BOOKLET ON UMLANGIA WATERSHED IWMP-1

UNDER

INTERGRATED WATERSHED MANAGEMENT PROGRAMME BATCH I

ISSUED BY THE OFFICE OF THE DIVISIONAL OFFICER

SOIL & WATER CONSERVATION NONGSTOIN, DIVISION NONGSTOIN

CUM

PROJECT MANAGER WCDC WEST KHASI HILLS DISTRICT

ACKNOWLEDGEMENT

Farming is the hope of the nation, if a Farmer is poor, so is the whole Country.

This Booklet reflects on the efforts made in achieving the goals of the IWMP-I Project, Umlangia Watershed to bring about a change in the lives of the People especially the farmers in the area and has been successful to quite an extend due to the hard work and guidance of many people. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of this Project.

The success of the Project is dedicated to the hard work of many who were involved in its implementation namely Shri J.J.Lakiang (AS&WCO), Smt. M Bani (AS&WCO), Shri R.P Wahlang(SCD Jr.), Shri J. Marwein (WDT member), Shri A Marwein (WDT member), Shri S Khongjee (Technical Expert) and many more who have contributed to the successful completion of the Project..

We also express our gratitude to all elected representatives of the Watershed Committee and Village Community of Project Area for their heartily devotion, full cooperation, for setting the priorities and probing on the issues of inter – regional imbalances. The guidance and support of all the Officials, Watershed Committee Members have given ample contribution in giving the final shape to the Completion of this Project.

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INTRODUCTION:

A Watershed is a Hydro-geological unit of area from which the rainwater drains through a single outlet. Watershed development refers to the conservation, regeneration and judicious use of all the natural resources, namely, soil, water and vegetation. Watershed Management on the other hand brings about the best possible balance between natural resources on the one side and human beings on the other. The Environmental degradation can be managed effectively through a holistic Watershed Development on the basis of "ridge to valley" approach.

The Integrated Watershed Management Programme (IWMP), which is now renamed as the Pradhan Mantri Krishi Sinchayee Yojna-Watershed Development Component (PMKSY-WDC) was launched during 2009-10 as a tool to address problems of the rain fed or degraded areas in India.

The main objective of IWMP is to restore the ecological balance by:

- Harnessing, conserving and developing degraded natural resources i.e., soil, water and vegetation.

The outcomes of the Programme are:

- Prevention of soil run-off
- Rain Water Harvesting and recharging Ground Water Table
- Increasing the Productivity of Crops
- Promoting sustainable Livelihoods and
- Increasing Household incomes

The major Components under IWMP are:

I. **Capacity Building**:

Various types of trainings and Capacity building exercises related to Works and maintenance of accounts.

II. Preparation of DPR:

This includes the Details of works to be carried out during the Project Period.

III. Entry Point Activities:

These activities are undertaken with the aim of establishing trustworthiness of the Watershed Development Team (WDT), rapport building with the Village Community and Community Mobilization.

IV. Watershed Works:

These included activities for treatment of Arable Land, Non-Arable Land and Drainage Line as well.

V. Production System & Micro-enterprises:

This included farm based activities to support the production system and microenterprises for land owning households.

VI. Livelihood Activities:

The various Livelihood activities taken up were aimed at improving the standards of living and generation of income for the asset less people under the project.

VII. Monitoring & Evaluation.

CHAPTER 1: Guiding Principles

The Integrated Watershed Management Programme is based on the following principles:

I. Equity and Gender Sensitivity: Project Implementing Agencies (PIAs) must facilitate the equity processes such as:

a) Enhanced livelihood opportunities for the poor through investment in their assets and improvements in productivity and income,

b) Improving access of the poor, especially women to the benefits,

c) Enhancing role of women in decisionmaking processes and their representation in the institutional arrangements and

d) Ensuring access to usufruct rights from the common property resources for the resource poor.

II. Decentralization: Project management would improve with decentralization, delegation and professionalism. Establishing suitable institutional arrangements within the overall framework of the Panchayati Raj Institutions (PRIs), and the operational flexibility in norms to suit varying local conditions will enhance decentralization. Empowered committees with delegation to rationalize the policies, continuity in administrative support and timely release of funds are the other instruments for effective decentralization.

III. Facilitating Agencies: Social mobilization, community organization, building capacities of communities in planning and implementation, ensuring equity arrangements, etc. need intensive facilitation.

IV. Centrality of Community Participation: Involvement of primary stakeholders is at the Centre of planning, budgeting, implementation, and management of watershed projects. Community organizations may be closely associated with and accountable to Gram Sabhas in project activities.

V. Capacity Building and Technology Inputs: Considerable stress would be given on capacity building as a crucial component for achieving thedesired results. This would be a continuous process enabling functionaries to enhance their knowledge and skills and develop the correct orientation and perspectives thereby becoming more effective in performing their roles and responsibilities.

VI. Monitoring, Evaluation and Learning: A participatory, outcome and impact-oriented and user focused monitoring, evaluation and learning system would be put in place to obtain feedback and undertake improvements in planning, project design and implementation.

VII. Organizational Restructuring: Establishing appropriate technical and professional support structures at national, state, district and project levels and developing effective functional partnerships among project authorities, implementing agencies and support organizations would play a vital role.

CHAPTER 2: INSTITUTIONAL ARRANGEMENTS AT PROJECT LEVEL

Project Implementing Agency (PIA): The Project Implementing Agency (PIA) will provide necessary technical guidance to the Village Community for preparation of development plans for the watershedthrough Participatory Rural Appraisal (PRA) exercise, undertake communityorganization and training for the village communities, supervise watersheddevelopment activities, inspect and authenticate project accounts, encourageadoption of low cost technologies and build upon indigenous technical knowledge,monitor and review the overall project implementation and set up institutionalarrangements for post-project operation and maintenance and further developmentof the assets created during the project period.

Watershed Development Team: The WDT is an integral part of the PIA and will be set up by the PIA.The WDT will guide the Watershed Committee (WC) in the formulation of thewatershed action plan. Some of the important roles and responsibilities of theWDT include the following:

a. Assist Village Communities in constitution of the Watershed Committee and their functioning.
b. Organizing and nurturing User Groups and Self-Help Groups.
c. Mobilizing women to ensure that the perspectives and interests of womenare adequately reflected in the watershed action plan.
d. Conducting the participatory base-line surveys, training and capacity building.
e. Preparing detailed resource development plans including water and soil conservation or reclamation etc. to promote sustainable livelihoods at household level.
f. Common property resource management and equitable sharing.
g. Preparing Detailed Project Report (DPR)
h. Monitoring, checking, assessing, and undertaking physical verification and measurements of the work done.
i. Facilitating the development of livelihood opportunities for the landless.
j. Maintaining project accounts.
k. Arranging physical, financial and social audit of the work undertaken.
l. Setting up suitable arrangements for post-project operation, maintenance and future development of the assets created during the project period.

CHAPTER 3: UMLANGIA WATERSHED IWMP-1

The Umlangia Watershed (IWMP-I) project is the only Project under Batch-1 in West Khasi Hills Districtand is located in Mairang C&RD Block. It consists of a cluster of 4 micro-watersheds. The project area is drained by the Umlangia River and its tributaries flowing in an East-to-West direction. The total area to be treated is 1800 Ha under the Integrated Watershed Management Programme (IWMP).

The Project area is located at a distance of about 40 km from Mairang, the Civil Sub-Division and about 92 km from Nongstoin, the District Headquarter of West Khasi Hills District. The Project Area is well connected and is accessible by an all-weather black-topped road.

A total of seven (7) villages are covered under the project. These are:-

1. Dongki – ingding 2.Pathar Lyndan 3.Lad Pnar Rim 4. Lad PnarThymmai

5. Mawpat 6.Mawpiah 7.Umniangriang

The major problems faced in the Watershed area during the pre-project period were themismanagement of lands, unscientific land use, frequently forest fires, indiscriminate tree felling, uncontrolled grazing, etc. resulting in soil erosion and increase runoff in the area.Besides, farmers were unaware of the seriousness of the problem, hence their lack of motivation and willingness to change their traditionalpractices and adopt other alternatives and more sustainable cultivation and farming practices. Lack of extension, demonstration and infrastructure facilities also contributed to low yield in agriculture production.

Hence, the Project was initiated taking into consideration all the above problems and as per the Common Guidelines for Watershed Development Projects (2008),

The Project was broadly carried out in three phases, namely:

- Preparatory Phase
- Watershed Works Phase
- Consolidation & Withdrawal Phase

The implementation of the Umlangia Watershed project was facilitated and carried out by the PIA (Project Implementing Agency) through the WDT(Watershed Development Team) with the active involvement, leadership and participation of the Watershed Committee at the village level.

CHAPTER 3.1: PREPARATORY PHASE

This Phase was carried out for 1 year during the first Year of starting of the Project.The major objective of this phase is to build appropriate mechanisms for adoption of participatory approach and empowerment of local institutions (WC, SHG, and UG). In this phase, the main activities included:

- Taking up Entry Point Activities
- Development of Village level institutions
- Preparation of DPR

Entry Point Activities (EPA):

The EPAs were created based on the needs of the local community with the aim to establish credibility of the Watershed Development Team (WDT) and create a rapport with the village community as well as Community mobilization.

The following Works were taken up as EPAs under the Watershed in all seven villages:

Sl.no.	Particulars	Physical
a.	Drinking Wells	14
b.	Washing Place	17
c.	Footbridge	3
d.	Public toilet	1
e.	Utensils for community assets	1
Total		**36**

A Glimpse of EPAs created

PUBLIC TOILET-DONGKI INGDING

FOOTBRIDGE-MAWPAT

DRINKING WELL- LAD PNAR RIM

WASHING PLATFORM-UMNIANGRIANG

COMMUNITY ASSETS

Development of Village level institutions:

During the Preparatory Phase, many Awareness Programs were organized on the concept of the IWMP and its implementationat village level as well as forthe formationanddevelopmentof Village level institutions such as Watershed Committees (WCs), Self-Help Groups (SHGs) and User Groups (UGs). Various Capacity Building and Training exercisesof different stakeholders were also conductedon institutional and work related aspects.

Awareness programmes conducted at village level

Watershed Committee: The Watershed Committee was constituted on September 2009 and registered under the Registration of Societies Act 7 of 1990. The list of members is:

Sl.no	Name	Village	Designation
1	Shri. Lasting Kurbah	DongkiIng Ding	Chairman
2	Shri. Barkly Syiemiong	Patharlyndan	Secretary
3	Smt.MartinaRyntathiang	DongkiIng Ding	Member
4	Shri. SentimanMawnai	Lad PnarThymmai	Member
5	Smt. RistilaKurbah	Mawpat	Member
6	Shri. Morning War	Mawpat	Member
7	Smt. WanlamlyntiRyntathiang	Lad PnarThymmai	Member
8	Smt. Drin K.Thangmaw	Lad Pnar Rim	Member
9	Shri. Peter Khyllait	Lad Pnar Rim	Member
10	Smt. StindaBasaiamoit	Patharlyndan	Member
11	Shri. KhamteiborRyntathiang	Mawpiah	Member
12	Smt. DwiewstiplinMarwein	Mawpiah	Member
13	Shri. AlexendarNongkseh	Umniangriang	Member
14	Shri. PhrepKurbah	Umniangriang	Member

Self Help Groups: SHGs were constituted in the Watershed area with the help of WDT from amongst the poor, small and marginal farmer households, landless/asset less and poor agricultural laborers, women folks etc. These Groups are homogenous in nature having common identity and interest that are dependent on the watershed area for their livelihood. About 21 numbers of SHGs were formed and nurturedunder the Watershed but most of the SHGs have dissolved and only 11 SHGs are still active at present. The details of SHGs that are still active are:

Sl No	Name of Group (SHGs)	Village	No of members	Composition of Group	
				Male	Female
1	Skhemshisha	Dongkiingding	14	6	8
2	Iaidshaphrang	Dongkiingding	10	6	4
3	Jingiatreilang	Patharlyndan	12	4	8
4	Kyrshanlang	Patharlyndan	10	4	6
5	Company	Mawpiah	14	6	8
6	Lamlynti	Dongkiingding	10	0	10
7	Syrwetumjer	Latpnar Rim	14	5	9
8	Nalarympei	Latpnar Rim	10	5	5
9	Tyllilang	Mawpat	12	5	7
10	Umjerksiar	Latpnar Rim	10	5	5
11	Step by Step	Dongkiingding	7	7	0

User Groups: These are homogeneous groups of persons most affected by each work/activity and included those having land holdings within the Umlangia Watershed area. Each User Group consisted of members who derive direct benefits from a particular work or activity. The Watershed Committee (WC) with the help of the WDT facilitated resource-use agreements among the User Groups based on the principles of equity and sustainability. The User Groups are responsible for the operation and maintenance of all the assets created under the project in close collaboration with the respective Village Council. Most of the User Groups formed were mainly for EPAs and some few other Structures like Dams. Hence, there are only few numbers of User Groups under the Watershed area as the Land Tenure system is predominantly under private ownership.

Sl.no.	Name of UG	Village	Composition of Group		Total No of member
			Male	Female	
1.	Mawtynrong User Group	Lad Pnar Rim	4	16	20 Nos.
2.	KyndongUmram User Group	Lad PnarThymmai	8	12	20 Nos.
3.	UmniangriangShaneng User Group	Umniangriang	5	10	15 Nos.
4.	Umdijri User Group	Mawpiah	10	10	20 Nos.
5.	Umpongdeng User Group	Patharlyndan	6	14	20 Nos.
6.	Umruru User Group	Mawpat	8	12	20 Nos.
7.	Dongiew User Group	DongkiIngding	6	14	20 Nos.

Preparation of DPR:

DPR preparation is a crucial activity carried out during the Preparatory Phase which is to be facilitated by the Project Implementing Agency (PIA) through the Watershed Development Team (WDT) of Umlangia Watershed. The DPR was prepared by the WDT for integrated development of the Watershed area with active participation of the people through PRA Exercises. Hence, these exercises were the strong foundation in the preparation of the DPR.

PRA Exercises: Participatory Rural Appraisal is a methodology adopted for using participatory techniques to build rapport, elicit support, information and participation of the people in their own development.This technique was adopted in Umlangia Watershed as well during the preparation of DPR for assessing group and community resources, identifying and prioritizing problems and appraising strategies for solving them. During the PRA exercises, the PIA acts as the facilitator for encouraging the village community to actively participate in identifying and prioritizing their problems, evaluates options for solving the problem(s) and comes up with a Community Action Plan to address the concerns that have been raised.

Wealth Ranking

During PRA, a number of different tools are used to gather and analyze information. These tools encourage participation, make it easier for people to express their views and help to organize information in a way that makes it more useful and more accessible to the group that is trying to analyze a given situation. They are intended to give a sense of what information can be obtained by using different tools and how diverse issues can be looked at from multiple angles. Some of the tools that were adopted were:

- Social mapping
- Resource mapping
- Seasonal Calendar
- Wealth Ranking
- Time line
- Semi-structured Interviews

Mapping Exercises

Semi structured Interviews

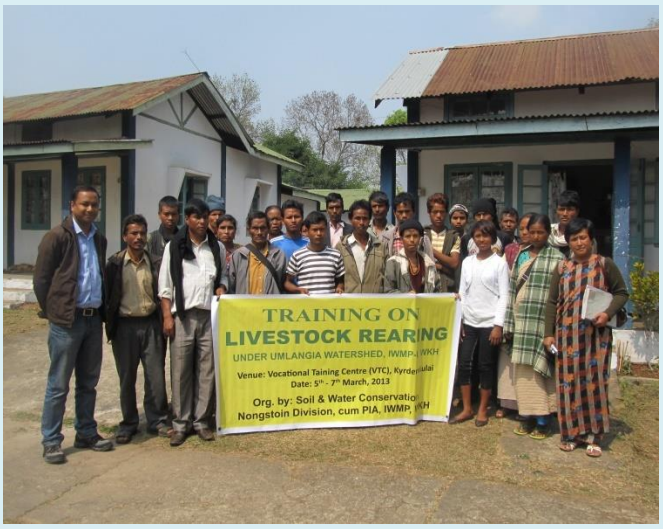
CHAPTER 3.2: WATERSHED WORKS PHASE

This Phase was carried out for a period of 3 years, i.e.; from the 2nd up to the 4th Year of the Project period. It included the following broad categories namely;

- Institutional Capacity Building & Training:
- Watershed Treatment/ Development Works
- Livelihood Activities
- Production System and Micro-enterprises

Institutional Capacity Building & Training: Capacity Building and different types of Training Programmes for WC, SHGs, UGs, farmers, etc. were organized during this Phase to enhance and promote their skills and workmanship.Capacity building support is a crucial component to achieve the desired results from watershed development projects.

Training cum Exposure Visits



Training Programmes carried during Work Phase

Sl.no	Topic	Venue	No of Trainees	Duration (Days)
1	MIS	Shillong	1	1
2	Exposure Trip to Sohliya, Dewlieh&Umran	Sohliya Village	10	1
3	Food Processing	RRTC, Umran	8	5
4	Livestock	VTC, KyrdemKulai	23	5
5	Hair Cutting	RRTC, Umran	10	5
6	Exposure Trip to RRTC	Umran	21	1
7	Pig Farming	RRTC, Umran	15	3
8	Mud Block/Hollow Block	RRTC, Umran	8	3
9	Beauty Care	RRTC, Umran	10	1
10	IWMP Guidelines-Livelihood	Dongkiingding	30	1
11	Watershed Management	Dongkiingding	40	1
12	SHG Formation	Dongkiingding	40	1
13	Exposure Trip to ICAR	ICAR	10	1
14	Environment & NRM Conservation	Dongkiingding	25	1
15	Integrated Farming System	RRTC, Umran	10	10
16	Floriculture	RRTC, Umran	5	4
17	Food Processing	RRTC, Umran	15	5
18	Bee Keeping	RRTC, Umran	6	4
19	Fish Farming	RRTC, Umran	3	3
20	Carpentry	RRTC, Umran	14	2
21	Catering	RRTC, Umran	7	6
22	Bee Keeping	Nongstoin	4	1
23	IWMP SHG Exhibition	Mawkyrwat	5	1

Skill Development Training for Livelihood promotion

Watershed Treatment/ Development Works: Under this category, the works have further been divided into Arable Land Treatment, Non-Arable Land Treatment and Drainage Line Treatment. The Physical Achievements of work done are as below:

Physical Achievements of Watershed Treatment/ Development Works:

Sl.no	Watershed Treatment/ Development Works:	Physical Achievement
1	***Arable Land Treatment***	
a	Contour Bunding(Ha)	114
b	Bench Terracing(Ha)	31
c	Agro-horticulture(Ha)	360
d	Improvement of existing Paddy Field(Ha)	247
e	Peripheral Bunding(Rm)	21577.8
f	Crop Demonstration(unit)	15
2	***Non- Arable Land Treatment***	
a	Afforestation(Ha)	60
b	Improvement of Degraded Forest(Ha)	470
c	Strip Plantation(Ha)	55
3	***Drainage Line Treatment***	
a	Protection Walls(nos.)	21
b	Check Dams(nos.)	30
c	Water Harvesting Structures(nos.)	13
d	Small Dug Out Ponds(nos.)	38
e	Earthen Irrigation Channel(Rm.)	6737
f	Run off Disposal Channel(Rm.)	6507

Farm Pond at Lad Pnar Thymmai villageUsed For Irrigation and For Fishery and Duckery As Well.

Present Status of Works:

Sl.no.	Works	Status
1.	**Contour Bunds**	These are low cost structures of soil conservation that promotes water retention and helps prevent soil erosion. They were mainly constructed in the cultivated land on gentle slope other than Paddy fields where the farmers planted different types of vegetables. These bunds were constructed in a total area of about 114 Ha. With the construction of such bunds along the contour lines, the loss of precious top soil in the cultivable land is greatly reduced to a considerable extend which could be visible from the better crop production as compared to earlier situation.
2.	**Terraces**  at Lad Pnar Rim	Terraces are cut and fill structures to level the land surface constructed across steeper slopes to reduce runoff by allowing infiltration of rainwater into the soiland prevent soilerosion. Both dry and wet terraces were constructed. About 31 Ha of land was brought under Terrace cultivation. In most of the Dry Terraces, vegetables are grown and crops like Pineapple are cultivated on the shoulder bunds which added extra income to the farmers.
3.	**Agro-Horticulture**	Seedlings of fruit trees such as Assam Lemon, Mandarin, Sweet Oranges, Litchi, etc. were provided to the Watershed area through this Project in which the farmers grow in their fields along with other food and vegetable crops, a technique known as Agro-horticulture. The target was to bring about

		360 Ha of land under Agro-Horticulture. However, the survival rate of the seedlings was only 50%.
4.	**Improvement of existing Paddy Field**	Improvements of the paddy fields were done to increase the productivity of the land. Around 247 Ha of Paddy fields were improved.
5.	**Peripheral Bunds**	When a farmer want to cultivate crops in a new area, some kind of fencing is required on the periphery of the cultivated land to prevent erosion of soil and to avoid cattle from damaging their crops. One such Traditional Structures are the Peripheral Bunds which are constructed from grass turfs. These are low cost structures but have proven very effective to the farmers. More than 21,000 Rmt of such bunds were constructed along the cultivable land of the Watershed.
6.	**Crop Demonstration**  At PatharLyndan	Certain improved varieties seeds of vegetables such as Cucurbits, Solanaceous vegetables, etc were introduced to the Watershed area which increase the yield of the crops as well as brought additional income to the farmers.
7.	**Afforestation**	Afforestation was done on Wastelands and Barren Lands with Tree Species such as *Cryptomeria japonica, Grevillia robusta, Alnus nepalensis, Michelia champaca, Toona ciliata, Bucklandia populnea, etc.* The rate of survival of the seedlings was very poor due to many factors. Forest fires,

		negligence and lack of care and interest of the people are some of the major factors. As a result, the target of covering about 60 Ha of forest land through this intervention could not be met.
8.	**Improvement of Degraded Forests**	Tree species such as *Cryptomeria japonica, Grevillea robusta, Alnus nepalensis, Michelia champaca, Toona ciliata, Bucklandia populnea,* etc.were also planted in degraded forest lands and community lands. In this case too, the rate of survival of the seedlings was very poor. Hence, only about one third of the 470 Ha target area under this activity could be achieved.
9.	**Strip Plantation**	It was targeted to cover about 55 Ha area of land under this intervention.Strip Plantation were done on roadsides, schools, Health Centres, Cemeteries, Playgrounds, etc. with flowering trees such as *Delonixregia* and *Jacaranda mimosifolia* and others such as *Grevillea robusta, Bucklandia populnea,* etc. Most of the flowering species that were planted had a good survivability rate except for those planted near the roadside due to lack of care and poor maintenance.
10.	**Protection Walls**  at Dongkiingding	About 21 nos. of these structures were constructed particularly to protect loss of precious cultivated lands on stream banks from being eroded away during heavy downpour. They are generally stone masonry structures. They have proven to be very beneficial to the farmers since a major portion of the land is protected from the erosive force of rainwater. Most of these structures are still intact though a few have been destroyed because of the

		strong force of water flowing in the stream during heavy rains.
11.	**Check Dams**  At Lad Pnar Rim	30 nos. of Check Dams were constructed mainly to reduce runoff velocity and for silt retention. In addition, they also act as Head Water Dam for providing irrigation to the cultivated areas. Hence, behave as multi-functional structures. They are either masonry or concrete structures. The condition of these structures is satisfactory but they require proper care and maintenance from time to time to increase their longevity.
12.	**Water Harvesting Structures**  At Umniangriang	Their main purpose is for groundwater recharge but at the same time serve as storage structures for irrigation and for fish farming as well. All the 13 nos. of structures that were constructed are in good condition and some of them have potential as tourist spots. Hence, efforts are being made to instigate the people so as to further improve and beautify them to obtain additional income through tourism activities.
13.	**Small Dug Out Ponds**  at Mawpiah	They are 38 in nos. usually aiming at providing irrigation water to vegetable crops particularly during the dry periods between rains. They are low cost and highly efficient structures and enable the farmers to earn extra income. These are also in good working condition and some have been further improved and renovated by the beneficiaries themselves.
14.	**Earthen Irrigation Channel&Run off Disposal Channels**	More than 13,000 Rmt. ofthese structures are aimed at diverting the excess surface runoff from one area

	 At Lad Pnar Rim	for use or safe disposal to other areas to prevent flood damage, erosion, or sedimentation damage. These structures have proven beneficial to the farmers.

Livelihood Activities:

The various Livelihood activities taken up were aimed at improving the standards of living and generation of income for the asset less people under the project. Before receiving any assistance, the people were provided with the total training package for taking up such activities at various Training Institutions within the State. Activities like Pisciculture, Apiculture, Piggery, Poultry, etc. have really boosted up the people and they are encouraged to continue with these activities.

Different Livelihood Activities promoted under the Watershed

Tailoring unit at Dongkiingding

Vermicompost unit at Dongkiingding

Poultry unit at Lad Pnar Rim

Apiculture Unit at Pathar Lyndan

Production System & Microenterprises:

This included farm based activities to support the production system and microenterprises for land owning households. This component aims to diversify and maximize the production and productivity of agriculture system as a whole and targets the land holders with cascading benefits to landless agriculture labor.

Different Activities Promoted under Production System & Micro-enterprises.

Apiculture Unit of Syrwet Umjer SHG at Lad Pnar Rim

Rice mill unit managed by Umniangriang Village Communuty

Blacksmith unit of Company SHG, Mawpiah

Food processing unit of Umjer ksiar SGH, Lad Pnar Rim

CHAPTER 3.3: CONSOLIDATION & WITHDRAWAL PHASE

In this phase the resources augmented and economic plans developed in Watershed Work Phase were made the foundation to create new nature-based, sustainable livelihoods and raise productivity levels. The main objectives under this phase were:

- Consolidation and completion of various works.
- Building the capacity of the community based organizations to carry outthe new agenda items during post project period.
- Sustainable management of (developed) natural resources and
- Up-scaling of successful experiences regarding farm production systems/off-farm livelihoods.

Consolidation and completion of various works

i. Preparation of project completion report with details about status of each intervention;

ii. Documentation of successful experiences as well as lessons learnt for future use.

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Preparation of project completion report&Documentation of successful experiences

Capacity Building of Community Based Organizations

The Community based Organizations such as Watershed Committee, Self Help Groups and User Groups as well as other individual beneficiaries were motivated, sensitized and capacitated on the Operation & Maintenance of assets created during Post Project period. Refreshers Training was organized for the SHGs on Group management & Book-keeping.

Capacity building of Watershed Committee members

Capacity building of User Groups

Capacity building of Self Help Groups

Sustainable management of (developed) natural resources

The sustainability of some of the important assets and interventions created under the project were improved during this Phase. These included:

- ✓ Repair, Maintenance and Renovation of some important Entry Point Activities (EPA) such as Public Toilet, Drinking Wells, Washing Platforms, etc.
- ✓ Renovation of Irrigation Dam at Pathar Lyndan village which increased the benefitted area from 4 Ha to 10 Ha.
- ✓ Afforestation of about 13 Ha was carried out the Catchment Area for the cultivable lands of Pathar Lyndan village.
- ✓ Repairing of Check Dam at Mawpiah village.
- ✓ Expansion of Vermi-compost Unit at Dongkiingding.

Up-scaling of successful experiences regarding farm production systems/off-farm livelihoods

- ✓ Sericulture and its allied activities being of great potential in the Watershed area were promoted. About 50 silk Rearers were trained on the basics of Sericulture and rearing of Eri-Silkworm, about 30 women trained on spinning of Silk Thread and two women were sent to a 1 Week Training on Weaving of silk cloth.
- ✓ Company SHG engaged in Black smithy was facilitated to undergo more specialization in the Profession and hence a local Trainer from Mylliem, East Khasi Hills assisted the group in further improvement of their skills by giving them training.
- ✓ Apiculture is also a very promising intervention in the Watershed area. So, it was felt that more and more people should be encouraged in this activity. Therefore, about 9 Bee-Keepers who were not yet trained were sent for Training on Apiculture to RRTC, Umran, RiBhoi.
- ✓ Step by Step SHG formed during this Phase as a result of the Refresher Training for SHGs has turned out to be very enthusiastic, hardworking and promising group within a very short period of time. Hence, this group was promoted in expanding their Apiculture and Food Processing activities.

Package Training Practices on Rearing, Spinning and Weaving of Eri-Silkwork

Apiculture Training

Blacksmithy Training of Company SHG

Apiculture Activity Taken Up By Step By Step SHG

CHAPTER 4: SUCCESS STORIES

-EPA SUCCESS STORY-

Success Story on Footbridge At Lad PnarThymmai

The footbridge at Lad PnarThymmai was erected under (IWMP-1) Umlangia Watershed, West Khasi Hills, Meghalaya as part of the Entry Point Activity (EPA). It was constructed to connect the residents of the village with other villages near and far. It was constructed with the aim of easing the day to day activities of the local people and particularly farmers and school children.

Objective: The footbridge was constructed to make the villagers easier to cross the stream and provide them access to participate in their local businesses, shorten their route of destination to go from one community or village to another and mainly during monsoon season when the water level in the stream rises.

Utilization: Here around 45 households or families and about 239 people of this village benefitted from the footbridge. Farmers and pedestrians travels and passes through this bridge back and forth daily in order to sell their agricultural goods, produces and to carry out their businesses, works etc, bringing back home their daily necessity, as well as for kids to go to school. This footbridge has surely acted as a blessing to the people around this area and through this they are able to fulfil their needs.

Operations and Maintenance: The footbridge was handed over by the P.I.A to the village administration for its care and maintenance.

Impact: The footbridge has proven to be very useful and helpful to the people of this village especially during the rainy seasons and in times of emergencies and the stream is no longer a thread and a problem to the villages even during the monsoon season as it was back then in recent years

-EPA SUCCESS STORY-

Success Story on Pay and Use Public Toilet: An EPA Activity AtDongkiingding

At the onset of the Umlangia Watershed IWMP-1, PRA exercises were conducted village wise for identifying those activities which could be taken up as Entry Point Activities based on the urgent needs of the community.

Dongkiinding Village is the Heart of the Watershed Project since the Market Place of the entire area is located in this village. Once a week, a Market Day is being organized in this village and people residing in the region comprising about 10-12 villages all come to buy as well as sell their produce at this market. Being a Market Hub, there was a need to have a Pay and Use Public Toilet for the people coming to the Market and it will also act as a means for obtaining some side income for the village as well.

The Pay and Use Toilet was constructed in the Market area of the village as an Entry Point Activity during 2009-10 with an amount of Rs. 1, 23,430.00 only. It was constructed by the PIA (Project Implementing Agency) and then formally handed over to the Village administration for its management as well as maintenance.

The Toilet is opened only on a Market Day as per the need of the Community. Income earned through this Activity is given as follows:

1.	**Average no. of person utilizing it/Day**	**= 210 nos.**
2.	**Rate/ person/Day (Rs)**	**= Rs 5/-**
3.	**Total income/Day (Rs)**	**= Rs 1050/-**
4.	**Total income Annually (Rs)**	**= Rs 50400/-**
5.	**Cost for hiring of person for Cleaning and Maintenance @ Rs 200/Day**	**= Rs 9600/-**
6.	**Profit earned (Rs)**	**= Rs 40800/-**

During the Consolidation and Withdrawal Phase, having seen the importance of the Pay and Use Toilet, further steps had been taken to improve it by construction of a Water Tank for ample supply of water. The interior of the Toilet was also repaired and further improved.The Village Administration was also facilitated to raise the user charges so that the Toilet can be maintained in a much better way.

Thus, with the construction of this Toilet, the people have benefitted a lot and the cleanliness and hygiene of the Market place is also well maintained.

During Construction

After Construction

After Renovation during Consolidation & Withdrawal Phase

-EPA SUCCESS STORY-

DRINKING WELL

Drinking wells needed for drinking is a topic of discussion that has been recurring in recent years and it has become the hot subject of different studies to determine its benefit. Well water may vary in quality, volume but unlike local water systems, it is direct ground water, which does not go through chemical treatment or filtering before consumption. The natural state of the well water, great taste, environmental friendly and purity are benefits of well water.

Dongiew is a location located in Dongki-ing-ding village under Umlangia Watershed (IWMP-1), West Khasi Hills, Meghalaya which has a household of about 18 numbers and in whichabout 200 people are residing. They lack drinking water or in other words we can say it has a shortage of drinking water supply. As we all know that water is of prime importance for the population living in and around the area and other places as well. Here, the P.H.E water supply could not provide the required and adequate drinking water for the population in this area.

The Umlangia Watershed Committee on seeing this problem faced by the people of the particular area concerned after surveying and inspection is done they decided to assist and provide them with 1 nos. drinking well during the 1styearof the project phase in the year 2009-10. Withthe construction of these Drinking Wells, though not fully sufficient but the problem of Drinking water scarcity is solved to a significant extent.

-Livelihood Success Story-

Success Story on Tailoring in Lad PnarThymmai Village.

Tailoring as a profession and business has become popular in today's modern lifestyle even among villagers from all corners of the state. It has become a full time occupation not only in towns and cities but in rural areas as well.

Shri, Renington K Thangmaw is a resident of Lad PnarThymmai village under Umlangia Watershed (IWMP-1), West Khasi Hills, Meghalaya. He is a famous for his skills in tailoring works. Initially, he started his business by purchasing one Tailoring machine and other necessary materials and opened his shop at the Market Place in Dongkiingding village. Because of his skills and hard work, the numbers of customers increases day by day and he was finding it difficult to complete his work on time. Moreover, since he had only one machine, he was working alone in his shop.

The Umlangia Watershed Committee on seeing his hard work and diligence, decided to assist him during the Third year of the Project phase during 2013-14. He received assistance for purchasing another Tailoring unit amounting to Rs 8000/- only through Livelihood Activities Component. After he had received the assistance through the Project, he employed two people to help him in his work.

It has been two years since then and at present his business is running very smoothly and he is able to complete his orders on time. Both ladies and gents from nearby villages come to him for stitching their clothes.

Annual Income Generated:

Sl.no	Particulars	Nos.	Rate	Amount
1.	Gent Trousers	100	250	25000.00
2.	Gent Shirts	120	200	24000.00
3.	School Uniforms	500	230	115000.00
4.	Waist Coats	30	200	6000.00
5.	Ladies Garments	160	150	24000.00
6.	Cushion Covers	500	50	25000.00
7.	Curtains	650	20	13000.00
8.	Others	200	120	24000.00
Total		2260		2,56,000.00
	Salary for Employees annually	=1,08,000.00		
	Shop rent	=5,800.00		
	Purchase of materials	=15,000.00		
	Profit Earned	=1,27,200.00		

Though, he received a very small assistance, but because of his hard work and dedication, he is able to expand his business. He also aims at taking his business to a higher level by purchasing more

machines and other required accessories. He has become self-sufficient as well as he has been able to provide employment opportunities for two more persons.

Shri. Renington K Thangmaw busy in his work.

Varieties of Clothes Displayed at his Shop for Stitching.

-Livelihood Success Story-

APICULTURE

Shri Esterwell Khyllait middle aged and a hardworking man of Lad Pnar Rim village under Umlangia watershed (IWMP-1), West Khasi Hills District, initially took up Bee keeping or Apiculture on his own in the year 1999-2000. It all started when he saw a beehive near his house. On seeing that, a thought struck his mind to take up this particular work and so he got interested in rearing bees.He took some of the bees (workers) and start putting them in an artificial hive that he made by himself. A few hours later,he noticed that more bees started coming to the hive and lived there. This really inspired and motivated him.Though he did not receive any sort of training, he tried gathering information and knowledge on his own in rearing the bees.

Initially, he managed to collect around 40 litres of honey from his self-made hives with an income of about Rs 6,000-7,000/year by selling it at the rate of Rs 150 per 750 ml bottle. He continued on doing it for about 15 years or so but the problem he faced during that time was that he could not sell it at a good or higher price and the income earned was very low. Besides, he could not find a regular market to sell his produce.

Esterwell Khyllait felt the need to improve his skills, production, etc in rearing bees. So, he decided to go for a professional training in order to tackle the problems that he faced and to improve his income through this activity. During 2015, he was sent on a Training-cum-Exposure trip to RRTC Umran, RiBhoi district through the DCIC, West Khasi Hills. During the course of training he was deeply inspired by the resource person and he gained more knowledge and confidence on rearing bees, processing the extracted honey, etc.

Later, he received financial assistance of Rs. 8,000/-only through Livelihood Activities Component under the Umlangia Watershed (IWMP-1) for purchasing of scientifically madeBee boxes, artificial hives, honey extractor, a smoker, etc.

Presently, he has around 15 Bee boxes from which he is able to extract double the amount of honey than he used to before approximately about 80 litres per year. He sell it at the rate of 350 per litre and now his income has increase significantly from Rs 7,000 per year to Rs 28,000 per year .

-Livelihood Success Story-

VERMICOMPOSTING

Vermicomposting is the usage of earthworms to convert vegetable waste to a 100% natural plant fertilizer. Vermiculture is the side issue of the breeding of common earthworms for use in vermicomposting. The use of worm farms for vermicomposting is becoming a favourite way of converting waste to a valuable product while also growing more worms to increase the capacity of the worm farms. The most important aspect of compost produced by earthworms is that it is 100% organic. There are no harmful chemicals and it does not need to be mixed with anything.

As the compost works on the plants and they become healthier the need for pesticides is reduced. The reduction in pesticides helps the area to recover faster and can start an improvement cycle when chemical fertilizers are used. The chemical fertilizers might improve and increase plant yields but they do nothing for plant and soil health. Continued use of chemical fertilizers inevitably leads to breakdown in the soil. Ammonia and salts build up which attack the plants making them less able to withstand diseases.

Shri, Petrus Ryntathiang a resident of Dongkiingding village under the Umlangia watershed (IWMP), West Khasi Hills, Meghalaya showed a keen interest in the field of vermicomposting. He is a hardworking person and shows a lot of interest in cultivation of horticultural crops particularly of vegetables and flowers. He is able to obtain about 3000 kg annually. He used it for his own crops and he would also sell it at the rate of Rs. 15/kg. Previously, in the recent years he would use FYM for cultivation of crops and particularly for his flowers and vegetables he had to purchase vermi compost from the market which cost him a lot and which is still insufficient.But with the coming of this unit he does not need to purchase anymore compost from the market especially for growing flowers, vegetables. The production and productivity of his crops particularly flowers and vegetables have increased to a great extent.

-WATERSHED WORKS-

SUCCESS STORY ON IRRIGATION DAM AT PATHAR LYNDAN VILLAGE

The people of Pathar Lyndan Village are hard working farmers who toil the soil all day long to get good produce of their crops. Most of their Paddy fields are concentrated in one area known as Umpongdeng where they cultivate a wide variety of crops throughout the year. They cultivate mainly Paddy during the Kharif season and vegetables such as potato, cabbage, carrot, beetroot, mustard leaves, chili, radish, etc. during Rabi season. They also cultivate lettuce during the zaid season.

During the Rainy season, there is sufficient rainfall for cultivation of crops. But for winter crops they have to depend on the residual moisture in the soil since there was no irrigation facility. The total cultivable land here in this area is about 10 ha which is being shared by 30 households. Due to the lack of irrigation facilities and the effects of low soil moisture particularly duringthe winter season, the productivity of their crops is quite low.

Hence, during the 2nd year of the Project, a C.C. Head Dam was constructed to provide irrigation to this area. The estimated cost of the Dam was about Rs. 38,750/- only. But the Dam was able to deliver irrigation water to only about 4 Ha areas and was not sufficient.

The issue was later brought up at the Watershed Committee meeting and during the Withdrawal and Consolidation Phase as part of improving the sustainability of various interventions; it was decided to improve this Dam. A Distribution box and C.C. Channels were constructed to further enhance the efficiency of the Dam. The Estimated cost was approx. Rs. 1, 00,000/- The channels were constructed in both directions of the box which would then distribute irrigation water to fields on either side of the Dam. The total length of channels is about 25 metres. About 10 Ha areas are now brought under irrigation.

With improvement of the Dam at Pathar Lyndan, the farmers here are able cultivate different crops in different seasons accordingly without any problem or shortage of irrigation water needed for their crops. The farmers are really grateful and will be able to sleep soundly at night with no worries of how to irrigate their crops.

After Construction during 2nd Year of Project period

After Construction during Withdrawal and Consolidation Phase

Conveyance system

Benefitted Area

-WATERSHED WORKS-

BENCH TERRACE: A BOON FOR CONSERVING THE PRECIOUS TOP SOIL IN HILLSLOPES

Bench terracing for rain fed agriculture has been one of the bestconservation measuresfor farmers to overcome the problems of crop cultivationon hill slopes. It has also serves the functions of stopping of down slope movement of soil and reduces runoff and also provides a flat surface for planting of crops thereby further reducing the possibility of erosion.

Shri.Ionborson Ryntathiang is a resident of PatharLyndan village under Umlangia Watershed project(IWMP-1), West Khasi Hills , Meghalaya. His land is located on a hill slope but he cannot put it into use for cultivating crops because of the topography of the land and its erosive nature due to steep slope which makes it difficult.

The Umlangia Watershed Committee on seeing these constraints and problems faced by him decided to provide some assistance to him during the third year of the Project phase in 2013-14. He received financial assistance for construction of bench terraces with an amount of Rs 20,000.00/- only through Arable Land Treatment Component. After he had received the assistance through the project, he is able to cultivate and produces crops such as pumpkins, chillies, cucumbers, beans, green peas etc. and he also planted pineapple along the terrace bunds.

It has been two years since then and at present his business/plantation is running smoothly and successfully and he is able to produce different crops which has increase and improve his income significantly by which he can sell them in local markets.

-Production System and Micro enterprises Success Story-

Success Story on Black smithy

Name of Project	:	Umlangia Watershed IWMP-1
Name of Work	:	Black Smith
Name of SHG	:	Company SHG
Location	:	Dongkiingding

The Company SHG was formed under the guidance of Umlangia Watershed (IWMP-1) Committee during the year 2012. It is constituted of 10 male members who have a common interest in black smithy. The group had received assistance of Rs 30000/- under the Production System & Micro-enterprises during 2012-13 with which it started a small Black Smith Factory. The group is involved in improving of agricultural implements repairing of household utensils and also receives orders from many customers for making knife, spade, lever etc.

Through the setting up of this Black Smith Factory, the group had initially earned a small income during the first 6 months and thereafter it has earned a durable income. Each group member is hardworking and is eager to further expand its business not just in the local market but also to other far flung areas .People from in and around the village come to purchase as well as repair their implements from the factory owned by this group. The group even gets orders from sellers and customers in Mairang market due to the good quality of their produce.

Expenditure during the initial stage:

Particulars	**Amount(Rs)**
Cost of Shed	14000.00
Cost of equipment, Materials	10000.00
Wages	6000.00
Transport cost & Miscellaneous expenditure	2500.00
Total	**32500.00**

Income earned initially for 6 months :

Particulars	**Amount(Rs)**
Repairing of Spade @ 100 * 25	2500.00
Making of Spade @ 350 * 30	10500.00
Repairing of lever @ 100 * 20	2000.00
Making of Lever @ 450 * 20	9000.00
Repairing of utensil @ 150 * 20	3000.00
Making utensil (Household) @ 600 * 35	21000.00
Knife making@ 40*100	4000.00
Total	**52000.00**

Gross Profit = (Income-Expenditure)

= Rs (52000 – 32500)

= Rs 19500.0

Annual Expenditure henceforth:

Particulars	**Amount(Rs)**
Cost of equipment, Materials	20000.00
Transport cost & Miscellaneous expenditure	5000.00
Total	**25000.00**

Income earned annually:

Particulars	**Amount(Rs)**
Repairing of Spade @ 100 * 55	5500.00
Making of Spade @ 350 * 50	17500.00
Repairing of lever @ 100 * 30	3000.00
Making of Lever @ 450 * 40	18000.00
Repairing of utensil @ 150 * 60	9000.00
Making utensil (Household) @ 600 * 40	24000.00
Knife making@ 40*300	12000.00
Total	**89000.00**

Gross Profit annually = (Income-Expenditure)

= Rs. (89000 – 25000)

= Rs 64000.00

-Consolidation & Withdrawal Phase-

TWO -DAYS COMMUNITY PARTICIPATION PROGRAMME AT PATHAR LYNDAN VILLAGE.

The residents of Pathar Lyndan village are known for their unity and community participation. They are always willing to work together in unison for the betterment of the entire village. As part of improving the sustainability of natural resources in the Umlangia Watershed (IWMP-1), a Community-led 2-days Tree Plantation programme was carried out by the people of this village.

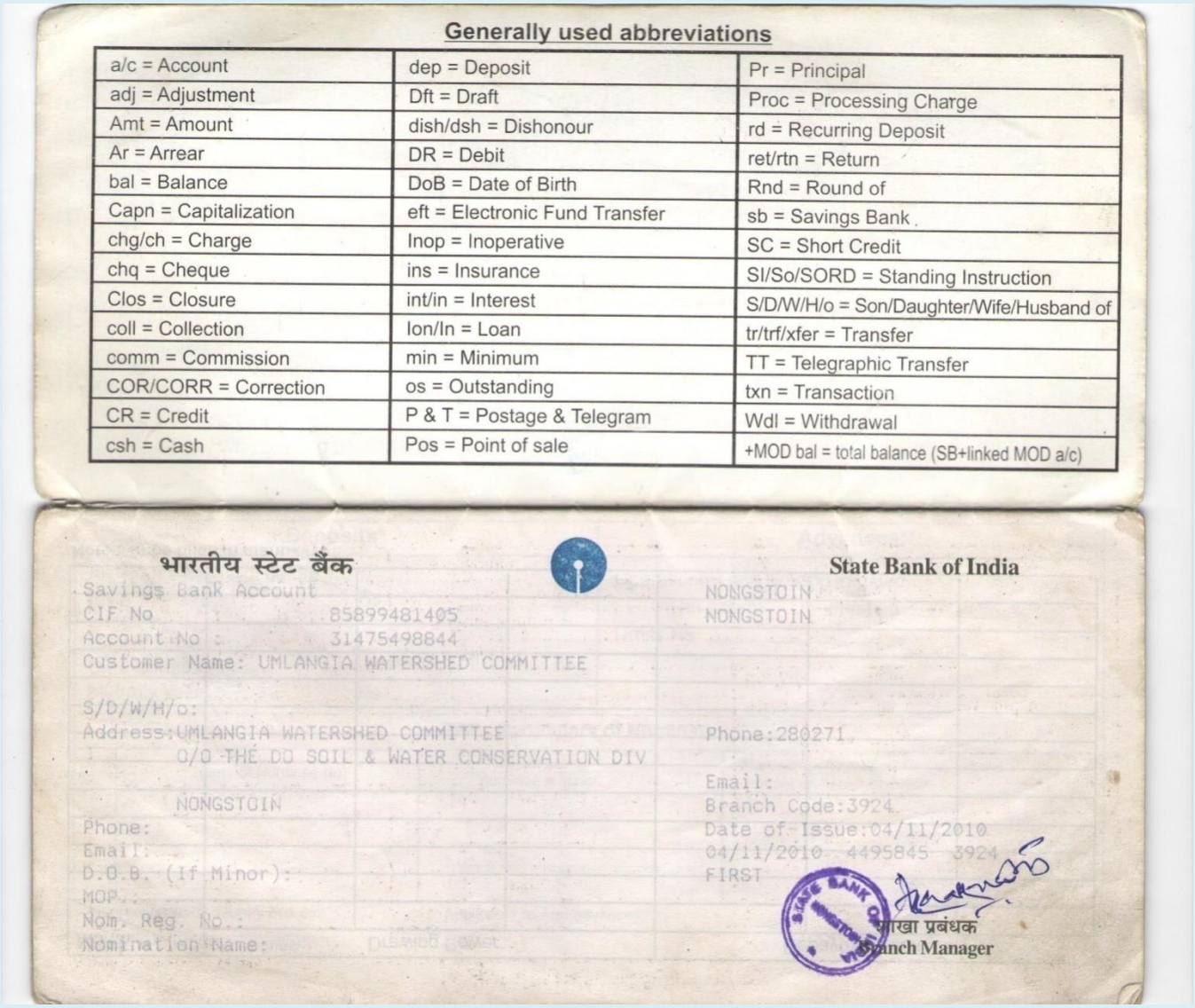
The site selected for the Plantation programme was a Community land which is the catchment area for the cultivable lands of the village. One part of the land was already covered by forest trees which had been planted years back by the Dept. Of Forest & Environment, Meghalaya. However, another part of this land of about 13 Ha areas is still barren and with only a few trees scattered here and there. The Secretary of the Watershed who belongs to this village is a very efficient leader and initiated the villagers to carry this Plantation Programme to which they all agreed.

The Programme was carried out for two days i.e., on 22nd and 25th July, 2016 in two stages funded under the Consolidation and Withdrawal Phase of the project. On the first day, forest tree species such as *Michelia champaca, Toona spp., Alnusnepalensis, Buclandiapopulea, Grevillea robusta, Prunusceresoides, Schimawallichii*, and other local species were planted on the upper reaches of the catchment. While on the second day, fruit trees such as Plums, Peaches, Chestnuts, *Prunusnepalensis* (sohiong) and *Myricaesculenta* (sohphie) were planted on the lower reaches. More than 2000 nos. of forest trees and 1000 nos. of fruit tree seedlings were planted. Around 40 people participated in the Programme.

The entire community has taken up the responsibility to care and look after the plantation because they fully understand its importance for the present as well as the future generations.

CHAPTER 5: ANNEXURES

WATERSHED COMMITTEE ACCOUNT PASSBOOK



Generally used abbreviations

a/c = Account	dep = Deposit	Pr = Principal
adj = Adjustment	Dft = Draft	Proc = Processing Charge
Amt = Amount	dish/dsh = Dishonour	rd = Recurring Deposit
Ar = Arrear	DR = Debit	ret/rtn = Return
bal = Balance	DoB = Date of Birth	Rnd = Round of
Capn = Capitalization	eft = Electronic Fund Transfer	sb = Savings Bank
chg/ch = Charge	Inop = Inoperative	SC = Short Credit
chq = Cheque	ins = Insurance	SI/So/SORD = Standing Instruction
Clos = Closure	int/in = Interest	S/D/W/H/o = Son/Daughter/Wife/Husband of
coll = Collection	lon/ln = Loan	tr/trf/xfer = Transfer
comm = Commission	min = Minimum	TT = Telegraphic Transfer
COR/CORR = Correction	os = Outstanding	txn = Transaction
CR = Credit	P & T = Postage & Telegram	Wdl = Withdrawal
csh = Cash	Pos = Point of sale	+MOD bal = total balance (SB+linked MOD a/c)

भारतीय स्टेट बैंक

State Bank of India

Savings Bank Account
CIF No : 85899481405
Account No : 31475498844
Customer Name: UMLANGIA WATERSHED COMMITTEE

S/D/W/H/o:
Address:UMLANGIA WATERSHED COMMITTEE
O/O THE DD SOIL & WATER CONSERVATION DIV

NONGSTOIN
Phone:
Email:
D.O.B. (If Minor):
MOP:
Nom. Reg. No.:
Nomination Name:

NONGSTOIN
NONGSTOIN

Phone:280271

Email:
Branch Code:3924
Date of Issue:04/11/2010
04/11/2010 4495845 3924
FIRST

शाखा प्रबंधक
Branch Manager

WATERSHED DEVELOPMENT FUND ACCOUNT PASSBOOK

Generally used abbreviations

a/c = Account	dep = Deposit	Pr = Principal
adj = Adjustment	Dft = Draft	proc = Processing Charges
Amt = Amount	dish/dsh = Dishonour	rd = Recurring Deposit
Ar = Arrear	DR = Debit	ret/rtn = Return
bal = Balance	DoB = Date of Birth	Rnd = Round of
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chg/ch = Charge	Inop = Inoperative	SC = Short Credit
chq = Cheque	ins = Insurance	SI/So/SORD = Standing Instruction
Clos = Closure	int/in = Interest	S/D/W/H/o = Son/Daughter/Wife/Husband of
coll = Collection	lon/ln = Loan	tr/trf/xfer = Transfer
comm = Commission	min = Minimum	TT = Telegraphic Transfer
COR/CORR = Correction	os = Outstanding	txn = Transaction
CR = Credit	P & T = Postage & Telegram	Wdl = Withdrawal
csh = Cash	Pos = Point of sale	+MOD bal = total balance (SB+linked MOD a/c)

Ch BH issued on 3/9/10

SAVINGS BANK ACCOUNT
CIF No : 31383416714
Account No : 31383416717
Customer Name: UMLANGIA WATERSHED COMMITTEE

S/D/W/H/o:
Address:DONG KI INGDING
MAIRANG
PO MAIRANG
Phone:
Email:
D.O.B. (If Minor):
MOP.:
Nom. Reg. No.:
Nomination Name:

MAIRANG **State Bank of India**
MISSION MAIRANG

Phone:282229
Email:
Branch Code:5734
Date of Issue:03/09/2010
03/09/2010 5841992 5734
FIRST

शाखा प्रबंधक
Branch Manager