extent of growth of culms, size, number and also length of leaves and the overall shape of the crown. The maximum height of tussock is attained in 3 years while basal girth continues to increase even after that and at a considerably faster rate. The number of culms constituting a tussock increases at a fast rate. The basal area of individual culms ranges from 1.3 to 3.5 cm<sup>2</sup>.

### **16.2. 1. ECONOMICS OF *THYSANOLAENA MAXIMA* CULTIVATION**

The yield of brooms mainly depends upon the quality of soil (fertility), management and plant material. If the soil has low water holding capacity and rocky, the peduncle of the inflorescence becomes thin which is not suitable for broom. Broom grass plantations need proper management for healthy growth of the plant. Weeding is required at least two times in a year. The quality of broom also depends upon the time of harvesting of the inflorescence. Shorter inflorescence is considered as best quality which is collected in a very early stage of inflorescence formation. Broom grass can be classified under three categories:

- (a) The Class-(I) or the best quality are those which have not yet flowered and are collected in the month of January-February,
- (b) The Class-(II) or the medium quality are those which are cut immediately after flowering. This type is collected in the month of late February-March and
- (c) The Class-(III) or the inferior quality are those which remain in the culms for longer period and which are collected in the month of April-May.

The maximum quantity of produce comes from three to four year old plants (Table 12). The price of broomstick depends on the quality of the product. It is also subjected to change as per the demand and supply in the market. In the year 2004 the price ranged from Rs. 5-10/kg. during 2010 the price has ranged from Rs. 40-50/kg. The cost and return analysis of broom grass cultivation has revealed that on a production cost of Rs. 9,450 the farmers earn an income of Rs. 35,520 from one hectare land in one year. Since most of the cost is in the form of labour which comes from the family the income is reasonably good and farmers find broom grass cultivation quite remunerative. In fact it is observed that within twenty years this forest species has transformed the economy of rural Meghalaya particularly in south Ri Bhoi and War areas of the state.

Particulars	Year						
	1st	2nd	3rd	4th	5th	6th	Total
Revenue	3,000	5,200	95,70	12,350	4,500	900	35,520
Production cost	3,700	1,400	1,550	1,550	850	400	9,450
<b>Labour</b>							
Site Clearance	1,000						1,000
Weeding (2 per year)	1,200	1,200	1,200	1200	650	250	5,700
<b>Harvesting (once/year)</b>							
Pit digging and rhizome planting	800						800
Transportation to godown	200	200	350	350	200	150	1,450
<b>Material</b>							
Small tools and implements	500						500
Net Income	-700	3,800	80,20	10,800	3,650	500	26,070

Benefit Cost Ratio at 10% Annual Interest Rate (AIR) = 3.46, Benefit Cost Ratio at 15% AIR = 3.32, Benefit Cost Ratio at 20% AIR = 3.19 (Source: Tiwari, 2001)

## 16.2. 2. EXPORT OF BROOM GRASS

Huge amount of broom grass is transported from Meghalaya to other parts of the country via Guwahati through road and rail. The brooms are exported in raw and unprocessed form to various parts of India such as Delhi, Uttar Pradesh, Andhra Pradesh, Bihar, West Bengal, Orissa, Karnataka, Tamil Nadu, Kerela, Goa, Madhya Pradesh, Maharashtra, Gujarat, Rajasthan, Haryana, Punjab, Himachal Pradesh and Jammu & Kashmir. It is also exported to other countries like Pakistan, Middle East, France, Italy and Germany. In the year 2001, 5 trucks of broom grass (450 tonnes) was exported to Pakistan from Guwahati. On an average about 500 tonnes is exported yearly to the Gulf countries and about 3512.31 tonnes of broom is exported annually to these countries. However, it is

understood that huge amounts of brooms exported from the state have no record. The quantity of brooms exported via Guwahati during year 1997-2000 is given in Table 13. The quantity of broom exported in the year 2001 to other part of the country is given in Table 14.

Sl. No.	Year	Quantity (Metric Tons)
1.	1997	10800
2.	1999	13338
3.	2000	43200

Sources: Agradoot Transport Agency, Lalmati, Beltola, Guwahati and Outward booking counter B.G. Terminus, New Guwahati.

Sl. No.	State	Cities/Towns	Quantity (Metric Tons)
1.	Andhra Pradesh	Vijaywada, Hyderabad	90
2.	Bihar	Patna	4.5
3.	Delhi	Delhi	180
4.	Goa	Panaji	4.5.
5.	Gujarat	To all districts	180
6.	Haryana	Faridabad, Ishahar, Rohtak	22.5
7.	Karnatka	Bangalore, Oogly, Cuddalore	135
8.	Kerala	Mahe	4.5.
9.	Maharashtra	Mumbai, Nasik, Nagpur, Pune, Aurangabad, Solapur	225
10.	Madhya Pradesh	Bhopal, Jabalpur, Indore	270
11.	Odisha	Bhubaneshwar	90
12.	Punjab	Jalandhar, Ludhiana, Chandigarh	225
13.	Rajasthan	Jaipur, Bikanur, Udaipur, Kota	720
14.	Tamil Nadu	Chennai	90
15.	Uttar Pradesh	Kanpur, Agra, Bareilly, Meerut, Saharanpur.	45
16.	West Bengal	Kolkata	9

Source: Tiwari et al. 2009.

### **16.3. BLACK PEPPER**

Black pepper is another produce which has high economic potential in this region. It is native to Malabar and is grown in the region for more than 2000 years. People pluck the unripe but fully developed berries of this plant. The harvested berries are piled up in a heap to initiate browning. Then the berries are spread on a suitable drying floor after detaching the berries from stalk by threshing. During sun drying, berries are raked to ensure uniform color and to avoid mould infection. Black pepper is commonly used as spice. Sterilized black pepper is a premium quality pepper. It is more noble and aromatic than the non-sterilized ones. Special quality black pepper is crushed and sieved into various sizes varying from 10-30 mm mesh according to the choice of the buyers and packed in double lined polybags of 25 kg each. Decorative black pepper is a form of white pepper produced by mechanical decorations of the outer skin of black pepper. This is generally done when white pepper is in short supply.

### **16.4. SERICULTURE AND WEAVING**

Sericulture and Weaving is another important potential SMF enterprise for the region, because they have the available resources needed for the purpose as well as manpower. The opportunities of Sericulture are: i) Muga and Eri silk is accepted worldwide and its awareness is on the rise; ii) Muga and Eri silk have wide product range from dressed materials to quilts to furnishings thereby scope for productive diversification; iii) production of silk in this state is purely organic thus having a growing market worldwide, and, iv) technical backup support from the state department and other agencies is promising.

Rural villagers in the region have skills in weaving where they weave for their own domestic use. The strength of weaving is its rich traditional design and motifs that is still untapped. It is one of the main non-farm activities by rural women folk, SHGs and Societies. So, growing awareness for eco-friendly and organic products can help create a niche market on the vegetable dyed products produced in the district. With skill upgradation and better Small and Medium Forest Based Enterprises quality looms, weaving is a promising activity that sustains the rural economy especially amongst women.

### **16.5. HONEY PRODUCTION THROUGH BEE KEEPING**

Bee keeping is another important potential SMF enterprise for the region. Bee keeping is an agro-forest based rural industry and can be done as full time or part time occupation, which can provide sustainable income to the bee keepers/farmers. The bee colonies can be maintained by people of all ages including youth and women without prejudice with minimum inputs and time. Other products like Beeswax, Propolis and Bee Venom can be obtained through bee keeping, which have high utility in pharmaceutical and cosmetic industry. Beekeeping not only offers honey and other bee products to mankind but also enriches agrihorticultural crops in quality and quantity by its unique crop pollination services. Bee keeping is an ideal activity for development as a subsidiary occupation

providing supplementary income to a large number of rural tribal people. The beekeeping enterprise aims at uplifting the socio-economic conditions of villagers by providing them advanced skills, techniques and adequate marketing opportunities for production of honey which has good export prospects provided the produce meets the requisite standards of safety and hygiene.

## **16.6. SPICES**

Farmers cultivate large quantity of ginger and turmeric in this area. However, they are sold in fresh form in the market, which fetches lesser price compared to processed form. If the same is processed into powder by providing them machine needed for the purpose it will help the farmers immensely in bargaining better price as well as providing employment for the local youth in the region.

## **17. BUSINESS DEVELOPMENT STRATEGY**

Business Development Strategy is an important instrument for planning institutional strengthening, resource mobilization and establishing effective market linkages. The present study also aimed at formulating a business development strategy for the identified forest products reflecting the value addition of products and market linkages. A Business Development Strategy based on the findings of bio-physical resource and socio-economic survey carried out by the Regional Centre, NAEB, NEHU, Shillong during the current study period was formulated to ascertain viable business proposition and the required market linkages.

Following different approaches were kept in mind while developing business plans for SMFE activities in Ri Bhoi district of Meghalaya:

1. Village level approach
2. SHG approach
3. Cluster approach
4. Product-wise approach

**17.1. Village level approach:** Selection of SMFE at village level depends upon the availability of resources in a particular village (Table 15) and its distance from the market. Some of the important findings with respect to resource availability in particular villages are as follows:

- Broom grass is one of the important forest based resources in all the villages except in Umket village of Cluster II.
- Bamboo is used in all the villages of cluster II except Umket, Umpowin Pdeng, and Umtngam where due to community forest land harvesting of bamboo can be done only after getting consent from relevant local institutions.

- Bamboo shoots are consumed in all the villages of cluster II except Umpowin Pdeng and Umtngam.
- Ginger and medicinal plants are the important cultivated resources in the villages of Cluster II.

PRODUCTS	Villages of Cluster I					Villages of Cluster II				
	Umden Khasi	Marmain Khulia	Diwon	Umshit	Umkon	Mawtneng	Umket	Mawbri	Umpowin Pdeng	Umtngam
Bamboo Charcoal making			✓			✓	✓	✓	✓	
Incense stick making	✓	✓	✓		✓	✓	✓		✓	✓
Bamboo handicrafts		✓			✓		✓	✓		
Bamboo shoot canning		✓	✓		✓	✓	✓	✓	✓	✓
Bamboo shoot pickle		✓	✓		✓	✓	✓	✓	✓	✓
Finished broom		✓	✓	✓	✓			✓	✓	✓
Medicinal Plant cultivation	✓	✓	✓	✓	✓	✓	✓		✓	✓
Weaving		✓	✓	✓	✓		✓		✓	✓
Honey production	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black pepper	✓	✓	✓			✓	✓		✓	✓

## 17.2. SHG APPROACH

The SHG approach helps the poor to build their self-confidence through community action. Interaction in group meetings and collective decision-making enable them in identification and prioritization of their needs and resources. This process would ultimately lead to the strengthening of the socio economic empowerment of the rural poor and improve their collective bargaining power.

The survey work revealed that there are 19 SHGs in Cluster I and 17 SHGs in Cluster II. While SHGs of Cluster I are very old and are well established as compared to SHGs of Cluster II, it was found that in both the clusters the SHGs are mostly engaged in agriculture-based income generating activities. It was found that most of the members who took up growth-oriented new micro-enterprises with a larger outlay failed in various stages

# CAPACITY DEVELOPMENT ACTIVITIES UNDER SMFE

## PLATE 1: TRAINING ON BROOM PREPARATION



1.1 Banner on the training programme



1.2 Participants slicing cane during training



1.3 Arrangement of brooms

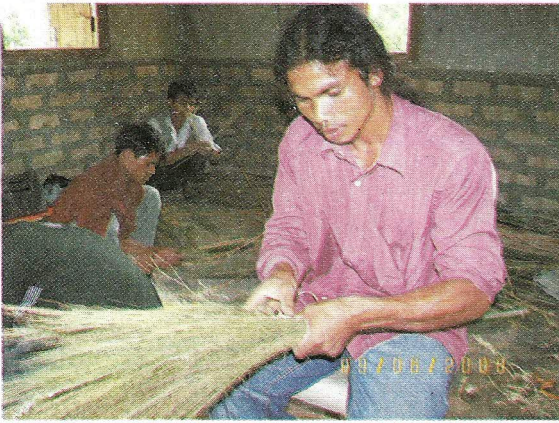


1.4 Participants during the training



1.5 Broom binding process





1.6 Broom making process



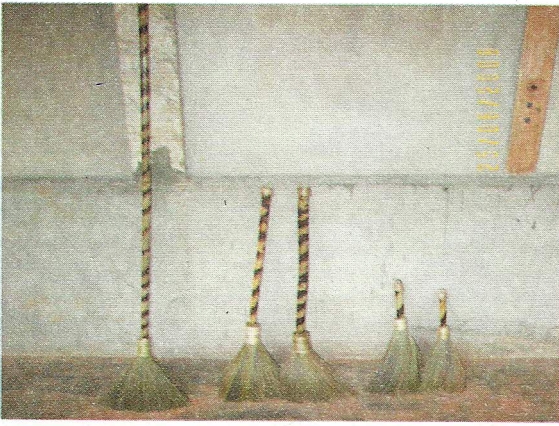
1.7 Broom making



1.8 Giving streaks to bamboo sticks



1.9 Participants during the training



1.10 Ceiling, floor and table brooms



1.11 Table and floor brooms



1.12 Finished brooms



1.13 Ceiling, floor and table brooms



1.14 Cane used for broom binding

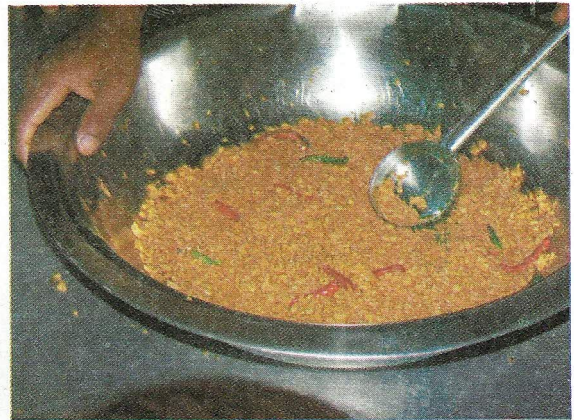
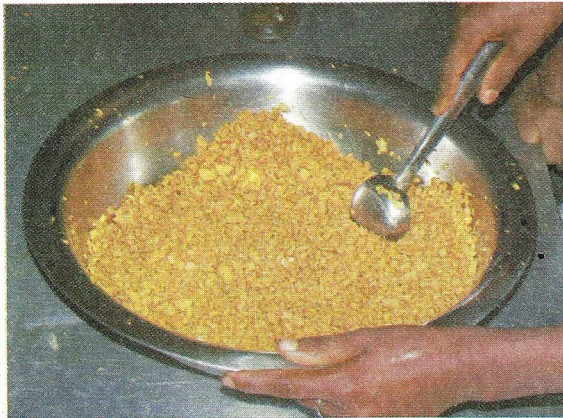
## PLATE 2: TRAINING ON BAMBOO SHOOT PICKLE MAKING



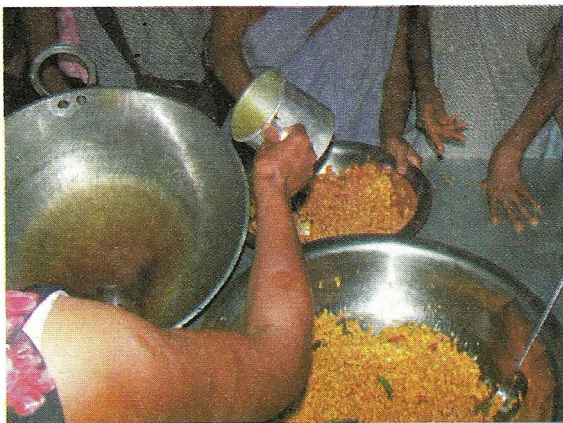
2.1 A lady sharing her experiences during the training Programme



2.2 Participants at Bamboo shoot pickle making training



2.3 Preparation of mixture for bamboo shoot pickle



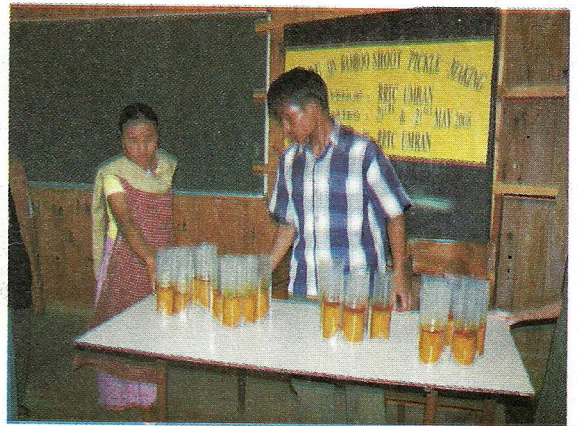
2.4 Mixing of ingredients for preparation of bamboo shoot pickle



2.5 Packaging of bamboo shoot pickle



2.6 Filling up of packets with mixture of bamboo shoots



2.7 Participants during the training



2.8 Sealing of packets with the sealing machine

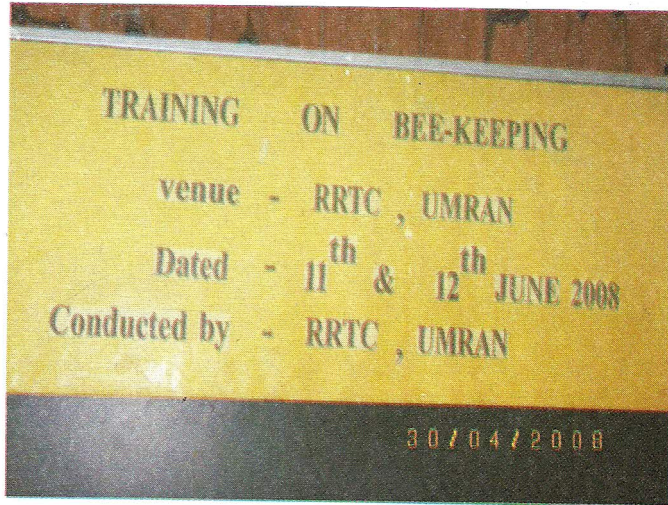


2.9 Packaged bamboo shoot pickle



2.10 Participants with packaged bamboo shoots

## PLATE 3: TRAINING ON BEE KEEPING



3.1 Notice board about the training on bee keeping



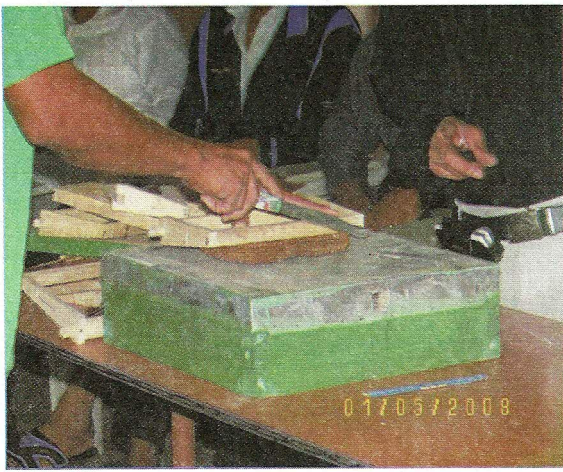
3.2 Bee Hive



3.3 Honey bees



3.4 Honey comb



3.5 Cutting of honey combs for transfer to new frames



3.6 Honey extractor



3.7 Processed and bottled honey

**PLATE 4 : COMMUNITY FACILITY CENTRE**



4.1 Community facility Centre at Mawtneng



4.2 Community facility Centre at Umden Khasi

because of reasons like lack of marketing, poor packaging, inability to maintain standards for the products, lack of market knowledge, lack of backward and forward linkages and so on. Organized enterprise development support including motivation, and skill and capacity building are necessary for running any enterprise.

To facilitate the transition from borrower to entrepreneur, the following plan of action was followed by existing SHGs in both the clusters:

- Begin by gradual shifting providing micro-credit for livelihood support and to microenterprise development.
- Encourage only such SHG members who utilize the loans for productive purposes and have the potential to become entrepreneurs.
- Provide an orientation on the basics of micro-enterprise management and an enabling environment, including choices for setting up micro-enterprises.
- Build the vision and capacities of SHGs during every loan cycle so that SHGs repay in a timely manner and increase the loan capacity amount for productive activities.
- Facilitate and help SHGs to form federation or multi-state cooperatives based on their wealth, experience, expertise and willingness.
- Establish a network of SHGs to serve as a 'self-help community' for micro-enterprise development activities.

There is a need to adopt holistic approach to encourage the development of SMFE activities in project villages by availing the services existing through various institutions and programmes. Stress is given on village microplan to appropriate natural resources-based identified income generating activities for the landless and resource-poor farmers.

### **17.3. CLUSTER APPROACH**

The cluster development programme is an innovative MSME (Micro, Small and Medium Enterprise) support initiative that targets MSME clusters with the purpose of upgrading their capacities to respond to the challenges created by the increasing liberalization of the economy. The main advantage of cluster approach is that it gives the collective bargaining edge and diffuses the cost burden.

Cluster methodology has emerged as a favoured approach; what the small enterprise lacks by default of size, the cluster approach supplies and supplements. It backs up the individual small entrepreneur with collective strength to accomplish common goals, thereby deriving profits and margins otherwise unimaginable. By subscribing to cluster approach, the SMFEs can network with each other, with the concerned support institutions, facilitating agencies and other stakeholders, they can cooperate with the up-stream and down-stream partners, they will be able to improve their product quality and definition and augment their capabilities, make themselves compatible with global players and find a foothold in the international markets.

## 17.4. PRODUCT-WISE APPROACH

Adopting product approach is the most important aspect in developing business plan for the selected region as a number of factors such as availability of raw resources, market mapping of the products, value addition done, market for the products, cost benefit ratio, etc. are important in starting small and medium forest enterprises. These studies are necessary to establish the chain from producer to market, and to identify critical intervention points along the chain in order to improve the economy of the subsector and thereby also the returns for the producer.

Based on the available resources and income generating activities in the two clusters, small and medium forest enterprises have been listed in Table 16. This will help in increasing the revenue of the existing SHGs and ultimately improving their socio-economic well being.

<b>Forest resource</b>	<b>Proposed value addition</b>	<b>Technology required</b>	<b>Institutions/ Resource Persons</b>
Bamboo	Bamboo charcoal making	Charcoal making plant	Cane and Bamboo
	Incense stick making	Stick making machine	Technology Centre,
	Bamboo handicraft	Craftsman training	Guwahati.
	Bamboo shoot canning	Packaging technology	
	Bamboo shoot pickle	Pickle making and packaging	
Bay Leaf	Processing and Packaging	Grinding technology, leaf processing plant, oil extraction plant	RRTC, Umran RCNAEB, Bangalore RCNAEB, Bangalore
Broom grass	Finished brooms		RRTC, Umran
Medicinal plants	Extraction and packaging	Extraction unit	FRLHT, SMBP, NMPB
Weaving	Weaving	Looms	RRTC, Umran
Bee- keeping	Honey, Beeswax, Propolis and Bee Venom	Honey extractor	RRTC, Umran
Black pepper	Decorated black pepper Black pepper crushed Sterilized black pepper		RRTC, Umran
Ginger and Turmeric	Powder form		MRDS, Shillong

## **18. BUYERS OF DIFFERENT SMFE PRODUCTS AND THEIR CONTACT ADDRESS**

### **Bamboo crafts**

1. The Craft Shop.  
5K Shahpur Jat. Near Asiad Village, New Delhi- 110049, India.
2. Krafts Bridge, Mumbai  
E-11, Central Park, Chakala, Andheri Kurla Road, Andheri East, Mumbai- 400093, India.
3. Limra Exim, Chennai  
New No. 10, Old No 78, First Cross Street, C.I.T Nagar East, Chennai- 600 035, India.
4. Sonell Clocks and Gifts, Mumbai, India  
Narshi Natha Street, No.308, Mumbai- 400 009, India.
5. Cosmicraft Industries, Shillong  
Bawri Mansions, Soso Tham Road, Dhankheti, Shillong 793001, India.

### **Bamboo shoot buyers**

1. Shimla Hill Offerings Pvt Ltd, Himachal Pradesh  
Plot No 92, Industrial Area, Shogi, Shimla, Himachal Pradesh -173219, India.
2. Squacco International, Uttar Pradesh  
D 57/49, G, Maulvi Bagh Sagra, Varanasi- 221 010, Uttar Pradesh, India.
3. Govt. Fruit Preservation Factory, West Bengal  
Shankar Mod, Nehu Road, Chaalphara, Siliguri, West Bengal- 737 134, India.

### **Charcoal Buyers**

1. RBM Trade Care Pvt Ltd., G-16, Bahubali Complex, Kalanala, Bhavnagar, Gujrat-364001
2. J. J. Enterprises, Shillong, Barapatthar, Shillong-793002.
3. R. S. Coal Syndicate, 16, 8th Main, M. C. Road, NHCS Layout, Vijaynagar, Bangalore-560022.

### **Incense stick making**

1. Surana Perfumery Works, Bangalore, Karnataka, Ph No. 91-806749396
2. M/s Mothers Commerce Company, Pondichery, Ph No. 91-1126102657
3. Raj Fragrance, Bangalore, Ph No. 91-8026613256

## **Manufacturer of machines**

1. M/s Garnet Tools, Dewas,  
M/s Garnet Machine Tools 2D, Industrial Area, Ujain Road, Dewas-455001,  
Madhya Pradesh;  
email: garnettols@rediffmail.com
2. M/s Woodmaster India (Pvt) Ltd, Bachittar Nagar,  
Street No 7, Gill Road, Ludhiana-141006;  
email: info@woodmasterindia.com
3. M/s Deva Bamboo & Allied Industries, Lamphel-795004, Manipur;  
email: devakh@yahoo.co.in

## **Medicinal Plants:**

### ***Acorus calamus*-Bacha**

1. Elixir Extracts Pvt Ltd, Kerala.  
Kinfra Industries Park, Nellad, Muvattupuzha- 686721, Kerala, India.
2. Radharam Sohanlal, Kolkata  
3, Mallick Street, Kolkata, West Bengal- 700 007, India.
3. Krishak Vikas Kendra, Varanasi  
33 Shivaji Nagar, Mahamoorganj, Varanasi- 221010, India.

### ***Aloe barbadensis*-Gheetwar**

1. Prakruti Bio Pharma Pvt Ltd. Unit No. 18, Ganjawala Bldg.  
SVP Road, Borivali, W Mumbai, Mumbai- 400092, Maharashtra, India.
2. Grow Green Bio-Sciences Pvt Ltd.  
P-855, Block A, 2nd Floor, Lake Town, Kolkata-700089, India.
3. Jaivankhandi Medicinal Herbs  
G-2 Amma Niwas, 33 Tilak Nagar, Indore, Madhya Pradesh- 452001, India.

### ***Rauvolfia serpentina*-Sarpagandha**

1. AL-Kowzer Exports  
65B/1, Periyar Nagar, Dindigul- 624001, India.
2. Anna Malai Exports,  
15, Old Bungalow, Chintadripet, Chennai- 600 002, India.
3. Agroforestry Promotion Centre  
No. 978, Dilli Bazar, Kathmandu- Na, Nepal.

## **Black Pepper Buyers**

1. Jyoti Exporter, Kolkata  
180, Mahatma Gandhi Road, 4th Floor, Room No-3, Kolkata, West Bengal 700007, India.
2. Anmol Spices Pvt Ltd  
33/1, N.S Road, 663 Marshall House, Kolkata, West Bengal 700001, India.
3. AMJ Trading Company  
12, Windsor House, 2nd Floor, 29, R.N. Mukherjee Road, Kolkata, West Bengal-700 001, India.

## **Sericulture related buyers/traders/manufacturers**

1. Mr Jayakandhan D  
Janani Associates, 18/1, Shanmuga Nagar, Sungam By- Pass Road Coimbatore-641 045, Tamil Nadu, India. email: jainandh@vsnl.com
2. Mr Satish Tarway  
Tarway Associates, 60, Golf Club Road, Kolkata, West Bengal- 700 033, India.  
email: tarasso@vsnl.com

## **Buyers of Honey**

1. Candid Enterprise. Ph No. 09324402790
2. Gujar Pharmaceuticals, Ph No. 09822671007
3. Metha Ayurvedic Pharmacy, Ph No. 09869015902

## **Honey processing plant/equipment supplier**

1. Suan Scientific Instruments & Equipments, Kolkata  
P- 814, Ground Floor, Block- A, Lake Town, Kolkata- 700 089, West Bengal, India.
2. SSP Food Processing Equipments,  
13 Milestone, Mathura Road, Faridabad- 121 003, Haryana, India.

## **19. CAPACITY DEVELOPMENT TRAINING**

Several rounds of planning and orientation workshops relating to SMFE were organized in the villages. The SHG members were identified for capacity development in specific areas depending upon their existing skills and technical expertise. Five capacity/skill development training programmes were organized in collaboration with Rural Resource and Training Centre (RRTC), Umran, Meghalaya. The training programmes were: (i) Training on bamboo shoot pickle making, (ii) Bee keeping, (iii) Black pepper cultivation, (iv) Quality broom making, and (v) Incense stick making (Table 17). In total, 60 persons were trained for bamboo shoot pickle making, 58 persons for bee keeping, 53 people for black pepper cultivation, 10 persons for quality broom making and 47 persons for incense

stick making. Based on the skills acquired, the SHG members are now producing value-added products which fetch much higher price than the raw products, they used to sell before. The members are making efforts to secure credit for their entrepreneurship from the financial institutions so that they can undertake the value addition initiatives on large scale. Opening up of the community centre was a part of SMFE activity.

**Table 17. Skill development training imparted to SHGs of the two clusters selected for the study**

Trainings	Villages	SHGs	Person trained	Dates in 2008	Duration (days)
<b>Cluster I</b>					
Bamboo shoot pickle	3	4	24	20th-21st May	2
Black pepper	3	3	17	9th-10th June	2
Bee keeping	4	7	33	11th-12th June	2
Broom	4		5	9th July-8th August	31
Incense stick	4	6	25	4th October	1
SHG capacity building	4	6	28	15th-18th October	4
<b>Cluster II</b>					
Bamboo shoot pickle	4	6	36	16th-17th May	2
Black pepper	2	6	36	9th-10th June	2
Bee keeping	3	6	25	11th-12th June	2
Broom	3		5	9th July-8th August	31
Incense stick	3	3	22	3rd October	1
SHG capacity building	5	9	29	27th-31st October	5

Having seen that the SHG members were not in a position to generate enough resources to start the enterprise, the Regional Centre NAEB, NEHU, Shillong provided elementary tools such as bamboo splitting machine, bee box, and sealing machine for making the community facility centre functional. Two such Community Facility Centres were opened at Mawtneng village and Umden Khasi village. The Community Facility Centre (CFC) at Mawtneng was inaugurated by Shri Ashok Pai, IFS, Deputy Inspector General of Forests, National Afforestation and Eco-Development Board, MOEF, Govt. of India, New Delhi.

The SMFE activities in Ri Bhoi district indeed have opened up a new era in the community development of rural Meghalaya through forest product-based entrepreneurship development. Besides, the project has also provided lots of opportunities for women empowerment. The trainings in particular have helped the woman in becoming economically stronger and socially empowered.

### **Salient features of the Pilot project**

- ❖ Socio-economic status of the people and resource base of the selected ten villages were documented. Potential forest resources that could be promoted for the establishment of SMFE were identified.
- ❖ Potential Self Help Groups (SHGs) for undertaking viable SMFE activities were identified. Based on their past performance and interest to undertake SMFE activities, twenty SHGs were selected from the two clusters.
- ❖ A Business Development Strategy including the marketing plan for the products was developed. Several rounds of planning and orientation workshops relating to SMFE were organized in the villages.
- ❖ The SHG members were identified for capacity development in specific areas, depending upon their existing skills and technical expertise. The identified areas for capacity development are bamboo shoot pickle making, quality broom making, apiculture, black pepper cultivation, incense stick making, sericulture, weaving and medicinal plant cultivation. Training programmes on the first four activities have already been organized in collaboration with Rural Resource and Training Centre (RRTC) Umran. In total 184 SHG members have been trained on various activities.
- ❖ The project has provided lots of opportunities for women empowerment. Besides building their capacities in managing SHGs, the project imparted training to women SHG members on financial management, skill improvement for value addition of forest products and developing organizational skills. All such trainings have helped the women in becoming economically stronger and socially empowered. In fact, now the SHG woman members are capable of forging linkages with the banking and financial institutions for business development.
- ❖ Based on the skills acquired, the SHG members are now producing value-added products which will fetch much higher price than the raw products they used to sell before. The products will be show-cased in a Buyers-Sellers meet. The meet would help the entrepreneurs in getting the best possible market linkage for their products.
- ❖ Efforts are on by the members to secure credit for their entrepreneurship from the financial institutions so that they can undertake the value addition initiatives in large scale.

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## APPENDIX - I

### QUESTIONNAIRE FOR VILLAGE SURVEY

#### Socio-economic Survey and Biophysical Resources

1. Village:	4. Name of JFMC
2. Name of the village head:	5. Cluster No:
3. C. D. Block:	6. Community/Tribe

#### I. SOCIOLOGICAL ASPECT

##### 1. Demographic profile of the village

Parameters	Numbers
No. of Household	
Average household size	
Total population	
Male	
Female	
Children	
Social category	
ST	
SC	
OBC	
GEN	
Others	

##### 2. Occupation

Type	Numbers
Government Services	
Private jobs	
Daily wage laborers	
Self farm and household works	
No work	
Business	
Others	

### 3. Household Income Pattern

Income class	Range (monthly income in Rs.)	Total number of household
High	>10,000	
Medium	2000-10000	
Low	<2000	

### 4. Education level

Level of education	Number
Primary (Class I-Class V)	
Secondary (Class VI-Class X)	
Higher secondary (Class XI-Class XII)	
Graduates	
Post Graduates and above	
Illiterate	

### 5. Religion

Religion	% of population
Christian	
Hindu	
Muslim	
Traditional religion	
Others	

### 6. Village amenities

Sl No.	Parameters	Availability	Type	Status
1	Educational Institution			
2	Health facilities			
3	Veterinary Services			
4	Commercial establishments/ Shops/Cooperatives			
5	Post offices			
6.	Police station			
7.	Water supply			
8.	Irrigation facility			
9.	Road connectivity			
10.	Electricity			

## II. BIO-PHYSICAL RESOURCES

### 7. Water sources

Sl. No.	Names	Season of water availability
(a) River		
1		
2		
3		
(b) Spring		
1		
2		
3		
(c) Groundwater		
1		
2		
3		

### 8. Forest vegetation

Sl. No.	Forest vegetation	Species composition
1		
2		
3		

### 9. Status of forest

Sl. No.	Type of Forest	Species composition	Area (ha)
1	Degraded forest (<10% canopy)		
2	Open forest (10-40% canopy)		
3	Dense forest (>40% canopy)		

### 10. Soil

Sl. No.	Soil type	Texture

### 11. Topography

Sl. No.	Topography	% of land area
1	Steep slope	
2	Mild slope	
3	Plain	

### 12. Land use classification

Category	Area (ha)
Settled agriculture	
Shifting cultivation	
Homestead	
Pond/wetland	
Forest	
Others	

### 13. Land ownership

Sl. No.	Ownership	Area (ha)
1	Private	
2	Community	
3	Government	
4	Others	

### 14. Availability of timber

Sl. No.	Per capita timber requirement (cu. m)	Average timber required per household (cu. m)	Quantity of timber available (cu. m)	Quantity of timber required (cu. m)
1				
2				
3				

### 15. Availability of non-timber forest products (NTFP)

Types of NTFP (unit)	Source	Months of availability	Uses	Quantity available per annum	Quantity required per annum	Surplus	Market information	
							Distance of market from village (in KM)	Selling Rate (Rs/kg)
Thatch (bundle)								
Gum (kg)								
Seeds and fruits (kg)								
Medicines (kg)								
Grasses (bundles)								
Vegetables (kg)								
Areca nut (Nos)								
Bamboo (bundle)								
Bay leaf (kg)								
Broom (bundle)								
Honey (litre)								
Others								

### 16. Marketing of NTFPs collected

SI No.	NTFPs	Quantity collected (kg)	Quantity sold (kg)	Rate (per kg)	Market
1					
2					
3					

### 17. Agricultural Pattern

Agricultural practice	Area (ha)	Irrigated /rainfed	Season of cultivation summer/rainy /winter	Ownership (private/ community)	Fallow period	Crop/crop combination
Shifting cultivation						
Settled dry land cultivation						
Settled wet land cultivation						

### 18. Crop production-Jhum System

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 19. Crop production-Panikheti

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 20. Horticulture production

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

## 21. Details of livestock

Sl. No.	Animals	Number			Purpose of rearing	Source of purchase	Revenue earned	Mode of feeding
		Male	Female	Calf				
1	Cow (Ind)							
2	Cow (Hy)							
3	Buffalo (Ind)							
4	Buffalo (Hy)							
5	Pig (Ind)							
6	Pig (Hy)							
7	Poultry							
8	Goat							
9	Others (specify)							

Ind-indigenous, Hy- hybrid

## III. VILLAGE ECONOMICS

### 22. Village income pattern

Sl. No.	Items	Total income (Rs.)
1	Horticulture	
2	Forest Produce	
3	Agriculture	
4	Livestock	
5	Non farm produce	
6	Govt. job (salary)	
7	Business	
8	Wage labor	
Total income		



27. How many households have taken loan? (Yes/No):

28. Purpose for taking loan:

29. Where from they have taken loan? Friend/Relative/Mahajan

30. Did they take loan from any institution, e.g. Bank/village group?

31. Details of loan

Sl. No.	Source	Cash/kind/both	Amount	Purpose	Interest rate	Type of agreement
1						
2						
3						

32. Mode of repayment

Sl. No.	Interest rate paid cash/kind/both	Frequency of repayment (weekly/fortnightly/monthly)	Repayment status
1			
2			
3			

33. Number of SHGs constituted in the village (name each SHG) :

34. Total number of persons involved in SHGs. Give community/gender wise breakup

Name of SHGs	Person involved	Community	Gender	
			Male	Female

35. Programmes under which SHGs were formed:

Name of the interviewee:

Signature of the interviewer:

Date:

Place:

## APPENDIX - II

### QUESTIONNAIRE FOR HOUSEHOLD SURVEY

#### I. Socio-economic Survey and Biophysical Resources

1 (a) Name of the Family head:	5. Cluster No:
(b) Sex:	6. Social category: SC/ST/OBC/GEN
(c) Age:	7. Community/Tribe:
2. Village:	8. Type of family: Joint/Nuclear
3. C. D. Block:	9. Religion: Christian/Hindu/Muslims/Others
4. JFMC:	

#### 10. Family Profile

Sl. No.	Name	Sex M/F	Age	Relation to head	Education	Occupation	Language spoken
1							
2							
3							

#### 11. Land Holding

(a) Total area of land that the family owns (ha):

(b) Total area of the land that the family uses (ha):

(c) Land use classification

Category	Area (ha)
Settled agriculture	
Shifting cultivation	
Homestead	
Pond/wetland	
Forest	
Others	

#### 12. Use of Common Property Resources

Sl. No	Purpose	Source	Quantity
1	Collect fodder		
2	Collect fuelwood		
3	Used for grazing		
4	Used for NTFP collection		

### 13. Agriculture Pattern

Agricultural practice	Area (ha)	Irrigated /Rainfed	Season of cultivation (summer/rainy /winter)	Ownership (private/ community)	Fallow period	Crop/crop combination
Shifting cultivation						
Settled dry land cultivation						
Settled wet land cultivation						

### 14. Crop production-Jhum System

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 15. Crop production-Panikheti

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 16. Horticulture production

Sl. No.	Crops	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 17. Tree crops

Sl. No.	Tree Species	Harvest month	Total annual production (kg)	Self consumption (kg)	Surplus for sale (kg)
1					
2					
3					

### 18. NTFPs collection both from private and community land

Sl. No.	Crops	Uses	Annual harvest	Self consumption	Surplus quantity for sale/value addition
1	Areca nut				
2	Bamboo				
3	Bay leaf				
4	Broom				
5	Medicinal plant				
6	Honey				

### 19. Marketing of NTFPs collected

Sl No.	NTFPs	Quantity collected (kg)	Quantity sold (kg)	Rate (per kg)	Market
1					
2					
3					

### 20. Details of livestock

Sl. No.	Animals	Number			Purpose of rearing	Source of purchase	Revenue earned	Mode of feeding
		Male	Female	Calf				
1	Cow (Ind)							
2	Cow (Hy)							
3	Buffalo (Ind)							
4	Buffalo (Hy)							
5	Pig (Ind)							
6	Pig (Hy)							

7	Poultry							
8	Goat							
9	Others (specify)							

Ind- indigenous, Hy- hybrid

### 21. Household income pattern

Sl. No.	Items	Quantity Sold (kg)	Rate/kg	Total income (Rs.)
1	Horticulture			
2	Forest Produce			
3	Agriculture			
4	Livestock			
5	Non farm produce			
6	Salary			
7.	Business			
Total income				

### 22. Areas where demonstrations and trainings are needed

Sector	Demonstrations	Trainings
Agriculture		
Horticulture		
Fishery		
Sericulture		
Animal husbandry		
Water management		
Soil conservation		
Health and hygiene		
Others (specify)		

### 23. Whether any skill related to handicraft and artisanship is there?

Skills	Number		Use of electricity	Source of learning	Source of raw material	Are you willing to receive training
	Male	Female				

**24. Products available for sale/surplus**

Sl. No.	Products	Quantity

**25. Information about potential market**

Name of the market	Distance in km	Mode of transport

26. Did you ever wish to take loan (Y/N)?

27. Purpose for taking loan:

28. Where from you take loan? Friend/Relative/Mahajan

29. Did you take loan from any institution, e.g. Bank/village group?

**30. Details of loan**

Sl. No.	Source	Cash/kind/both	Amount	Purpose	Interest rate	Type of agreement
1						
2						
3						

**31. Mode of repayment**

Sl. No.	Interest rate paid (cash/kind/both)	Frequency of repayment (weekly/fortnightly/monthly)	Repayment status
1			
2			
3			

### 32. Provision of basic amenities

Sl no.	Parameters	Availability	Type/ source	Status
1	Electricity			
2	Drinking water			
3	Sanitation			
4	Road			
5	Irrigation			

Name of the interviewee:

Signature of the interviewer:

Date:

Place:

### APPENDIX III

#### QUESTIONNAIRE FOR ASSESSING SELF HELP GROUP

1. Name of the JFMC:
2. Village:
3. C. D. Block:
4. Cluster No:
5. Name of SHG:
6. Objective of the SHG:
7. Area of operation:
8. Name of the scheme under which constituted initially:
9. Date of constitution of SHG:
10. Name of the President of SHG:
11. Who promoted the formation of the SHG?
12. Attach copy of Rules and Regulations of the SHG:
13. How many members in the SHG:
14. Is it a mixed/ only male/ only female SHG?
15. Average age of the members:
16. How many of the members are trained?
17. Provide details of the training obtained

Type of trainings	Source	Number trained	
		Male	Female

18. Activity undertaken by the SHG:
19. Whether the SHG convenes regular meetings? Yes / No
20. Frequency of meeting:
21. What is the average attendance of members in the meetings?

22. What is the penalty for not attending the meeting?
23. What is the monthly savings?
24. Whether they have opened Bank Account?
25. If yes, type of account: Name of the bank:
26. Date of opening of the Account: Account No:
27. Who operates the bank account?
28. What is the bank balance on the date of data collection?
29. Have SHG members availed any loan from the said bank or not?
30. Has the SHG received any funding till date?
31. If yes, how many group members?
32. What is the interest rate?
33. Mode of repayment of the loan:
34. Have they availed any loan from SHG sources (Intra-lending)?
35. If yes, what is the interest rate?
36. Mode of repayment:
37. What penalty is imposed on not repaying the loan in time?
38. Any further support the group expects?
39. What activities they can undertake SMFEs?

Name of the interviewee:

Signature of the interviewer:

Date:

Place: