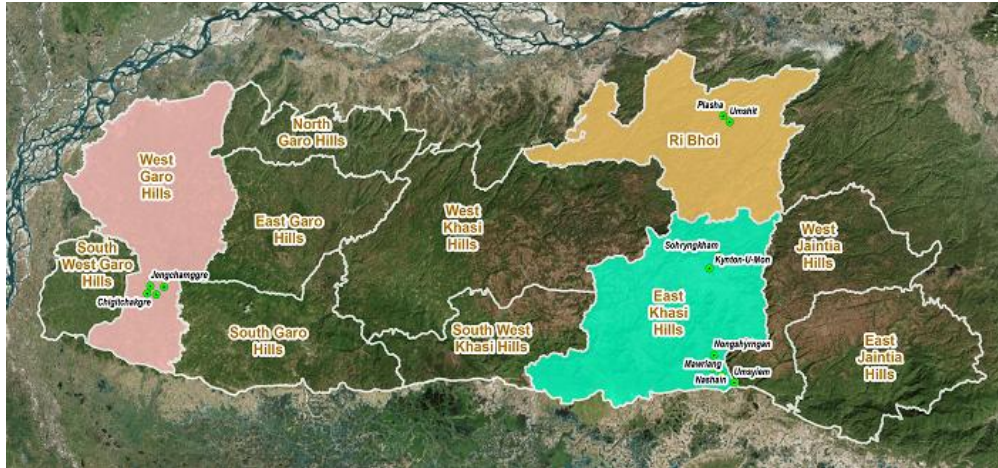


# INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP) MEGHALAYA



## REPORT ON BASELINE SURVEY & BENCHMARKING (BATCH-IV)

**Submitted to:**



**Meghalaya State Watershed & Wasteland  
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## *Acknowledgement*

Baseline characterization builds necessary foundation in effective planning and measuring performance of development projects. Likewise, proper characterization of watersheds is a prerequisite for appropriate policy directions to enhance productivity and sustainable development of the projects under Integrated Watershed Management Programme (IWMP). With such orientation, this Baseline Report has been developed based on the field survey carried out by NEDFi Monitoring team as per scope of work under Monitoring, Evaluation, Learning and Documentation (MEL&D) assignment under Meghalaya State Watershed & Wasteland Development Agency (MSWWDA), State Level Nodal Agency (SLNA-IWMP), Government of Meghalaya.

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Finally, we are thankful to all the Secretaries/Presidents of Watershed Committees, all the Village Headman, all the 627 (Six Hundred and Twenty Seven) respondents for household survey representing 40 (Forty) Villages, 10 (Ten) Project locations and 8 (Eight) districts of Meghalaya for graciously sharing their knowledge, experience and sparing their time by participating in the survey, which made this Baseline Report possible.

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## LIST OF ACRONYMS & ABBREVIATIONS

Acronyms & Abbreviation	Full Form
ATM	Automated Teller Machine
BPL	Below Poverty Line
CV	Control Village
DoLR	Department of Land Resources (Department under the Ministry of Rural Development, Government of India)
Ha	Hectare
HYV	High Yielding Variety
IDM	Integrated Disease Management
INM	Integrated Nutrient Management
IPM	Integrated Pest Management
IWMP	Integrated Watershed Management Programme
Kg	kilogram
LR	Lower Reach
m	Metre
MCAB	Meghalaya Cooperative Apex Bank
MEL&D	Monitoring, Evaluation, Learning and Documentation
MGNREGS	Mahatma Gandhi National Rural Guarantee Scheme
MHIS	Meghalaya Health Insurance Scheme
MR	Middle Reach
MRB	Meghalaya Rural Bank
MSWWDA	Meghalaya State Watershed & Wasteland Development Agency
N	No
NEDFi	North Eastern Development Finance Corporation Ltd.
NTFP	Non Timber Forest Product
PHE	Public Health Engineering (a Department of the Government of Meghalaya)
Rs.	Rupees
SD	Standard Deviation
s.d.	Standard Deviation
SHG	Self Help Group
SLNA	State Level Nodal Agency
ST	Scheduled Tribe
UG	User Group
UR	Upper Reach
WC	Watershed Committee
WCDC	Watershed Cell cum Data Centre
WDT	Watershed Development Team (Project Implementing Agency)
Y	Yes

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## EXECUTIVE SUMMARY

### *Integrated Watershed Management Programme*

The Integrated Watershed Management Programme (IWMP) is being implemented under the aegis of the Department of Land Resources (DoLR), Ministry of Rural Development, Government of India. The main objectives of the above programme include restoring the ecological balance by harnessing; conserving and developing degraded natural resources such as soil, vegetative cover and water. The programme intends to achieve outcomes like the prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. It has been envisaged that the above measures would enable multi-cropping and the introduction of diverse agro-based activities in order to provide sustainable livelihoods to the people residing in the watershed areas.

Along with the other states of India, the above programme, viz. IWMP, is being implemented in the state of Meghalaya. The Meghalaya State Watershed & Wasteland Development Agency (MSWWDA), an organization formed by the Soil & Water Conservation Department of Government of Meghalaya, is executing the programme in this state as the State Level Nodal Agency.

### *Monitoring, Evaluation, Learning and Documentation*

The IWMP is a more diverse and inclusive programme compared to its predecessors. In view of the large expenditure and the needs of the people that the programme seeks to address, it becomes imperative to ensure accountability and set minimum standards of performance and achievements for the public investment. This is sought to be done by taking initiatives to establish a well designed and functional system for Monitoring, Evaluation, Learning and Documentation (MEL&D). Apart from indicators designed to assess the performance of soil and water conservation activities, the outcomes in the environmental, economic, agricultural and allied fields have to be covered by the development of indicators, benchmarks and performance targets. In Meghalaya, the above structure has been followed for the successful execution of the programme in the state.

### *Baseline Survey of IWMP Batch-IV Projects in Meghalaya*

At the outset of the implementation of IWMP in the state, a Baseline Survey is required to be conducted in the sampled watersheds. In Meghalaya, the work for the above-mentioned Baseline Survey was commenced in February 2016 by North Eastern Development Finance Corporation Ltd. (NEDFi), which is involved as the MEL&D Agency for the SLNA in the state. Thereafter, the entire exercise consists of the following steps:

- (a) Desk Review and Study of Secondary Data;
- (b) Developing Pilot Survey Schedule;
- (c) Field Testing of Survey Schedules;
- (d) Finalization of Survey Schedule;

- (e) Data Collection as per sample methodology (Field Survey & Focus Group Discussion);
- (f) Data Entry & Tabulation;
- (g) Data Analysis;
- (h) Preparation of Draft Report; and
- (i) Finalization of Report.

The design and implementation of the study has been discussed as follows.

### *Survey Methodology*

The sampling strategy used in the present Baseline Survey for IWMP in Meghalaya (**Batch-IV**) is based on the framework prescribed by the Department of Land Resources (DoLR), Ministry of Rural Development, Government of India. The steps involved in the process are given below:

- (a) **Selection of Projects:** In the present instance, the Baseline Study covered 25% of the batch-wise projects. In other words, around one-quarter of the projects taken up under **Batch-IV** were taken up under the present exercise.
- (b) **Selection of Villages:** The selection of villages to be covered in the Baseline Survey was done as given below.

**Project Village:** In each project, three villages were taken up for the study. One of these villages was located in each of the Upper Reach (UR) or ridge, Middle Reach (MR) and Lower Reach (LR) or Valley of the watershed covered under the project.

**Control Village:** Some of the villages in the untreated area with similar ecological and socio-economic conditions will be taken up under the above study as the 'control sample'. Comparison of the variation of the indicator values in the project villages against the variation in the same indicators in the 'control sample' will enable the better assessment of the programme impacts.

- (c) **Sampling of Households:** Under the present Baseline Survey in Meghalaya, the sampling of households in the selected villages was done in the following manner in the project villages and control village:

**Project Villages:** 20% of the households staying in the selected project village; and

**Control Villages:** 50% of the households living in the selected village taken as 'Control Village'.

- (d) **Administration of Schedules:** Data was collected from the sampled households on the project indicators and other relevant aspects by using Schedules. Copy of the Household Schedule is attached as Appendix-2.



### List of Selected Project Villages & Control Villages

The list of selected villages and their location details is given below. This is done separately for the project villages and control villages.

**Table-ES.1: Selected Project Villages (Batch-IV)**

District	Block	Project Name	Sampled Village	Location
East Khasi Hills	Pynursla	IWMP-XIII	Nashain	Upper Reach
	-Do-	-Do-	Mawriang	Middle Reach
	-Do-	-Do-	Umsyiem	Lower Reach
West Garo Hills	Gambegre	IXMP-XIII	Chigitchakgre	Upper Reach
	-Do-	-Do-	Sengminpara	Middle Reach
	-Do-	-Do-	Jengchamgre	Lower Reach
Ri Bhoi	Umling	IWMP-VIII	Plasha	Upper Reach
	-Do-	-Do-	Kynton Phanram	Middle Reach
	-Do-	-Do-	Umshit	Lower Reach

**Table-ES.2: Selected Control Villages (Batch IV)**

District	Block	Sampled Village	Control Village for
East Khasi Hills	Pynursla	Nongshyrngan	IWMP-XIII
West Garo Hills	Gambegre	Dapdalgre	IXMP-XIII
Ri Bhoi	Umling	Umtyrli Rongdon	IXMP-VIII

### Key Findings of the Survey

Sl. No.	Important Indicators	Findings
1.	Household and Land Details	<ul style="list-style-type: none"> <li>In the project villages, a household normally holds an average of 1.272 Ha of land.</li> <li>Households of project and control villages normally utilise less than half a Ha of land not owned by them (utilised on lease basis or on some understanding with the owner of the land) for cultivation.</li> </ul>
2.	Irrigation	<ul style="list-style-type: none"> <li>There is no irrigated area in the project villages and control villages as per the present study.</li> </ul>
3.	Drinking Water	<ul style="list-style-type: none"> <li>In the project villages, March and April seems to be the months of widespread scarcity. Comparatively, lesser number of households reported shortages in the months of January or May.</li> </ul>
4.	Cooking Fuel	<ul style="list-style-type: none"> <li>It is found that 83% of the households collected their cooking fuel whereas 17% of the households purchased their cooking fuel in the project villages.</li> </ul>

Sl. No.	Important Indicators	Findings
5.	Crops Grown	<ul style="list-style-type: none"> <li>Bay leaf, Betel leaf, Jhum Crops, Ginger and Chilli are grown under non-irrigated condition in the project villages as well as in all the control villages.</li> </ul>
6.	Orchards, Plantation Crops & Agro-Forestry	<ul style="list-style-type: none"> <li>As per the survey, it is found that Areca Nut, Cashew Nut, Orange, Pineapple, Banana, Litchi, Papaya, Peach, Guava, Pear, Lemon, Jackfruit and Mango etc are found in both project and control villages.</li> </ul>
7.	Livestock	<ul style="list-style-type: none"> <li>Households earn maximum income from cattle rearing in project villages and from pig rearing in the control villages.</li> </ul>
8.	Fishery	<ul style="list-style-type: none"> <li>It may be seen that there no areas under fishery in the project villages.</li> </ul>
9.	Non Timber Forest Product (NTFP)	<ul style="list-style-type: none"> <li>The most commonly found NTFP in both the project and control villages are Broom, Bamboo and Bay Leaf.</li> </ul>
10.	Wage Labour	<ul style="list-style-type: none"> <li>In the project villages, the highest average wage rate per day is Rs. 283/- and the lowest average rate per day is Rs.60/- .</li> </ul>
11.	Migration	<ul style="list-style-type: none"> <li>It is found that the total number of both male and female migrated is 22 for project villages and it is 2 only in control villages.</li> </ul>
12.	Income	<ul style="list-style-type: none"> <li>As per survey, the number of responses by any household under income source is given only by the households of Ribhoi district. This is because many of the households are unwilling to disclose their financial status.</li> </ul>
13.	Assets	<ul style="list-style-type: none"> <li>In project village, 83% of the households have mobile phone connection as part of their assets while the remaining 17% do not whereas, in control village, 88% have while the remaining 12% do not.</li> </ul>
14.	Social Capital	<ul style="list-style-type: none"> <li>In project villages, only 15% of the households are members in SHGs while the remaining 85% are not whereas in control village, members affiliated to SHG is only 6%.</li> </ul>
15.	Income and Expenditure	<ul style="list-style-type: none"> <li>In project villages, the average household income is approx. Rs.11,425/- per month and average household expenditure is approx. Rs.4,612/- per month.</li> </ul>



### *Benchmarking*

In terms of implementation of IWMP, benchmarking has been defined as ‘a process of setting realistic standards of watershed outcomes by assigning specific values to the indicators identified for this purpose and taking into consideration agro-ecological variation and production processes across the sectors.’

The indicators and benchmarks for the IWMP have been developed and refined in 2015 with the collaboration of domain experts and practitioners from multi-disciplinary areas. Accordingly, the ‘Operational Guidelines’ on benchmarking of watershed management outcomes has been brought out by the DoLR in 2015. It furnishes the major ecological regions considered for benchmarking. India has been classified into eight such regions based on the factors like Physiography, slope, soil type, forest cover and availability of water resources.

Referring the said ‘Operational Guidelines’, a review meeting related to Benchmarking was held with the officials of SLNA-IWMP, Meghalaya on 13<sup>th</sup> February 2017 in presence of the representative officials of PIAs in Shillong. Based on the detail discussions held in the review meeting, the baseline values has been fixed for the identified indicators considering the agro-climatic zone and usefulness to the watershed projects implemented in Meghalaya.

The indicators and benchmarks so finalised are shown in **Page No. 114** under Chapter-4 of this Report.

## 1. INTRODUCTION

### 1.1. *Integrated Watershed Management Programme (IWMP)*

The Integrated Watershed Management Programme (IWMP) is a programme of the Government of India, which is being implemented under the aegis of the Department of Land Resources (DoLR), Ministry of Rural Development. The programme was launched in 2009-10 with the main objectives of restoring the ecological balance by harnessing; conserving and developing degraded natural resources such as soil, vegetative cover and water. The programme intends to achieve outcomes like the prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. It has been envisaged that the above measures would enable multi-cropping and the introduction of diverse agro-based activities in order to provide sustainable livelihoods to the people residing in the watershed areas.

Along with the other states of India, the above programme, viz. IWMP, is being implemented in the state of Meghalaya. The Meghalaya State Watershed & Wasteland Development Agency (MSWWDA), an organization formed by the Soil & Water Conservation Department of Government of Meghalaya, is executing the programme in this state.

Appropriate institutional arrangements have been made at various levels for the effective and professional management of watershed development projects. Dedicated institutions have been established at the different levels with multi-disciplinary experts, as given in the following table.

**Table-1.1: Institutional Structure for Implementation of IWMP at the State Level**

Level	Institution	Acronym
State Level	State Level Nodal Agency	SLNA
District Level	Watershed Cell cum Data Centre	WCDC
Project Level	Project Implementing Agency – Watershed Development Team	PIA-WDT
Village Level	Watershed Committee	WC

It may be noted that the Meghalaya State Watershed & Wasteland Development Agency (MSWWDA) is functioning as the State Level Nodal Agency (SLNA) in the state. WCDCs have been positioned in each district of the state. WDT is functional as the Project Implementation Agency for each project. At the village level, Watershed Committees are functional in the state.

## 1.2. *Monitoring, Evaluation, Learning & Documentation (MEL&D) System*

The IWMP is a more diverse and socially inclusive programme compared to its predecessors like Drought Prone Area Programme (DPAP), Desert Development Programme (DDP) and Integrated Watershed Development Programme (IWDP). In view of the large expenditure and the needs of the people that the programme seeks to address, it becomes imperative to ensure accountability and set minimum standards of performance and achievements for the public investment.

This is sought to be done by the following initiatives to establish a well designed and functional system for Monitoring, Evaluation, Learning and Documentation (MEL&D). In Meghalaya, the above structure has been followed for the successful execution of the programme in the state.

### **Monitoring**

A participatory, outcome and impact-oriented and user-focused monitoring, evaluation and learning system has been put in place to obtain feedback and undertake improvements in planning, project design and implementation. The programme design recommends that regular monitoring of the projects is to be carried out at each stage. Such monitoring includes process and outcome monitoring. Online monitoring is a feature of all projects. The PIA shall submit quarterly progress reports (countersigned by the Watershed Committee (WC) President) to the WCDC for further submission to the SLNA. The WCDC will have one member exclusively responsible for monitoring.

In Meghalaya, as elsewhere in India, the monitoring of the watershed projects is being done by various mechanisms. These include Internal Monitoring by Project Teams (PIA/ WCDC), Progress Monitoring, GIS / Web Based On-Line Monitoring, Self-Monitoring by communities, Sustainability Monitoring, Social Audits, Independent and External Monitoring by Independent Agencies, etc.

### **Evaluation**

A minimum percentage of evaluations and impact studies will be carried out to ensure objectivity as well as to infuse a national perspective. The evaluation will be carried out by SLNA panel of evaluators, selected as per guidelines issued by DoLR. This is planned to be done at the end of the programme.

### **Learning**

Systematic efforts are being made by the WDT/WC to learn from the field experiences as also from feedback of independent sources. Different methods had been proposed to enable the learning process at different levels. Such measures are being followed in the state of Meghalaya along with the rest of the country.

## Documentation

Last activity domain in the MEL&D system is documentation. In any project management structure, documentation occupies a significant share of total activities. System of documentation hardly leaves any space for any missing link in the activity flow chart of project implementation. IWMP envisages all sorts of standard documents and responsibility of documentation is naturally vested upon MEL&D agencies who are expected to be professional experts in the area. Thus MEL&D system has a dual role in documentation. Firstly, it could be logically expected from the agency that appropriate measures to be taken for educating project implementation functionaries at all levels regarding generating and archiving documents. Secondly, the agency at its own shall concurrently generate/collect and archive essential project documents of all major types. Mode of achieving and transmitting project documents is a major decision in determining structure of project management framework.

### 1.3. *Baseline Survey of IWMP Batch-IV Projects in Meghalaya*

At the outset of the implementation of IWMP in the state, a Baseline Survey is required to be conducted in the sampled watersheds. In Meghalaya, the work for the above-mentioned Baseline Survey was commenced in February 2016 by North Eastern Development Finance Corporation Ltd. (NEDFi), which is working as the MEL&D Agency for the SLNA in the state. Thereafter, the entire exercise consists of the following steps:

- (a) Desk Review and Study of Secondary Data;
- (b) Developing Pilot Survey Schedule;
- (c) Field Testing of Survey Schedules;
- (d) Finalization of Survey Schedule;
- (e) Data Collection as per sample methodology (Field Survey & Focus Group Discussion);
- (f) Data Entry & Tabulation;
- (g) Data Analysis;
- (h) Preparation of Draft Report; and
- (i) Finalization of Report.

The design and implementation of the study has been discussed in the next section. This Report covers the Baseline Survey and Benchmarking of the project indicators for Batch IV projects. The Baseline Survey results form a part of the impact assessment exercise for the IWMP. A comparison of the fixed benchmark values against the indicators would give an objective idea of the progress and impact of the execution of the programme in the state. It is with this objective that the entire exercise has been taken up to understand the degree of achievement of the project goals and objectives of Batch-IV projects implemented under Integrated Watershed Management Programme (IWMP) in Meghalaya.

## 2. SURVEY DESIGN AND METHODOLOGY

### 2.1. Consultation with the Officials at SLNA Level

Several communications and consultations were carried out with the key officials including CEO-MSWWDA and senior officials of State Level Nodal Agency (IWMP-Meghalaya) at the planning stage of the baseline survey. The purpose of the initiative was mainly to finalise sample project locations, design an appropriate survey methodology, cross-fertilisation of ideas, facilitate experience-sharing and to explore practical solutions to the challenges related to the field survey process.

### 2.2. Methodology adopted for the Baseline Survey

The sampling strategy used in the present Baseline Survey for IWMP in Meghalaya (Batch-IV) is based on the framework prescribed by the Department of Land Resources (DoLR), Ministry of Rural Development, Government of India.

The steps involved in the process are given below:

#### (a) Selection of Projects

In the present instance, the Baseline Study covered 25% of the batch-wise projects. In other words, around one-quarter of the projects taken up under **Batch-IV** were taken up under the present exercise.

The SLNA suggested that the study cover the following projects under **Batch-IV**. The projects are located in different parts of the state, as is evident from a perusal of the following table.

**Table-2.1 Selection of Projects (Batch-IV) for Baseline Survey under IWMP in Meghalaya**

District	Block	Project Name
East Khasi Hills	Pynursla	IWMP-XIII
	-Do-	-Do-
	-Do-	-Do-
West Garo Hills	Gambegre	IXMP-XIII
	-Do-	-Do-
	-Do-	-Do-
Ri Bhoi	Umling	IWMP-VIII
	-Do-	-Do-
	-Do-	-Do-

### (b) Selection of Villages

The selection of villages to be covered in the Baseline Survey was done as given below.

**Project Village:** In each project, three villages were taken up for the study. One of these villages was located in each of the Upper Reach (UR) or ridge, Middle Reach (MR) and Lower Reach (LR) or Valley of the watershed covered under the project.

**Control Village:** Some of the villages in the untreated area with similar ecological and socio-economic conditions will be taken up under the above study as the 'control sample'. Comparison of the variation of the indicator values in the project villages against the variation in the same indicators in the 'control sample' will enable the better assessment of the programme impacts.

The list of Project Villages and Control Villages taken up for study is given in a tabular format in the following sub-section and may be referred to therein. Appendix-1 gives a map of the state showing the location of the project villages as well as the control villages.

### (c) Sampling of Households

Under the present Baseline Survey in Meghalaya, the sampling of households in the selected villages was done in the following manner in the project villages and control village:

**Project Villages:** 20% of the households staying in the selected project village; and

**Control Villages:** 50% of the households living in the selected village taken as 'Control Village'.

### (d) Administration of Schedules

Data was collected from the sampled households on the project indicators and other relevant aspects by using Schedules. Copy of the Household Schedule is attached as Appendix-2.

In addition, village level data was sought to be obtained.

## 2.3. *List of Selected Projects & Sampled Villages for Baseline Survey*

The list of selected villages and their location details is given overleaf. This is done separately for the project villages and control villages.

**Table-2.2: Selected Projects & Surveyed Villages (Project Villages)**

District	Block	Project Name	Sampled Village	Location
East Khasi Hills	Pynursla	IWMP-XIII	Nashain	Upper Reach
	-Do-	-Do-	Mawriang	Middle Reach
	-Do-	-Do-	Umsyiem	Lower Reach
West Garo Hills	Gambegre	IXMP-XIII	Chigitchakgre	Upper Reach
	-Do-	-Do-	Sengminpara	Middle Reach
	-Do-	-Do-	Jengchamgre	Lower Reach
Ri Bhoi	Umling	IWMP-VIII	Plasha	Upper Reach
	-Do-	-Do-	Kynton Phanram	Middle Reach
	-Do-	-Do-	Umshit	Lower Reach

**Table-2.3: Selected Projects & Surveyed Villages (Control Villages)**

District	Block	Sampled Village	Control Village
East Khasi Hills	Pynursla	Nongshyrngan	IWMP-XIII
West Garo Hills	Gambegre	Dapdalgre	IXMP-XIII
Ri Bhoi	Umling	Umtyrli Rongdon	IXMP-VIII

## 2.4. Organising the Study

- 2.4.1. Desk Review and Secondary Data: NEDFi monitoring team conducted the desk review of the various documents relevant to the projects e.g. Detailed Project Report, Periodic Reports, activities proposed under the IWMP Programme etc. Secondary data related to population size, district profiles, village records, government schemes, annual rainfall etc were collected from reliable sources. Important study materials were also downloaded from many websites.
- 2.4.2. Field Testing of Survey Schedules: In order to experience the efficiency of the survey schedules, field testing of the survey schedules were carried out in Ribhoi district of Meghalaya. Field test were conducted in four villages. Learnings implemented from field testing are as follows:
- Direct statements related to income and bank details of the respondents were revised.
  - Time consumption for each survey schedule is identified and entire field survey is planned according to the experience.
  - Requirement of engaging a local language translator is understood.
  - Importance of networking and early information is followed while visiting households so that respondents are found available for the survey.
- 2.4.3. Field Survey: Core officials of NEDFi Monitoring Team (MEL&D agency) were directly supervising the field survey process and were actively involved with the field investigation team members covering major sample project locations. For Household information, interviewers visited the individual households to conduct the interview with selected respondents.



- 2.4.4. Focus Group Discussion: For village level information, Focus Group Discussion (FGD) was conducted at 40 (Forty) villages. Villagers including women gathered at a suitable premise to share about their knowledge, opinion, perspective and interests about issues/indicators. Village level data collected through FGD has been entered in MS excel and its analysis has been also used in confirming the findings.
- 2.4.5. Data Processing and Analysis: MS Excel software was used for making data entry and the data entry were made by the experienced field-coordinators. All the collected data were processed and analysed in accordance with the objectives of the study. Coding, editing, rechecking and tabulation were carried out during processing of data. Consistency checks and key stroke errors were detected and corrected accordingly before data analysis.
- 2.4.6. Study Report: Finally Baseline Study Report has been prepared based on the secondary & primary data analysed, its interpretation, observations and discussions with various stakeholders during field visit.

## 2.5. *Quality Control*

One field interviewer could finish around 8 (Eight) to 10(Ten) survey schedules in a day. Primary data collected through household survey was scrutinized and cross-checked by the team members on daily basis. Each evening, the field co-ordinators were responsible for collecting the schedules and checking them for completion, legibility and consistency. They also followed up for any inconsistencies or missing information. Furthermore, the project co-ordinator supervised the quality by randomly checking the household schedules.

## 2.6. *Ethical Practices*

The research protocol ensured high standards of ethical conduct. The basic guiding principles were voluntary participation (respondents were not coerced for participation); consent before interview (participants were fully informed about the objectives of the project and the purpose of the baseline study), confidentiality (identifying information will not be made available to anyone who is not directly involved in the project without the respondents' consent), respect and treating respondents fairly.

### 2.7. *Field Work Challenges*

- Non-existence of motorable road and difficult hilly terrain leading to some of the sample villages.
- Facilitating the Field Survey and arranging Focus Group Discussion (FGD) with due permission of Village Headman.
- Convincing the villagers speaking different languages in some villages (Like Mikir language in a village of Ribhoi district, Biate language in a village of East Jaintia Hills district etc. apart from common languages of Meghalaya like Khasi, Jaintia and Garo language.)

However, the survey team managed to overcome the challenges by applying different approaches in order to complete the survey within the scheduled time frame.

### 3. FINDINGS OF THE BASELINE SURVEY – BATCH IV

The following sub-sections give the findings of the Baseline Survey for IWMP – Batch IV in the project districts of Meghalaya state. It may be noted that for Batch-IV projects, the survey covered projects in the following districts of the state:

- (a) East Khasi Hills;
- (b) West Garo Hills; and
- (c) Ri Bhoi

#### 3.1. Location [Batch IV]

##### Findings

The names of the project villages have been furnished at overleaf (under Table-3.2), along with their location particulars (watershed, block and district).

The same may be seen in the above regard.

##### Analysis

The survey encompassed four districts of Meghalaya under Batch IV. As previously stated; in this batch, four watersheds, one in each district, had been considered. Further, in **each** watershed, the survey covered four villages– which were located as follows:

- Lower Reach - One village
- Middle Reach - One village
- Upper Reach - One village

In addition, one village (without any project interventions) was taken as **control village** and covered under the study.

Thus, in all, sixteen villages were included under the study for Batch-IV projects. The following table summarizes their distribution across the districts,

**Table -3.1: No. of Villages Covered under the Study [Batch IV]**

Type of Village	Coverage per Watershed [As per Methodology]	No. of Watersheds Studied (BATCH-IV)	Total Villages Studied @ 1 per Watershed
Lower Reach	1	3	3
Middle Reach	1	3	3
Upper Reach	1	3	3
Control Village	1	3	3
<b>TOTAL VILLAGES</b>	--	--	<b>12</b>

Table-3.2 Location Particulars of Project Villages covered under Baseline Survey [Part-III]

Sl. No.	Batch	District	Block	Names of Covered Villages						Control Village
				Upper Reach		Middle Reach		Lower Reach		
				Village	Watershed	Village	Watershed	Village	Watershed	
1	Batch – IV	East Khasi Hills	Pynursla	Nashain	Wah Rymben Umkrem	Mawriang	Wah Umkrem	Umsyiem	Wah Rymben Umkrem	Nongshyrngan
2	Batch – IV	West Garo Hills	Gambegre	Chigitchakgre	Sikkili	Sengminpara	Sokchon	Jengchamgre	Sokchon	Dapdalgre
3	Batch – IV	Ri Bhoi	Umling	Plasha	Umtyrli Rongdon	Kynton Phanram	Umtyrli Rongdon	Umshit	Umtyrli Rongdon	Himphala & Tomonpoanglong

**Source:** Survey Schedule-Household, Part (A) – Location and Survey Schedule – Village Part (A) Village Details

### 3.2. *Household & Land Details [Batch IV]*

#### 3.2.1. Household, Social Category & Homestead Land Details

##### **Findings**

In the project villages studied under Batch-IV; data was collected on the following parameters as a part of the survey:

- No. of Households
- Social Category
- Homestead Land

Table-3.3 at overleaf gives the findings on the above parameters for the project villages (Batch-IV). The same may be seen in the above connection.

##### **Analysis**

##### *Number of Households*

In all, as many as 158 households were covered under the present survey. These are distributed as follows:

- No. of Households in Project Villages: 106
- No. of Households in Control Villages: 52

##### *Social Category*

All households of all the villages (project villages as well as control villages) belonged to the social category of Scheduled Tribe (ST).

##### *Homestead Land*

As an outcome of the Baseline Survey, it is found from Table-3.3 that:

- All households in the villages (project village and control village) possess homestead land (i.e. land for locating their houses).
- The average of homestead land owned by a household in the project villages is about 0.147 Hectares (Ha), which is about 1,470 m<sup>2</sup> (or approx. 15823 ft<sup>2</sup>).
- In the control villages covered by the study, the size of an average homestead land is a bit smaller, viz. 0.117 Ha (about 1,170 m<sup>2</sup>) – which is about 12594 ft<sup>2</sup>.
- Thus, the size of average homestead land of households in control villages is over 20% smaller when compared to the average size of similar land located in the project villages.
- Table-3.3 also gives the Standard Deviation (SD) of the homestead land in the different villages (project villages as well as control villages) covered by the study. SD is a measure of variation of the responses received. In Table-3.3, if SD is higher in a particular village, it means that there is a (comparatively) higher variation in the amount of homestead land in the sampled households in that village.

Table-3.3 Households, Social Category &amp; Homestead Land [BATCH – IV]

District	Village	Location	Households	Social Category				Homestead Land (in Ha)		
				SC	ST	OBC	General	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	Upper Reach	5	0	5	0	0	5	0.116	0.118
	Mawriang	Middle Reach	25	0	25	0	0	25	0.120	0.290
	Umsyiem	Lower Reach	32	0	32	0	0	32	0.125	0.204
West Garo Hills	Chigitchakgre	Upper Reach	8	0	8	0	0	8	0.240	0.086
	Sengminpara	Middle Reach	6	0	6	0	0	6	0.267	0.083
	Jengchamgre	Lower Reach	4	0	4	0	0	4	0.200	0.080
Ri Bhoi	Plasha	Upper Reach	12	0	12	0	0	12	0.131	0.341
	Kynton Phanram	Middle Reach	6	0	6	0	0	6	0.089	0.068
	Umshit	Lower Reach	8	0	8	0	0	8	0.191	0.296
<b>TOTAL/AVERAGE</b>	<b>(PROJECT)</b>		<b>106</b>	<b>--</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>106</b>	<b>0.147</b>	<b>--</b>
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	Control Village	31	0	31	0	0	31	0.068	0.095
West Garo Hills	Dapdalgre	Control Village	8	0	8	0	0	8	0.290	0.085
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	0	13	0	0	13	0.126	0.138
<b>TOTAL/AVERAGE</b>	<b>(CONTROL)</b>		<b>52</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>52</b>	<b>0.117</b>	<b>--</b>

Note: **n** gives the number of responses to the query  
 **$\bar{x}$**  gives the arithmetical mean of the responses  
**s. d.** is the standard deviation (calculated by the following formula) of the responses received

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

Standard deviation is a measure of the variation of the responses

### 3.2.2. Operational Holdings – No. of Plots

#### Findings

The term ‘Operational Holdings’ refers to the farm land which is operated on (i.e. farmed) by the members of the sampled household. It can include both owned land as well as leased land. In the project and control villages studied under Batch-IV; data was collected on the following parameters related to Operational Holdings as a part of the survey: (a) No. of Plots - both ‘owned and utilized’ and ‘other utilized’ (land used by the household on lease or on some other understanding with the land owners); and (b) Area of Operational Holdings.

Regarding the ‘No. of Plots’ operated upon by the sampled households; Table-3.4 at overleaf gives the findings for the study (for Batch-IV). The area aspects related to operational holdings is discussed in the next sub-section (Sub-section 3.2.3).

#### Analysis

##### *Number of Plots – Owned & Utilized*

As per the study, on an average, the sampled households owned and utilized (farmed) the following number of plots:

Project Villages		Control Villages	
Cropped (Irrigated)	NIL	Cropped (Irrigated)	NIL
Cropped (Non-Irrigated)	0.717	Cropped (Non-Irrigated)	0.692
Fallow	0.013	Fallow	NIL
TOTAL (Project Villages)	0.730 plots	TOTAL (Control Villages)	0.692 plots

An average household has less than one plot of land owned by it in the project villages. In the control villages, households farm just than half a plot of land, which they own.

##### *Number of Plots – Other Utilized*

As per the study, on an average, the sampled households utilized (farmed) the following number of plots, which they did not own:

Project Villages		Control Villages	
Cropped (Irrigated)	NIL	Cropped (Irrigated)	NIL
Cropped (Non-Irrigated)	0.094	Cropped (Non-Irrigated)	NIL
Fallow	NIL	Fallow	NIL
TOTAL (Project Villages)	0.094 plots	TOTAL (Control Villages)	NIL plots

In project villages, households are utilizing only some plot that is not owned by them (utilized on lease basis or on some understanding with the owner of the land) whereas in control villages, there are none.



Table 3.4 Operational Holdings – No. of Plots [BATCH IV]

District	Village	Location	N	Owned + Utilized by Self								Other Utilized							
				Cropped				Fallow Land		Other		Cropped				Fallow Land		Other	
				Irrigated		Non-Irrigated						Irrigated		Non-Irrigated					
				$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																			
East Khasi Hills	Nashain	Upper Reach	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.400	0.547	0.0	0.0	0.0	0.0
	Mawriang	Middle Reach	25	0.0	0.0	0.160	0.472	0.0	0.0	0.0	0.0	0.0	0.0	0.240	0.435	0.0	0.0	0.0	0.0
	Umsyiem	Lower Reach	32	0.0	0.0	0.531	0.621	0.0	0.0	0.0	0.0	0.0	0.0	0.030	0.176	0.0	0.0	0.0	0.0
West Garo Hills	Chigitchakgre	Upper Reach	8	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sengminpara	Middle Reach	6	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jengchamgre	Lower Reach	4	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ri Bhoi	Plasha	Upper Reach	12	0.0	0.0	1.750	1.422	0.033	0.116	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Kynton Phanram	Middle Reach	6	0.0	0.0	1.333	0.516	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Umshit	Lower Reach	8	0.0	0.0	1.0	1.069	0.125	0.353	0.0	0.0	0.0	0.0	0.125	0.353	0.0	0.0	0.0	0.0
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>0.0</b>	<b>--</b>	<b>0.717</b>	<b>--</b>	<b>0.013</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.094</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>
<b>CONTROL VILLAGE</b>																			
East Khasi Hills	Nongshyrngan	Control Village	31	0.0	0.0	0.129	0.340	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Garo Hills	Dapdalgre	-Do-	8	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ri Bhoi	Himphala & Tomonpoanglong	-Do-	13	0.0	0.0	1.846	0.898	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>0.0</b>	<b>--</b>	<b>0.692</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>

**Note:** n gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses  
s. d. is the standard deviation (calculated by the following formula) of the responses received

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

Standard deviation is a measure of the variation of the responses

### 3.2.3. Operational Holdings – Area

#### Findings

As stated previously, the term ‘Operational Holdings’ refers to farm land which is operated on (i.e. farmed) by the members of the sampled household. It can include both owned land as well as leased land. In the project and control villages studied under Batch-IV; data was collected on the following parameters related to Operational Holdings as a part of the survey: (a) No. of Plots - both ‘owned and utilised’ and ‘other utilized’; and (b) Area of Operational Holdings. The findings on ‘Number of Plots’ have been given previously. This sub-section gives discusses the area of the operational holdings of the sampled households. Table-3.5 (available at the page after next page) may be referred to in the above connection.

#### Analysis

##### *Area of Holdings – Owned & Utilized Plots*

As per the survey, on an average, the sampled households owned and utilized (farmed) the following area of operational holdings:

Project Villages		Control Villages	
Cropped (Irrigated)	0.000 Ha	Cropped (Irrigated)	0.000 Ha
Cropped (Non-Irrigated)	1.033 Ha	Cropped (Non-Irrigated)	0.722 Ha
Fallow	0.008 Ha	Fallow	0.000 Ha
<b>TOTAL (Project Villages)</b>	<b>1.041 Ha</b>	<b>TOTAL (Control Villages)</b>	<b>0.722 Ha</b>

In the project villages, an average household has about 1.041 Ha of land owned by it. In the control villages, households farm less than one hectare on ownership basis.

##### *Area of Holdings – Other Utilized Plots*

As per the survey, on an average, the sampled households utilized (farmed) the following area of holdings, which they did not own:

Project Villages		Control Villages	
Cropped (Irrigated)	0.000 Ha	Cropped (Irrigated)	0.000 Ha
Cropped (Non-Irrigated)	0.504 Ha	Cropped (Non-Irrigated)	0.138 Ha
Fallow	0.000 Ha	Fallow	0.000 Ha
<b>TOTAL (Project Villages)</b>	<b>0.504 Ha</b>	<b>TOTAL (Control Villages)</b>	<b>0.138 Ha</b>

In project villages, the average household is utilizing just half a hectare of land not owned by them (utilized on lease basis or on some understanding with the owner of the land) whereas in control village, only some plot of land is utilized.

##### *Total Area of Operational Holdings*

As per the survey, on an average, the sampled households utilized (farmed) the following area of total land holdings, (both owned and not-owned).

Project Villages		Control Villages	
Cropped (Irrigated)	0.000 Ha	Cropped (Irrigated)	0.000 Ha
Cropped (Non-Irrigated)	1.534 Ha	Cropped (Non-Irrigated)	0.860 Ha
Fallow	0.008 Ha	Fallow	0.000 Ha
TOTAL (Project Villages)	1.542 Ha	TOTAL (Control Villages)	0.860 Ha

In both types of villages, the average household is having a low area of land-holdings. As per Government of India, such holdings will be judged as ‘marginal holdings’.

**In fact, the average farmer covered under the study is a marginal farmer with land holdings of above 1.50 Hectare in the Project Villages, and below 1 Hectare in the Control Villages.**

#### *Leased Out Land*

The survey also collected data on the quantum of land leased out by the sampled households.

For the project villages as well as control village, none of the above households had leased out any land.

Table 3.5 Operational Holdings – Area [BATCH IV]

District	Village	Location	n	Owned + Utilized by Self								Other Utilized								Total Area								Leased Out Land Area	
				Cropped				Fallow Land		Other		Cropped				Fallow Land		Other		Cropped				Fallow Land		Other			
				Irrigated		Non-Irrigated						Irrigated		Non-Irrigated						Irrigated		Non-Irrigated							
				$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD		
<b>PROJECT VILLAGE</b>																													
East Khasi Hills	Nashain	UR	5	0	0	2.800	3.701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mawriang	MR	25	0	0	0.160	0.554	0	0	0	0	0	0	2.000	6.892	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Umsyiem	LR	32	0	0	1.106	1.702	0	0	0	0	0	0	0.031	0.177	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Garo Hills	Chigitchakgre	UR	8	0	0	0.980	0.377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sengminpara	MR	6	0	0	0.880	0.347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Jengchamgre	LR	4	0	0	0.740	0.302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ri Bhoi	Plasha	UR	12	0	0	1.920	1.713	0.034	0.117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.034	0.117	0	0	0	0
	Kynton Phanram	MR	6	0	0	1.920	1.357	0	0	0	0	0	0	0.330	0.816	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Umshit	LR	8	0	0	0.689	0.822	0.051	0.143	0	0	0	0	0.063	0.177	0	0	0	0	0	0	0	0	0.051	0.143	0	0	0	
<b>TOTAL/AVG. (PROJECT)</b>			<b>106</b>	---	---	<b>1.033</b>	--	<b>0.008</b>	--	<b>0.0</b>	--	---	---	<b>0.504</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>1.534</b>	--	<b>0.008</b>	--	<b>0.0</b>	--	<b>0.0</b>	--
<b>CONTROL VILLAGE</b>																													
East Khasi Hills	Nongshymgan	CV	31	0	0	0.005	0.027	0	0	0	0	0	0	0.232	0.883	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Garo Hills	Dapdalgre	CV	8	0	0	0.820	0.786	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	0	0	2.370	1.938	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL/AVG. (CONTROL)</b>			<b>52</b>	---	---	<b>0.722</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.138</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.860</b>	--	<b>0.0</b>	--	<b>0.0</b>	--	<b>0.0</b>	--

**NOTE** n gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses  
s. d. is the standard deviation (calculated by the following formula) of the responses received

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}$$

Standard deviation is a measure of the variation of the responses

### 3.2.4. Details of Household Members

#### **Findings**

Table-3.6 reports the findings of the following household parameters:

- Household & Population
- Age
- Gender
- Education

In the following paragraphs, the analysis of the above aspects is given as a whole for the project villages and for the control villages. Village details are available in the above table.

#### **Analysis**

##### *Household Size*

In the project villages chosen for the survey, the average household size is found to be 5.9 persons. It ranges from 4.0 to 6.3 in the different project villages. On the other hand, in the control villages covered, the average household size is 5.3 persons. The household size ranges from 4.5 to 6.6 in these villages.

##### *Age Distribution of the Population*

**Project Villages:** The age distribution of the population in the project villages is found to be as follows:

0-below 6 years	11%	35 – below 60 years	22%
6-below 18 years	28%	60 years & above	6%
18-below 35 years	34%	---	--

**Control Villages:** As follows:

0-below 6 years	11%	35 – below 60 years	16%
6-below 18 years	38%	60 years & above	4%
18-below 35 years	30%	---	--

[**Note:** All figures have been rounded off. The total may exceed 100% at time.]

##### *Gender Profile*

In the project villages, 52% of the population is female. (Sex ratio is 948 males per 1000 females.) In the control village, the numbers of male and female are about the same.

### *Educational Attainments*

In the project villages; more than half (55%) of the population have studied till Class-X or less. Here, about 27% have not gone to school or did not mention their schooling in the survey. In the control villages; the picture is similar – 49% did not study beyond Class-X, while 37% either have no schooling or have not stated anything in the above regard.

Table-3.6: Details of Household Members (Part 1) [BATCH IV]

District	Village	Location	Households	Population	Age (in Years)					Gender		Education				
					Below 6	6- Below 18	18 - Below 35	35- Below 60	60 and above	Male	Female	Below Class X	Class X	Class XI-XII	Graduation	No School / Not Given
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	Upper Reach	4	25	4	8	7	4	2	11	14	14	1	1	0	9
	Mawriang	Middle Reach	26	143	14	43	48	32	6	63	80	93	10	4	5	31
	Umsyiem	Lower Reach	32	208	13	68	60	52	15	108	100	127	21	15	9	36
West Garo Hills	Chigitchakgre	Upper Reach	8	58	6	19	17	12	4	26	32	28	7	1	0	22
	Sengminpara	Middle Reach	6	39	5	6	15	9	4	24	15	13	7	1	0	18
	Jengchamgre	Lower Reach	4	25	6	4	10	4	1	11	14	7	2	0	0	16
Ri Bhoi	Plasha	Upper Reach	12	76	7	22	29	17	1	37	39	39	11	4	4	18
	Kynton Phanram	Middle Reach	6	32	3	5	16	8	0	13	19	11	5	3	3	10
	Umshit	Lower Reach	8	29	10	3	13	1	2	11	18	15	2	1	1	10
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>635</b>	<b>68</b>	<b>178</b>	<b>215</b>	<b>139</b>	<b>35</b>	<b>304</b>	<b>331</b>	<b>347</b>	<b>66</b>	<b>30</b>	<b>22</b>	<b>170</b>
<b>CONTROL VILLAGE</b>																
East Khasi Hills	Nongshyrngan	Control Village	31	140	22	49	41	22	6	59	81	75	6	4	2	53
West Garo Hills	Dapdalgre	Control Village	8	53	5	17	19	7	5	30	23	24	8	0	0	21
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	86	4	40	25	17	0	43	43	38	10	8	0	30
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>279</b>	<b>31</b>	<b>106</b>	<b>85</b>	<b>46</b>	<b>11</b>	<b>132</b>	<b>147</b>	<b>137</b>	<b>24</b>	<b>12</b>	<b>2</b>	<b>104</b>



### 3.2.5. Details of Household Members (Occupations & Memberships of SHG etc.)

#### **Findings**

Table-3.7 (at overleaf) indicates the findings of the following household parameters:

- Primary Occupation
- Secondary Occupation
- Membership of SHG / UG / Village Dorbar etc.

The following paragraphs furnish an analysis of the above areas as a whole for the village; with such analysis being done separately for the project villages and for the control villages. Village details are available in the above table, and may be seen therein.

#### **Analysis**

##### *Primary Occupation*

In the project villages, the primary occupations of the household members are as given below:

Project Villages: In these villages, less than one-fifth (16%) of the household members are engaged in agriculture (and related work), while another one-fifth (17%) work as daily wage labourers. Nearly two-fifths (31%) of the population are students, while 20% of members either have no occupation or have not stated the same. In addition, 6% of the household members are housewives and 9% have other occupations.

Control Villages: Just one-fifth (17%) of the household members are farmers, while over one-fifth (19%) are labourers. Two-fifths (37%) are students and 2% are housewives. Further, 23% of members either have no occupation or have not stated the same.

[**Note:** Other Occupations (Primary) include teacher, Govt. service, ASHA, Anganwadi worker, driver, home-guard, business, shop-keeping, carpenter etc. and students include children in pre-school facilities.]

##### *Secondary Occupation*

In the project villages and control villages, very few persons (below 2%) have indicated any secondary occupations.

[**Note:** Other Occupations (Secondary) include all occupations excluding agriculture and labour. Secondary Occupations have been indicated by only some of the respondents.]

*Membership of SHG / UG / Village Dorbar*

In the project villages; just over 6% of the population of the sampled households are members of any community based organization (like Self Help Group, User Groups, and Village Dorbar etc.).

In the control villages, less than 3% of the population are members of similar organizations.

Table-3.7: Details of Household Members (Part 2) [BATCH IV]

District	Village	Location	Households	Population	Primary Occupation						Secondary Occupation			Whether member of SHG / UG / Village Dorbar	
					Agriculture	Labour	Housewife / At Home	Students	Others (1)	No Occupation / Not Given	Agriculture	Labour	Others (2)	Yes	No
<b>PROJECT VILLAGE</b>															
East Khasi Hills	Nashain	Upper Reach	4	25	2	4	2	6	2	9	0	2	1	0	25
	Mawriang	Middle Reach	26	143	4	40	10	52	20	17	0	0	0	3	140
	Umsyiem	Lower Reach	32	208	8	65	19	72	23	21	0	4	2	9	199
West Garo Hills	Chigitchakgre	Upper Reach	8	58	16	0	3	31	0	8	0	0	4	7	51
	Sengminpara	Middle Reach	6	39	20	0	0	14	0	5	0	0	0	4	35
	Jengchamgre	Lower Reach	4	25	15	0	0	2	0	8	0	0	0	3	22
Ri Bhoi	Plasha	Upper Reach	12	76	15	0	4	8	8	41	1	2	3	6	70
	Kynton Phanram	Middle Reach	6	32	11	0	0	12	3	6	0	1	3	2	30
	Umshit	Lower Reach	8	29	12	0	2	3	1	11	0	2	1	1	28
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>635</b>	<b>103</b>	<b>109</b>	<b>40</b>	<b>200</b>	<b>57</b>	<b>126</b>	<b>1</b>	<b>11</b>	<b>14</b>	<b>35</b>	<b>600</b>
<b>CONTROL VILLAGE</b>															
East Khasi Hills	Nongshyrngan	Control Village	31	140	4	52	4	45	3	32	0	4	0	5	135
West Garo Hills	Dapdalgre	Control Village	8	53	25	0	0	20	0	8	0	0	0	3	50
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	86	18	1	2	37	4	24	2	5	1	0	86
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>279</b>	<b>47</b>	<b>53</b>	<b>6</b>	<b>102</b>	<b>7</b>	<b>64</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>8</b>	<b>271</b>

**Notes:**

- (1) Other Occupations (Primary) include teacher, govt service, ASHA, Anganwadi worker, driver, home-guard, business, shop-keeping, carpenter etc. Students include pre-schoolers.
- (2) Other Occupations (Secondary) include all occupations excluding agriculture and labour.
- (3) Secondary Occupations have been indicated by only some of the respondents.

Table-3.8: Soil Health [BATCH IV]

District	Village	Location	Households	Soil Tested		If 'Yes'					
				Yes	No	Cost of Soil Testing			Status of Soil Carbon		
						n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>											
East Khasi Hills	Nashain	Upper Reach	4	0	4	0	0	0	0	0	0
	Mawriang	Middle Reach	26	0	26	0	0	0	0	0	0
	Umsyiem	Lower Reach	32	0	32	0	0	0	0	0	0
West Garo Hills	Chigitchakgre	Upper Reach	8	0	8	0	0	0	0	0	0
	Sengminpara	Middle Reach	6	0	6	0	0	0	0	0	0
	Jengchangre	Lower Reach	4	0	4	0	0	0	0	0	0
Ri Bhoi	Plasha	Upper Reach	12	0	12	0	0	0	0	0	0
	Kynton Phanram	Middle Reach	6	0	6	0	0	0	0	0	0
	Umshit	Lower Reach	8	0	8	0	0	0	0	0	0
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>--</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>CONTROL VILLAGE</b>											
East Khasi Hills	Nongshyrngan	Control Village	31	0	31	0	0	0	0	0	0
West Garo Hills	Dapdalgre	Control Village	8	0	8	0	0	0	0	0	0
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	0	13	0	0	0	0	0	0
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

### 3.2.6. Soil Health

From Table-3.8 (given in the previous page), it is found that no soil testing was carried out in any of the households covered by the survey, both in the project villages, as well as the in the control villages.

## 3.3. *Irrigation [Batch IV]*

### 3.3.1. Irrigated Area

From Table-3.9 (given in the next page), it is found that there is no irrigated area in the project villages and control villages covered under the present study.

The above information tallies with the data furnished previously with the present report (viz. under Table-3.4 and Table-3.5).

### 3.3.2. Source & Total Irrigated Area

As stated at above, there is no irrigated area in the project villages and control villages as per the present study.

Hence, Table-3.10 is left blank. This table is available after Table-3.9.

### 3.3.3. Information on Irrigation Sources

Not applicable. There are no irrigated areas in the project and control villages. All agriculture is reported to be rain-fed.

Table-3.11 gives the format of the reporting table. This table is available after Table-3.10.

### 3.3.4. Water Availability (for Seasonal Sources)

Not applicable - as there are no irrigated areas in the sampled villages.

Table-3.12 gives the format of the reporting table. This table is available after Table-3.11.

Table-3.9: Irrigated Area [BATCH IV]

District	Village	Location	Households	Irrigated Area (in Hectares)																													
				PRE-KHARIF									KHARIF									RABI											
				Upper Reach			Middle Reach			Lower Reach			Upper Reach			Middle Reach			Lower Reach			Upper Reach		Middle Reach		Lower Reach							
				n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD			
<b>PROJECT VILLAGE</b>																																	
East Khasi Hills	Nashain	UR	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mawriang	MR	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Umsyiem	LR	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
West Garo Hills	Chigitchakgre	UR	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sengminpara	MR	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Jengchangre	LR	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ri Bhoi	Plasha	UR	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Kynton Phanram	MR	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Umshit	LR	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>TOTAL/AVG. (PROJECT)</b>		<b>106</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
<b>CONTROL VILLAGE</b>																																	
East Khasi Hills	Nongshyrngan	CV	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
West Garo Hills	Dapdalgre	CV	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL/AVG. (CONTROL)</b>			<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes: UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Irrigated Area:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the irrigated area)

s. d. is the standard deviation (calculated by the following formula) of the responses received

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}$$

, where n is the sample size and  $\bar{x}$  is the sample mean. Standard deviation is a measure of the variation of the responses

Table-3.10: Source &amp; Total Irrigated Area [BATCH IV]

District	Village	Location	Households	Source of Irrigation			Total Irrigated Area (in Hectares)		
				Upper Reach	Middle Reach	Lower Reach	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>									
East Khasi Hills	Nashain	UR	5	---	---	---	0	0	0
	Mawriang	MR	25	---	---	---	0	0	0
	Umsyiem	LR	32	---	---	---	0	0	0
West Garo Hills	Chigitchakgre	UR	8	---	---	---	0	0	0
	Sengminpara	MR	6	---	---	---	0	0	0
	Jengchamgre	LR	4	---	---	---	0	0	0
Ri Bhoi	Plasha	UR	12	---	---	---	0	0	0
	Kynton Phanram	MR	6	---	---	---	0	0	0
	Umshit	LR	8	---	---	---	0	0	0
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CONTROL VILLAGE</b>									
East Khasi Hills	Nongshymgan	CV	31	---	---	---	0	0	0
West Garo Hills	Dapdalgre	CV	8	---	---	---	0	0	0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	---	---	---	0	0	0
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Notes:**

1. UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**2. Under Total Irrigated Area:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the total irrigated area in hectares)

s. d. is the standard deviation (calculated by the following formula) of the responses received: [Standard deviation is a measure of the variation of the responses]

$$\text{s. d.} = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$



Table-3.11: Information on Irrigation Sources [BATCH IV]

District	Village	Location	Households	SOURCE OF IRRIGATION:																	
				PERENNIAL SOURCE									SEASONAL SOURCE								
				Upper Reach			Middle Reach			Lower Reach			Upper Reach			Middle Reach			Lower Reach		
				n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																					
East Khasi Hills	Nashain	UR	5	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Mawriang	MR	25	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Umsyiem	LR	32	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
West Garo Hills	Chigitchakgre	UR	8	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Sengminpara	MR	6	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Jengchamgre	LR	4	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
Ri Bhoi	Plasha	UR	12	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Kynton Phanram	MR	6	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
	Umshit	LR	8	---	---	---	0	0	0	---	---	---	0	0	0	---	---	---	0	0	0
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	--	--	--	<b>0</b>	<b>0</b>	<b>0</b>	--	--	--	<b>0</b>	<b>0</b>	<b>0</b>	--	--	--	<b>0</b>	<b>0</b>	<b>0</b>
<b>CONTROL VILLAGE</b>																					
East Khasi Hills	Nongshymgan	CV	31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Garo Hills	Dapdalgre	CV	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Notes:** UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village

**Under Irrigated Area:**

**n** gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the number of respondents citing the particular source of irrigation)

**s. d.** is the standard deviation (calculated by the following formula) of the responses received. (Standard deviation is a measure of the variation of the responses)

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}} , \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

Table-3.12: Water Availability (for Seasonal Sources) [BATCH - IV]

District	Village	Location	Households	Water Availability for Seasonal Source of Irrigation: _____																										
				February-March									June-July						September-October											
				Upper Reach			Middle Reach			Lower Reach			Upper Reach			Middle Reach			Lower Reach			Upper Reach			Middle Reach			Lower Reach		
				n	$\bar{x}$	SD	N	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																														
East Khasi Hills	Nashain	UR	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Mawriang	MR	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Umsyiem	LR	32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
West Garo Hills	Chigitchakgre	UR	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
	Sengminpara	MR	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Jengchamgre	LR	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Ri Bhoi	Plasha	UR	12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Kynton Phanram	MR	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Umshit	LR	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
<b>CONTROL VILLAGE</b>																														
East Khasi Hills	Nongshymgan	CV	31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
West Garo Hills	Dapdalgre	CV	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

**Notes:** UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village

**Under Water Availability for Seasonal Source:**  
**n** gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the number of respondents citing the availability of irrigation for the particular seasonal source of irrigation)  
**s. d.** is the standard deviation (calculated by the following formula) of the responses received

$$s. d. = \sqrt{\frac{\sum(x - \bar{x})^2}{(n - 1)}}$$

where n is the sample size and  $\bar{x}$  is the sample mean. Standard deviation is a measure of the variation of the responses

### 3.4. *Drinking Water*

#### 3.4.1. Drinking Water: Scarcity Months

The months of scarcity of drinking water range from January to May. This has been reported by the households covered by the present survey – However, there is a slight difference of water scarcity in both the villages where control villages ranges from January to June and December as well.

##### **Project Villages**

In the Project Villages, the percentage of households reporting a scarcity of drinking water in the different months is given below:

January	5%
February	58%
March	75%
April	95%
May	41%

In the above villages, March and April seem to be months of widespread scarcity. Comparatively, lesser numbers of households have reported shortages in January or in May. No scarcity of drinking water has been reported in the other months.

##### **Control Villages**

In the Control Villages, the percentage of households reporting a scarcity of drinking water in the different months is given below:

January	58%
February	60%
March	75%
April	40%
May	38%
June	2%
December	60%

In the control villages covered by the study, January, February, March and December seem to be months of widespread scarcity. Comparatively, lesser numbers of households have reported shortages in April, May and June.

No scarcity of drinking water has been reported in the other months of the year.

[**Note:** All the above figures have been rounded off.]

Table-3.13 Drinking Water: Scarcity Months [BATCH-IV]

District	Village	Location	Households	Nos. Of Households citing month as a scarcity month											
				January	February	March	April	May	June	July	August	September	October	November	December
<b>PROJECT VILLAGE</b>															
East Khasi Hills	Nashain	UR	5	5	5	5	0	0	0	0	0	0	0	0	0
	Mawriang	MR	25	0	25	25	25	0	0	0	0	0	0	0	0
	Umsyiem	LR	32	0	32	32	32	0	0	0	0	0	0	0	0
West Garo Hills	Chigitchagre	UR	8	0	0	8	8	8	0	0	0	0	0	0	0
	Sengminpara	MR	6	0	0	6	6	6	0	0	0	0	0	0	0
	Jengchamgre	LR	4	0	0	4	4	4	0	0	0	0	0	0	0
Ri Bhoi	Plasha	UR	12	0	0	0	12	12	0	0	0	0	0	0	0
	Kynton Phanram	MR	6	0	0	0	6	6	0	0	0	0	0	0	0
	Umshit	LR	8	0	0	0	8	8	0	0	0	0	0	0	0
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>		<b>106</b>	<b>5</b>	<b>62</b>	<b>80</b>	<b>101</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CONTROL VILLAGE</b>															
East Khasi Hills	Nongshymgan	CV	31	30	31	30	1	0	0	0	0	0	0	0	31
West Garo Hills	Dapdalgre	CV	8	0	0	8	8	8	0	0	0	0	0	0	0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	0	0	1	12	12	1	0	0	0	0	0	0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>		<b>52</b>	<b>30</b>	<b>31</b>	<b>39</b>	<b>21</b>	<b>20</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>

**Notes:**

1. UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

### 3.4.2. Drinking Water Sources (February-March)

#### *Sources of Drinking Water*

##### **Project Villages**

The source of drinking water in the project villages is found to be as follows:

Ring-well	4%	PHE Tap	43%
Spring	33%	Pond	2%
Well	2%	Water tank	7%
Spring water	7%	Neighbour's house	1%

In the above villages, PHE Tap and spring were widely used by the households for obtaining water during the dry period (February- March).

##### **Control Villages**

The source of drinking water in the control villages is found to be as follows:

Well	2%	Pond	8%
Spring	38%	PHE Tap	25%
Spring water	15%	River	15%

In the control villages too, a large majority of all the households depend upon PHE Tap and spring for drinking water in the dry period (February- March).

[**Note:** All figures have been rounded off. The total may exceed 100% at times.]

#### *Distance from Residence*

As per the survey, in the project villages the distance of source water from the residence was found to be 109.4812 (metres) on an average whereas, in the control villages the distance of source water from the residence was found to be 140.4052 (metres) on an average.

The above are not big distances, being around 124 meters from the household (on an average). In dry period (before rainy season) - the sampled households do not have to go far to get water.

#### *Time Spent in Fetching Water*

As per the survey, on an average the time spent for fetching water in the project villages is found to be 8.25467 (minutes) whereas, in the control villages the time spent for fetching water is 10.49129 (minutes) on an average.

The above are not considerable time periods, being around 9 minutes (on an average). Thus, the sampled households do not have to spend much time to collect water in the dry period.

Table-3.14 (A) Drinking Water Sources (Feb-March) [BATCH-IV]

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	UR	5	PHE	5	10.00	22.361	5	1.00	2.236
	Mawriang	MR	25	Spring	19	148.684	135.829	19	13.474	10.074
				PHE	6	66.667	163.299	6	5.00	12.247
	Umsyiem	LR	32	Spring	1	30.00	0.0	1	3.00	0.0
PHE				31	35.968	89.723	31	3.677	5.753	
West Garo Hills	Chigitchakgre	UR	8	Spring Water	8	93.75	49.551	8	6.75	1.753
	Sengminpara	MR	6	Water Tank	6	125.00	189.077	6	6.667	6.055
	Jengchamgre	LR	4	Ring Well	4	112.50	47.871	4	9.5	3.317
Ri Bhoi	Plasha	UR	12	Spring	8	300.00	346.410	8	14.375	11.783
				Pond	1	200.00	0.0	1	15.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				PHE	2	207.50	120.208	2	9.00	8.485
	Kyntbn Phanram	MR	6	Spring	3	100.00	0.0	3	10.00	0.0
				Pond	1	500.00	0.0	1	30.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				Water Tank	1	200.00	0.0	1	15.00	0.0
	Umshit	LR	8	Water Tank	1	100.00	0.0	1	10.00	0.0
				Spring	4	130.00	87.177	4	10.50	2.380
PHE				2	100.00	212.132	2	15.00	7.071	
Neighbour's House				1	0.0	0.0	1	0.0	0.0	
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	<b>--</b>	<b>106</b>	<b>--</b>	<b>106</b>	<b>109.4812</b>	<b>--</b>	<b>106</b>	<b>8.25467</b>	<b>--</b>

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	CV	31	Spring	10	269.613	269.613	10	23.9	18.015
				PHE	12	71.667	145.779	12	5.833	9.418
				Pond	3	246.663	233.524	3	17.667	13.650
				River	6	0.083	0.204	6	1.833	2.041
West Garo Hills	Dapdalgre	CV	8	Spring Water	8	105.556	58.333	8	8.444	4.246
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Spring	10	126.00	313.163	10	5.50	9.75
				Well	1	200.00	0.0	1	15.00	0.0
				Pond	1	500.00	0.0	1	20.00	0.0
				PHE	1	200.00	0.0	1	15.00	0.0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>52</b>	<b>140.4052</b>	<b>--</b>	<b>52</b>	<b>10.49129</b>	<b>--</b>

**Notes:**

- UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village
- Under Distance from Residence / Time spent in Fetching Water:**  
**n** gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the distance of source in metres / time spent in minutes)  
**s. d.** is the standard deviation (calculated by the following formula) of the responses received: [Standard deviation is a measure of the variation of the responses]

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

### 3.4.3. Drinking Water Sources (June-July)

#### *Sources of Drinking Water*

##### **Project Villages**

The source of drinking water in the project villages is found to be as follows:

Ring-well	4%	PHE Tap	43%
Spring	33%	Pond	2%
Well	2%	Water tank	7%
Spring water	7%	Neighbour's house	1%

In the above villages, PHE Tap and spring were widely used by the households for drinking water in the monsoon period (June-July).

##### **Control Villages**

The source of drinking water in the control villages is found to be as follows:

Well	2%	Pond	8%
Spring	38%	PHE Tap	25%
Spring water	15%	River	15%

In the control villages too, a large majority of all the households depend upon PHE Tap and spring for drinking water in the monsoon period (June-July).

[**Note:** All figures have been rounded off. The total may exceed 100% at times.]

#### *Distance from Residence*

As per the survey, in the project villages the distance of source water from the residence was found to be 109.4812 (metres) on an average whereas, in the control villages the distance of source water from the residence was found to be 140.4052 (metres) on an average.

The above are not big distances, being around 124 meters from the household (on an average). In monsoon period (before rainy season) - the sampled households do not have to go far to get water.

#### *Time Spent in Fetching Water*

As per the survey, on an average the time spent for fetching water in the project villages is found to be 8.25467 (minutes) whereas, in the control villages the time spent for fetching water is 10.49129 (minutes) on an average.

The above are not considerable time periods, being around 9 minutes (on an average). Thus, the sampled households do not have to spend much time to collect water in the monsoon period.



Table-3.15 (B) Drinking Water Sources (June - July) [BATCH-IV]

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	UR	5	PHE	5	10.00	22.361	5	1.00	2.236
	Mawriang	MR	25	Spring	19	148.684	135.829	19	13.474	10.074
				PHE	6	66.667	163.299	6	5.00	12.247
	Umsyiem	LR	32	Spring	1	30.00	0.0	1	3.00	0.0
PHE				31	35.968	89.723	31	3.677	5.753	
West Garo Hills	Chigitchakgre	UR	8	Spring Water	8	93.75	49.551	8	6.75	1.753
	Sengminpara	MR	6	Water Tank	6	125.00	189.077	6	6.667	6.055
	Jengchamgre	LR	4	Ring Well	4	112.50	47.871	4	9.5	3.317
Ri Bhoi	Plasha	UR	12	Spring	8	300.00	346.410	8	14.375	11.783
				Pond	1	200.00	0.0	1	15.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				PHE	2	207.50	120.208	2	9.00	8.485
	Kyntbn Phanram	MR	6	Spring	3	100.00	0.0	3	10.00	0.0
				Pond	1	500.00	0.0	1	30.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				Water Tank	1	200.00	0.0	1	15.00	0.0
	Umshit	LR	8	Water Tank	1	100.00	0.0	1	10.00	0.0
				Spring	4	130.00	87.177	4	10.50	2.380
				PHE	2	100.00	212.132	2	15.00	7.071
				Neighbour's House	1	0.0	0.0	1	0.0	0.0
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>		<b>106</b>		<b>106</b>	<b>109.4812</b>		<b>106</b>	<b>8.25467</b>	

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	CV	31	Spring	10	269.613	269.613	10	23.9	18.015
				PHE	12	71.667	145.779	12	5.833	9.418
				Pond	3	246.663	233.524	3	17.667	13.650
				River	6	0.083	0.204	6	1.833	2.041
West Garo Hills	Dapdalgre	CV	8	Spring Water	8	105.556	58.333	8	8.444	4.246
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Spring	10	126.00	313.163	10	5.50	9.75
				Well	1	200.00	0.0	1	15.00	0.0
				Pond	1	500.00	0.0	1	20.00	0.0
				PHE	1	200.00	0.0	1	15.00	0.0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>52</b>	<b>140.4052</b>	<b>--</b>	<b>52</b>	<b>10.49129</b>	<b>--</b>

**Notes:**

- UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village
- Under Distance from Residence / Time spent in Fetching Water:**  
**n** gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the distance of source in metres / time spent in minutes)  
**s. d.** is the standard deviation (calculated by the following formula) of the responses received: [Standard deviation is a measure of the variation of the responses]

$$s. d. = \sqrt{\frac{\sum(x - \bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

### 3.4.4. Drinking Water Sources (September-October)

#### *Sources of Drinking Water*

##### **Project Villages**

The source of drinking water in the project villages is found to be as follows:

Ring-well	4%	PHE Tap	43%
Spring	33%	Pond	2%
Well	2%	Water tank	7%
Spring water	7%	Neighbour's house	1%

##### **Control Villages**

The source of drinking water in the control villages is found to be as follows:

Well	2%	Pond	8%
Spring	38%	PHE Tap	25%
Spring water	15%	River	15%

[**Note:** All figures have been rounded off. The total may exceed 100% at times.]

#### *Distance from Residence*

As per the survey, in the project villages the distance of source water from the residence was found to be 109.4812 (metres) on an average whereas, in the control villages the distance of source water from the residence was found to be 140.4052 (metres) on an average.

The above are not big distances, being around 124 meters from the household (on an average). In this kind of rainy season - the sampled households do not have to go far to get water.

#### *Time Spent in Fetching Water*

As per the survey, on an average the time spent for fetching water in the project villages is found to be 8.25467 (minutes) whereas, in the control villages the time spent for fetching water is 10.49129 (minutes) on an average.

The above are not considerable time periods, being around 9 minutes (on an average). Thus, the sampled households do not have to spend much time to collect water in the rainy season.

Table-3.16 (C) Drinking Water Sources (September - October) [BATCH-IV]

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	UR	5	PHE	5	10.00	22.361	5	1.00	2.236
	Mawriang	MR	25	Spring	19	148.684	135.829	19	13.474	10.074
				PHE	6	66.667	163.299	6	5.00	12.247
	Umsyiem	LR	32	Spring	1	30.00	0.0	1	3.00	0.0
PHE				31	35.968	89.723	31	3.677	5.753	
West Garo Hills	Chigitchakgre	UR	8	Spring Water	8	93.75	49.551	8	6.75	1.753
	Sengminpara	MR	6	Water Tank	6	125.00	189.077	6	6.667	6.055
	Jengchamgre	LR	4	Ring Well	4	112.50	47.871	4	9.5	3.317
Ri Bhoi	Plasha	UR	12	Spring	8	300.00	346.410	8	14.375	11.783
				Pond	1	200.00	0.0	1	15.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				PHE	2	207.50	120.208	2	9.00	8.485
	Kynton Phanram	MR	6	Spring	3	100.00	0.0	3	10.00	0.0
				Pond	1	500.00	0.0	1	30.00	0.0
				Well	1	200.00	0.0	1	15.00	0.0
				Water Tank	1	200.00	0.0	1	15.00	0.0
	Umshit	LR	8	Water Tank	1	100.00	0.0	1	10.00	0.0
				Spring	4	130.00	87.177	4	10.50	2.380
PHE				2	100.00	212.132	2	15.00	7.071	
Neighbour's House				1	0.0	0.0	1	0.0	0.0	
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>		<b>106</b>	<b>--</b>	<b>106</b>	<b>109.4812</b>	<b>--</b>	<b>106</b>	<b>8.25467</b>	<b>--</b>

District	Village	Location	Households	Source(s) of Drinking Water	Distance from Residence (m)			Time spent in Fetching Water (min)		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	CV	31	Spring	10	269.613	269.613	10	23.9	18.015
				PHE	12	71.667	145.779	12	5.833	9.418
				Pond	3	246.663	233.524	3	17.667	13.650
				River	6	0.083	0.204	6	1.833	2.041
West Garo Hills	Dapdalgre	CV	8	Spring Water	8	105.556	58.333	8	8.444	4.246
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Spring	10	126.00	313.163	10	5.50	9.75
				Well	1	200.00	0.0	1	15.00	0.0
				Pond	1	500.00	0.0	1	20.00	0.0
				PHE	1	200.00	0.0	1	15.00	0.0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	--	<b>52</b>	--	<b>52</b>	<b>140.4052</b>	--	<b>52</b>	<b>10.49129</b>	--

**Notes:**

1. UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village

**2. Under Distance from Residence / Time spent in Fetching Water:**

**n** gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the distance of source in metres / time spent in minutes)

**s. d.** is the standard deviation (calculated by the following formula) of the responses received: [Standard deviation is a measure of the variation of the responses]

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean}$$

### 3.5. *Cooking Fuel [Batch IV]*

#### **Type of Cooking Fuel**

From Table-3.17 (given in the next page), it is found that in the project villages almost all the household use firewood as fuel for cooking; as well as kerosene and LPG. Similarly, in the control villages, almost all the households also use firewood as fuel for cooking; as well as kerosene.

#### **Source of Cooking Fuel**

As per the survey in the project villages, it is found that 88% of the households responded that Forest is the main source of cooking fuel whereas 12% of the households responded either Forest/Market is the main source of cooking fuel.

In the control villages, it is found that 81% of the households responded that their main source of cooking fuel is from Forest whereas 19% of the households responded that their main source of cooking fuel is either from Forest/Market.

#### **Nos. Of Households**

In the project villages covered by the survey, it is found that 83% of the households have collected their cooking fuel whereas 17% of the households have purchased their cooking fuel. Similarly, in the control villages, 77% of the households have collected their cooking fuel whereas 23% of the households have purchased their cooking fuel.

#### **Distance from Home**

From the table given in the next page, it is found that in the project villages the average distance from home to collect the cooking fuel is 1.273 metres (approx. about 1 metre) and in the control villages is 2.201 (approx. about 2 metre) metres.

#### **Quantity used per Month**

It is found that in the project villages the average quantity of firewood used per month is 2450.833 (approx. about 2,451 pieces), kerosene is 5.667 (approx. about 6 litres) and LPG is 1 cylinder whereas, in the control villages it is found that the average quantity of firewood used per month is 2457.696 (approx. about 2,458 pieces); and kerosene is 3 litres.

#### **Rate per Unit**

As per the survey in the project villages, it is found that the average rate per unit of Firewood is Rs. 1108.696 (approx. about Rs. 1109); kerosene is Rs. 150.500 (approx. about Rs. 151) and LPG is Rs. 650.00 (Rs.) and in control villages, the average rate per unit of Firewood is Rs. 2000.00; and kerosene is Rs. 76.364 (approx. about Rs. 76).

**Table-3.17: Source of Cooking Fuel [BATCH - IV]**  
 Type of Fuel: Firewood / Dried Cow Dung / Other Biomass / Kerosene / LPG / Other

District	Village	Location	Households	Type of Fuel	Source	Nos. of Households		Distance from Home (m)			Quantity Used Per Month			Rate per Unit (Rs per _____)		
						Purchased	Collected	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	UR	5	Firewood	Forest	--	4	4	2.600	2.191	4	800.00	0.0	4	0.0	0.0
				Kerosene	Market	1	--	1	10.00	0.0	1	5.00	0.0	1	225.00	0.0
	Mawriang	MR	25	Firewood	Forest	4	19	23	0.952	0.332	23	1033.333	371.444	23	4000.00	1632.993
				Kerosene	Market	1	--	1	0.100	0.0	1	3.00	0.0	1	81.00	0.0
				LPG	Market	1	--	1	1.00	0.0	1	1.00	0.0	1	500.00	0.0
	Umsyiem	LR	32	Firewood	Forest	--	22	22	1.784	1.572	22	1925.00	882.445	22	0.0	0.0
Kerosene				Market	10	--	10	0.555	0.869	10	6.00	2.108	10	150.00	110.454	
West Garo Hills	Chigitchakgre	UR	8	Firewood	Forest	--	8	8	1.00	0.0	8	6750.00	1863.177	8	0.0	0.0
	Sengminpara	MR	6	Firewood	Forest	--	6	6	1.500	0.837	6	6750.00	1364.918	6	0.0	0.0
	Jengchamgre	LR	4	Firewood	Forest	--	4	4	1.250	0.500	4	6075.00	861.684	4	0.0	0.0
Ri Bhoi	Plasha	UR	12	Firewood	Forest	--	12	12	0.892	0.452	12	1400.00	138.564	12	0.0	0.0
	Kynton Phanram	MR	6	Firewood	Forest	--	5	5	1.017	0.601	5	2480.00	3493.354	5	2000.00	0.0
				LPG	Market	1	--	1	1.00	0.0	1	1.00	0.0	1	800.00	0.0
Umshit	LR	8	Firewood	Forest	--	8	8	1.00	0.0	8	1020.00	169.706	8	0.0	0.0	
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>		<b>106</b>	<b>Firewood</b>	<b>--</b>	<b>4</b>	<b>88</b>	<b>106</b>	<b>1.273</b>	<b>--</b>	<b>92</b>	<b>2450.833</b>	<b>--</b>	<b>92</b>	<b>1108.696</b>	<b>--</b>
				<b>Kerosene</b>	<b>--</b>	<b>12</b>	<b>--</b>	<b>12</b>	<b>5.667</b>	<b>--</b>	<b>12</b>	<b>150.500</b>	<b>--</b>			
				<b>LPG</b>	<b>--</b>	<b>2</b>	<b>--</b>	<b>2</b>	<b>1.00</b>	<b>--</b>	<b>2</b>	<b>650.00</b>	<b>--</b>			
<b>CONTROL VILAGE</b>																
East Khasi Hills	Nongshyrngan	CV	31	Firewood	Forest	2	19	21	3.323	3.239	21	1909.677	608.471	21	4000.00	0.0
				Kerosene	Market	10	--	10	0.868	0.310	10	3.00	0.0	10	76.364	36.407
West Garo Hills	Dapdalgre	CV	8	Firewood	Forest	--	9	9	1.333	0.500	9	5200.00	1407.125	9	0.0	0.0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Firewood	Forest	--	12	12	2.00	0.426	12	1360.00	1099.024	12	0.0	0.0
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>		<b>52</b>	<b>Firewood</b>	<b>--</b>	<b>2</b>	<b>40</b>	<b>52</b>	<b>2.201</b>	<b>--</b>	<b>42</b>	<b>2457.696</b>	<b>--</b>	<b>42</b>	<b>2000.00</b>	<b>--</b>
				<b>Kerosene</b>	<b>--</b>	<b>10</b>	<b>--</b>	<b>10</b>	<b>3.00</b>	<b>--</b>	<b>10</b>	<b>76.364</b>	<b>--</b>			

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

$$s. d. = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}, \text{ where } n \text{ is the sample size and } \bar{x} \text{ is the sample mean.}$$

**Under Distance from Residence / Quantity Used Per Month / Rate per Unit:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the distance of source in metres / quantity used per month / rate per unit)

s. d. is the standard deviation (calculated by the following formula) of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.6. *CROPS GROWN [Batch IV]*

#### 3.6.1. Growing Season

##### **Findings**

Table-3.18 at overleaf gives the names of crops grown in the project villages and the control villages, along with their growing seasons. This is done for crops grown under irrigated conditions as well as for crops grown under non-irrigated conditions.

The discussion in the next few paragraphs analyses the above details.

##### **Analysis**

##### *Crops under Irrigated Conditions*

None of the sampled villages have any area under irrigation. Hence, there is no crop grown in these villages under irrigated conditions.

##### *Crops under Non-Irrigated Conditions*

It is seen that the villages usually grow rice under rain-fed (non-irrigated) conditions. Rice is grown under non-irrigated conditions in the project villages (except for some in East Khasi Hills and Ri-Bhoi districts), as well as in all the control villages.

In the villages covered by the study, the other crops cultivated under similar non-irrigated (rain-fed) conditions include the following:

- Bay leaf
- Betel leaf
- Jhum crops (a term used to denote various crops grown under ‘slash and burn’ practices);
- Ginger; and
- Chilli.

All the project villages and control villages cultivate some of the above type of crops (i.e. those grown under non-irrigated conditions).

##### *Growing Season*

The growing season for the various crops is given in the above mentioned table. The same may be referred to for additional details in this regard.

Rice is usually grown under non-irrigated conditions from May to August-November. Other non-irrigated crops are grown during the rainy season. It may be noted that the hills of Meghalaya enjoy rainfall in most months of the year. Rainfall is quite regular from May onward.



Table-3.18: Growing Season [Batch IV]

District	Village	Location	Households	Under Irrigated Conditions			Under Non-Irrigated Conditions		
				Crop	Growing Season		Crop	Growing Season	
					From	To		From	To
<b>PROJECT VILLAGE</b>									
East Khasi Hills	Nashain	UR	5	---	---	---	Bay Leaf	April	July
	Mawriang	MR	25	---	---	---	Bay leaf	April	May
	Umsyiem	LR	32	---	---	---	Betel Leaf	June	July
West Garo Hills	Chigitchakgre	UR	8	---	---	---	Betel Leaf	June	July
	Sengminpara	MR	6	---	---	---	Rice	May	June
							Jhum Crops	March	April
	Jengchamgre	LR	4	---	---	---	Rice	May	August
Jhum Crops							March	May	
Ri Bhoi	Plasha	UR	12	---	---	---	Ginger	April	May
							Chilli	April	May
	Kynton Phanram	MR	6	---	---	---	Rice	June	November
							Ginger	April	May
Umshit	LR	8	---	---	---	Ginger	April	May	
<b>TOTAL/AVG.</b>	<b>(PROJECT)</b>	--	<b>106</b>	<b>Listed at above</b>	---	---	<b>Listed at above</b>	---	---
<b>CONTROL VILLAGE</b>									
East Khasi Hills	Nongshymgan	CV	31	---	---	---	--	--	--
West Garo Hills	Dapdalgre	CV	8	---	---	---	Rice	May	August
							Jhum Crops	March	April
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	---	---	---	Ginger	April	May
<b>TOTAL/AVG.</b>	<b>(CONTROL)</b>	--	<b>52</b>	<b>Listed at above</b>	---	---	<b>Listed at above</b>	---	---

**Notes:**

1. UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

### 3.6.2. CROP DETAILS - (A) IRRIGATED CONDITIONS

Not applicable.

There are no irrigated areas in the project and control villages. All agriculture is reported to be rain-fed. Table-3.19 gives the format of the reporting table. This table is available at the next page.

### 3.6.3. CROP DETAILS - (B) NON-IRRIGATED CONDITIONS

#### **Findings**

The findings in the above regard are furnished at Table-3.20. This table is available after Table-3.19 (which is given in the next page). It gives the following aspects of the crops grown under non-irrigated conditions in the sampled villages - project villages as well as control villages: (a) Area, (b) HYV Area, (c) Average Yield and (d) Income.

#### **Analysis**

##### *Area*

In the Project Villages, the average area under rice is 0.393 Ha (24 households), while that under other crops (jhum crops, ginger, bay leaf, betel leaf etc.) is found to be 0.196 Ha (112 households). In the Control Villages, the average area under rice is 0.210 Ha (9 households) while in other crops is 0.256 Ha (21 households).

##### *HYV Area*

There is no area under High Yielding Variety (HYV) crops in the sampled villages (project villages as well as control villages).

##### *Average Yield*

The average yield for the various crops (rice, jhum crops, ginger, bay leaf, betel leaf, chilli pepper etc.) has been tabulated in Table-3.20 and may be referred to therein.

##### *Income*

In the project villages: the average income from rice is only Rs 7,000 per hectare, while other crops give an income of Rs. 7460.716 (approx. about Rs. 7,461) from each hectare under such crops. In the control villages: the average income from other crops give an income of Rs. 13021.164 (approx. about Rs. 13,021) from each hectare while there is no income from rice.

Due to low incomes from rice crops - only some households are found to be cultivating this crop in the sampled villages - only 23% of the sampled households in the project villages and about 17% in the control villages grow rice under non-irrigated conditions.

#### **Notes:**

1. *'Jhum crops' is a term used to denote various crops grown under 'slash and burn' practices in the hill-sides.*
2. *'Other crops' include such 'Jhum crops' as well as ginger, bay leaf, betel leaf, chilli pepper etc.*

Table-3.19: CROP DETAILS - (A) IRRIGATED CONDITIONS [Batch IV]

District	Village	Location	Households	Crop	Area (Ha)			HYV Area (Ha)			Avg.. Yield (Kg per Ha)			Income Rs per Ha		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	UR	5	---	---	---	---	---	---	---	---	---	---	---	---	---
	Mawriang	MR	25	---	---	---	---	---	---	---	---	---	---	---	---	---
	Umsyiem	LR	32	---	---	---	---	---	---	---	---	---	---	---	---	---
West Garo Hills	Chigitchakgre	UR	8	---	---	---	---	---	---	---	---	---	---	---	---	---
	Sengminpara	MR	6	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jengchamgre	LR	4	---	---	---	---	---	---	---	---	---	---	---	---	---
Ri Bhoi	Plasha	UR	12	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kynton Phanram	MR	6	---	---	---	---	---	---	---	---	---	---	---	---	---
	Umshit	LR	8	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>TOTAL.AVG.</b>	<b>(PROJECT)</b>	--	<b>106</b>	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>CONTROL VILLAGE</b>																
East Khasi Hills	Nongshyrngan	CV	31	---	---	---	---	---	---	---	---	---	---	---	---	---
West Garo Hills	Dapdalgre	CV	8	---	---	---	---	---	---	---	---	---	---	---	---	---
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>TOTAL.AVG.</b>	<b>(CONTROL)</b>	--	<b>52</b>	---	---	---	---	---	---	---	---	---	---	---	---	---

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Area / Yield/ Income:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the area / yield / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

**Table-3.20: CROP DETAILS - (B) NON-IRRIGATED CONDITIONS [Batch IV]**

District	Village	Location	Households	Crop	Area (Ha)			HYV Area (Ha)			Avg. Yield (Kg per Ha)			Income Rs per Ha				
					n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD		
<b>PROJECT VILLAGE</b>																		
East Khasi Hills	Nashain	UR	5	Bay Leaf	5	0.300	0.447	4	0.0	0.0	5	20.00	44.721	5	360.00	804.984		
	Mawriang	MR	25	Bay Leaf	18	0.278	1.629	18	0.0	0.0	18	589.474	2295.381	18	10610.530	41316.850		
				Betel Leaf	18	0.222	0.548	18	0.0	0.0	19	51.579	149.713	18	2970.00	8561.726		
West Garo Hills	Umsyiem	LR	32	Betel Leaf	28	0.125	0.571	28	0.0	0.0	28	4.286	19.135	28	857.140	3147.283		
	Chigitchakgre	UR	8	Rice	8	0.320	0.0	8	0.0	0.0	--	--	--	8	0.0	0.0		
				Sengminpara	MR	6	Rice	6	0.640	0.0	6	0.0	0.0	--	--	6	0.0	0.0
				Jhum Crops			6	0.333	0.079	6	0.0	0.0	6	0.0	0.0	6	32500.00	11726.039
	Jengchangre	LR	4	Rice	4	0.160	0.0	4	0.0	0.0	--	--	--	4	0.0	0.0		
Jhum Crops	4	0.420	0.077	4	0.0	0.0	4	0.0	0.0	4	0.0	0.0	4	39000.00	9615.360			
Ri Bhoi	Plasha	UR	12	Ginger	11	0.091	0.202	11	0.0	0.0	11	5.00	15.00	11	150.00	450.00		
				Chilli pepper	11	0.060	0.158	11	0.0	0.0	11	0.0	0.0	11	640.00	2023.858		
	Kynton Phanram	MR	6	Rice	6	0.400	0.0	6	0.0	0.0	6	800.00	0.0	6	28000.00	0.0		
				Ginger	5	0.162	0.221	5	0.0	0.0	5	240.00	433.590	5	12000.00	16431.674		
Umshit	LR	8	Ginger	6	0.300	0.310	6	0.0	0.0	6	137.500	164.729	6	3737.500	6724.144			
TOTAL/AVG.	(PROJECT)	All Locations	106	Rice	24	0.393	---	6	0.0	---	--	--	--	24	7000.00	---		
				Bay Leaf														
				Betel Leaf														
				Jhum Crops														
				Ginger														
				112	0.196	---	117	0.0	---		Different crops - hence not calculated	---	118	7460.716	---			
<b>CONTROL VILLAGE</b>																		
East Khasi Hills	Nongshyrngan	CV	31	--	--	--	--	--	--	--	--	--	--	--	--	--		
West Garo Hills	Dapdalgre	CV	8	Rice	9	0.210	0.339	--	--	--	9	0.0	0.0	9	0.0	0.0		
				Jhum Crops	8	0.213	0.139	--	--	--	8	0.0	0.0	8	19555.556	11980.308		
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Ginger	13	0.283	0.420	--	--	--	13	269.231	352.010	13	9000.00	10990.526		
TOTAL/AVG.	(CONTROL)	All Locations	52	Rice	9	0.210	---	--	--	--	--	---	---	9	0.0	---		
				Jhum Crops														
				Ginger														
				21	0.256	--	--	--	--	--		Different crops - hence not calculated	---	21	13021.164	---		

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Area / Yield/ Income: n** gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the area / yield / income)

s. d. is the standard deviation of the responses received. [Standard deviation is a measure of the variation of the responses]

### 3.7. ORCHARD, PLANTATION CROPS & AGRO-FORESTRY

#### Findings

As per the survey, it is found that Arecanut, Cashewnut, Orange, Pineapple, Banana, Litchi, Papaya, Peach, Guava, Pear, Lemon, Jackfruit, Mango are found in the project and control villages. This is in accordance with the responses made by each household in the project as well as control village. Table-3.21 (at overleaf) gives the details of orchard, crop plantation and agro-forestry for the following parameters:

- Area covered
- Number of trees
- Output
- Income

#### Analysis

##### *Area Covered*

All the three districts, East Khasi Hills, West Garo Hills and Ri Bhoi under project and control village have orchard and crop plantation. It is found that the average area covered in project village 0.274 Ha (approx. about 2740 m<sup>2</sup> or 29493.114 ft<sup>2</sup>) and in control village is 0.309 Ha (approx. about 3090 m<sup>2</sup> or 33,261 ft<sup>2</sup>).

##### *Number of Trees*

The number of trees in a particular area falling under plantations depends on the location. It is found that in most of the areas in both project and control village, there is abundance of forest cover. The average number of trees planted in project village is **97.176** (approx. about 98 nos.) and in control village is 111.635 (approx. 112 nos.).

##### *Output*

Arecanut in West Garo Hills district, and Oranges, Bananas in Ri Bhoi district has a good output per year as shown in the table (Table-3.21) below.

##### *Income*

It is found that the average income per year is Rs. 10740.552 (approx. about Rs. 10741) in project village whereas in control village is Rs. 13221.739 (approx. about Rs. 13222) both project and control village; and as result better livelihood earnings.

Table-3.21 Details of orchard, plantation crops &amp; agro-forestry [BATCH-IV]

District	Village	Location	Households	Plant	Area Covered (Ha)			No. of Trees			Output (unit)			Income Rs		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	UR	5		--	--	--	--	--	--	--	--	--	--	--	--
	Mawriang	MR	25	Banana, Pine Apple, Litchi	--	--	--	--	--	--	--	--	--	--	--	--
				Orange	23	0.217	0.580	22	9.545	42.592	22	7.173	34.112	--	--	--
				Spice	24	0.261	1.054	24	0.00	0.00	24	5.598	21.626	24	2979.167	10813.115
	Umsyiem	LR	32	Litchi, Banana	32	0.391	0.822	32	0.00	0.00	32	59.531	120.325	32	2906.25	5444.615
				Orange	25	0.261	0.864	25	2.092	7.208	25	20.828	95.828	25	277.6	937.040
West Garo Hills	Chigitchakgre	UR	8	Areca nut	8	0.33	0.203	8	437.5	645.727	8	360	346.410	8	24000.00	25202.041
				Cashewnut	8	0.41	0.335	8	360.625	483.044	8	360	245.221	8	36250.00	33964.267
	Sengminpara	MR	6	Areca nut	6	0.472	0.288	6	833.333	1011.599	6	580	552.811	6	81690.00	64813.449
	Jengchamgre	LR	4	Areca nut	3	0.35	0.435	3	833.333	1011.599	3	13880.00	27973.144	3	96666.667	120208.153
Ri Bhoi	Plasha	UR	12	Orange	11	0.188	0.372	11	77.727	140.024	11	102.222	268.816	10	10680.00	31439.565
				Pineapple	7	0.133	0.216	7	183.333	402.078	7	178.571	294.190	7	2142.857	3184.785
				Banana	3	0.133	0.231									
	Kynton Phanram	MR	6	Orange	6	0.167	0.0408	6	5	12.247	6	33.333	81.650	6	33.333	816.497
	Umshit	LR	8	Orange	8	0.33	0.203	8	1.25	3.536	8	25	70.711	8	125	352.553
				Pineapple	8	0.00	0.00	8	0.00	0.00	8	5	14.142	8	100	282.843
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>			Banana, Pineapple, Orange, Spice, Litchi, Areca nut, Cashewnut	<b>172</b>	<b>0.274</b>	<b>--</b>	<b>168</b>	<b>97.176</b>	<b>--</b>	<b>168</b>	<b>335.787</b>	<b>--</b>	<b>145</b>	<b>10740.552</b>	<b>--</b>

District	Village	Location	Households	Plant	Area Covered (Ha)			No. of Trees			Output (unit)			Income Rs		
					n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>CONTROL VILLAGE</b>																
East Khasi Hills	Nongshyrngan	CV	31	--	--	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	Areca nut	8	0.338	0.483	8	83.333	204.124	8	488.889	686.375	8	22500.00	29047.375
				Cashewnut	8	0.22	0.352	8	0.00	0.00	8	52.5	108.463	8	7000.00	7549.834
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Orange	8	0.175	0.362	8	50	114.564	8	362.5	1085.127	8	3350.00	10926.471
				Pineapple	11	0.373	0.453	11	350	723.089	11	4738.909	8105.471	11	7509.091	11846.135
				Banana	8	0.288	0.394	8	100	167.332	8	11517.143	30198.919	8	16125.00	29240.078
				Litchi	2	0.45	0.0707	2	100	0	2	7500.00	3535.534	2	27500.00	17677.67
				Papaya, Peach, Guava, Pear, Lemon, Jackfruit, Mango	8	0.4	1.131	8	0.00	0.00	1	739.00	0	1	78800	0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>			Areca nut, Cashew nut, Orange, Pineapple, Banana, Litchi, Papaya, Peach, Guava, Pear, Lemon, Jackfruit, Mango	<b>53</b>	<b>0.309</b>	<b>--</b>	<b>53</b>	<b>111.635</b>	<b>--</b>	<b>46</b>	<b>3635.549</b>	<b>--</b>	<b>46</b>	<b>13221.739</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Area / Trees / Output / Income:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the area / trees / output / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.8. Livestock

#### Findings

The tables from Table-3.23 to Table-3.27 give the findings of the following livestock parameters: (a) Nos. owned; (b) Output and (c) Income for the following types of livestock:

Table-3.23	Cattle
Table-3.24	Pigs
Table-3.25	Poultry
Table-3.26	Buffaloes
Table-3.27	Goats

The following gives a summary of the findings in the above regard. This has been done separately for the project villages and control villages.

**Table-3.22: Summary of Findings for Livestock [Batch IV]**

Types of Livestock	Number owned		Output		Income	
	No of Household	Average	No of Household	Average	No of Household	Average
<b>PROJECT VILLAGES</b>						
<b>Cattle</b>	18	2.111	-	-	-	-
<b>Pigs</b>	83	0.505	83	0.505	83	3420.475
<b>Poultry</b>	69	2.899	63	90.285	63	1101.984
<b>Buffaloes</b>	-	-	-	-	-	-
<b>Goats</b>	18	1	18	1	18	566.667
<b>CONTROL VILLAGES</b>						
<b>Cattle</b>	8	1.778	-	-	-	-
<b>Pigs</b>	49	1.224	49	1.224	49	4140.712
<b>Poultry</b>	47	3.511	35	4.029	35	1229.954
<b>Buffaloes</b>	-	-	-	-	-	-
<b>Goats</b>	9	0.625	9	0.625	9	666.667

#### Analysis:

It is found that the following types of livestock are commonly owned in the sampled villages: cattle, pigs, poultry and goats. No villages have households possessing buffaloes in both Project and Control villages. The sampled households possessing livestock obtain considerable income from the ownership of such livestock - especially from cattle in the project villages, and from pigs in the control villages.



Table-3.23 Details of Livestock- Cattle [BATCH-IV]

District	Village	Location	Households	Type of Livestock	Nos. Owned			Output			Income (Rs.)			
					n	$\bar{x}$	SD	Unit of Output	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	--	--	--	--	--	--	--	--	--	--	--
	Mawriang	Middle Reach	25	--	--	--	--	--	--	--	--	--	--	--
	Umsyiem	Lower Reach	32	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	Upper Reach	8	<b>Cattle</b>	8	1.5	1.690	--	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	<b>Cattle</b>	6	3.833	4.215	--	--	--	--	--	--	--
	Jengchamgre	Lower Reach	4	<b>Cattle</b>	4	0.75	1.5	--	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper Reach	12	--	--	--	--	--	--	--	--	--	--	--
	Kynton Phanram	Middle Reach	6	--	--	--	--	--	--	--	--	--	--	--
	Umshit	Lower Reach	8	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>		106	--	<b>18</b>	<b>2.111</b>		--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshymgan	Control Village	31	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control Village	8	<b>Cattle</b>	8	1.778	2.333	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL /AVG</b>	<b>(CONTROL)</b>		52	--	<b>8</b>	<b>1.778</b>	--	--	--	--	--	--	--	--

Notes: UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Nos. Owned / Output / Income:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.24 Details of Livestock- Pigs [BATCH-IV]

District	Village	Location	Households	Type of Livestock	Nos. Owned			Output			Income (Rs.)			
					n	$\bar{x}$	SD	Unit of Output	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	<b>Pigs</b>	5	0.4	0.894	Nos	5	0.4	0.894	5	3200.00	7155.418
	Mawriang	Middle Reach	25	<b>Pigs</b>	10	0.6	0.966	Nos	10	0.6	0.966	10	4222.2	8393.1
	Umsyiem	Lower Reach	32	<b>Pigs</b>	30	0.065	0.359	Nos	30	0.065	0.359	30	322.58	1796.1
West Garo Hills	Chigitchakgre	Upper Reach	8	<b>Pigs</b>	8	0.5	0.756	Nos	8	0.5	0.756	8	1125.00	1552.648
	Sengminpara	Middle Reach	6	<b>Pigs</b>	6	0.5	0.837	Nos	6	0.5	0.837	6	1500.00	3674.235
	Jengchamgre	Lower Reach	4	-	-	-	-	-	-	-	-	-	-	-
Ri Bhoi	Plasha	Upper Reach	12	<b>Pigs</b>	11	1.364	0.924	Nos	11	1.364	0.924	11	11727.273	8486.353
	Kynton Phanram	Middle Reach	6	<b>Pigs</b>	5	1.2	0.837	Nos	5	1.2	0.837	5	8400.00	6387.488
	Umshit	Lower Reach	8	<b>Pigs</b>	8	0.5	0.756	Nos	8	0.5	0.756	8	3375.00	4749.060
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	<b>106</b>	<b>--</b>	<b>83</b>	<b>0.505</b>	<b>--</b>	<b>--</b>	<b>83</b>	<b>0.505</b>	<b>--</b>	<b>83</b>	<b>3420.475</b>	<b>--</b>
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshymgan	Control Village	31	<b>Pigs</b>	31	0.548	1.123	Nos	31	0.548	1.123	31	5032.452	14225.46
West Garo Hills	Dapdalgre	Control Village	8	<b>Pigs</b>	8	0.375	0.744	Nos	8	0.375	0.744	8	111.11	333.333
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	<b>Pigs</b>	10	4	8.226	Nos	10	4	8.226	10	4600.00	5059.644
<b>TOTAL /AVG</b>	<b>(CONTROL)</b>	--	<b>52</b>	<b>--</b>	<b>49</b>	<b>1.224</b>	<b>--</b>	<b>--</b>	<b>49</b>	<b>1.224</b>	<b>--</b>	<b>49</b>	<b>4140.712</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Under Nos. Owned / Output / Income:

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.25 Details of Livestock- Poultry [BATCH-IV]

District	Village	Location	Households	Type of Livestock	Nos. Owned			Output			Income (Rs.)			
					n	$\bar{x}$	SD	Unit of Output	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	<b>Poultry</b>	5	6.8	3.114	Nos	5	7.0	3.114	5	1900.00	1557.241
	Mawriang	Middle Reach	25	<b>Poultry</b>	13	2.462	3.332	Nos	13	194.38	692.76	13	1225.00	1722.6
	Umsyiem	Lower Reach	32	<b>Poultry</b>	32	0.469	1.545	Nos	32	94.031	530.28	32	125.00	508.00
West Garo Hills	Chigitchakgre	Upper Reach	8		--	--	--	--	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	<b>Poultry</b>	6	0.333	0.816	--	--	--	--	--	--	--
	Jengchamgre	Lower Reach	4		--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper Reach	12	<b>Poultry</b>	9	9.444	8.079	Nos	9	9.444	8.079	9	3611.11	3620.927
	Kynton Phanram	Middle Reach	6	<b>Poultry</b>	4	8	5.416	Nos	4	8	5.416	4	1875.00	1314.978
	Umshit	Lower Reach	8	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>		<b>106</b>	--	<b>69</b>	<b>2.899</b>	--	--	<b>63</b>	<b>90.285</b>	--	<b>63</b>	<b>1101.984</b>	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshymgan	Control Village	31	<b>Poultry</b>	28	1.143	2.240	Nos	25	0.4	1.323	25	741.936	2229.166
West Garo Hills	Dapdalgre	Control Village	8	<b>Poultry</b>	9	0.222	0.667							
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	<b>Poultry</b>	10	13.1	11.030	Nos	10	13.1	11.030	10	2450.00	2012.323
<b>TOTAL /AVG</b>	<b>(CONTROL)</b>		<b>52</b>	--	<b>47</b>	<b>3.511</b>	--	--	<b>35</b>	<b>4.029</b>	--	<b>35</b>	<b>1229.954</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Under Nos. Owned / Output / Income:

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.26 Details of Livestock- Buffaloes [BATCH-IV]

District	Village	Location	Households	Type of Livestock - Buffaloes	Nos. Owned			Output			Income (Rs.)			
					n	$\bar{x}$	SD	Unit of Output	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	--	--	--	--	--	--	--	--	--	--	--
	Mawriang	Middle Reach	25	--	--	--	--	--	--	--	--	--	--	--
	Umsyiem	Lower Reach	32	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	Upper Reach	8	--	--	--	--	--	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	--	--	--	--	--	--	--	--	--	--	--
	Jengchamgre	Lower Reach	4	--	--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper Reach	12	--	--	--	--	--	--	--	--	--	--	--
	Kynton Phanram	Middle Reach	6	--	--	--	--	--	--	--	--	--	--	--
	Umshit	Lower Reach	8	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshymgan	Control Village	31	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control Village	8	--	--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL /AVG</b>	<b>(CONTROL)</b>	--	--	--	--	--	--	--	--	--	--	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Under Nos. Owned / Output / Income:

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.27 Details of Livestock- Goats [BATCH-IV]

District	Village	Location	Households	Type of Livestock	Nos. Owned			Output			Income (Rs.)			
					n	$\bar{x}$	SD	Unit of Output	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	--	--	--	--	--	--	--	--	--	--	--
	Mawriang	Middle Reach	25	--	--	--	--	--	--	--	--	--	--	--
	Umsyiem	Lower Reach	32	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	Upper Reach	8	<b>Goats</b>	8	1.625	2.387	Nos.	8	1.625	2.387	8	625.00	694.365
	Sengminpara	Middle Reach	6	<b>Goats</b>	6	0.5	1.225	Nos.	6	0.5	1.225	6	616.667	1510.519
	Jengchamgre	Lower Reach	4	<b>Goats</b>	4	0.5	0.577	Nos.	4	0.5	0.577	4	375.00	750.00
Ri Bhoi	Plasha	Upper Reach	12	--	--	--	--	--	--	--	--	--	--	--
	Kynton Phanram	Middle Reach	6	--	--	--	--	--	--	--	--	--	--	--
	Umshit	Lower Reach	8	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	--	--	<b>18</b>	<b>1</b>	--	--	<b>18</b>	<b>1</b>	--	<b>18</b>	<b>566.667</b>	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshymgan	Control Village	31	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control Village	8	<b>Goats</b>	9	0.625	1.188	Nos	9	0.625	1.188	9	666.667	2000.00
Ri Bhoi	Himphala & Tomonpcanglong	Control Village	13	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL /AVG</b>	<b>(CONTROL)</b>	--	--	--	<b>9</b>	<b>0.625</b>	--	--	<b>9</b>	<b>0.625</b>	--	<b>9</b>	<b>666.667</b>	--

**Notes:**

UR: Upper Reach / MR: MiddleReach / LR: Lower Reach/CV: Control Village

Under Nos. Owned / Output / Income:

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received. [Standard deviation is a measure of the variation of the responses]

### 3.9. FISHERY

#### 3.9.1. AREA UNDER FISHERY, TYPE OF WATER BODY & SIZE

##### **Findings**

Table-3.28, available at overleaf, gives the area under fishery in the studied villages. Table-3.29 furnishes the output and income details.

It may be noted that sampled households under Control village (Himphala & Tomonpoanglong, Ri Bhoi District) have reported output and income from fisheries. Silver carp, Common carp and Mirka (Cauvery white carp) are the commonly types of fish found in the village.

##### **Analysis**

As per the survey, on an average, the area under fishery for the project area is 0.00 where as the average in the control village area is **0.0258 Ha**. The average output (kg) in the control area is 4 with no income as they are all self consumed.

It may be seen that there are no areas under fishery in the project villages.

Table-3.28 AREA UNDER FISHERY, TYPE OF WATER BODY &amp; SIZE

District	Village	Location	Households	Area under Fishery (Ha)			Types of Water Bodies
				n	$\bar{x}$	SD	
<b>PROJECT VILLAGE</b>							
East Khasi Hills	Nashain	Upper Reach	5	5	0.0	0.0	--
	Mawriang	Middle Reach	25	25	0.0	0.0	--
	Umsyiem	Lower Reach	32	32	0.0	0.0	--
West Garo Hills	Chigitchakgre	Upper Reach	8	8	0.0	0.0	--
	Sengminpara	Middle Reach	6	6	0.0	0.0	--
	Jengchamgre	Lower reach	4	4	0.0	0.0	--
Ri Bhoi	Plasha	Upper reach	12	12	0.0	0.0	--
	Kynton Phanram	Middle Reach	6	6	0.0	0.0	--
	Umshit	Lower reach	8	8	0.0	0.0	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	<b>106</b>	<b>106</b>	<b>0.0</b>	<b>0.0</b>	--
<b>CONTROL VILLAGE</b>							
East Khasi Hills	Nongshyrngan	Control village	31	31	0.0	0.0	--
West Garo Hills	Dapdalgre	Control village	8	8	0.0	0.0	--
Ri Bhoi	Himphala & Tomonpoanglong	Control village	13	8	0.152	0.346	--
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	--	<b>52</b>	<b>47</b>	<b>0.0258</b>	<b>0.00</b>	--

**Notes:**

UR: Upper Reach / MR: MiddleReach / LR: LowerReach / CV: Control Village

**Under Nos. Owned / Output / Income:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Nos. Owned / output / income)

s. d. is the standard deviation of the responses received; [Standard deviation is a measure of the variation of the responses]

Table-3.29 TYPES OF FISH, OUTPUT &amp; INCOME [BATCH-IV]

District	Village	Location	Households	Type of Fish	Period of Culture		Output (Kg)			Income (Rs.)		
					From	To	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>												
East Khasi Hills	Nashain	Upper Reach	5	--	--	--	--	--	--	--	--	--
	Mawriang	Middle Reach	25	--	--	--	--	--	--	--	--	--
	Umsyiem	Lower Reach	32	--	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	Upper Reach	8	--	--	--	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	--	--	--	--	--	--	--	--	--
	Jengchamgre	Lower reach	4	--	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper reach	12	--	--	--	--	--	--	--	--	--
	Kynton Phanram	Middle Reach	6	--	--	--	--	--	--	--	--	--
	Umshit	Lower reach	8	--	--	--	--	--	--	--	--	--
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	<b>106</b>	--	--	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>												
East Khasi Hills	Nongshyrngan	Control village	31	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control village	8	--	--	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	Control village	13	Local, Silver carp	March	September	3	73.333	109.697	--	--	--
				Common carp, Mirka	April	September	1	100.00	0.0	--	--	--
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	--	<b>52</b>	--	--	--	<b>4</b>	<b>79.999</b>	--	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Output / Income:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Output/ income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]



### 3.10. NON TIMBER FOREST PRODUCE

#### 3.10.1. OUTPUT DETAILS

##### **Findings**

Table-3.30 gives the following findings regarding the collection of Non Timber Forest Product (NTFP) from adjacent forested areas. The most commonly found Non Timber Forest Product in both the project and control villages are Broom, Bamboo and Bay leaf.

##### **Analysis**

**Project Village:** From the table below (Table-3.30), it can be seen that broom are grown in all the three districts; East Khasi Hills, West Garo Hills and Ri Bhoi District. On an average the highest quantity collected for broom is 660 kg per year in Nashain village, East Khasi Hills.

Bamboo is grown only in Ri- Bhoi (Plasha, Kynton Phanram and Umshit) as per the survey carried out. On an average the highest quantity collected for bamboo is 106.667 (approx 107 pieces) per year in Plasha village, Ri Bhoi District.

The total average income of NTFP sale per year in the project villages is 5521.1(approx Rs. 5521).

**Control Village:** In the Control village, Nongshyrngan in East Khasi Hills has no Non Timber Forest Product (NTFP). Dapdalgre in West Garo Hills produce bamboo where as Himphala & Tomonpoanglong villages in Ri Bhoi District produce broom, bamboo and bay leaf. On an average the highest quantity collected for broom is 466.667 (approx 467 kg) per year in Himphala & Tomonpoanglong village, Ri Bhoi District.

On an average, the highest quantity collected for bamboo is 137.5 (approx 138 pieces) per year in Himphala & Tomonpoanglong village, Ri Bhoi District.

The total average income of NTFP sale per year in the control villages is Rs. 22945.

Table-3.30 Output Details [BATCH-IV]

District	Village	Location	Households	Type of NTFP	Unit of Quantity	Quantity Collected			Quantity Sold			Income from Sale(Rs.)		
						n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	Broom	kg	5	660	665.582	5	660	665.582	5	33000.00	33279.123
	Mawriang	Middle Reach	25	Broom	Kg	25	2	10	25	2	10	25	100	500
	Umsyiem	Lower Reach	32	Broom	Kg	31	119.355	278.591	31	119.355	278.591	31	6354.837	15553.238
West Garo Hills	Chigitchakgre	Upper Reach	8											
	Sengminpara	Middle Reach	6	Broom	kg	6	3.333	8.165	6	3.333	8.165	6	1666.667	4082.483
	Jengchamgre	Lower reach	4	Broom	kg	4	37.5	75	4	37.5	75	4	3750	7500
Ri Bhoi	Plasha	Upper Reach	12	Broom	Kg	7	150	175.594	7	150	175.594	7	6428.571	8880.825
				Bamboo	piece	9	106.667	161.787	9	106.667	161.787	9	2666.667	4044.672
	Kynton Phanram	Middle Reach	6	Broom	Kg	4	500	757.188	4	500	757.188	5	22000.00	33286.634
				Bamboo	piece	3	66.667	115.470	3	66.667	115.470	3	933.333	1616.581
	Umshit	Lower Reach	8	Broom	Kg	8	118.75	173.076	8	118.75	173.076	8	3625	4240.536
Bamboo				piece	6	20	40	6	20	40	6	250	418.330	
<b>TOTAL/AVG</b>	<b>(PROJECT)</b>	--	<b>106</b>	--	--	--	<b>115.740</b>	--	--	<b>115.740</b>	--	--	<b>5521.1</b>	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshyrngan	Control village	31	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control village	8	Bamboo	piece	1	300	0	1	300	0	1	4500	0
Ri Bhoi	Himphala & Tomonpoanglong	Control village	13	Broom	Kg	12	466.667	578.137	12	466.667	578.137	12	31562.5	35854.207
				Bamboo	piece	6	137.5	134.165	6	137.5	134.165	6	9275	8911.439
				Bayleaf	kg	1	800	0	1	800	0	1	20000	0
<b>TOTAL/AVG</b>	<b>(CONTROL)</b>	--	<b>52</b>	--	--	--	<b>376.250</b>	--	--	<b>376.250</b>	--	--	<b>22945</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Quantity / Income:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the average of the Quantity / income)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.11. Wage Labour

#### 3.11.1. RECEIPTS FROM WAGE LABOUR

##### **Findings**

The findings in the above regard are available at Table-3.31 (A) for MGNREGS and Table-3.31 (B) for earnings from Other Sources (like agriculture, domestic help, construction, etc), with these tables being furnished at the next few pages. The tables give the following findings regarding the performance of wage labour by household members of the sampled households:

- Days worked per year;
- Rate per day (in Rs.); and
- Amount Received per annum (in Rs.).

##### **Analysis**

##### *(A) Receipts from Wage Labour - MGNREGS*

In both project and control village, it is found that the number of ‘days worked per year’ by the household as part of MGNREGS varies for each districts respectively. All the districts in East Khasi Hills, West Garo Hills for both project and control villages receives an amount of Rs. 163 per individual per day. The average amount received in project village is Rs. 11105.485 (approx. about Rs. 11,106) for 99 household whereas in control village is Rs. 8680.620 (approx. about Rs. 8,680) for 47 households.

##### *(B) Receipts from Wage Labour – Other sources*

Other source includes wage labour in agriculture, domestic, construction, etc. It is also found that in both project and control village, the number of ‘days worked per year’ by the household varies for each district respectively. The ‘rate per day’ also varies for each district depending on the type and location of work.

Project village: The highest average rate per day in project village is 283.333 (approx Rs. 283) and the lowest average rate per day is Rs. 60. The average amount received in project village is Rs. 55594.96 (approx. about Rs. 55,595) for 82 household in project village

Control village: The highest average rate per day in control village is Rs. 263 and the lowest average rate per day is Rs.165. The average amount received in control village is Rs. 48305.32 (approx. about Rs. 48305) for 47 households.

Table-3.31 (A) Receipts from Wage Labour [BATCH-IV]

District	Village	Location	Households	Source	Days Worked per Year			Main Months of the Year	Rate Per Day (Rs.)			Amount Received (Rs.)		
					n	$\bar{x}$	SD		N	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5											
	Mawriang	Middle Reach	25	MGNREGS	25	60	0	Nov-Dec	25	163	0	25	11762.4	4989.764
	Umsyiem	Lower Reach	32	MGNREGS	31	90.903	22.808	Nov-Dec, May-Sept, Dec-Jan	31	163	0	31	15868.839	5797.784
West Garo Hills	Chigitchakgre	Upper Reach	8	MGNREGS	8	50	0	--	8	163	0	8	8150	0
	Sengminpara	Middle Reach	6	MGNREGS	6	50	0	--	6	163	0	6	8150	0
	Jengchamgre	Lower Reach	4	MGNREGS	4	50	0	--	4	163	0	4	8150	0
Ri Bhoi	Plasha	Upper Reach	12	MGNREGS	12	24	0	--	12	163	0	12	3912	0
	Kynton Phanram	Middle Reach	6	MGNREGS	6	58.333	4.082	--	6	163	0	6	9508.333	665.445
	Umshit	Lower Reach	8	MGNREGS	7	55	13.229	--	7	163	0	7	8965.00	2156.287
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	--	--	--	--	--	--	--	--	--	<b>99</b>	<b>11105.485</b>	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshyrngan	Control Village	31	MGNREGS	25	47.08	4.020	Dec-Jan	25	163	0	25	8299.966	2306.09
West Garo Hills	Dapdalgre	Control village	8	MGNREGS	9	50	0	--	9	163	0	9	8150	0
Ri Bhoi	Himphala & Tomonpoanglong	Control village	13	MGNREGS	13	60	0	--	13	163	0	13	9780	0
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	--	--	--	--	--	--	--	--	--	<b>47</b>	<b>8680.620</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Days Worked / Rate Per Day / Amount Received:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of days worked / rate per day / amount received)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.31 (B) Receipts from Wage Labour [BATCH-IV]

District	Village	Location	Households	Source	Days Worked per Year			Main Months of the Year	Rate Per Day (Rs.)			Amount Received (Rs.)		
					n	$\bar{x}$	SD		n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	Upper Reach	5	Other sources	4	212.5	750	July, Aug, Jan, Feb	4	175	28.868	4	57500	19257.033
				Other sources	5	100	136.931	--	5	60	82.158	5	15000	20539.596
	Mawriang	Middle Reach	25	Other sources	21	228.696	50.896	--	21	283.333	59.228	21	62714.286	20416.642
				Other sources	2	225	106.066	--	2	200	70.711	2	36250.00	19445.436
	Umsyiem	Lower Reach	32	Other sources	25	202	94.117	--	25	230	71.213	25	66981.481	4268.847
Other sources				13	145.385	49.106	--	13	196.154	87.706	13	49730.769	48561.651	
West Garo Hills	Chigitchakgre	Upper Reach	8	Other sources	--	--	--	--	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	Other sources	--	--	--	--	--	--	--	--	--	--
	Jengchamgre	Lower Reach	4	Other sources	--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper Reach	12	Other sources	5	224.6	43.426	--	5	270	57.009	5	61650	2217.328
	Kynton Phanram	Middle Reach	6	Other sources	--	--	--	--	--	--	--	--	--	--
	Umshit	Lower Reach	8	Other sources	7	138.571	72.899	--	7	243.857	18.898	7	33571.429	18249.266
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--	--	<b>82</b>	<b>55594.96</b>	--
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshyrngan	Control Village	31	Other sources	28	216.429	70.143	--	28	262.5	94.893	28	61625	32123.208
				Other sources	10	159	53.009	--	10	165	62.583	10	26400	14088.608
West Garo Hills	Dapdalgre	Control village	8	Other sources	--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	Control village	13	Other sources	9	159.778	84.442	--	9	210.556	99.399	9	31205.556	23352.308
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--	--	<b>47</b>	<b>48305.32</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach / CV: Control Village

**Under Days Worked / Rate Per Day / Amount Received:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of days worked / rate per day / amount received)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.12. Migration

#### 3.12.1. QUESTIONS 1-7 (PART-1)

##### Findings

Table-3.32 gives the findings of the following Migration parameters:

- Nos. Migrated from Village
- Nos. Permanently Migrated
- Reasons of migration
- Destinations
- Migration Nature (Permanent and Seasonal)
- If Migration Nature is Seasonal, then Months of Stay

##### Analysis

###### *Nos. Migrated from Village:*

From the survey carried out, it is found that the total of both male and female migrated is 22 for project village, where as in the control village, it is 2 for male and 0 for female.

###### *Nos. Permanently Migrated:*

It is found that the total of both male and female permanently migrated is 1 in the project village where as in the control village it found to be of 0.

###### *Destinations*

Some of the destinations that people go and migrate for both Project and Control village are as follows:

East Khasi Hills	Shillong and Amlarem
West Garo Hills	Tura
Ri Bhoi	Shillong, Delhi, Nongpoh, Nongstoin and Umran

###### *Migration Nature (Permanent and Seasonal)*

The total number of people permanently migrated is 1 from project village and none from control village. The total number of seasonally migrated people from the project village is 24 where as in the control village, the total number of people seasonally migrated is 2.

###### *Months of Stay if seasonally migrated*

The AVG months of stay by the people in the project village is 5.309 (approx 5 months in a year), where as in the control village the AVG months stay by the people is 10.50 (approx 10 months in a year).

Table-3.32 (A) Questions 1-7 (PART-1) [BATCH-IV]

District	Village	Location	Households	Any Member Migrated		If Yes to "Any Member Migrated"												
						Nos. Migrated from Village		Nos. Permanently Migrated		Reasons			Destinations	Migration Nature		If Seasonal, Months of Stay		
				Yes	No	Male	Female	Male	Female	Work	Study	Other		Permanent	Seasonal	n	$\bar{x}$	
<b>PROJECT VILLAGE</b>																		
East Khasi Hills	Nashain	Upper Reach	5	Yes	--	1	0	0	0	1		--	--	--	--	--	--	
	Mawriang	Middle Reach	25	Yes	--	7	6	0	0	1	5	--	Shillong	--	6	6	3.806	
	Umsyiem	Lower Reach	32	Yes	--	2	7	0	0	2	6	--	Amlarem, Shillong	--	8	8	3.138	
West Garo Hills	Chigitchakgre	Upper Reach	8	Yes	--	2	3	0	0		1	--	--	--	1	1	10.00	
	Sengminpara	Middle Reach	6	Yes	--	2	0	0	0	1	1	--	--	--	2	2	2.750	
	Jengchamgre	Lower Reach	4	Yes	--	1	0	0	0		1	--	Tura	--	1	1	11.00	
Ri Bhoi	Plasha	Upper Reach	12	Yes	--	5	4	1	0	1	2	--	Shillong, Nalbari	1	3	3	7.333	
	Kynton Phanram	Middle Reach	6	Yes	--	2	2	0	0	1	2	--	Shillong, Delhi, Nongpoh	--	3	3	10.333	
	Umshit	Lower Reach	8	--	No	--	--	--	--	--	--	--	--	--	--	--	--	
<b>TOTAL/AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>22</b>	<b>22</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>18</b>	--	--	<b>1</b>	<b>24</b>	<b>24</b>	<b>5.309</b>	
<b>CONTROL VILLAGE</b>																		
East Khasi Hills	Nongshyrngan	Control Village	31	--	No	--	--	--	--	--	--	--	--	--	--	--	--	
West Garo Hills	Dapdalgre	Control Village	8	--	No	--	--	--	--	--	--	--	--	--	--	--	--	
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	Yes	--	2	0	0	0	1	1	--	--	--	2	2	10.50	
<b>TOTA/AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	--	--	--	<b>2</b>	<b>2</b>	<b>10.50</b>	

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under 'Months of Stay':**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the months of stay)

### 3.13. Questions 8-11 (PART-2)

#### Findings

Table-3.33 gives the findings of the following Migration parameters, which had been covered by Question Nos. 8-11 of the Schedule:

- AVG amount received from migrated members
- Members planning to migrate
- Reasons people planning for migration

#### Analysis

##### *AVG amount received from migrated members*

**Project Village-**The AVG amount received per year from migrated members in the project village is approximately Rs. **30,000** per year.

**Control Village-** The AVG amount received per year from migrated members in the control village is approximately Rs. **36,000** per year.

##### *Members planning to migrate*

As seen the table, a total of 12 households from the project area (East Khasi Hills) in which some members of the family are planning to migrate from the project villages and none from the control village.

##### *Reasons people planning for migration*

As seen in the table below, the main reason why people seasonally migrate to other places is education in the project villages. Parents tend to send their children to district heads or nearby places which have good educational institutions.

Unemployment is also a factor why people migrate to other places due to seeking better job opportunities.



Table-3.33 (B) Questions 8-11 (PART-2) [BATCH-IV]

District	Village	Location	Households	If Yes to 'Any Member Migrated'					Members Planning to Migrate		If Yes to 'Any Member Planning to Migrate'					
				Any Payment		If Yes, Amount Received			Yes	No	Total Nos. Intending in Village	Nos. of Households in Village giving following reasons				
				Yes	No	n	$\bar{x}$	SD				Un-employment	Food Shortage	Water Scarcity	Security	Education
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	Upper Reach	5	--	No	--	--	--	--	5	--	--	--	--	--	--
	Mawriang	Middle Reach	25	--	No	--	--	--	5	--	--	3	--	--	--	5
	Umsyiem	Lower Reach	32	--	No	--	--	--	7	--	--	7	--	--	--	6
West Garo Hills	Chigitchakgre	Upper Reach	8	--	No	--	--	--	--	8	--	--	--	--	--	--
	Sengminpara	Middle Reach	6	--	No	--	--	--	--	6	--	--	--	--	--	--
	Jengchamgre	Lower Reach	4	--	No	--	--	--	--	4	--	--	--	--	--	--
Ri Bhoi	Plasha	Upper Reach	12	--	No	--	--	--	--	12	--	--	--	--	--	--
	Kynton Phanram	Middle Reach	6	Yes	--	1	30000.00	0.0	--	6	--	--	--	--	--	--
	Umshit	Lower Reach	--	--	No	--	--	--	--	8	--	--	--	--	--	--
<b>TOTAL/AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>1</b>	<b>30000.00</b>	--	<b>12</b>	<b>49</b>	--	<b>10</b>	--	--	--	<b>11</b>
<b>CONTROL VILLAGE</b>																
East Khasi Hills	Nongshyrngan	Control Village	31	--	No	--	--	--	--	31	--	--	--	--	--	--
West Garo Hills	Dapdalgre	Control Village	8	--	No	--	--	--	--	8	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	Control Village	13	--	--	1	36000.00	0.0	--	13	--	--	--	--	--	--
<b>TOTA /AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>1</b>	<b>36000.00</b>	--	--	<b>52</b>	--	--	--	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under 'Amount Received':**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the amount received)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.14. Income [Batch IV]

#### INCOME - SOURCES & QUANTUM

##### Findings

This sub-section gives discusses the income – sources and quantum of the sampled households. They are based on different sources of income generating activities. In project as well as control village, it is seen that many households are engaged in different income generating activities which are their main source of livelihood. Out of the total household for both project and control village, it is found that not all households are engaged in one activity but in many income generating activities. As per survey, the number of responses by any household under income sources and quantum is given only by the district of Ri-Bhoi. This is because many of the sampled households are unwilling to divulge their financial status.

Table 3.34 below reports the number of households and their AVG income received per year in both project and control villages.

**Table -3.34: Summary of Incomes (Project & Control Villages)**

Source	Project Village		Control Village	
	No. of Households	AVG Quantum (Rs.)	No. of Households	AVG Quantum (Rs.)
<b>Agriculture Crops</b>	11	16,382	6	18,110
<b>Orchard/ Plantation Crops</b>	7	20,114	7	53,171
<b>Livestock</b>	19	12,832	10	6,000
<b>Fishery</b>	-	-	4	8,075
<b>NTFP</b>	19	10,871	12	34,116
<b>Wage Labour</b>	25	9,343	13	9,780
<b>Remittance</b>	1	30,000	1	36,000
<b>All Others</b>	23	79,909	10	15,525

[Note: All figures have been rounded off.]

##### Analysis

In project village, out of the total number of households, it is found that many households are mostly engaged in ‘wage labour’ with an AVG quantum per year of about 9,343.481 and ‘remittance’ as the least engaged activity with 30,000.00. In control village, ‘wage labour’ activity is the most engaged activity with AVG quantum of 9,780.00 while ‘remittance’ is the least with 36,000. (All figures are Rs.)

In terms of total AVG of income received (quantum), it is found that in project village, many households are engaged in ‘all others’ with an AVG quantum per year of about 79,909.23 and in control village is ‘orchard/plantation crops’ activity with 53,171.400. The least AVG of income received in project village is ‘wage labour’ activity with an AVG quantum per year of about 9,343.481 and in control village is ‘livestock’ activity with 6,000.00.

It is also found that fishery activity is practiced by some households in control village only.

**Table-3.35: INCOME - SOURCES & QUANTUM – Part 1 [BATCH IV]**

District	Village	Location	Households	Source: Agricultural Crops					Source: Orchard / Plantation Crops					Source: Livestock					Source: Fishery				
				Income Received		If Yes, Quantum			Income Received		If Yes, Quantum			Income Received		If Yes, Quantum			Income Received		If Yes, Quantum		
				Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																							
East Khasi Hills	Nashain	UR	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Mawriang	MR	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Umsyiem	LR	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
West Garo Hills	Chigitchakgre	UR	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Sengminpara	MR	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Jengchamgre	LR	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ri Bhoi	Plasha	UR	12	Y	--	1	1500.00	0.0	Y	--	6	22633.333	38387.585	Y	--	10	15430.00	9769.800	--	--	--	--	
	Kynton Phanram	MR	6	Y	--	3	26000.00	5291.500	Y	--	1	5000.00	0.0	Y	--	5	10900.00	7940.400	--	--	--	--	
	Umshit	LR	8	Y	--	7	14385.714	16499.500	--	--	--	--	--	Y	--	4	8750.00	1500.00	--	--	--	--	
<b>TOTAL/AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>11</b>	<b>16381.82</b>	--	--	--	<b>7</b>	<b>20114.285</b>	--	--	--	<b>19</b>	<b>12831.58</b>	--	--	--	--	--	
<b>CONTROL VILLAGE</b>																							
East Khasi Hills	Nongshymgan	CV	31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
West Garo Hills	Dapdalgre	CV	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	6	18110.00	8414.547	Y	--	7	53171.400	71138,00	Y	--	10	6000.00	3954.180	Y	--	4	8075.00	12618.300
<b>TOTAL/AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>6</b>	<b>18110.00</b>	--	--	--	<b>7</b>	<b>53171.400</b>	--	--	--	<b>10</b>	<b>6000.00</b>	--	--	--	<b>4</b>	<b>8075.00</b>	--

**Notes:**  
UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Quantum (of Income):**  
n gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the incomes received)  
s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.36: INCOME - SOURCES &amp; QUANTUM Part 2 [BATCH – IV]

District	Village	Location	Households	Source: NTFP					Source: Wage Labour					Source: Remittance					Source: ALL Others				
				Income Received		If Yes, Quantum			Income Received		If Yes, Quantum			Income Received		If Yes, Quantum			Income Received		If Yes, Quantum		
				Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD	Yes	No	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>																							
East Khasi Hills	Nashain	UR	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Mawriang	MR	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
West Garo Hills	Umsyiem	LR	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Chigitchakgre	UR	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ri Bhoi	Sengminpara	MR	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Jengchamgre	LR	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ri Bhoi	Plasha	UR	12	Y		10	6450.00	7685.48	Y		12	9065.17	17851.10					Y		11	96582.900	76836.00	
	Kynton Phanram	MR	6	Y		4	28200.00	35018.50	Y		6	9508.33	665.445	Y		1	30000.00	0.0	Y		5	79300.00	76447.400
	Umshit	LR	8	Y		5	5850.00	4021.82	Y		7	9679.286	266.465					0.0	Y		7	54142.900	59024.500
<b>TOTAL /AVG</b>		<b>PV</b>	<b>106</b>			<b>19</b>	<b>10871.05</b>				<b>25</b>	<b>9343.481</b>				<b>1</b>	<b>30000.00</b>				<b>23</b>	<b>79909.23</b>	
<b>CONTROL VILLAGE</b>																							
East Khasi Hills	Nongshymgan	CV	31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	-	12	34116.70	35433.90	Y	-	13	9780.00	0.0	Y	-	1	36000.00	-	Y	-	10	15525.00	84129.100
<b>TOTAL /AVG</b>		<b>CV</b>	<b>52</b>	-	-	<b>12</b>	<b>34116.70</b>			-	<b>13</b>	<b>9780.00</b>		-	-	<b>1</b>	<b>36000.00</b>	-	-	-	<b>10</b>	<b>15525.00</b>	-

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Quantum (of Income):**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the incomes received)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.15. Assets [Batch IV]

#### Findings

This sub-section gives discusses the assets possess by the households in both project and control villages. The assets include house, radio, television, mobile connection, bicycle, two-wheeler, other vehicle. Tables-3.37 and 3.38 give the various important assets possessed by households in both project as well as control villages. The above tables are furnished in the following pages.

#### Analysis

##### House

It is found that in both project and control village, many households are having semi-pucca type of house with sanitary toilets and having electrical connection. Availability of solar devices is almost non-existent.

Project Village		Control Village	
Semi-pucca house	49%	Semi-pucca house	23%
Sanitary toilet	92%	Sanitary toilet	34%
Electrical connection	95%	Electrical connection	42%
Availability of solar devices	0%	Availability of solar devices	0%

##### Radio

In project village, only 27% owned a 'radio' as part of their assets while the remaining 73% do not - whereas, in control village, only 6% owned while the remaining do 94% do not.

##### Television

In project village, only 47% owned a 'television' as part of their assets while the remaining 53% do not - whereas, in control village, only 48% owned while the remaining do 52% do not.

##### Mobile Connection

In project village, 83% of the household have 'mobile connection' as part of their assets while the remaining 17% do not whereas, in control village, 88% have while the remaining 12% do not. In project village, the AVG number of connections is 2.178 (approx. about 2 connections) whereas in control village is 1.861 (approx. about 2 connections).

### *Bicycle*

In project village, there is no household who owned a 'bicycle' as part of their assets whereas in control village, only 6% owned a 'bicycle' while the remaining 94% do not.

### *Two Wheeler*

In project village, only 5% owned 'two-wheeler' as part of their assets while the remaining 95% do not whereas in control village, only 4% owned 'two-wheeler' while the remaining 96% do not.

### *Other Vehicle*

In project village, only 5% owned 'other vehicle' as part of their assets while the remaining 9% do not. There are no household who owned 'other vehicle' in control village.

Table-3.37: POSSESSION OF ASSETS BY TYPE – PART 1 [BATCH IV]

District	Village	Location	Households	House		If House = Yes								
				Yes	No	Type of House			Sanitary Toilet		Electrical Connection		Availability of Solar Devices	
						Kutcha	Semi-Pucca	Pucca	Yes	No	Yes	No	Yes	No
<b>PROJECT VILLAGE</b>														
East Khasi Hills	Nashain	UR	5	5	--	4	1	--	--	5	4	1	0	5
	Mawriang	MR	25	25	--	9	9	7	25	0	25	0	0	25
	Umsyiem	LR	32	32	--	9	21	2	28	4	29	3	0	32
West Garo Hills	Chigitchakgre	UR	8	8	--	7	1	0	8	0	7	1	0	8
	Sengminpara	MR	6	6	--	5	0	1	6	0	6	0	0	6
	Jengchamgre	LR	4	4	--	2	1	1	4	0	4	0	0	4
Ri Bhoi	Plasha	UR	12	12	--	0	12	0	12	0	12	0	0	12
	Kynton Phanram	MR	6	6	--	0	6	0	6	0	6	0	0	6
	Umshit	LR	8	8	--	7	1	0	8	0	8	0	0	8
<b>TOTAL /AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>106</b>	<b>--</b>	<b>43</b>	<b>52</b>	<b>11</b>	<b>97</b>	<b>9</b>	<b>101</b>	<b>5</b>	<b>--</b>	<b>106</b>
<b>CONTROL VILLAGE</b>														
East Khasi Hills	Nongshyrngan	CV	31	31	--	15	11	5	15	16	23	8	0	31
West Garo Hills	Dapdalgre	CV	8	8	--	5	0	3	8	0	8	0	0	8
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	13	--	0	13	0	13	0	13	0	0	13
<b>TOTAL /AVG</b>		<b>(CONTROL)</b>	<b>5</b>	<b>52</b>	<b>--</b>	<b>20</b>	<b>24</b>	<b>8</b>	<b>36</b>	<b>16</b>	<b>44</b>	<b>8</b>	<b>--</b>	<b>52</b>

**Note:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Table-3.38: POSSESSION OF ASSETS BY TYPE - PART 2 [BATCH IV]

District	Village	Location	Households	Radio		Television		Mobile Connection					Bicycle		Two Wheeler		Other Vehicle	
				Yes	No	Yes	No	Yes	No	If Yes, No. of Connections			Yes	No	Yes	No	Yes	No
										n	$\bar{x}$	SD						
<b>PROJECT VILLAGE</b>																		
East Khasi Hills	Nashain	UR	5	2	3	3	2	5	0	5	1.6	0.490	0	5	0	5	0	5
	Mawriang	MR	25	5	20	7	18	19	6	19	2.238	2.071	0	25	0	25	1	24
	Umsyiem	LR	32	4	28	21	11	30	2	30	2.4	1.380	0	32	1	31	2	30
West Garo Hills	Chigitchakgre	UR	8	1	7	2	6	4	4	4	1.5	0.577	0	8	2	5	1	7
	Sengminpara	MR	6	2	4	1	5	5	1	5	1.4	0.894	2	4	2	4	0	6
	Jengchamgre	LR	4	1	3	0	4	2	2	2	1	0	0	4	0	4	0	4
Ri Bhoi	Plasha	UR	12	11	1	12	0	12	0	12	2.917	1.564	0	12	0	12	0	12
	Kynton Phanram	MR	6	3	3	3	3	5	1	5	2.2	1.304	0	6	0	5	1	5
	Umshit	LR	8	0	8	1	7	5	3	5	1.2	0.447	0	8	0	8	0	8
<b>TOTAL /AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>29</b>	<b>77</b>	<b>50</b>	<b>56</b>	<b>87</b>	<b>19</b>	<b>87</b>	<b>2.178</b>			<b>106</b>	<b>5</b>	<b>101</b>	<b>5</b>	<b>101</b>
<b>CONTROL VILLAGE</b>																		
East Khasi Hills	Nongshymgan	CV	31	3	28	5	26	17	10	17	1.529	0.717	0	31	0	31	0	31
West Garo Hills	Dapdalgre	CV	8	0	8	5	4	18	1	8	2.25	1.581	2	6	2	6	0	8
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	0	13	15	8	11	2	11	2.091	1.375	1	12	0	13	0	13
<b>TOTAL /AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>3</b>	<b>49</b>	<b>25</b>	<b>38</b>	<b>46</b>	<b>13</b>	<b>36</b>	<b>1.861</b>	<b>--</b>	<b>3</b>	<b>49</b>	<b>2</b>	<b>50</b>	<b>--</b>	<b>52</b>

**Note:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Mobile Connection:**

n gives the number of responses to the query

 $\bar{x}$  gives the arithmetical mean of the responses (i.e. the AVG of the Nos. of Connections)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses.]



### 3.16. Government Entitlements [Batch IV]

#### Findings

As per the survey, entitlements received by the households in both project & control villages are given by the Government such as NREGS job card, ration card, BPL card, and other Government facilities. It is found that some households do not avail all these entitlements. Table-3.39 and Table-3.40 (given in the next two pages) indicate the findings of the following entitlements:

- NREGS Job Card;
- Ration Card;
- BPL Card; and
- Any Other Government Facility.

#### Analysis

**NREGS Job Card:** In project village, it is found that out of the 106 total households, only 100 household availed of NREGS job card. The AVG total number of days worked by 100 households is 63.590 days (approx. 64 days) and the AVG total number of days paid for is 63.590 days (approx. 64 days). In control village, only 47 out of 52 household avail NREGS job card with AVG total number of days worked is 53.420 days (approx. 53 days) and the total number of days paid for by 47 households is 53.420 days (approx. 53 days).

**Ration Card:** In both project and control villages, essential commodities given are rice, kerosene and sugar. Out of 106 total households, only 64 households avail Ration card in project village and only 34 out of 52 households in control village.

**BPL Card:** Out of 106 total households in the project village, 35 households are found to have BPL cards whereas in control village, only 19 out of 52 households have BPL cards. These cards are made available to households who are determined to be living 'Below the Poverty Line' (BPL).

**Any other Government Facility:** It is found that Meghalaya Health Insurance Scheme (MHIS) is the only government facility currently available. In project village, only 64 out of 106 households avail MHIS and in control village, only 36 out of 52 households.

Table-3.39: GOVERNMENT ENTITLEMENTS PART 1 – NREGS [BATCH IV]

District	Village	Location	Households	NREGS Job Card		If NREGS Job Card = YES					
				Yes	No	No. of Days Worked			No. of Days Paid For		
						n	$\bar{x}$	SD	n	$\bar{x}$	SD
<b>PROJECT VILLAGE</b>											
East Khasi Hills	Nashain	UR	5	--	5	--	--	--	--	--	--
	Mawriang	MR	25	25	--	25	60	0.0	25	60	0.0
	Umsyiem	LR	32	32	--	32	89.250	24.309	32	89.250	24.309
West Garo Hills	Chigitchakgre	UR	8	8	--	8	50.00	0.0	8	50.00	0.0
	Sengminpara	MR	6	6	--	6	50.00	0.0	6	50.00	0.0
	Jengchamgre	LR	4	4	--	4	50.00	0.0	4	50.00	0.0
Ri Bhoi	Plasha	UR	12	12	--	12	24.00	0.0	12	24.00	0.0
	Kynton Phanram	MR	6	6	--	6	65.00	17.608	6	65.00	17.608
	Umshit	LR	8	7	1	7	60.714	21.685	7	60.714	21.685
<b>TOTAL /AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>63.590</b>	<b>--</b>	<b>100</b>	<b>63.590</b>	<b>--</b>
<b>CONTROL VILLAGE</b>											
East Khasi Hills	Nongshyrngan	CV	31	26	5	26	53.952	19,800	26	53.952	19,800
West Garo Hills	Dapdalgre	CV	8	8	--	8	50.00	0.0	8	50.00	0.0
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	13	--	13	54.462	13.519	13	54.462	13.519
<b>TOTAL /AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>47</b>	<b>5</b>	<b>47</b>	<b>53.420</b>	<b>--</b>	<b>47</b>	<b>53.420</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach /  
CV: Control Village

**Under Nos. of Days Worked / No. of Days Paid For:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of the responses (i.e. the AVG of the Nos. of Days Worked / No. of Days Paid For)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

Table-3.40: GOVERNMENT ENTITLEMENTS PART TWO - OTHER ENTITLEMENTS [BATCH IV]

District	Village	Location	Households	Ration Card			BPL Card		Any Other Govt. Facility		
				Yes	No	If Yes Items Cited as Being Purchased	Yes	No	Yes	No	If Yes, Details Cited
<b>PROJECT VILLAGE</b>											
East Khasi Hills	Nashain	UR	5	--	5	--	--	5	5		MHIS
	Mawriang	MR	25	15	10	Rice, Sugar, Kerosene	20	5	18	7	MHIS
	Umsyiem	LR	32	24	8	Rice, Sugar, Kerosene	5	27	18	14	MHIS
West Garo Hills	Chigitchakgre	UR	8	1	7	Rice, Sugar	1	7	2	6	MHIS
	Sengminpara	MR	6	5	1	Rice, Sugar, Kerosene	5	1	2	4	MHIS
	Jengchamgre	LR	4	4		Rice, Sugar, Kerosene		4		4	MHIS
Ri Bhoi	Plasha	UR	12	8	4	Rice, Sugar, Kerosene, Flour	3	9	12		MHIS
	Kynton Phanram	MR	6	3	3	Rice, Sugar, Flour	1	5	6		MHIS
	Umshit	LR	8	4	4	Rice, Sugar, Flour		8	1	7	MHIS
<b>TOTAL /AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>64</b>	<b>42</b>	<b>--</b>	<b>35</b>	<b>71</b>	<b>64</b>	<b>42</b>	<b>--</b>
<b>CONTROL VILLAGE</b>											
East Khasi Hills	Nongshyrngan	CV	31	16	15	Rice, Sugar, Kerosene	14	17	21	10	MHIS
West Garo Hills	Dapdalgre	CV	8	8		Rice, Sugar, Kerosene	5	3	5	3	MHIS
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	10	3	Rice, Sugar, Flour		13	10	3	MHIS
<b>TOTAL /AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>34</b>	<b>18</b>	<b>--</b>	<b>19</b>	<b>33</b>	<b>36</b>	<b>16</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

### 3.17. *Saving & Credit [Batch IV]*

#### **Findings**

As per the survey, in both the project and control villages, only some of the households are utilizing the saving and credit facilities offered by certain banks such as State Bank of India (SBI), Meghalaya Rural Bank (MRB), Meghalaya Cooperative Apex Bank (MCAB), Housing Development Finance Corporation (HDFC) Bank, Indian Bank, Union Bank, Bandhan Bank etc. This is because many of the sampled households are unwilling to divulge their financial status.

Table-3.41 (given at overleaf) indicates the savings and credit utilization in the sampled households of the project villages and control villages.

#### **Analysis**

##### *Saving*

In both the project and control villages, it is found that most of the households availed of the saving facilities offered by banks such as SBI, MRB, MCAB, HDFC, Indian Bank and Union bank as well as savings at home.

In project villages, It is found that only 15 out of 106 total households used saving facilities provided by the above banks and that the AVG amount saved is Rs. 8,366.667 (approx. Rs. 8,367) whereas in control village, only 11 out of 52 total households with an AVG amount saved is Rs. 28,181.81 (approx. about Rs. 28,182).

##### *Credit*

In both the project and control villages, credit facilities are availed of by only few households. As per the survey, it is found that credit facility is availed only by households under Ri-Bhoi district in both project and control areas. These households availed this facility only in banks such as SBI, MRB and Bandhan Bank. It is found in one such case that loans have been extended by a Self Help Group (SHG) in one project area.

In project village, it is found that only 8 out of 106 total households are availing credit facilities with an AVG amount borrowed is Rs. 95,500.13 (approx. about Rs. 95,500) whereas in control village, only 2 out of 52 total households with an AVG amount borrowed is Rs. 40,000.00 (approx. about Rs. 40,000).

Table-3.41: Saving & Credit [BATCH IV]

District	Village	Location	Households	SAVING							CREDIT								
				Amount Saved			Where Saved				Amount Borrowed			Range of Interest Rates (%)		Where Taken			
				n	$\bar{x}$	SD	Bank	Post Office	SHG	Other	n	$\bar{x}$	SD	From	To	Bank	Micro Finance	SHG	Other
<b>PROJECT VILLAGE</b>																			
East Khasi Hills	Nashain	UR	5		--	--	MCAB,SBI	--	--	--	-	--	--	--	--	--	--	--	--
	Mawriang	MR	25		--	--	HDFC	--	--	--	-	--	--	--	--	--	--	--	--
	Umsyiem	LR	32	3	30000.0	17320.50	MCAB,SBI	--	--	--	-	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	UR	8	8	1250.00	3535.53	SBI	--	--	--	-	--	--	--	--	--	--	--	--
	Sengminpara	MR	6				SBI,UNION BANK	--	--	--	-	--	--	--	--	--	--	--	--
	Jengchamgre	LR	4				SBI	--	--	--	-	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	UR	12	2	9000.00	9899.49	MRB,MCAB,SBI,INDIAN BANK	--	--	HOME	3	191667.00	184278.00	2%	9%	SBI	--	SHG	--
	Kynton Phanram	MR	6	1	5500.00	0.0	MRB	--	--	--	3	23000.00	7211.10	1.5%	--	SBI,MRB,BANDHAN BANK	--	--	--
	Umshit	LR	8	1	2000.00	0.0	MRB,SBI	--	--	--	2	60000.00	56568.50	5%	--	SBI	--	--	--
<b>TOTAL /AVG</b>		<b>(PV)</b>	<b>106</b>	<b>15</b>	<b>8366.67</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>8</b>	<b>95500.13</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>CONTROL VILLAGE</b>																			
East Khasi Hills	Nongshyrngan	CV	31	3	13333.30	5773.50	MCAB,HDFC,SBI	--	--	--	-	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	8	--	--	SBI,MCAB	--	--	--	-	--	--	--	--	--	--	--	--
Ri-Bhoi	Himphala & Tomonpoanglong	CV	13	8	33750.00	48310.80	SBI,MRB,MCAB	--	--	HOME	2	40000.00	0.0	--	--	SBI	--	--	--
<b>TOTAL /AVG</b>		<b>(CV)</b>	<b>52</b>	<b>11</b>	<b>28181.81</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2</b>	<b>40000.00</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**Notes:**  
UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Amount Saved / Amount Borrowed:**  
n gives the number of responses to the query  
 $\bar{x}$  gives the arithmetical mean of the responses in Rs. (i.e. the AVG of the amounts saved / borrowed)  
s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

### 3.18. Social Capital [Batch IV]

#### 3.18.1. SOCIAL CAPITAL - PARTICIPATION IN VILLAGE LEVEL ORGANIZATIONS

##### Findings

This sub-section gives discusses the social participation for both the project and control areas. Participation of the households from each area of project and control villages suggests involvement and active participation in different social groups in terms of social and financial aspects. As per the survey, participation by households in both project and control villages is very less.

Table-3.42 gives the participation by the households in different village level organizations such as:

- Self Help Group (SHG);
- User Group (UG);
- Farmer Producer Institution; and
- Any other organization (Non-political).

##### Analysis

From the above table, it is found that Self Help Groups (SHGs) have members in the project villages and control villages. There is no participation of the sampled households in any other type of village level organization.

The pertinent details are given as follows:

*Self Help Groups (SHGs):* It is found that each sampled household have at least 1 member who participates in SHGs. In both project and control villages, the number of households that are participating in SHGs is very less. In project village, only 15% of the households are members in SHGs while the remaining 85% are not whereas in control village, it is only 6%.

*User Groups:* There is no participation by any sampled household in user groups.

*Other Organizations:* There is no participation of the household members in any other type of groups like Farmer producer Institution etc.

Table-3.42: Social Capital (Part I) Participation [BATCH IV]

District	Village	Location	Households	Self Help Group			User Group			Farmer Producer Institution			Any Other Organization (Non-Political)		
				Yes	No	If Yes Details	Yes	No	If Yes Details	Yes	No	If Yes Details	Yes	No	If Yes Details
<b>PROJECT VILLAGE</b>															
East Khasi Hills	Nashain	UR	5	--	5		--	5	--	--	5	--	--	5	--
	Mawriang	MR	25	2	23	Member	--	25	--	--	25	--	--	25	--
	Umsyiem	LR	32	4	28	Member	--	32	--	--	32	--	--	32	--
West Garo Hills	Chigitchakgre	UR	8	2	6	Member	--	8	--	--	8	--	--	8	--
	Sengminpara	MR	6	--	6	--	--	6	--	--	6	--	--	6	--
	Jengchamgre	LR	4	--	4	--	--	4	--	--	4	--	--	4	--
Ri Bhoi	Plasha	UR	12	6	6	Member	--	12	--	--	12	--	--	12	--
	Kynton Phanram	MR	6	2	4	Member	--	6	--	--	6	--	--	6	--
	Umshit	LR	8	--	8	--	--	8	--	--	8	--	--	8	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>16</b>	<b>90</b>	<b>--</b>	<b>--</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>106</b>	<b>--</b>
<b>CONTROL VILLAGE</b>															
East Khasi Hills	Nongshyrngan	CV	31	--	31	--	--	31	--	--	31	--	--	31	--
West Garo Hills	Dapdalgre	CV	8	2	6	Member	--	8	--	--	8	--	--	8	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	1	12	Member	--	13	--	--	13	--	--	13	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>3</b>	<b>49</b>	<b>--</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>52</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

### 3.18.2. SOCIAL CAPITAL - SELF SUFFICIENCY OF THE HOUSEHOLDS

#### Findings

This sub-section gives discusses the social self sufficiency of the sampled households for both the project and control areas. Self sufficiency indicates the independent utilization and sustainability of certain necessities required by any household for a period of time. As per the survey, self sufficiency of each household is recorded under period of month/year. Table-3.44 gives the different categories of self sufficiency for items like:

- Food;
- Fodder;
- Fuel;
- Drinking water; and
- Employment.

#### Analysis

It is found that in both project and control villages, almost all households are citing 'round the year' as the months of self sufficiency in every category followed by '9-11 months' and vice-versa.

For essentials like food and drinking water, all the households gets sufficient food and drinking water 'round the year,' in both project and control villages. In the case of the other categories (fodder, fuel and employment); the sampled households are mostly self-sufficient for '9-11 months' and some for '6-9 months' in both project and control villages.

The following table illustrates the summary of the results.

**Table-3.43: Self Sufficiency Status of the Sampled Households [BATCH IV]**

Category	Months of Self Sufficiency	No. of Household	
		Project Village	Control Village
Food	Round the year	106	47
	9-11 months	-	3
	6-9 months	-	2
Fodder	Round the year	10	8
	9-11 months	39	13
Fuel	Round the year	106	52
Drinking water	Round the year	41	8
	9-11 months	-	-
	6-9 months	65	44
Employment	Round the year	5	1
	9-11 months	70	34
	6-9 months	12	1
	3-6 months	17	15
	Below 3 months	-	1



**Table-3.44: Social Capital (Part I) Self Sufficiency [BATCH IV]**

District	Village	Location	Households	No. Of Households Reporting Self Sufficiency under Category																							
				Food					Fodder				Fuel					Drinking Water				Employment					
				Round the Year	9-11 Months	6-9 Months	3-6 Months	Below 3 Months	Round the Year	9-11 Months	6-9 Months	3-6 Months	Below 3 Months	Round the Year	9-11 Months	6-9 Months	3-6 Months	Below 3 Months	Round the Year	9-11 Months	6-9 Months	3-6 Months	Below 3 Months	Round the Year	9-11 Months	6-9 Months	3-6 Months
<b>PROJECT VILLAGE</b>																											
East Khasi Hills	Nashain	UR	5	5	--	--	--	--	--	5	--	--	--	5	--	--	--	5	--	--	--	--	1	4	--	--	
	Mawriang	MR	25	25	--	--	--	--	--	--	--	--	--	25	--	--	--	--	25	--	--	--	25	--	--	--	
	Umsyiem	LR	32	32	--	--	--	--	--	--	--	--	--	32	--	--	--	18	14	--	--	--	30	2	--	--	
West Garo Hills	Chigitchakgre	UR	8	8	--	--	--	--	--	8	--	--	--	8	--	--	--	8	--	--	--	2	--	--	4	--	
	Sengminpara	MR	6	6	--	--	--	--	6	--	--	--	6	--	--	--	6	--	--	--	--	--	--	--	6	--	
	Jengchamgre	LR	4	4	--	--	--	--	4	--	--	--	4	--	--	--	4	--	--	--	--	--	--	--	4	--	
Ri Bhoi	Plasha	UR	12	12	--	--	--	--	--	12	--	--	--	12	--	--	--	--	12	--	--	--	2	6	2	2	--
	Kynton Phanram	MR	6	6	--	--	--	--	--	6	--	--	--	6	--	--	--	--	6	--	--	--	1	4	1	--	--
	Umshit	LR	8	8	--	--	--	--	--	8	--	--	--	8	--	--	--	--	8	--	--	--	--	4	3	1	--
<b>TOTAL / AVG (PROJECT)</b>			<b>106</b>	<b>106</b>					<b>10</b>	<b>39</b>				<b>106</b>				<b>41</b>	<b>65</b>			<b>5</b>	<b>70</b>	<b>12</b>	<b>17</b>	<b>--</b>	
<b>CONTROL VILLAGE</b>																											
East Khasi Hills	Nongshyrngan	CV	31	31	--	--	--	--	--	--	--	--	31	--	--	--	--	--	31	--	--	--	--	31	--	--	--
West Garo Hills	Dapdalgre	CV	8	3	3	2	--	--	8	--	--	--	8	--	--	--	8	--	--	--	--	--	--	--	8	--	
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	13	--	--	--	--	--	13	--	--	--	13	--	--	--	--	13	--	--	--	1	3	1	7	1
<b>TOTAL / AVG (CONTROL)</b>			<b>52</b>	<b>47</b>	<b>3</b>	<b>2</b>			<b>8</b>	<b>13</b>				<b>52</b>				<b>8</b>	<b>44</b>			<b>1</b>	<b>34</b>	<b>1</b>	<b>15</b>	<b>1</b>	

**Note:** UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

### 3.19. Access to Services

The following sub-sections discuss the access of the sampled households to various services such as: agricultural extension services, education, health, veterinary services, credit facility, farm inputs and access to markets for their farm produces.

The pertinent discussion is available as follows.

#### 3.19.1. AGRI-EXTENSION SERVICES & CREDIT

##### Findings

Table-3.46 (available at next page) indicates the findings of the access of the sampled households to the following services:

- Agricultural Extension Services,
- Credit Facility.

##### Analysis

##### *Access to Agricultural Extension Services*

**Project Villages:** Out of the total 106 households, none of the households have access to agricultural services.

**Control Villages:** In the control village, out of the total number of 52 households, none of the households have access to agricultural services.

##### *Access to Credit Facilities*

**Project Village:** As shown in the table, 106 of the households have access to credit services.

**Control Village:** All of the 52 households have access to credit facilities.

##### *Distance to the Facilities (Agricultural Extension Facility & Credit Facility)*

The following table gives the number of households having agricultural services and credit facilities within specified distances.

**Table-3.45: Nos. of Sampled Households having Facility within Indicated Distances [Agricultural Extension Facility & Credit Facility]**

Project Village		
	Agricultural Extension Services	Credit Facility
Within village (0)	0	0
Within 5 km (1)	0	30
More than 5 km (2)	0	76
Control Village		
	Agricultural Extension Services	Credit Facility
Within village (0)	0	0
Within 5 km (1)	0	21
More than 5 km (2)	0	31

Table-3.46 AGRI-EXTENSION SERVICES &amp; CREDIT [BATCH-IV]

District	Village	Location	Households	Agricultural Extension Services							Credit Facility						
				Access		If Access = Yes					Access		If Access = Yes				
						Who Provides	Where - Nos. of Households who have marked (*)			Frequency of Use			Who Provides	Nos. of Households who have marked (*)			Frequency of Use
							0	1	2					0	1	2	
Yes	No						Yes	No									
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	--	Y	--	--	--	--	5	--
	Mawriang	MR	25	--	N	--	--	--	--	--	Y	--	--	--	25	--	--
	Umsyiem	LR	32	--	N	--	--	--	--	--	Y	--	--	--	32	--	--
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	--	Y	--	--	--	8	--	--
	Sengminpara	MR	6	--	N	--	--	--	--	--	Y	--	--	--	6	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	--	Y	--	--	4	--	--	--
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--	Y	--	--	--	12	--	--
	Kynton Phanram	MR	6	--	N	--	--	--	--	--	Y	--	--	--	6	--	--
	Umshit	LR	8	--	N	--	--	--	--	--	Y	--	--	--	8	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--	--	--	--	--	<b>30</b>	<b>76</b>	--
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	--	Y	--	--	--	--	31	--
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	--	Y	--	--	--	8	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--	Y	--	--	--	13	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	<b>21</b>	<b>31</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.2. HEALTH & EDUCATION

#### Findings

Table-3.48 (available at next page) indicates the findings of the access of the sampled households to the following services:

- Health facility; and
- Educational Facility.

#### Analysis

##### *Access to Health Facility*

**Project Village:** As per the total of 106 households, they all have access to health services.

**Control Village:** Out of the 52 households in the control village, all have access to health services.

##### *Access to Educational Facility*

**Project Village:** In the project village, 106 households have access to educational services.

**Control Village:** 52 households have access to educational services.

##### *Distance to the Facilities (Health & Educational Facility)*

The following table gives the number of households having health and educational facilities within specified distances.

**Table-3.47: Nos. of Sampled Households having Facility within Indicated Distances [Health & Educational Facilities]**

Project Village		
	Health	Education
Within village (0)	0	102
Within 5 km (1)	40	4
More than 5 km (2)	66	0
Control Village		
	Health	Education
Within village (0)	0	52
Within 5 km (1)	21	0
More than 5 km (2)	31	0

Table-3.48 Health &amp; Education [BATCH-IV]

District	Village	Location	Households	Health							Education						
				Access		Who Provides	If Access = Yes			Frequency of Use	Access		Who Provides	If Access = Yes			
							Where -Nos. of Households who have marked (*)							Nos. of Households who have marked (*)			
				Yes	No	0	1	2	Yes	No	0	1	2				
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	Y	--	--	--	5	--	Y	--	--	5	--	--	Daily	
	Mawriang	MR	25	Y	--	--	--	25	--	Y	--	--	25	--	--	Daily	
	Umsyiem	LR	32	Y	--	--	--	32	--	Y	--	--	32	--	--	Daily	
West Garo Hills	Chigitchakgre	UR	8	Y	--	--	--	8	--	Y	--	--	8	--	--	Daily	
	Sengminpara	MR	6	Y	--	--	--	6	--	Y	--	--	6	--	--	--	
	Jengchamgre	LR	4	Y	--	--	--	4	--	Y	--	--	4	--	--	--	
Ri Bhoi	Plasha	UR	12	Y	--	--	--	12	--	Y	--	--	12	--	--	Daily	
	Kynton Phanram	MR	6	Y	--	--	--	6	--	Y	--	--	6	--	--	Daily	
	Umshit	LR	8	Y	--	--	--	8	--	Y	--	--	8	--	--	Daily	
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	<b>40</b>	<b>66</b>	--	--	--	--	<b>102</b>	<b>4</b>	--	--
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	Y	--	--	--	31	--	Y	--	--	31	--	--	Daily	
West Garo Hills	Dapdalgre	CV	8	Y	--	--	--	8	--	Y	--	--	8	--	--	--	
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	--	--	13	--	Y	--	--	13	--	--	Daily	
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	<b>21</b>	<b>31</b>	--	--	--	--	<b>52</b>	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.3. VETERINARY SERVICES

#### Findings

Table-3.50 (available at next page) indicates the findings of the access of the sampled households to the following veterinary services:

- Veterinary Services - Health Camp; and
- Veterinary Services - Artificial Insemination Services.

#### Analysis

##### *Access to Veterinary Services- Health Camp*

**Project Village:** In the project village, out of the total 106 households, 14 households have access to Veterinary Services- Health camp.

**Control Village:** Out of the 52 households, 8 households have access to Veterinary Services- Health camp.

##### *Access to Veterinary Services- Artificial Insemination Services*

**Project Village:** Out of the total 106 households, all have no access to Veterinary Services- Artificial Insemination Services.

**Control Village:** In the control village, 52 of the total households have no access to Veterinary Services- Artificial Insemination Services.

##### *Distance to the Facilities (Veterinary Services)*

The following table gives the number of households having the given veterinary services (health camp and artificial insemination services) within specified distances.

**Table-3.49: Nos. of Sampled Households having Facility within Indicated Distances [Veterinary Services]**

Project Village		
	Veterinary Services - Health Camp	Veterinary Services - Artificial Insemination Services
Within village (0)	0	0
Within 5 km (1)	14	0
More than 5 km (2)	0	0
Control Village		
	Veterinary Services - Health Camp	Veterinary Services - Artificial Insemination Services
Within village (0)	0	0
Within 5 km (1)	0	0
More than 5 km (2)	8	0

**Table-3.50 Veterinary Services [BATCH-IV]**

District	Village	Location	Households	Veterinary Services - Health Camp							Veterinary Services - Artificial Insemination Services						
				Access		If Access = Yes					Access		If Access = Yes				
						Who Provides	Where -Nos. of Households who have marked (*)			Frequency of Use			Who Provides	Nos. of Households who have marked (*)			Frequency of Use
				Yes	No		0	1	2		0	1		2			
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Mawriang	MR	25	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Umsyiem	LR	32	--	N	--	--	--	--	--	--	N	--	--	--	--	--
West Garo Hills	Chigitchakgre	UR	8	Y	--	--	--	8	--	--	--	N	--	--	--	--	--
	Sengminpara	MR	6	Y	--	--	--	6	--	--	--	N	--	--	--	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	--	--	N	--	--	--	--	--
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Kynton Phanram	MR	6	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Umshit	LR	8	--	N	--	--	--	--	--	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>14</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	--	--	N	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	Y	--	--	--	8	--	--	--	N	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.4. FARM INPUTS - 1

#### Findings

Table-3.52 (available at next page) indicates the findings regarding the access of the sampled households to the following farm inputs:

- Farm Inputs- HYV seeds; and
- Farm Inputs- Fertilizers.

#### Analysis

##### Access to Farm Inputs- HYV seeds

**Project Village:** In the project village, out of the total 106 households have no access to farm inputs- HYV seeds.

**Control Village:** Out of the 52 households, none have access to farm inputs- HYV seeds.

##### Access to Farm Inputs- Fertilizers

**Project Village:** Out of the total 106 households, 62 of the households have access to farm inputs- fertilizers.

**Control Village:** In the control village, out of 52 of the total households, 31 have access to farm inputs- fertilizers.

##### Distance to the Facilities (Farm Inputs - HYV Seeds & Fertilizers)

The following table gives the number of households having access to the given farm inputs (HYV Seeds and Fertilizers) within specified distances.

**Table-3.51: Nos. of Sampled Households having Facility within Indicate d Distances  
[Farm Inputs - HYV Seeds & Fertilizers]**

Project Village		
	Farm Inputs - HYV Seeds	Farm Inputs - Fertilizers
Within village (0)	0	0
Within 5 km (1)	0	0
More than 5 km (2)	0	62
Control Village		
	Farm Inputs - HYV Seeds	Farm Inputs - Fertilizers
Within village (0)	0	0
Within 5 km (1)	0	0
More than 5 km (2)	0	31



Table-3.52 (A) Farm Inputs – 1 [BATCH-IV]

District	Village	Location	Households	Farm Inputs - HYV Seeds							Farm Inputs - Fertilizers						
				Access		If Access = Yes			Access		If Access = Yes			Frequency of Use			
						Who Provides	Where -Nos. of Households who have marked (*)				Who Provides	Nos. of Households who have marked (*)					
				Yes	No		0	1	2	Yes		No	0	1	2		
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	--	Y	--	--	--	5	--	
	Mawriang	MR	25	--	N	--	--	--	--	--	Y	--	--	--	25	--	
	Umsyiem	LR	32	--	N	--	--	--	--	--	Y	--	--	--	32	--	
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	--	--	N	--	--	--	--	
	Sengminpara	MR	6	--	N	--	--	--	--	--	--	N	--	--	--	--	
	Jengchamgre	LR	4	--	N	--	--	--	--	--	--	N	--	--	--	--	
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--	--	N	--	--	--	--	
	Kynton Phanram	MR	6	--	N	--	--	--	--	--	--	N	--	--	--	--	
	Umshit	LR	8	--	N	--	--	--	--	--	--	N	--	--	--	--	
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--	--	--	--	--	<b>62</b>	--	
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	--	Y	--	--	--	31	--	
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	--	--	N	--	--	--	--	
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--	--	N	--	--	--	--	
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	<b>31</b>	--	

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**(\*) Under 'Where Provided' scores have been given as follows:**

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.5. FARM INPUTS - 2

#### Findings

Table-3.54 (available at next page) indicates the findings regarding the access of the sampled households to the following farm inputs:

- Farm Inputs- Pesticides; and
- Farm Inputs- Herbicides (weed killers).

#### Analysis

##### *Access to Farm Inputs- Pesticides*

**Project Village:** In the project village, out of the total 106 households, 62 households have access to pesticides.

**Control Village:** Out of the 52 households, 31 households have access to pesticides.

##### *Access to Farm Inputs- Herbicides*

**Project Village:** All of the total 106 households have no access farm inputs-herbicides.

**Control Village:** In the control village, 52 households have no access to herbicides.

##### *Distance to the Facilities (Farm Inputs - Pesticides & Herbicides)*

The following table gives the number of households having access to the given farm inputs (Pesticides and Herbicides) within specified distances.

**Table-3.53: Nos. of Sampled Households having Facility within Indicated Distances  
[Farm Inputs - Pesticides and Herbicides]**

Project Village		
	Farm Inputs – Pesticides	Farm Inputs - Herbicides
Within village (0)	0	0
Within 5 km (1)	0	0
More than 5 km (2)	62	0
Control Village		
	Farm Inputs – Pesticides	Farm Inputs - Herbicides
Within village (0)	0	0
Within 5 km (1)	0	0
More than 5 km (2)	31	0

**Table-3.54 (B) Farm Inputs – 2 [BATCH-IV]**

District	Village	Location	Households	Farm Inputs - Pesticides							Farm Inputs - Herbicides						
				Access		If Access = Yes			Frequency of Use	Access		If Access = Yes			Frequency of Use		
						Who Provides	Where -Nos. of Households who have marked (*)					Who Provides	Nos. of Households who have marked (*)				
				Yes	No			0	1	2			Yes	No		0	1
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	Y	--	--	--	--	5	Weekly	--	N	--	--	--	--	--
	Mawriang	MR	25	Y	--	--	--	--	25	Weekly	--	N	--	--	--	--	--
	Umsyiem	LR	32	Y	--	--	--	--	32	Weekly	--	N	--	--	--	--	--
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Sengminpara	MR	6	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	--	--	N	--	--	--	--	--
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Kynton Phanram	MR	6	--	N	--	--	--	--	--	--	N	--	--	--	--	--
	Umshit	LR	8	--	N	--	--	--	--	--	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	<b>62</b>	--	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	Y	--	--	--	--	31	Weekly	--	N	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	--	--	N	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	<b>31</b>	--	--	--	--	--	--	--	--

**Notes:**  
 UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**(\*) Under 'Where Provided' scores have been given as follows:**  
 0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.6. FARM INPUTS - 3

#### Findings

Table-3.56 (available at next page) indicates the findings regarding the access of the sampled households to the following farm inputs:

- Farm inputs- Diesel

#### Analysis

##### *Access to Farm Inputs- Diesel*

**Project Village:** None of the 106 households have access to Farm Inputs- Diesel

**Control Village:** Out of the 52 households, none of the households have access to Farm Inputs- Diesel.

##### *Distance to the Facilities (Farm Inputs - Diesel)*

The following table gives the number of households having access to the given farm inputs (diesel) within specified distances.

**Table-3.55: Nos. of Sampled Households having Facility within Indicated Distances  
[Farm Inputs - Diesel]**

<b>Project Village</b>	
	<b>Farm Inputs – Diesel</b>
Within village (0)	0
Within 5 km (1)	0
More than 5 km (2)	0
<b>Control Village</b>	
	<b>Farm Inputs – Diesel</b>
Within village (0)	0
Within 5 km (1)	0
More than 5 km (2)	0

Table-3.56 (C) Farm Inputs – 3 [BATCH-IV]

District	Village	Location	Households	Farm Inputs - Diesel						
				Access		Who Provides	If Access = Yes			Frequency of Use
							Where -Nos. of Households who have marked (*)			
				Yes	No	0	1	2		
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	--
	Mawriang	MR	25	--	N	--	--	--	--	--
	Umsyiem	LR	32	--	N	--	--	--	--	--
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	--
	Sengminpara	MR	6	--	N	--	--	--	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	--
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--
	Kynton Phanram	MR	6	--	N	--	--	--	--	--
	Umshit	LR	8	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.7. MARKET FOR FARM PRODUCE-1

#### Findings

Table-3.58 (available at next page) indicates the findings regarding the access of the sampled households to the following markets:

- Market for Crops; and
- Market for Orchard output.

#### Analysis

##### *Access to Market for Crops*

**Project Village:** In the project village, it shows all the 106 households have access to market for crops.

**Control Village:** All of the households have access to the market for crops.

##### *Access to Market for Orchard Output*

**Project Village:** Out of the total 106 households, 26 households have access for marketing of orchard outputs.

**Control Village:** In the control village, 13 households have access to marketing of orchard outputs.

##### *Distance to the Markets (Crops & Orchard Output)*

The following table gives the number of households having access to the markets for crops and orchard output within specified distances.

**Table-3.57: Nos. of Sampled Households having Market within Indicated Distances [Crops & Orchard Output]**

Project Village		
	Market for Crops	Market for Orchard Output
Within village (0)	0	0
Within 5 km (1)	26	26
More than 5 km (2)	80	0
Control Village		
	Market for Crops	Market for Orchard Output
Within village (0)	0	0
Within 5 km (1)	39	13
More than 5 km (2)	13	0

Table-3.58 (A) Market for Farm Produce-1 [BATCH-IV]

District	Village	Location	Households	Market for - Crops					Market for - Orchard Output				
				Access to Market		If Yes			Access to Market		If Yes		
				Yes	No	Where Sold	Location	When Sold	Yes	No	Where Sold	Location	When Sold
<b>PROJECT VILLAGE</b>													
East Khasi Hills	Nashain	UR	5	Y	--	2	--	--	--	N	--	--	--
	Mawriang	MR	25	Y	--	2	--	--	--	N	--	--	--
	Umsyiem	LR	32	Y	--	2	--	--	--	N	--	--	--
West Garo Hills	Chigitchakgre	UR	8	Y	--	2	--	--	--	N	--	--	--
	Sengminpara	MR	6	Y	--	2	--	--	--	N	--	--	--
	Jengchamgre	LR	4	Y	--	2	--	--	--	N	--	--	--
Ri Bhoi	Plasha	UR	12	Y	--	1	--	Weekly	Y	--	1	--	Weekly
	Kynton Phanram	MR	6	Y	--	1	--	Weekly	Y	--	1	--	Weekly
	Umshit	LR	8	Y	--	1	--	Weekly	Y	--	1	--	Weekly
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>9</b>	--	--	--	--	<b>3</b>	--	--
<b>CONTROL VILLAGE</b>													
East Khasi Hills	Nongshyrngan	CV	31	Y	--	2	--	--	--	N	--	--	--
West Garo Hills	Dapdalgre	CV	8	Y	--	2	--	--	--	N	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	1	--	Weekly	Y	--	1	--	Weekly
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>5</b>	--	--	--	--	<b>1</b>	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.8. MARKET FOR FARM PRODUCE-2

#### Findings

Table-3.60 (available at next page) indicates the findings regarding the access of the sampled households to the following markets:

- Market for livestock; and
- Market for fisheries.

#### Analysis

##### *Access to Market for Livestock*

**Project Village:** In the project village, out of the total 106 households, 88 households have access for marketing livestock.

**Control Village:** Out of the total number of 52 households, all have access for marketing livestock.

##### *Access to Market for Fisheries*

**Project Village:** Out of the total 106 households, 26 households have access for marketing fisheries.

**Control Village:** Out of the total 52 households, 13 households have access for marketing fisheries.

##### *Distance to the Markets (Livestock & Fishery)*

The following table gives the number of households having access to the markets for livestock and fishery within specified distances.

**Table-3.59: Nos. of Sampled Households having Market within Indicated Distances [Livestock & Fishery]**

Project Village		
	Market for Livestock	Market for Fisheries
Within village (0)	0	0
Within 5 km (1)	26	26
More than 5 km (2)	62	0
Control Village		
	Market for Livestock	Market for Fisheries
Within village (0)	8	0
Within 5 km (1)	13	13
More than 5 km (2)	31	0



Table-3.60 (B) Market for Farm Produce-2 [BATCH-IV]

District	Village	Location	Households	Market for - Livestock					Market for - Fishery				
				Access to Market		If Yes			Access to Market		If Yes		
				Yes	No	Where Sold	Location	When Sold	Yes	No	Where Sold	Location	When Sold
<b>PROJECT VILLAGE</b>													
East Khasi Hills	Nashain	UR	5	Y	--	2	--	Weekly	--	N	--	--	--
	Mawriang	MR	25	Y	--	2	--	Weekly	--	N	--	--	--
	Umsyiem	LR	32	Y	--	2	--	Weekly	--	N	--	--	--
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	N	--	--	--
	Sengminpara	MR	6	--	N	--	--	--	--	N	--	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	N	--	--	--
Ri Bhoi	Plasha	UR	12	Y	--	1	--	Weekly	Y	--	1	--	Weekly
	Kynton Phanram	MR	6	Y	--	1	--	Weekly	Y	--	1	--	--
	Umshit	LR	8	Y	--	1	--	Weekly	Y	--	1	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>6</b>	--	--	--	--	<b>3</b>	--	--
<b>CONTROL VILLAGE</b>													
East Khasi Hills	Nongshyrngan	CV	31	Y	--	2	--	Weekly	--	N	--	--	--
West Garo Hills	Dapdalgre	CV	8	Y	--	0	--	--	--	N	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	1	--	Weekly	Y	--	1	--	Weekly
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>3</b>	--	--	--	--	<b>1</b>	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.9. MARKET FOR FARM PRODUCE-3

#### Findings

Table-3.62 (available at next page) indicates the findings regarding the access of the sampled households to the following market:

- Market for NTFP

#### Analysis

##### *Access to Market for NTFP*

**Project Village:** As per the total 106 number of households, all households have access to market NTFP.

**Control Village:** Out of the 52 households, 44 households have access to market NTFP.

##### *Distance to the Markets (NTFP)*

The following table gives the number of households having access to the markets for NTFP within specified distances.

**Table-3.61: Nos. of Sampled Households having Market within Indicated Distances [NTFP]**

<b>Project Village</b>	
	<b>Market for - NTFP</b>
Within village (0)	0
Within 5 km (1)	30
More than 5 km (2)	62
<b>Control Village</b>	
	<b>Market for - NTFP</b>
Within village (0)	0
Within 5 km (1)	13
More than 5 km (2)	31

Table-3.62 (C) Market for Farm Produce-3 [TABLE IV]

District	Village	Location	Households	Market for - NTFP					
				Access to Market		If Yes			
				Yes	No	Where Sold	Location	When Sold	
<b>PROJECT VILLAGE</b>									
East Khasi Hills	Nashain	UR	5	Y	--	2	--	Weekly	
	Mawriang	MR	25	Y	--	2	--	Weekly	
	Umsyiem	LR	32	Y	--	2	--	Weekly	
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	
	Sengminpara	MR	6	--	N	--	--	--	
	Jengchamgre	LR	4	Y	--	1	--	--	
Ri Bhoi	Plasha	UR	12	Y	--	1	--	Weekly	
	Kynton Phanram	MR	6	Y	--	1	--	Weekly	
	Umshit	LR	8	Y	--	1	--	Weekly	
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	<b>7</b>	--	--	
<b>CONTROL VILLAGE</b>									
East Khasi Hills	Nongshyrngan	CV	31	Y	--	2	--	Weekly	
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	1	--	Weekly	
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	<b>2</b>	--	--	

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.10. MOBILE & ATM / BANK

#### Findings

Table-3.64 (available at next page) indicates the findings regarding the access of the sampled households to the following services:

- Mobile connectivity; and
- ATM & Bank.

#### Analysis

##### *Access to Mobile Connectivity*

**Project Village:** In the project village, all of the 106 households have access to mobile connectivity.

**Control Village:** All of the 52 households have access to mobile connectivity.

##### *Access to ATM & Banks*

**Project Village:** All of the 106 households have access to ATM & banks

**Control Village:** All of the 52 households have access to ATM & banks

##### *Distance to Services (Mobile Connectivity & ATM / Bank)*

The following table gives the number of households having access to the services like Mobile Connectivity and Bank / ATM Services within specified distances.

**Table-3.63: Nos. of Sampled Households having Access to Services within Indicated Distances [Mobile Connectivity & ATM / BANK]**

Project Village		
	Mobile Connectivity	ATM & BANK
Within village (0)	0	0
Within 5 km (1)	26	0
More than 5 km (2)	80	106
Control Village		
	Mobile Connectivity	ATM & BANK
Within village (0)	0	0
Within 5 km (1)	21	8
More than 5 km (2)	31	44

Table-3.64 Mobile &amp; ATM / BANK [BATCH-IV]

District	Village	Location	Households	Mobile Connectivity							ATM & BANK						
				Access		If Access = Yes					Access		If Access = Yes				
						Who Provides	Where -Nos. of Households who have marked (*)			Frequency of Use			Who Provides	Nos. of Households who have marked (*)			Frequency of Use
				Yes	No		0	1	2		0	1		2			
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	Y	--	--	--	5	Weekly	Y	--	--	--	5	Monthly		
	Mawriang	MR	25	Y	--	--	--	25	Weekly	Y	--	--	--	25	Monthly		
	Umsyiem	LR	32	Y	--	--	--	32	Weekly	Y	--	--	--	32	Monthly		
West Garo Hills	Chigitchakgre	UR	8	Y	--	--	--	8	--	Y	--	--	--	8	--		
	Sengminpara	MR	6	Y	--	--	--	6	--	Y	--	--	--	6	--		
	Jengchamgre	LR	4	Y	--	--	--	4	--	Y	--	--	--	4	--		
Ri Bhoi	Plasha	UR	12	Y	--	--	--	12	Weekly	Y	--	--	--	12	Monthly		
	Kynton Phanram	MR	6	Y	--	--	--	6	Weekly	Y	--	--	--	6	Monthly		
	Umshit	LR	8	Y	--	--	--	8	Weekly	Y	--	--	--	8	Monthly		
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>			--	--	<b>26</b>	<b>80</b>		--	--	--	<b>106</b>	<b>--</b>		
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	Y	--	--	--	31	Weekly	Y	--	--	--	31	Monthly		
West Garo Hills	Dapdalgre	CV	8	Y	--	--	--	8	--	Y	--	--	--	8	--		
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	Y	--	--	--	13	Weekly	Y	--	--	--	13	Monthly		
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>		--	--	--	<b>21</b>	<b>31</b>	--	--	--	--	<b>8</b>	<b>44</b>		

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.19.11. WORKSHOP FOR MACHINERY & VEHICLES

#### Findings

Table-3.66 (available at next page) indicates the findings regarding the access of the sampled households to the following services:

- Workshop for machinery & vehicles

#### Analysis

##### *Access to Workshop for machinery & vehicles*

**Project Village:** As per the total number of 106 households, 98 households have access to workshop for machinery & vehicles.

**Control Village:** Out of the total 52 households, 39 households have access to workshop for machinery & vehicles.

##### *Distance to Services (Workshop for Machinery & Vehicles)*

The following table gives the number of households having access to the markets for NTFP within specified distances.

**Table-3.65: Nos. of Sampled Households having Access to Services within Indicated Distances [Workshop for Machinery & Vehicles]**

<b>Project Village</b>	
	<b>Workshop for machinery &amp; vehicles</b>
Within village (0)	0
Within 5 km (1)	32
More than 5 km (2)	74
<b>Control Village</b>	
	<b>Workshop for machinery &amp; vehicles</b>
Within village (0)	0
Within 5 km (1)	8
More than 5 km (2)	31

Table-3.66 Workshop for Machinery &amp; Vehicles [BATCH-IV]

District	Village	Location	Households	WORKSHOP FOR MACHINERY / VEHICLES						
				Access		Who Provides	If Access = Yes			Frequency of Use
							Where -Nos. of Households who have marked (*)			
				Yes	No		0	1	2	
<b>PROJECT VILLAGE</b>										
East Khasi Hills	Nashain	UR	5	Y	--	--	--	--	5	--
	Mawriang	MR	25	Y	--	--	--	--	25	--
	Umsyiem	LR	32	Y	--	--	--	32	--	--
West Garo Hills	Chigitchakgre	UR	8	Y	--	--	--	--	8	--
	Sengminpara	MR	6	Y	--	--	--	--	6	--
	Jengchamgre	LR	4	Y	--	--	--	--	4	--
Ri Bhoi	Plasha	UR	12	Y	--	--	--	--	12	--
	Kynton Phanram	MR	6	Y	--	--	--	--	6	--
	Umshit	LR	8	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	<b>32</b>	<b>74</b>	--
<b>CONTROL VILLAGE</b>										
East Khasi Hills	Nongshyrngan	CV	31	Y	--	--	--	--	31	--
West Garo Hills	Dapdalgre	CV	8	Y	--	--	--	8	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	<b>8</b>	<b>31</b>	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

(\*) Under 'Where Provided' scores have been given as follows:

0 for within village, 1 for within 5 km, 2 for more than 5 km

### 3.20. *Other Questions [Batch IV]*

#### **Findings**

This sub-section gives discusses the other questions asked to the sampled households during the survey. These queries related to agriculture, capacity building, livestock, management and practices for both project and control villages. Tables-3.67, 3.68 and 3.69 give the findings in this regard. The analysis of the responses is furnished below.

#### **Analysis**

##### *Has Household used new technology for farming?*

It is found that out of the total number of household in project village, only some households from Chigitchakgre and Sengminpara villages of West Garo Hills is utilizing new technology for farming. As per the survey, no information was given who provided technology, but it has helped them earn more. While in control village, there is no household using the new technology in farming.

##### *Does Household practice INM, IPM & IDM?*

It is found that in both project and control village, there are none who practiced Integrated Nutrient Management (INM), Integrated Pest Management (IPM) and Integrated Disease Management (IDM).

##### *Awareness about Climate Change*

Out of the total number of household in both project and control village, only some households of Chigitchakgre and Sengminpara villages of West Garo Hills have received awareness on climate change.

##### *Any members receiving Training*

In project village, members from each household have received training provided by resource organization or any other Government departments. In control village, only some household of Himpkala & Tomonpoanglong village in Ri-Bhoi district have received training.

##### *Gone on exposure visit*

It is found that in both project and control village, only Kynton Phanram and Himpkala & Tomonpoanglong villages of Ri-Bhoi district have gone for exposure visits. Exposure visit are being organized and conducted by some organization or any other Government departments as per the requirement and need of the people.



*Use of machinery (owned or hired)*

There is no use of any machinery by any household from both project and control village. Machinery whether owned or hired is not used during land preparation, crop irrigation, harvesting and threshing by any household. As per the survey, it is found that the use of machinery is not required by many household.

*Stall feeding of livestock & Fodder Cultivation*

Nil.

Table-3.67: Other Questions [Questions 1-5] [BATCH IV]

District	Village	Location	Households	Has Household Used New Technology for Farming						Does household Practice						
				Yes	No	If 'Yes'				Integrated Nutrient Management		Integrated Pest Management		Integrated Disease Management		
						Who Provided Technology	Did they Demonstrate		Does it help earn more		Yes	No	Yes	No	Yes	No
							Yes	No	Yes	No						
<b>PROJECT VILLAGE</b>																
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	--	--	N	--	N	--	N
	Mawriang	MR	25	--	N	--	--	--	--	--	--	N	--	N	--	N
	Umsyiem	LR	32	--	N	--	--	--	--	--	--	N	--	N	--	N
West Garo Hills	Chigitchakgre	UR	8	Y	--	--	--	N	Y	--	--	N	--	N	--	N
	Sengminpara	MR	6	Y	--	--	--	N	Y	--	--	N	--	N	--	N
	Jengchamgre	LR	4	--	N	--	--	--	--	--	--	N	--	N	--	N
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	--	--	N	--	N	--	N
	Kynton Phanram	MR	6	--	N	--	--	--	--	--	--	N	--	N	--	N
	Umshit	LR	8	--	N	--	--	--	--	--	--	N	--	N	--	N
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>CONTROL VILLAGE</b>																
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	--	--	N	--	N	--	N
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	--	--	N	--	N	--	N
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	--	--	N	--	N	--	N
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Table-3.68: Other Questions [Questions 6-10] [BATCH IV]

District	Village	Location	Households	Awareness about Climate Change		Any members received Training		Gone on Exposure Visits		Use of Machinery (owned or Hired)							
				Yes	No	Yes	No	Yes	No	Land Preparation		Crop Irrigation		Harvesting		Threshing	
										Yes	No	Yes	No	Yes	No	Yes	No
<b>PROJECT VILLAGE</b>																	
East Khasi Hills	Nashain	UR	5	--	N	--	N	--	N	--	N	--	N	--	N	--	N
	Mawriang	MR	25	--	N	Y	--	--	N	--	N	--	N	--	N	--	N
	Umsyiem	LR	32	--	N	Y	--	--	N	--	N	--	N	--	N	--	N
West Garo Hills	Chigitchakgre	UR	8	Y	--	Y	--	--	N	--	N	--	N	--	N	--	N
	Sengminpara	MR	6	Y	--	Y	--	--	N	--	N	--	N	--	N	--	N
	Jengchamgre	LR	4	--	N	--	N	--	N	--	N	--	N	--	N	--	N
Ri Bhoi	Plasha	UR	12	--	N	Y	--	--	N	--	N	--	N	--	N	--	N
	Kynton Phanram	MR	6	--	N	Y	--	Y	--	--	N	--	N	--	N	--	N
	Umshit	LR	8	--	N	--	N	--	N	--	N	--	N	--	N	--	N
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>																	
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	N	--	N	--	N	--	N	--	N	--	N
West Garo Hills	Dapdalgre	CV	8	--	N	--	N	--	N	--	N	--	N	--	N	--	N
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	Y	--	--	N	--	N	--	N	--	N
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

Table-3.69: Other Questions [Questions 11-14] [BATCH IV]

District	Village	Location	Households	Stall Feeding of Livestock		If Yes			Fodder Cultivation		If Fodder Cultivation is Yes							
						Quantity of Fodder					Area under Fodder	Fodder Obtained		Fodder Sold		Income Received		
				Yes	No	n	$\bar{x}$	SD	n	$\bar{x}$		n	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	
<b>PROJECT VILLAGE</b>																		
East Khasi Hills	Nashain	UR	5	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Mawriang	MR	25	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Umsyiem	LR	32	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
West Garo Hills	Chigitchakgre	UR	8	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Sengminpara	MR	6	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Jengchamgre	LR	4	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
Ri Bhoi	Plasha	UR	12	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Kynton Phanram	MR	6	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
	Umshit	LR	8	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>CONTROL VILLAGE</b>																		
East Khasi Hills	Nongshyrngan	CV	31	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
West Garo Hills	Dapdalgre	CV	8	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	--	N	--	--	--	--	N	--	--	--	--	--	--	--	--
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Under Quantity of Fodder / If Fodder Cultivation is Yes:**

n gives the number of responses to the query

$\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the quantities / areas / incomes)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses] - for quantity of fodder

### 3.21. *Income & Expenditure [Batch IV]*

#### **Findings**

This sub-section gives discusses the income and expenditure for both the project and control villages. The annual household income is categorised under primary source and secondary source, and also monthly expenditure. The annual household income includes all work income of the entire household and monthly expenditure includes living expenses spent by a household in a month. It is found that in both project and control villages, all households are having income only as primary source; and monthly expenditure.

Table 3.70 gives the findings of the survey about the income and expenditure received and utilised respectively by households.

#### **Analysis**

##### *Annual Household Income*

As per the survey, all households in both project and control villages are having only primary income as their source of income. In project village, the AVG of primary income is Rs. 137093.90 (approx. about Rs. 137094) whereas in control village is Rs. 97655.33 (approx. about Rs. 97655). It is also found that in both the project and control areas, the households are not having any secondary source and only depend on primary source of income. Comparing the AVG amount of primary income, it is found that project village is having higher AVG annual income as compared to control village.

##### *Monthly Expenditure*

In project village, the AVG of monthly expenditure is Rs. 4612.264 (approx. about Rs. 4612) whereas in control village is Rs. 4160.47 (approx. about Rs. 4160). Both the project and control villages are having almost the same AVG amount spent in a month.

Table-3.70: Income &amp; Expenditure [BATCH IV]

District	Village	Location	Households	Annual Household Income						Monthly Expenditure		
				Primary Source			Secondary Source			n	$\bar{x}$	SD
				n	$\bar{x}$	SD	n	$\bar{x}$	SD			
<b>PROJECT VILLAGE</b>												
East Khasi Hills	Nashain	UR	5	5	131560.00	37743.78	--	--	--	5	3460.00	763.544
	Mawriang	MR	25	25	159252.40	206117.9	--	--	--	25	4900.00	1600.781
	Umsyiem	LR	32	32	159767.80	77708.29	--	--	--	32	4943.75	1642.566
West Garo Hills	Chigitchakgre	UR	8	8	79900.00	51334.34	--	--	--	8	4125.00	2401.636
	Sengminpara	MR	6	6	129750.00	55850.77	--	--	--	6	5166.667	1940.79
	Jengchamgre	LR	4	4	120025.00	80909.8	--	--	--	4	5500.00	2516.611
Ri Bhoi	Plasha	UR	12	12	127272.80	92245.83	--	--	--	12	4900.00	1926.372
	Kynton Phanram	MR	6	6	123616.70	57760.31	--	--	--	6	3716.667	801.041
	Umshit	LR	8	8	76688.13	62083.78	--	--	--	8	2975.00	768.579
<b>TOTAL / AVG</b>		<b>(PROJECT)</b>	<b>106</b>	<b>106</b>	<b>137093.90</b>		--	--	--	<b>106</b>	<b>4612.264</b>	<b>--</b>
<b>CONTROL VILLAGE</b>												
East Khasi Hills	Nongshyrngan	CV	31	31	100726.7	57019.59	--	--	--	31	4106.452	1632.368
West Garo Hills	Dapdalgre	CV	8	8	52650.00	24899.8	--	--	--	8	3155.556	1326.755
Ri Bhoi	Himphala & Tomonpoanglong	CV	13	13	118026.9	65309.27	--	--	--	13	4907.692	2035.707
<b>TOTAL / AVG</b>		<b>(CONTROL)</b>	<b>52</b>	<b>52</b>	<b>97655.33</b>		--	--	--	<b>52</b>	<b>4160.47</b>	<b>--</b>

**Notes:**

UR: Upper Reach / MR: Middle Reach / LR: Lower Reach/ CV: Control Village

**Under Annual Household Income (Primary Source / Secondary Source) / Monthly Expenditure:** n gives the number of responses to the query $\bar{x}$  gives the arithmetical mean of responses (i.e. the AVG of the incomes / expenditures)

s. d. is the standard deviation of the responses received: [Standard deviation is a measure of the variation of the responses]

#### 4. BENCHMARKING

In terms of implementation of IWMP, benchmarking has been defined as ‘a process of setting realistic standards of watershed outcomes by assigning specific values to the indicators identified for this purpose and taking into consideration agro-ecological variation and production processes across the sectors.’ The indicators and benchmarks for the IWMP have been developed and refined in 2015 with the collaboration of domain experts and practitioners from multi-disciplinary areas. Accordingly, the ‘Operational Guidelines’ on benchmarking of watershed management outcomes has been brought out by the DoLR in 2015. It furnishes the major ecological regions considered for benchmarking. India has been classified into eight such regions based on the factors like Physiography, slope, soil type, forest cover and availability of water resources.

Referring the said ‘Operational Guidelines’, a review meeting related to Benchmarking was held with the officials of SLNA-IWMP, Meghalaya on 13<sup>th</sup> February 2017 in presence of the representative officials of PIAs in Shillong. Based on the detail discussions held in the review meeting, the baseline values has been fixed for the identified indicators considering the agro-climatic zone and usefulness to the watershed projects implemented in Meghalaya.

It is against these baseline values that the achievements shall be monitored and compared against the benchmarks to assess the impacts of the interventions in the watersheds. The indicators and benchmarks so finalised are shown below;

**Table-ES.3: Benchmark Values Fixed For Meghalaya  
(Western & Eastern Himalayas Region)**

Sl. No.	Indicator	Frequency/ Stages	Benchmark Values (in %)
<b>A.</b>	<b>Soil Health</b>		
1.	Soil Organic Carbon Increase	5 Years	5
<b>B.</b>	<b>Hydrology</b>		
1.	Drinking water availability Increase	3 Years	15 to 20
		5 Years	20 to 25
2.	Status of Water Bodies		
	a. Spread Area Increase	Annually	5 to 10
	b. Rejuvenation	Monthly	10 to 20
	c. New Water Bodies	Monthly	5 to 10

**Table-ES.3: Benchmark Values Fixed For Meghalaya  
(Western & Eastern Himalayas Region)**

Sl. No.	Indicator	Frequency/ Stages	Benchmark Values (in %)
<b>C. Forestry</b>			
1.	Tree Cover Increase	3 Years	10 to 15
		5 Years	15 to 20
	Survival of Planted	3 Years	50
		5 Years	70
<b>D. Agriculture and Horticulture</b>			
1.	Diversification in agriculture & horticulture Increase	5 Years	5 to 10
2.	Area covered under improved varieties/HYV of total cultivable land	5 Years	5 to 10
3.	Area enhanced under Irrigation as to total cultivable land	5 Years	5 to 10
4.	Area covered micro irrigation system Increase	5 Years	5 to 10
5.	Demonstration of new technology increase	5 Years	5
6.	Farmers aware about climate change impacts Increase	5 Years	15 to 20 Nos.
7.	Cropping intensity viz. Shift from single to double, triple/inter cropping Increase	5 Years	15 to 20
8.	Fallow and wasteland reduction as percentage of total agricultural land	5 Years	5-15
9.	Adoption of INM/IPM/IDM	5 Years	10-25
10.	No. of Farmers undergoing Training	Annually	20% HH
<b>E. Animal Husbandry, Dairy and Fisheries</b>			
1.	Increase in Livestock Units and Population	5 Years	10 to 25
2.	Health Camp	Annually	1
<b>F. Economic, Financial, Process, Assets, Institutional, Risks and Convergence</b>			
1.	Total Income	3 Years	5 to 10



**Table-ES.3: Benchmark Values Fixed For Meghalaya  
(Western & Eastern Himalayas Region)**

Sl. No.	Indicator	Frequency/ Stages	Benchmark Values (in %)
		5 Years	10 to 15
2.	Finance/Credit linkages (SHGs/UGs/CIGs)	5 Years	20 to 25
3.	Watershed Development Fund	5 Years	100% as planned
4.	Common Property Resources Maintenance Mechanism	5 Years	60-80% as planned
5.	Status of Area Treatment	5 Years	100% as planned in DPR
6.	Status of Drainage line Treatment	5 Years	100% as planned in DPR
7.	No. of Social Audits	5 Years	80% as planned under IWMP
8.	No. of SHGs/CBOs/Micro Enterprise Formed	3 Years	50% as planned by 3 <sup>rd</sup> Year
9.	No. of Watershed Committee Functional	3 Years	100% Functional
10.	Capacity Building of WC/PIAs/CBOs	5 Years	As planned under IWMP
11.	No. of common watershed assets created	3 Years	50% as planned under IWMP
		5 Years	100% as planned under IWMP
12.	No. of Private assets	5 Years	80% as planned under IWMP
13.	No. of CBOs/Micro Enterprises linked to market	5 Years	50% as planned under IWMP
14.	Convergence of Scheme	3 Years	60% as planned under IWMP
		5 Years	100% as planned under IWMP
15.	Technology	3 Years	60% as planned under IWMP
		5 Years	100% as planned under IWMP

## 5. CONCLUSION

The present Baseline Survey had been undertaken with the objective of obtaining field data on the baseline (pre-project) status of the project indicators chosen under IWMP for benchmarking. This Report has covered a sample of households from project villages and control villages. These villages have been chosen based on the study methodology to cover 25% of the projects implemented under Batch-IV in Meghalaya.

In the present instance, the Baseline Study covered 25% of the batch-wise projects. In other words, around one-quarter of the projects taken up under Batch-IV were taken up under the present exercise. The Baseline Survey had been carried out in 2016 covering four districts of the state; viz. East Khasi Hills, West Garo Hills and Ri Bhoi. In each district, a project was studied, with three project villages - one of these villages was located in each of the Upper Reach (UR) or ridge, Middle Reach (MR) and Lower Reach (LR) or Valley of the watershed covered under the project. In addition, one village was taken as the Control Village.

In all, the survey covered 106 households in the Project Villages and 52 in the Control Villages - totalling 158 households in all.

This Report covers the Baseline Survey and Benchmarking of the project indicators for Batch IV projects. Based on the detail discussions held in the review meeting with SLNA on 13/02/2017, the baseline values has been fixed for the identified indicators considering the agro-climatic zone and usefulness to the watershed projects implemented in Meghalaya. It is against these baseline values that the achievements shall be monitored and compared against the benchmarks to assess the impacts of the interventions in the watersheds.

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**PHOTOGRAPHS OF FIELD SURVEY**



Field Survey under EKH IWMP-XIII in East Khasi Hills District



Field Survey under EKH IWMP-XIII in East Khasi Hills District



Field Survey under EKH IWMP-XIII in East Khasi Hills District



Field Survey under EKH IWMP-XIII in East Khasi Hills District



**PHOTOGRAPHS OF FIELD SURVEY**



Field Survey under RB IWMP-VIII in Ribhoi District



Field Survey under RB IWMP-VIII in Ribhoi District



Field Survey under RB IWMP-VIII in Ribhoi District



Field Survey under RB IWMP-VIII in Ribhoi District



**PHOTOGRAPHS OF FIELD SURVEY**



Field Survey under WGH IWMP-XIII in West Garo Hills District



Field Survey under WGH IWMP-XIII in West Garo Hills District



Field Survey under WGH IWMP-XIII in West Garo Hills District



Field Survey under WGH IWMP-XIII in West Garo Hills District

## INTERESTING FACTS OBSERVED DURING FIELD SURVEY

### 1. EAST KHASI HILLS DISTRICT:

Two projects were covered for baseline survey under East Khasi Hills District. IWMP–XI of BATCH III included Mawphlang, Mawkynrew and Mawryngkneng C& RD Block. The villages selected for the survey were Rim Shylla as Upper Reach, Wah Mawlein as Middle Reach, Pepbah as Lower Reach and Sohryngkham as Control village.

Wah Mawlein under Lower Umjar project with 70 Households is one of the cleanest village in the project area. It has around **25 Community Dustbins** placed in the village road sides. The village has around **6 Public Toilets** constructed in different locations of the village area out of which 2 toilets are from the EPA structure of IWMP. Outside the Community hall of the village, a board is placed showing all records and benefits of various schemes which includes the amount received by the village from different Governmental and Non-governmental institutions. This is a good practise followed by the Village Headman in order to show transparency and smooth functioning of these schemes in the village.



**PHOTO: GOOD PRACTICES OF THE DORBAR IN WAH MAWLIEN VILLAGE**

Rim Shylla is a small and new village under Upper Umjar Micro Watershed, a total number of 32 households resides in the village out of which **15 of the households** are headed by women.

Sohryngkham is the village selected as Control village for the survey. It is a large village located in Mawryngkneng in East Khasi Hills district with total 1039 families residing. It is reputed to be the **largest village** in Asia, in terms of size and jurisdictional area. The Sohryngkham village has population of 5736 of which 2824 are males while 2912 are females as per Population Census 2011.

In Sohryngkham village, total nos. of children between the age group 0-6 is 1115. The village has higher literacy rate compared to Meghalaya. In 2011, literacy rate of Sohryngkham village was 84.44 % compared to 74.43 % of Meghalaya. In Sohryngkham, Male literacy stands at 82.31 % while female literacy rate was 86.50 %.

IWMP XIII of BATCH IV is another project selected for the base line survey. The villages selected are Wah Rymben as Upper Reach, Mawriang as Middle Reach, Umsyiem as Lower Reach and Nongshyrngan as the Control village. In most of these villages, villagers do not have their own agricultural land, they usually take lease from the landowners for their agricultural activities.



Common Measurements practised by local community are given below:

1 Mon = 40 kg.

1 Pun = 80 numbers.

1 Bhar = 32 numbers.

1 Thup = One pile of wood.

## 2. EAST JAINTIA HILLS DISTRICT:

IWMP I of BATCH V was selected for the base line survey. The villages selected are Saipung A as Upper Reach, Ngaibang as Middle Reach, Lura as Lower Reach and Bam Khosngi as Control village. These villages are about 60 km from Khliehriat, the District Headquarter; however the road condition to these villages is poor.

In Saipung village, majority of the people are Biate tribe. The **Biate people** are one of the oldest tribes of Mizoram, Assam and Meghalaya. Their language belongs to the Tibeto-Burman family. Though they are less in term of population, they have their own identity with rich, distinctive history, culture, dialect and religious heritages. They are also one of the oldest living tribes in North East India especially among the Chin-Kuki-Mizo family. They follow a Patrilineal system.



PHOTO: SAIPUNG VILLAGE



PHOTO: POOR ROAD CONDITION ON THE WAY TO SAIPUNG

Common Measurements practised by local community are given below:

- 1 Bhar = 64 Numbers.
- 1 Nong = 178.4 Meter<sup>2</sup>.
- 1 Tin = 6 Nong.
- 1 Tin = 15 kg.

### 3. WEST JAINTIA HILLS DISTRICT:

IWMP VII of BATCH III- Rtiang village was selected as Upper Reach, Bear & Sarhen as Middle reach, Mukroh as Lower Reach and Laskein as Control village. Some local measurements practised are given below:

- 1 Shari = 0.2 Hectare.

### 4. NORTH GARO HILLS DISTRICT:

IWMP IV of BATCH V was selected for the base line survey. The villages are Merongdik as upper Reach, Garo Thorkakona as Middle reach, Samkalak Songma as Lower Reach and Rapha Thorikakona as the Control village.

As compared to Khasi and Jaintia Hills, people in Garo Hills normally possess large homestead and agricultural land, however economic condition is relatively poor. In some parts of the plain areas, villages are prone to flood which causes damage to households, vegetations and fish ponds etc.

Common Measurements practised by local community are given below:

- 1 Bigha = 0.16 Hectare.

### 5. SOUTH WEST KHASI HILLS DISTRICT:

IWMP IV of BATCH was selected for the base line survey. Under this project, villages selected are Wahkaji as Upper reach, Mawthabah as Middle Reach, Langpa as Lower Reach and Mawkhaitngap as Control village.

It has been observed that in most of the village under the projects, undesirable practices like cutting trees and burning them to produce charcoal (**wood carbonisation**) for livelihood is followed. Hence, work related to IWMP activities like Natural Resources Management including afforestation, conservation and regeneration of resources etc are affected. People can always look for better livelihood options. Most of the land areas in the project are found to be barren and uncultivable.



**PHOTO: DEFORESTATION IN SOUTH WEST KHASI HILLS**



Road conditions to the project area are very poor with no proper mobile network and electricity.



**PHOTO: WOOD CARBONISATION & LIVELIHOOD ACTIVITY SOUTH WEST KHASI HILLS**

**6. RI BHOI DISTRICT:**

The Base Line Survey of NEDFi started in Ri- Bhoi District, IWMP- VIII, BATCH –IV which falls under Umsning-Umling C& RD Block. The Villages selected for the survey was Plasha as Upper Reach, Kynton Phanram as Middle Reach, Umshit as Lower Reach and Himphala & Tomonpoanglong as Control village. These villages are approximately 27 km from Nongpoh, the District Headquarters. Most of the people in the surveyed area are from the **Mikir** Tribe. One can witness some of Mikir tribal community in different districts of the Assam valley. Apart from residing in different places of Assam, Mikir tribal community are found in other places of India like Meghalaya and Nagaland.

Common Measurements practised by local community are given below:

1 Kani = 1 Bag (60 kg).

1 Dang = 35\*35 Pruh (1 Pruh = 18 inch).

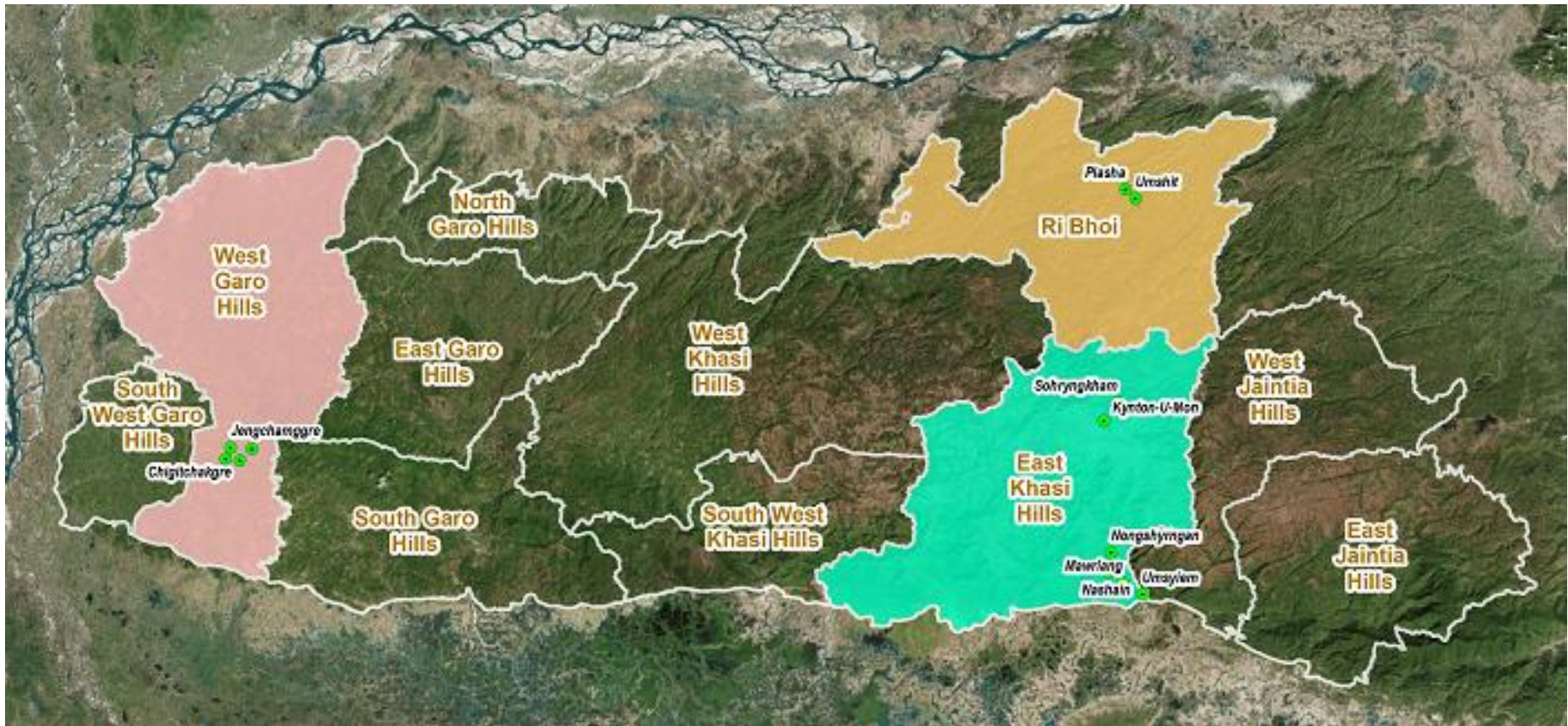
25 Dang = 1 Hectare.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

## LIST OF APPENDICES

<b>Appendix No</b>	<b>Heading</b>	<b>Page No.</b>
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2	Village Schedule	ii - v
3	Household Schedule	vi - xii

### Appendix-1 Map of Meghalaya showing the Village Locations



## **Appendix-2 Village Schedule**

**[Attached in the next few pages]**



**Integrated Watershed Management Programme  
BASELINE STUDY & BENCHMARKING UNDER MEL&D**

S-V

**SURVEY SCHEDULE - VILLAGE**

**Note:** Data is being collected through this Schedule as required for the above Government of India funded Integrated Watershed Management Programme, which is being implemented by the State Level Nodal Agency – IWMP (Meghalaya)

<b>(A)</b>	<b>VILLAGE DETAILS</b>																															
	Name of Village:	Revenue Circle:																														
	IWMP Project / Watershed:	Development Block:																														
	Micro-watershed:	District:																														
<b>(B)</b>	<b>AREA &amp; POPULATION DETAILS</b>																															
	<p><b>Area</b> Area of Village: _____ Ha [1 Bigha = 0.13378 Hectare (Ha)] Area as per Land Classification</p> <table border="1"> <thead> <tr> <th>Classification of Land</th> <th>Area (Ha)</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Forest</td> <td></td> <td>Incl. private forests</td> </tr> <tr> <td>Area under Non-Agricultural Use</td> <td></td> <td>Incl. all lands occupied by buildings, roads &amp; railways or under water, e.g. rivers &amp; canals and other lands put to uses other than agriculture</td> </tr> <tr> <td>Barren and Un-culturable Land</td> <td></td> <td>Land which cannot be brought under cultivation except at an exorbitant cost</td> </tr> <tr> <td>Permanent Pastures and other Grazing Lands</td> <td></td> <td>Incl. village common grazing land</td> </tr> <tr> <td>Land under Miscellaneous Tree Crops, etc.</td> <td></td> <td>Incl. all cultivable land which is not included in 'Net area sown' but is put to some agricultural uses. Lands under <i>Casurina</i> trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards'</td> </tr> <tr> <td>Culturable Waste Land</td> <td></td> <td>Lands available for cultivation, whether not taken up for cultivation or taken up for cultivation once but not cultivated during the current year and the last five years or more in succession for one reason or other.</td> </tr> <tr> <td>Fallow Lands other than Current Fallows</td> <td></td> <td>includes all lands, which were taken up for cultivation but are temporarily out of cultivation for a period of not less than one year and not more than five years</td> </tr> <tr> <td>Current Fallows:</td> <td></td> <td>This represents cropped area, which are kept fallow during the current year</td> </tr> <tr> <td>Net area Sown</td> <td></td> <td>This represents the total area sown with crops and orchards</td> </tr> </tbody> </table> <p>No. of Water Bodies _____ Area under Water bodies _____ (Ha) Area under Marshes / Seasonal Swamps: _____ (Ha) Area susceptible to erosion _____ (Ha)</p>		Classification of Land	Area (Ha)	Remarks	Forest		Incl. private forests	Area under Non-Agricultural Use		Incl. all lands occupied by buildings, roads & railways or under water, e.g. rivers & canals and other lands put to uses other than agriculture	Barren and Un-culturable Land		Land which cannot be brought under cultivation except at an exorbitant cost	Permanent Pastures and other Grazing Lands		Incl. village common grazing land	Land under Miscellaneous Tree Crops, etc.		Incl. all cultivable land which is not included in 'Net area sown' but is put to some agricultural uses. Lands under <i>Casurina</i> trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards'	Culturable Waste Land		Lands available for cultivation, whether not taken up for cultivation or taken up for cultivation once but not cultivated during the current year and the last five years or more in succession for one reason or other.	Fallow Lands other than Current Fallows		includes all lands, which were taken up for cultivation but are temporarily out of cultivation for a period of not less than one year and not more than five years	Current Fallows:		This represents cropped area, which are kept fallow during the current year	Net area Sown		This represents the total area sown with crops and orchards
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Permanent Pastures and other Grazing Lands		Incl. village common grazing land																														
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Current Fallows:		This represents cropped area, which are kept fallow during the current year																														
Net area Sown		This represents the total area sown with crops and orchards																														

Households & Population							
Households							
Scheduled Caste	Scheduled Tribe	Other Backward Class	General	TOTAL			
Households (Continued)							
No. of Landless Households (Households without Farm Land):							
No. of Households without Adult male members:							
No. of Households with BPL Cards:							
Main Avenues of Employment							
(a)							
(b)							
(c)							
(d)							
Population of Village							
Male	Female	Total	Children (0-6)	No. of persons migrated [Past Five Years]			
				Permanently	Seasonally		
<b>(C) PROVISION OF AMENITIES</b>							
1. Does the village have the following amenities:							
(a) Electricity Supply: Yes / No [If 'Yes', Nos. of Electrified Households _____ ]							
(b) Rural Piped Water Supply : Yes / No [If 'Yes', Nos. of Households Connected _____ ]							
(c) Black-topped Access Road: Yes / No [If 'No', is village connected by metalled road? Yes / No]							
(d) Lower Primary School: Yes / No [If 'No', distance to nearest Lower Primary School _____ km]							
(e) Anganwadi Kendra: Yes / No: If 'Yes', please mention the number _____							
2. Distance in Km to nearest							
Post Office	Bank	Community Hospital (30 bedded)	High School	College	Veterinary Centre	Daily Bazar	Weekly Bazar
3. Main Sources of Drinking Water: _____							
4. Main Sources of Fuel for Cooking: _____							
5. Main Sources of Fodder for Cattle _____							
<b>(D) COMMON PROPERTY RESOURCES</b>							
Details of Common Property Resources [Please use separate sheet if necessary]							
Particulars	Nature of Right	Months Used in the Year	Nos. of HH Benefitted	User Charges			
Grazing Reserve / Ground							
Water bodies							
Forest (source of NTFP)							
Other							

<b>(E)</b>	<b>SOIL, WATER &amp; VEGETATION RELATED</b>			
	1. Depth of Water Table (metres below ground level)			
	Month →	February-March	June-July	September - October
	Depth (metres below ground level) →			
	2. Observed instances of Soil Erosion/ Landslide			
	a.			
	b.			
	c.			
	d.			
	3. Details of Areas under Forest/ Groves in Village (in Ha, Type of Forest/ Grove etc.)			
	4. Average Annual Rainfall _____ (in mm) Any Change in Rainfall Pattern in last 3-5 years _____			
	5. Water Availability in the Streams – (i) Perennial (ii) Seasonal - Up to which Month.. _____			
	6. Floods: YES / NO. If 'Yes'			
	Duration _____ Frequency _____ per year and Extent of Damage _____.			
	7. Period of shortage of Water, if any _____			
	8. Reasons for Crop Failure if any. _____.			
	9. Soil Organic Carbon _____			
	10. Any other point about Soil & Water Resources:			
<b>(F)</b>	<b>VILLAGE LEVEL INSTITUTIONS (NON-POLITICAL / NON-RELIGIOUS)</b>			
	Details of Village Level Institutions (excludes Political & Religious Institutions)			
	Name of Institution	Year of Formation	No. of Members	Main Activities
<b>(G)</b>	<b>DETAILS OF VILLAGE MICRO-ENTERPRISES (INCL. SELF HELP GROUPS)</b>			
	As follows.			
	Type	Number of Units		

(H)	DETAILS OF GOVERNMENT SCHEMES			
	Details of Government Schemes implemented / on-going in the village (Last 5 Years)			
	Name of Scheme	Department	Year Started & Finished	Nos. of HH Benefited

Signature of Respondent

Name:

Designation:

Mobile No:

Signature of Data Collector

Name:



## **Appendix-3**

### **Household Schedule**

**[Attached in the next few pages]**

**Integrated Watershed Management Programme  
BASELINE STUDY & BENCHMARKING UNDER MEL&D**

S-H

**SURVEY SCHEDULE - HOUSEHOLD**

**Note:** Data is being collected through this Schedule as required for the above Government of India funded Integrated Watershed Management Programme, which is being implemented by the State Level Nodal Agency – IWMP (Meghalaya)

(A)	LOCATION																																																				
	1. Name of IWMP Project	2. Name of Watershed:																																																			
	3. Micro-watershed:	4. Village:																																																			
	5. Hamlet/Locality:	7 Revenue Circle:																																																			
	6. Position of Habitation in the Watershed: Upper Reach / Middle Reach / Lower Reach	8. Block: 9. District																																																			
(B)	HOUSEHOLD & LAND DETAILS																																																				
	1. Name of Respondent																																																				
	2. Relationship to Head of Household:	3. Social Category: SC/ ST/ OBC/ GEN																																																			
	4. Details of Household Members including Respondent (Head of Household to be listed first)																																																				
	<table border="1"> <thead> <tr> <th rowspan="2">Name</th> <th rowspan="2">Age</th> <th rowspan="2">Male/ Female</th> <th rowspan="2">Education</th> <th colspan="2">Occupation</th> <th rowspan="2">Whether member of SHG / UG/ Village Dorbar</th> </tr> <tr> <th>Primary</th> <th>Secondary</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Name	Age	Male/ Female	Education	Occupation		Whether member of SHG / UG/ Village Dorbar	Primary	Secondary																																										
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			Primary	Secondary																																																	
	If the above table is insufficient, details of additional members may recorded separately using the above format																																																				
	5. Details of Land & Operational Holdings																																																				
	Homestead Land: _____ (in Ha) [1 Bigha = 0.13378 Hectare (Ha)]																																																				
	Operational Holdings																																																				
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Other																																																					
	Leased Out Land Area (in Ha): _____																																																				
	Distribution of Land & Operational Holdings in Micro-watershed [All figures in Ha]																																																				
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6. Soil Health										
Has your soil ever been tested (Y/N)		Name of Soil Testing Agency			Cost of Soil Testing (Rs.)			Status of Organic Carbon		
<b>(C) IRRIGATION</b>										
1. Irrigated Area & Sources (Area in Ha)										
Season		UPPER REACH		MIDDLE REACH		LOWER REACH		Total Irrigated Area		
		Area	Source	Area	Source	Area	Source			
PRE-KHARIF										
KHARIF										
RABI										
2. Information on Irrigation Sources – Number of Sources										
Source of Irrigation		Nature of Source		No. of Sources						
				UPPER REACH (UR)		MIDDLE REACH (MR)		LOWER REACH (LR)		
Well (incl. Shallow Tube Well)		Perennial								
		Seasonal								
Pond		Perennial								
		Seasonal								
River		Perennial								
		Seasonal								
Spring		Perennial								
		Seasonal								
Other Specify: _____		Perennial								
		Seasonal								
3. Water Availability (For <b>Seasonal Sources ONLY</b> )										
Source of Irrigation		Water Availability in the Indicated Month ('YES' where applicable)								
		February-March			June-July			September-October		
		UR	MR	LR	UR	MR	LR	UR	MR	LR
Well (incl. Shallow Tube Well)										
Pond										
River										
Spring										
Other [Specify: _____]										
<b>(D) DRINKING WATER</b>										
1. Information about Drinking Water Sources [Months of Scarcity _____]										
Month		Source(s) of Water			Distance from Residence (metres)		Time Spent in Fetching Water (min)			
February-March										
June-July										
September-October										

<b>(E)</b>	<b>COOKING FUEL</b>					
	Source of Cooking Fuel					
	<b>Type</b>	<b>Source</b>	<b>Distance from Home (km)</b>	<b>Purchased / Collected</b>	<b>Quantity Used per Month</b>	<b>Rate (in Rs.) per Unit</b>
	Firewood					
	Dried Cow dung					
	Other Biomass					
	Kerosene					
	LPG					
	Other _____					
<b>(F)</b>	<b>CROPS GROWN</b>					
	Details of Crops, Production & Income [Income is the Income per crop per year after harvest net of all Expenses]					
	(A) Under Irrigated Conditions					
	<b>Crop</b>	<b>Growing Season</b>		<b>Area (Ha)</b>	<b>Area under HYV (Ha)</b>	<b>Avg. Yield (Kg / Ha)</b>
		<b>From</b>	<b>To</b>			
	(B) Under Non-Irrigated Conditions					
	<b>Crop</b>	<b>Growing Season</b>		<b>Area (Ha)</b>	<b>Area under HYV (Ha)</b>	<b>Avg. Yield (Kg / Ha)</b>
		<b>From</b>	<b>To</b>			
	If the above table is insufficient, details of additional crops may be recorded separately using the above format					
<b>(G)</b>	<b>ORCHARD, PLANTATION CROPS &amp; AGRO-FORESTRY</b>					
	Details of Fruit & Nut bearing Trees [Income is the Annual Income net of all Expenses]					
	<b>Type of Plant</b>	<b>Area Covered (in Ha)</b>	<b>No. of Trees</b>	<b>Year Started</b>	<b>Output (with Unit)</b>	<b>Income (Rs.)</b>
<b>(H)</b>	<b>LIVESTOCK</b>					
	Details of Ownership of Livestock [Income is the Annual Income net of all Expenses, Unit of Output to be given]					
	<b>Particulars</b>	<b>Nos. Owned</b>	<b>Output (Milk/Wool/Meat/Egg)</b>		<b>Income (Rs.)</b>	
	Cattle					
	Buffaloes					
	Goats					
	Pigs					
	Poultry					
	Others					

<b>(I)</b>	<b>FISHERY</b>					
	Details of Fishery Operations [Income is the Annual Income net of all Expenses] Area under Fishery _____ (Ha)					
	Type of Water Body & Size	Types of Fish	Period of Culture		Output (Kg)	Income (Rs.)
			From	To		
<b>(J)</b>	<b>NON TIMBER FOREST PRODUCT (NTFP)</b>					
	NTFP Output					
	Type of NTFP	Quantity Collected	Quantity Sold	Income from Sale (Rs.)		
<b>(K)</b>	<b>WAGE LABOUR</b>					
	Receipts from Wage Labour					
	Source	Days worked / Year	Main Months of Work	Rate (Rs. / Day)	Amount Received (Rs.)	
<b>(L)</b>	<b>MIGRATION</b>					
	<p>1. Any member of the household migrated outside? Yes / No (Pls. omit Married Persons Shifted) If Yes: please answer the following questions (2-9)</p> <p>2. Nos. of Members Migrated: Male _____ Female _____</p> <p>3. Nos. permanently Migrated: Male _____ Female _____</p> <p>4. Reasons for Migration: Work (Pls. specify work done _____) / Study / Other _____</p> <p>5. Destination(s):</p> <p>6. Is migration seasonal or permanent:</p> <p>7. In case seasonal, then the months of stay outside the household per year _____</p> <p>8. Does the household receive any payment from the migrated persons? Yes / No</p> <p>9. If 'Yes' to (8), then the amount received: Rs. _____ per year</p> <p>10. Any members planning to migrate? Yes / No</p> <p>11. If 'Yes' to (10) details: Nos. intending to migrate: Reasons: Unemployment[ <input type="checkbox"/> ] Food Shortage[ <input type="checkbox"/> ] Water Scarcity [ <input type="checkbox"/> ] Security / Safety [ <input type="checkbox"/> ] Education [ <input type="checkbox"/> ]</p>					

(M)	INCOME																																	
	Sources & Quantum <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Source</th> <th style="width: 30%;">Income Received (Yes / No)</th> <th style="width: 35%;">(If Yes) Income Per Year (Rs.)</th> </tr> </thead> <tbody> <tr><td>Agriculture Crops</td><td></td><td></td></tr> <tr><td>Orchard / Plantation Crops</td><td></td><td></td></tr> <tr><td>Livestock</td><td></td><td></td></tr> <tr><td>Fishery</td><td></td><td></td></tr> <tr><td>Non Timber Forest Produce</td><td></td><td></td></tr> <tr><td>Wage Labour</td><td></td><td></td></tr> <tr><td>Remittance from Migration</td><td></td><td></td></tr> <tr><td>Other (1) _____</td><td></td><td></td></tr> <tr><td>(2) _____</td><td></td><td></td></tr> <tr><td>(3) _____</td><td></td><td></td></tr> </tbody> </table>	Source	Income Received (Yes / No)	(If Yes) Income Per Year (Rs.)	Agriculture Crops			Orchard / Plantation Crops			Livestock			Fishery			Non Timber Forest Produce			Wage Labour			Remittance from Migration			Other (1) _____			(2) _____			(3) _____		
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Other (1) _____																																		
(2) _____																																		
(3) _____																																		
(N)	ASSETS																																	
	Possession of Assets by Type <ol style="list-style-type: none"> <li>1. <b>House</b> Yes / No – If (1) is 'Yes', please answer (2-4)</li> <li>2. <b>Type of House:</b> Kutcha / Semi Pucca / Pucca</li> <li>3. <b>Sanitary Toilet:</b> Yes / No</li> <li>4. <b>(a) Electric Connection to House:</b> Yes / No <b>(b) Availability of Solar Devices for Light:</b> Yes / No</li> <li>5. <b>Radio:</b> Yes / No</li> <li>6. <b>Television:</b> Yes / No</li> <li>7. <b>Mobile Connection:</b> Yes / No [If 'Yes', no. of active connections in the household _____]</li> <li>8. <b>Bicycle:</b> Yes / No</li> <li>9. <b>Two Wheeler:</b> Yes / No</li> <li>10. <b>Other Vehicle:</b> Yes / No [If 'Yes', pls. specify type(s) _____]</li> </ol>																																	
(O)	GOVERNMENT ENTITLEMENTS																																	
	<ol style="list-style-type: none"> <li>1. Have you/ your household got NREGS Job Card? Yes / No</li> <li>2. If 'Yes', no. of days worked _____ no. of days paid for _____</li> <li>3. Ration Card: Yes / No</li> <li>4. If 'Yes', items purchased regularly &amp; Quantity per year               <ol style="list-style-type: none"> <li>a. _____</li> <li>b. _____</li> </ol> </li> <li>5. BPL Card: Yes / No</li> <li>6. Any other Govt. facility: Yes / No</li> <li>7. If 'Yes' to (6), details _____</li> </ol>																																	
(P)	SAVING & CREDIT																																	
	Saving <ol style="list-style-type: none"> <li>1. Amount Saved: Rs. _____</li> <li>2. Where Saved: Bank _____ / Post Office / SHG _____ / Other _____</li> </ol> Credit <ol style="list-style-type: none"> <li>1. Amount Borrowed: Rs. _____ Interest Rate _____ per annum</li> <li>2. Where taken: Bank _____ / Micro-Finance _____ / SHG _____ / Other [Pls. indicate source _____]</li> </ol>																																	

(Q)	SOCIAL CAPITAL					
Participation in the following						
Type of Organization		Yes / No	If 'Yes', details			
Self Help Group						
User Group						
Farmer Producer Institution						
Any other Organization (non-political)						
Self Sufficiency						
Particulars	Round the year	9-11 months	6-9 months	3-6 months	Below 3 months	
Food						
Fodder						
Fuel						
Drinking water						
Employment						
(R)	ACCESS TO SERVICES [under 'Where Provided': '0' for 'within village'; '1' for 'within 5 km'; '2' for 'more than 5 km']					
Do you / your household have access to the following services:						
Service	Yes / No	If 'Yes'				
		Who Provides	Where Provided	Frequency of Use		
AGRICULTURAL EXTENSION SERVICES						
EDUCATION						
HEALTH						
VETERINARY SERVICES						
• Health Camp						
• Artificial Insemination Services						
CREDIT FACILITY						
FARM INPUTS						
• HYV Seeds						
• Fertilizers						
• Pesticides						
• Weedicides						
• Diesel						
MARKET FOR FARM PRODUCE	Yes/No	Where Sold	Location of Market	Remark when Sold		
• Crops						
• Orchard Output						
• Livestock						
• Fishery						
• Non Timber Forest Produce (NTFP)						

Service	Yes / No	If 'Yes'		
		Who Provides	Where Provided	Frequency of Use
MOBILE CONNECTIVITY				
ATM & BANK				
WORKSHOP FOR MACHINERY / VEHICLES				

**(S) OTHER QUESTIONS**

- Has your household used new technology for farming? Yes / No. If 'Yes' please answer (2) - (4), else go to (5)
- Who provided the technology?
- Did they demonstrate the technology in the village or nearby? Yes / No
- Did it help your household to earn more?
- Does your household practice:
  - Integrated Nutrient Management (INM)
  - Integrated Pest Management (IPM)
  - Integrated Disease Management (IDM)
- Are you aware of climate change? Yes / No. If 'Yes', please tell us what it means \_\_\_\_\_
- Have you or any of your household members received any training? Yes / No
- If 'Yes', details \_\_\_\_\_
- Have you or household members gone for any exposure visits (on improved farming practices)? Yes / No  
If 'Yes', places visited and under whom:
  - (a)
  - (b)
  - (c)
- Use of machinery (own or hired) & type (like Tractor, Power Tiller, Combine, Rotavator, Shallow Tube Well etc.):
  - Land Preparation
  - Irrigation of Crop
  - Harvesting
  - Threshing of Crop
- Do you carry out stall-feeding of livestock? Yes / No
- If 'Yes', details like quantity of fodder used, nos. and types of animals fed etc.:
  - (a)
  - (b)
- Do you undertake fodder cultivation? Yes / No [If 'No', sources of fodder \_\_\_\_\_]
- If 'Yes':
  - Type of Fodder Cultivated & Area under Cultivation (in Ha)
  - Fodder obtained (Kg/Year) \_\_\_\_\_
  - Fodder sold, if any (Kg/Year) \_\_\_\_\_ Income received: Rs. /Year. \_\_\_\_\_

**(T) INCOME & EXPENDITURE**

Annual Household Income (in Rs.)

Primary Source	Secondary Source

Monthly Expenditure (in Rs.)

**Signature of Respondent:**  
**Mobile No:**

**Signature of Data Collector:**  
**Name:**