Vol.10
October 2015

In Conversation with People of Meghalaya

Innovations in Participatory & Community Partnered Natural Resource Management

IBDLP

IBDLP MEGHALAYA

CONTENTS

Natural Resource Management in Meghalaya

Introduction

Meghalaya is grappling with the crisis of having 'poverty amidst plenty'. Though the state is rich with vast natural resources both renewable and non renewable, a majority of its population especially in rural areas is living below the poverty line. A state where the rural population is heavily dependent upon the natural resources for livelihood support, it becomes imperative to adopt a balanced approach for making optimum and productive utilization of the state's natural resources.

Over the last few decades the pressure on natural resources of the state has been rapidly increasing in a highly unsustainable manner. If this unsustainable exploitation is not controlled, then it can lead down a path where future economic opportunities as well as quality of life for the people of Meghalaya are severely compromised. Therefore, it becomes necessary that a development framework is put in place that would ensure ecologically sustainable, economically viable and inclusive livelihoods through sustainable utilization of the state's natural resources.

The 'Integrated Basin Development & Livelihood Promotion' (IBDLP) programme was put in place by the Government of Meghalaya as a critically needed sustainable development framework. This Programme creates a framework within which policies and projects can be shaped, and supports all government departments in initiating collaborative projects to work together toward this common purpose. The IBDLP is a long term programme, focused on integration of natural resource management activities and livelihood development activities. Thereby, gradually building up the capacity of the people of Meghalaya themselves – particularly rural communities – to lead this sustainable development effort.

IBDLP has been designed around four key pillars- Knowledge Management, Natural Resource Management, Entrepreneurship Development and Good Governance. The IBDLP Programme's activities under Natural Resource Management and Entrepreneurship Development are implemented through a variety of smaller initiatives focused mainly on community-led projects or farm-based enterprises, and also through "Missions" that are implemented in convergence between IBDLP and other departments within the Government of Meghalaya. These Missions have specific objectives and a specific timeline, and lay the foundation for development of a number of sub-sectors and longer term projects in the state. The Missions launched thus far are -Aquaculture Mission, Horticulture Mission, Livestock Mission, Sericulture Mission, Tourism Mission, Forestry & Plantation Crops Mission, Apiculture Mission, Energy Mission, Water Mission, Green Mission and Organic Mission. Each mission is designed to leverage the natural resource opportunities that the state provides to generate sustainable livelihoods in an inclusive manner for every household.

The work under Knowledge Management focuses on doing extensive documentation of traditional natural resource management practices in Meghalaya, documenting the rich traditions of using botanical medicines for healing and wellness, statewide mapping of Meghalaya's natural resource distribution and use, and intensive scientific research to support agriculture, horticulture and allied industries. The work under Good Governance focuses on engaging with stakeholders from traditional governance systems in Meghalaya, government officials from all departments, communities and community leaders, and with civil society organisations. Its ensures that stakeholders collaborate around critical issues of the state, build consensus, raise awareness, and engage activities at the local and the state level. Thus both Knowledge Management and Good Governance help the work under Natural Resource Management and Entrepreneurship Development become stronger and more effective.

The IBDLP programme was launched in 2012. In these three years it has become an example of best practices in the area of sustainable developing, getting recognition both at the national and the international level. Most importantly, it has been embraced by communities across the state. Aspiring entrepreneurs and environmentally-conscious communities from all regions of Meghalaya who have come forward to partner with IBDLP as "community partners". The extensive knowledge base about natural resources and livelihoods that is being created under IBDLP is shared with these community partners so that they can lead the planning and execution of local-level development projects. Technical support and funding is mobilised by IBDLP from various sources and external partnerships.

This issue of 'In Conversation with the People of Meghalaya' focuses on the Natural Resource Management component of activities under IBDLP. It provides an overview of the specific innovations in this area as well as stories of the communities across Meghalaya who are leading these initiatives by partnering with IBDLP on the ground. This issue of In Conversations is thus about the positive changes in natural resource management and environmental sustainability that are happening gradually but steadily in Meghalaya within the IBDLP framework, and about the stories of the real change makers at the grassroots – the People of Meghalaya.

Meghalaya's March Towards Sustainable Natural Resource Management

The Chief Secretary of Meghalaya, Shri P.B.O. Warjri (IAS) articulates his views for the sustainable utilization and development of natural resources in Meghalaya.

Key Challenges for Meghalaya

A key challenge for Meghalaya is complications with the land tenure system being followed. In this system ownership of land and natural resources resides with the communities themselves. On the one hand, ownership of land has allowed communities to extensively preserve forests via sacred groves. The creation of such sacred groves reflects the deeply held local traditional belief about the importance of the environment.

Shri P.B.O. Warjri
Chief Secretary of Meghalaya

But, at the same time some forests are in the grip of individuals who are money-minded. Even for the case of community land, the Dorbar or the Headman could be selfish and not take environmental value into account. In the case of a nearby forest for example, there is tussle over forest land ownership; some factions want to preserve the forest while others are trying to hand over plots of land for private building which leads to deforestation. The lack of land records exacerbates such struggles in many cases across the state. The problem is that in such cases, community ownership ties the government's hands as it cannot directly intervene to protect the forests.

Also, take the example of mining. There are so many places where mining has caused extensive environmental damage. But extraction of coal is not the only problem. So is the storage of coal and bad maintenance of the mine. Mismanagement at each level can cause environmental problems.

Water Resource Challenges and Deeper Issues

Perhaps the larger problem that we are facing is the competition that inevitably arises between "Modernization" and "Development" on the one hand, and the need to protect our natural resources on the other.

The example of Wah Umkhrah comes to mind when discussing this. Out of this need to constantly expand human habitat, encroachment has occurred right up to the very bank of the river, thus changing the natural flow of the river. Now, when rains come, where can the water go? It floods over and damages the very people or structures encroaching the river bank. Not just rivers, but forest land is also being severely encroached upon. Growing urbanisation brings with it many big challenges and tough choices like these.

Pollution of rivers is another big challenge that we are facing in Meghalaya. An incident from my last visit to NEHU comes to mind; it was a few years ago. There is a small stream as you go toward the campus. Just at the head of that stream I suddenly noticed multiple slaughterhouses and toilets. And the next thing I noticed was that just downstream is a PHE tapping station! Yes, they are treating that water, but what a shame to have to even treat water in a state such as Meghalaya which has some of the most pristine streams!

In the Reserve Forest that is close to this Secretariat, there are a lot of water sources. Until the 1970s, all of Shillong got its water from there. The British had made a wonderfully interesting natural treatment facility there. Water typically falls or trickles down the side of a rocky slope at one spot. There at the place were the water falls, the British created a wall of porous rock. The water trickled through this rock and went through a natural filtration process. The water was then tapped in front of the wall at which point a roof had been built to ensure the water stayed clean. That's it, no chemical treatment required!

Today, deliberate abuse of the state's natural resources is happening everywhere. In the Mylliem area, they are mining hill sand and washing it in river, to sell it as riverine sand which is of higher value. This has made the river in that area, which used to be crystal clear, now muddy with silt. All that silt is going to the dam which is supplying water to Upper Shillong (the dam in Mawphlang). This immense quantity of silt is lowering the life of the dam and making the supply of water to Upper Shillong unsustainable.

But having said all of this, perhaps the greatest challenge is perhaps that of growing economic pressures. Not necessarily the need or greed for a lot of money, but just the need for consistent basic livelihood sources. This is the challenge that we need to address if we are to tackle many of these natural resource problems.

Solutions offered by the People of Meghalaya

While you see so many instances of environmental degradation everywhere in Meghalaya, yet you also see many examples of communities in Meghalaya themselves taking the initiative to conserve resources.

One story of community-led action comes from the Simsang River, where the people have come together to create a fish sanctuary in that stretch of the river. I went there to look for myself once. The local people told me to throw a handful of food into the river. I did, and to my amazement, an entire group of Mahseer fish rapidly swarmed to eat the food. The Mahseer fish is an angler's delight; a muscular fish that puts up a heavy fight if caught. It hides and doesn't come for bait often. To see a whole group of that fish fearlessly come up to eat the food was absolutely delightful. Such is the trust that the community has created with nature around them.

Another example comes from the Bird Sanctuary in Ri-Bhoi that has been created entirely by the people themselves. It is also true that many communities across Meghalaya have taken up the responsibility to protect their local animals, their local resources, their local forests. The challenge lies with being able to spread the message from these few communities to all communities in order to instil environmental values into all communities. If we can do that and if we can all learn from these remarkable communities, then I have great hope for the future. Thus it is critical to bring social and environmental values back into education so that the people of the State feel like they have a stake in management of Meghalaya's natural resources.

Government departments have also done wonderful work over the past many years, particularly the Forest Department and the Soil & Water Conservation Department of the Government of Meghalaya. Take for example the Nehru Park, which until 30 years ago comprised fully barren land, has now become thickly forested, due to the efforts of the Forest Department. Or for that matter, the case of Mawphlang forest, which was forested by the Soil & Water Conservation Department.

I remember, when a story came out in the news about Cherrapunjee being a "Wet Desert". There was enormous effort by our government officials to then change that perception. An interesting initiative taken was to prevent goats from grazing on the vegetation and thus take a step toward restoring green cover. The village members came forward to cooperate with the Soil & Water Conservation Department which gave them alternate animals as livestock. The overall initiative was called the Cherrapunjee Ecological Project. It successfully helped restore the green cover across much of the area. This was only possible due to the collaboration between the people and the Government of Meghalaya.

The Unique Natural Wonders of Meghalaya

Meghalaya has some of the most unique natural wonders. I still remember finding out about the famous Blue Worms of Meghalaya back in 2012. A farmer I had met and kept in touch with, told me about them. On April 15th 2012, he rang me up and said that I had to come to see these worms. So I went down to the river bed with him and saw these amazing creatures coming out of the river bed and climbing up the rocky slopes to cooler temperatures. It is an absolutely fantastic sight that cannot be found anywhere else. That one day I took endless photographs of five different colonies of worms marching silently up those slopes.

And then I discovered something else. If you know about Urlong tea, you will know that it is one of the most fragrantly scented teas in the world and can compete in taste with the reputed Orange Pekoe from Darjeeling. But did you know that the Urlong tea gardens at Mawlyngot are fertilised by these Blue Worms?! What I learned was that these worms go right up into those tea gardens and also reproduce during their migratory travels. That is when they help fertilise the soil of those famous tea gardens. There are so many unique stories about nature that one can discover in Meghalaya.

Words of Encouragement

We have started working on a lot of solutions in Meghalaya, but we must not get complacent. We need to do more, and we need to listen more to nature. Sometimes small things can have big impacts if you are not careful enough. For example, while reforesting with Pine trees is good, broad-leafed trees are even better as pines tend to dry up the soil and thus make the soil unfriendly to other plants. Also it is imperative that reforesting be done with local varieties that are adapted to local conditions and restore the natural balance of that ecosystem. I myself am passionate about planting more wild fruit trees so that we get birds, bees and other pollinators back to our forests.

You see, all of nature is wonderful and beautiful, and all of nature is for us humans. It is the humans who are benefited the most from nature. So, it is sad to see that humans themselves destroying the nature. But as you have seen from some of these stories of communities across Meghalaya, the biggest protectors of nature are also humans. Therefore, it is we that have to make the choice. If my words can inspire just a few people to come together and protect the environmental resources of our state, then I will consider it a significant contribution.

Integrated Village Development Plan

The Integrated Village Development Plan was conceived by the Meghalaya Basin Development Authority (MBDA) under the IBDLP programme to create a platform for participative planning by the community, such that the community would be empowered to envision and plan its own socio-economic development through sustainable management of their local natural resources.

The IVDP entails the generation of a comprehensive database of information for each and every village in the state. This information includes availability and distribution of natural resources, land use patterns, presence and condition of water bodies, assets such as livestock that are owned by the community, physical infrastructure and social institutions within the village site, statistics about local employment, skills and livelihoods, and even the history of the village as passed down across generations of community members .

The knowledge base thus created could be used by communities to plan their own local projects (with the support of IBDLP implementation teams as required), and it could also be used by Government Agencies who could plan effective interventions that are best suited to the local context. Finally, the knowledge gathered through the IVDP exercise shall also be used to create appropriate and innovative Climate Change Adaptation Plans at the local and state level.

Participatory Rural Appraisal (PRA)

Participatory Rural Appraisal (PRA) is a method by which dialogue can be initiated within a community, in order to engage all community members to collectively discuss and assess the local socioeconomic, political, or biophysical context. The process is thus simultaneously one of gathering information, and of making participants aware of local conditions, local challenges, and local opportunities that can be developed further.

In the case of IVDP, the PRA exercise is led by the Natural Resource Management project implementation teams who also mobilize and train local community youth to learn the PRA method. These youth then help the IBDLP Natural Resource Management team conduct such PRA exercises at a large scale across the state.

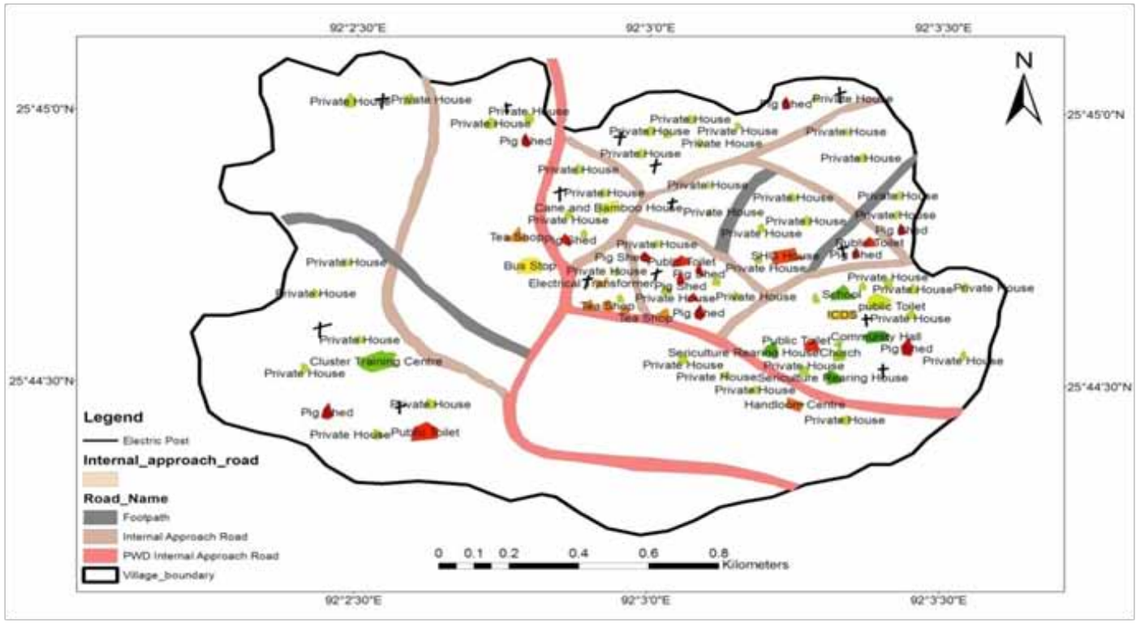
What emerges during the PRA exercise is a complete picture of the village community – its history, its vision for its own development, its social institutions and natural resources, the seasonal patterns which govern how community members practice agriculture or livestock farming, livelihood portfolios and skill gaps, inflow and outflow of commodities and services to/from the village, successful local entrepreneurs and the challenges they face, and local-level changes in climate as observed by the community members and any adaptation strategies.

As this is a completely participatory exercise, community members also share with the IBDLP teams what external assistance they would require to conduct similar exercises periodically in the future, and to plan tangible development projects at the local level. Guided by the community itself, the IBDLP teams select Youth Volunteers (ideally, two girls and two boys) from that village for further training such that they can become resource persons and facilitators in the village's development planning process. These youth volunteers also form a vital link between the community members on one hand, and line officials from various government departments and the IBDLP team on the other.

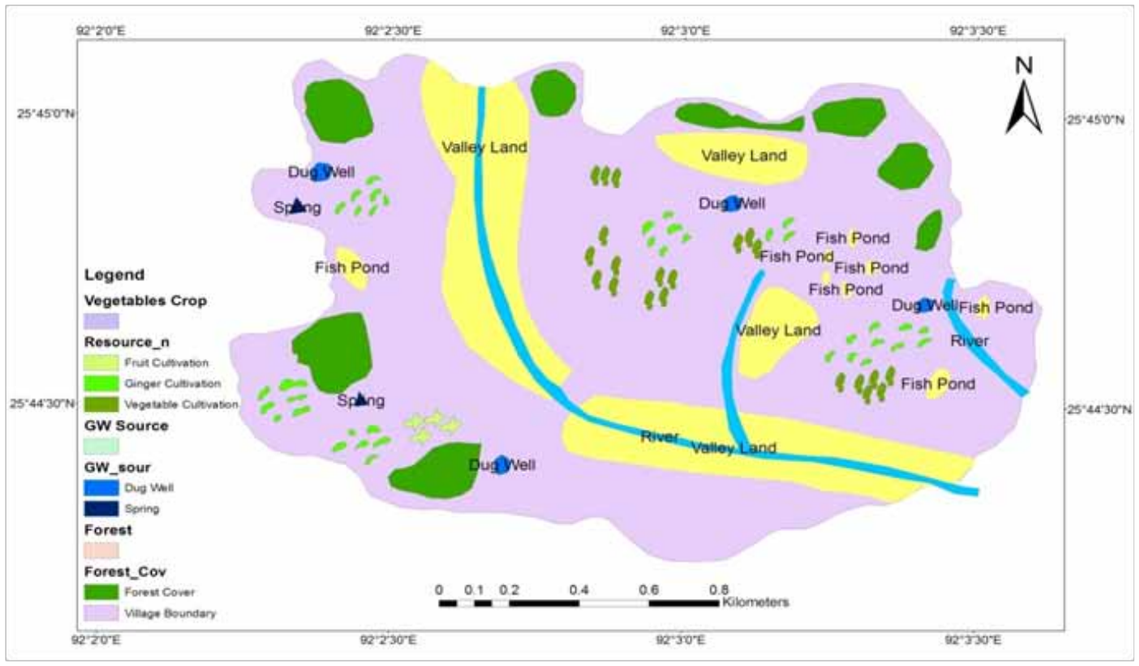
Once the assessment and participatory discussions are done, the Village Council is tasked with the responsibility of monitoring progress of any project plan created and to regularly discuss the same with all community members. The volunteers assist in this by continuing to collect relevant information as may be required and facilitating village discussions around issues of community welfare and ideas for local-level development activities.

Partner Management Information System

Village level information is collected and orgainsed which helps in identification and prioritization of interventions



PRA MAP



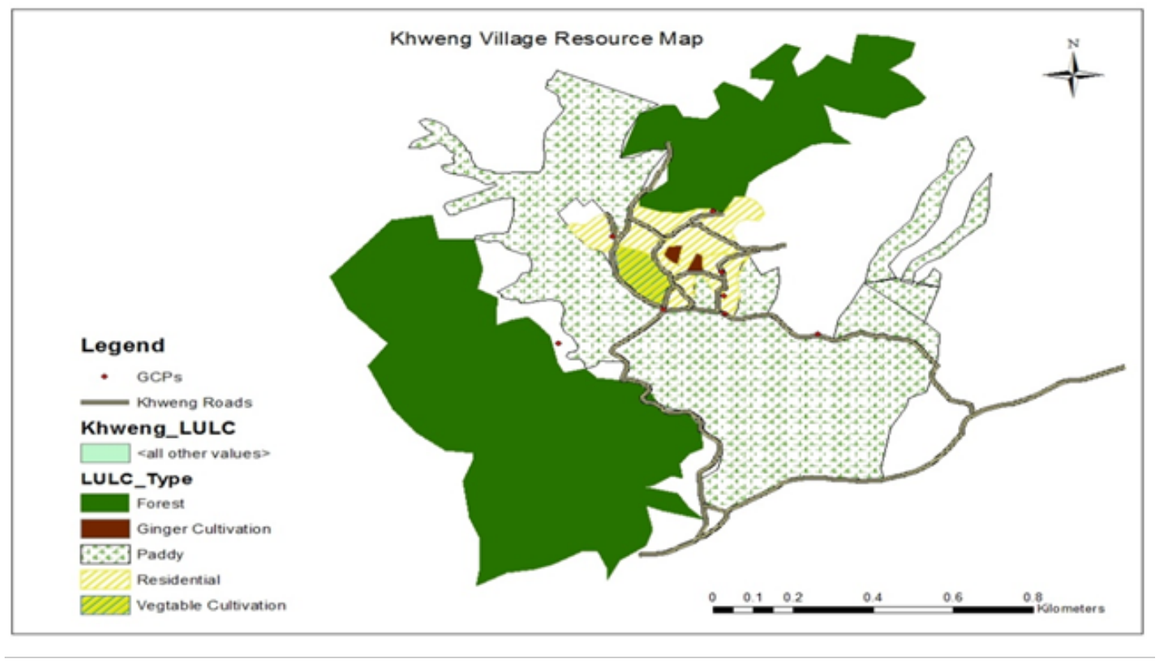
PRA MAP

GIS - Village Mapping

Geographic Information Systems (GIS) are widely used to compile, display, and visually analyse complex sets of information in a given geographical region. A GIS can be an invaluable tool for development planning particularly when both natural resources as well as social conditions have to be considered together when planning projects. Thus maps and other information collated from the GIS will be made available in simple, easy to understand formats to community partners at the grassroots, summarizing key information about their local context which should be taken into consideration when planning actual projects post-IVDP.

The information stored in the GIS adds significant value to the information collected during the PRA exercise by providing an understanding of larger scale regional patterns of land use, and natural resource distribution and use. Specific information about local/regional soil and water characteristics, soil erosion patterns, water bodies, topography and agro-climatic zones etc. will be layered onto the existing information to give a complete picture of a village and its surrounding region.

These detailed base maps are being prepared using satellite imagery and remote sensing methods. The MBDA has partnered with North Eastern Space Applications (NESAC) for the mapping, and is currently partnering with NECTAR (North East Centre for Technology and Applied Research) to do the mapping using imagery from Unmanned Aerial Vehicles (UAV). Such UAV images are of higher resolution and imagery can be done more often and on a flexible schedule, making it easier to monitor and track a region regularly, and making it more feasible to plan interventions taking changing local conditions into account.



RESOURCE MAP

REMOTE SENSING PHOTOGRAPH

Progress

Till date the IVDP exercise has been completed in more than 400 villages. It is expected that by 2016 it shall cover 2,200 villages. The remaining villages of the state will be covered in a phased manner. Digitalizing and analyzing of the information generated about the 400 villages covered so far is in progress. The analysis will be shared with the village communities, line departments at the district level, the Deputy Commissioner (DC) as the chairman, and with MBDA itself for further planning.

In 2015 a full-fledged GIS Unit was set up at the Meghalaya Basin Development Authority headquarters in Shillong, to create and manage GIS databases and provide strategic insights for IBDLP and its community partners.

An initial exercise undertaken by the IVDP team was to locate the GPS coordinates of the village centre and important landmarks in and around the village through community participation, and draw a village map showing community members' houses and village structures such as roads, wells, rivers, community halls etc. This entire GPS tracking process was with the help of Community volunteers who have been trained under IBDLP to understand the GPS technique and handle its equipment. Nearly 600 community volunteers have been mobilised under IVDP, and trained and deployed in GPS based data collection, data analysis and report writing. This skilled and motivated cadre of volunteers is a key resource that is expected to make state-wide implementation of IVDP successful.

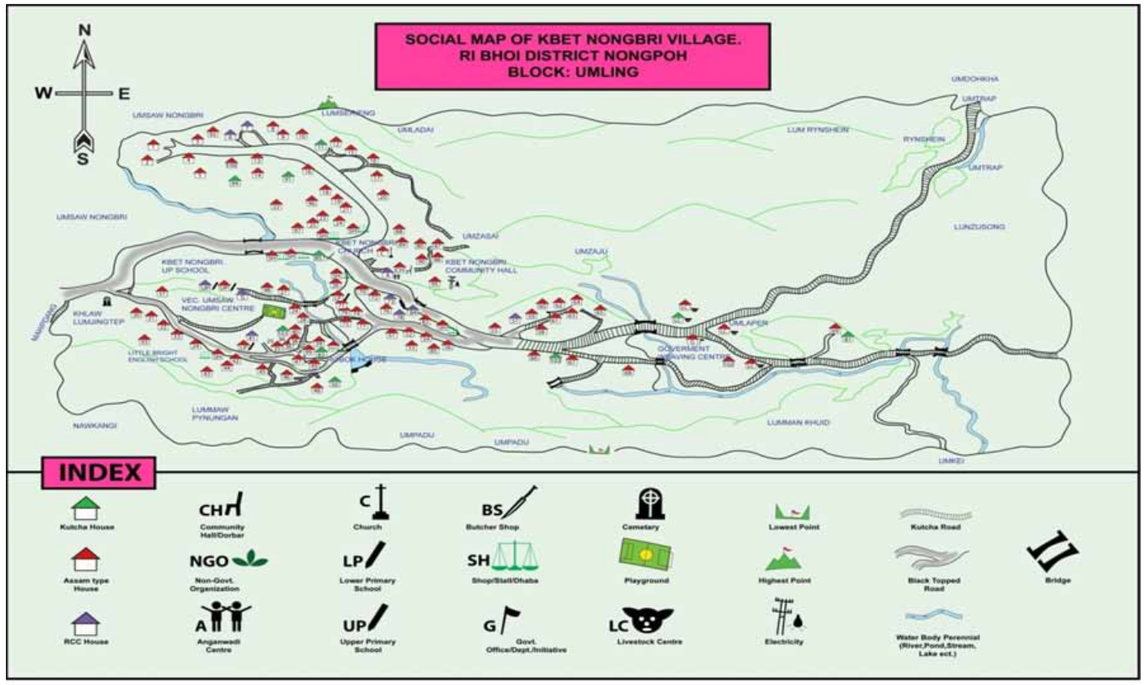
Additionally, the newly launched Meghalaya Livelihoods and Access to Markets (Megh-LAMP) Project which has been initiated in partnership with International Fund for Agricultural Development (IFAD), is aiming to develop village-level Integrated Natural Resource Management (INRM) plans in 1,350 villages across the state. Megha-LAMP will build on the experience and knowledge base created through the IVDP process.

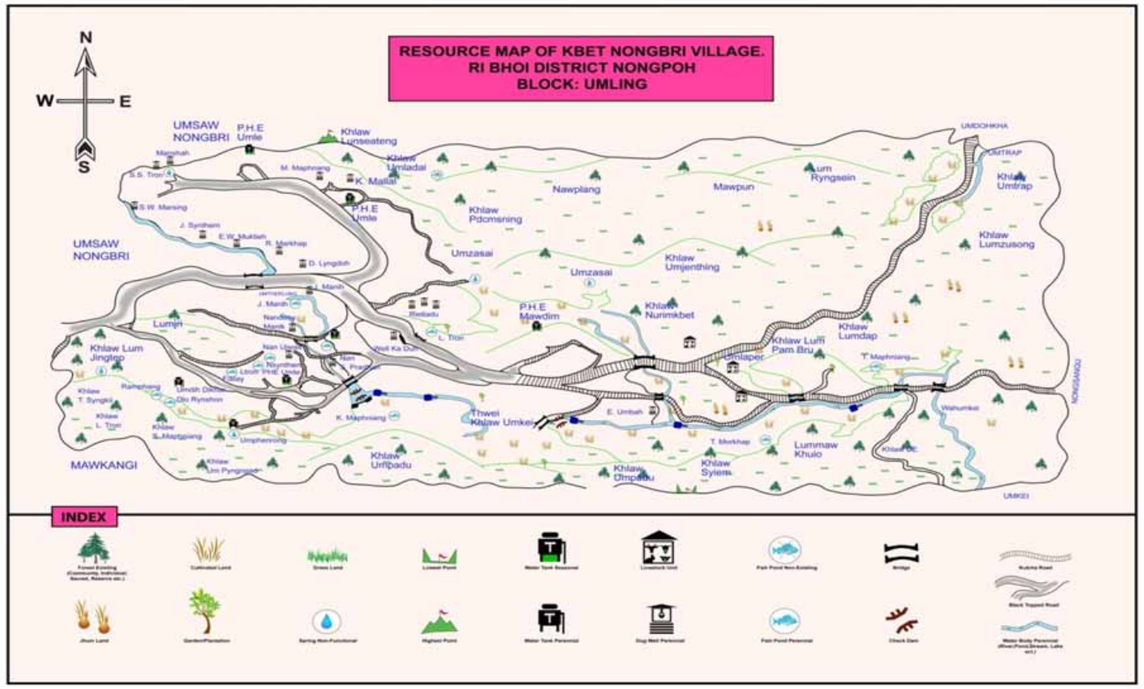
Knowledge Partnerships

In addition to its partnership with stakeholder communities themselves, MBDA also has a number of national and international knowledge partners who help it plan and operationalise its natural resource management initiatives. For example, the International Centre for Integrated Mountain Development (ICIMOD) is working on analysis of value chains in the state and on climate-change adapted livelihoods. The GIZ (Deutsche Gesellschaftfür Internationale Zusammenarbeit) has helped MBDA establish a Centre for Adaptation to Climate Change and is also helping with assessment of climate change impacts, of adaptation activities, and of community perceptions toward climate change.

The National Bureau of Soil Survey and Land Use Planning is helping map soil data on 1:5000 scale particularly in the Ri-Bhoi district, to support interventions on soil and water conservation. Collaboration between the Bio Resources Development Centre (BRDC) under MINR and the National Botanical Research Institute (NBRI) has resulted in development of bio fertilizers, provision of solar dryers to rural women for various livelihoods, and various other applied research activities.

Partnerships with the North East Space Applications Centre (NESAC) and the North East Centre for Technology and Applied Research (NECTAR) have allowed extensive satellite imagery and remote imagery using Unmanned Aerial Vehicles (UAV), resulting in maps of natural resource distribution, land use, and soil, water and topographical features across the entire state. Together with extensive on-ground tracking using GPS and social participatory methods, these mapping initiatives have created a unique and rich source of state-wide data. This data can be used to develop sustainable development programmes and policies at every level in Meghalaya, including at the very local level in partnership with village communities.





Social Challenges

Through IVDP, the residents of Kbet Nogbri have been able to identify key social challenges which has in turn given them the opportunity to plan solutions to tackle the challenges.

Education

Challenge identified by village:

No high school or secondary school in the village. Children have to travel outside the village for schooling

Proposed action plan by village
There are no plans yet but the village is open to interventions in setting up a school

Health

Challenge identified by village:

No Doctors in time of need. Villagers have to travel to a neighbouring village – Umsawnongbri

Proposed action plan by village
The village has proposed development of a health Sub-centre at Kbet Nongbri

Water

Challenge identified by village:

Water sources are available but not sufficient during dry seasons. People depend on dugwell that dry up in the hot seasons

Proposed action plan by village
Village is seeking assistance from Water and Health departments

Energy

Challenge identified by village:

Poor supply of electricity resulting in poor lighting of the village. Electricity bills are high and people use torches while traveling at night

Proposed action plan by village
Village plans to install street lights and is seeking intervention to reduce power cost

Economic Challenges

The holistic nature of IVDP means that the village of Kbet Nongbri is able to view economic issues on a broader scope thus enabling better and more holistic planning to improve economic conditions.

Agriculture

Challenge identified by village:

Agricultural production in the village is very poor. People use only cow manure as fertilizer

Proposed action plan by village
The village plans to conduct soil testing to identify which plants would best suit the village's soil conditions

Horticulture

Challenge identified by village:

The village still uses traditional farming methods which is not conducive to large scale production. This is compounded by the presence of pests.

Proposed action plan by village
Village is open to intervention in the form of fertilizer supply and technical knowhow

Livestock

Challenge identified by village:

The village has no master trainers or health care services for livestock. Villagers have to go all the way to Nongpoh, 22km away, for medicines.

Proposed action plan by village
The village needs support through trainings and input sessions to build sufficient capability to take care of their own livestock

Market

Challenge identified by village:

There are no markets within the village and the nearest market is 22 km away in Nongpoh

Proposed action plan by village
The village plans to build a market within the village which will not only provide villagers with an avenue to sell products but will also reduce travel and time cost

Community Nurseries

Community Nurseries are the nurseries owned and operated by communities or community-based organizations (CBOs) in a participatory mode with the government to find possible solution to challenges. It was thought that communities could be trained at the Cluster, Block or District Level for establishing these nurseries, which could then be supported with technical help from concerned Line Departments and NGOs. The latter could also provide economically viable plant saplings of various species that can be easily propagated by communities/CBOs.

The community nurseries project is being implemented under the Mission Green, whose objective is to enhance sustainable green cover, catchment protection, adoption of green technologies, building up of green movement by engaging green ambassadors and encouraging clean and green villages.

In addition to being community-led, these nurseries were also conceptualized as a "social enterprise". Thus under this initiative, economically viable species – including cane and bamboo – were taken to be key nursery plants. Meghalaya Institute of Natural Resources also held discussions with appropriate line departments so that these departments could buy saplings from these communities for their afforestation and catchment area development activities. An enterprise approach meant that these nurseries would support diversification of livelihood opportunities while providing a strong incentive to communities for long term environmental conservation.

Community Stakeholders

Implementation by existing and well functioning CBOs such as Cluster Level Federations (CLFs), Self Help Groups (SHGs), Joint Forest Management Committees (JFMCs), Natural Resource Management Groups, Water Shed Committees, Co-operative Societies, Village Employment Councils (VECs) who fulfil specific eligibility criteria are being supported as partners in this venture. Traditional institutions play a vital role as guarantors of the social agreement with the CBO. Further, local individuals who are already engaged in nursery activities and are willing to partner with MBDA are also being motivated to participate in the role of a registered volunteer. Their role is to train CBOs and monitor field activities as assigned by MBDA. Compensation for this contribution is taken up separately by MBDA.

Implementation Details

Of the plants grown in the Community Nurseries, up to 60% of saplings may be sold for profit but at least 40% are to be used for greening catchment areas. For every sapling sold by the CBO, Rupee 1 or more will be paid to MBDA untill its investment of Rs. 1,25,000 has been recovered.

The nursery is expected to only raise seedlings of indigenous species which occur naturally in the area or are naturalized plant species. A mix of species should be planted covering commercially important timber species, tree species for other income generating activities such as sericulture etc., fruit trees, bamboo and ornamental trees. MBDA/ BDU staff will work with the selected CBOs to arrive at an ideal mix.

Training and Additional Incentives

CBOs with expertise can earn additional income by becoming training partners. The CBOs which start providing training to other CBOs are entitled to set aside Rs. 500 per day of the training conducted or organised by them. This amount will be kept as a revolving fund for them.

Case Studies of Community Nurseries

In order to see how Community Nurseries are working on ground and how communities themselves are engaging with this new approach, the Knowledge Management team travelled to 4 different communities. The Team spent time interacting with the Cluster level Federation (CLF) implementing the Community Nursery and talked to community members to get an in-depth understanding of the people's challenges and perceptions. This chapter presents the key issues highlighted during these discussions.

Umsalait CLF (West Jaintia Hills District)

The Umsalait CLF was started in 2011. A small-scale CLF, it consists of 4 SHGs with a total of 40 members. Most households in this area are producers of rice, ginger and turmeric. The CLF started its Community Nursery in May/ June 2015, investing Rs. 5,000 from its own CLF fund and receiving Rs. 50,000 from the Meghalaya Basin Development Authority (MBDA) under its IBDLP Community Nursery initiative.

While the initial mobilisation and informational sessions were held by field implementation teams from MBDA, 2 Master Trainers from Umsalait visited Cham Cham (East Jaintia Hills District) for further training on Community Nurseries. With the support of these startup funds, training, and the commitment of the CLF members, the Community Nursery has grown to have 10,000 saplings within just 4-5 months of starting.

Details of Operations

The land used by the Umsalait CLF for this nursery is village Land. While no written document or agreement has been created to note this, the village headman and village elders have provided a verbal commitment to the CLF that they shall be permitted to use this land specifically for the purposes of setting up and maintaining their Community Nursery. A variety of saplings are grown in this nursery, from Jackfruit to Plum, Oranges, and Soh Phoh. Just around the time of this case study, the community was preparing the beds for plum, orange, and Soh Phoh saplings; sowing traditionally starts after winter.

The SHGs making up the Umsalait CLF are active participants in the Community Nursery social enterprise. At any given time, around 5 – 10 SHG members can be found working in various capacities at the nursery. The CLF maintains a register to record time contributed by each individual. Wages are paid to each one of them based on these records. Once the Community Nursery reaches a viable scale and size, the returns generated are expected to benefit all CLF members, with a portion of funds being deposited in the collective CLF fund.

Initial Challenges

Of all the saplings grown, about 40% are used for greening of the catchment areas in this region itself. The rest are expected to be sold in the market or to various government departments engaged in plantation activities. At present the community members are primarily dependent upon MBDA for helping sell their saplings, but the market linkages created during this period are expected to help the community directly handle sapling sales and marketing over time. One initial problem being faced by the CLF is access to high value horticultural sapling varieties.

Overall however, CLF members seemed fairly confident that their nursery would become an important source of livelihood for them in the near future.

Insights from Community Interactions

When asked about their goals for the Community Nursery, CLF members mentioned economic livelihood as a priority outcome. While the assurance of economic returns is a key reason that Community Nurseries were conceptualised in “Enterprise Mode”, the community’s feedback indicates that it would be important for the CLF to put down a clear system of revenue sharing right from the start. This could help prevent future conflicts between CLF members over distribution of benefits. While the Umsalait CLF is small in size which can help maintain cooperation, not all members agree on the operational aspects of the Community Nursery. The Knowledge Management team observed some indications of minor conflicts arising among the CLF members, which would be important to address sooner rather than later in order to ensure smooth functioning and sustainability of this Community Nursery.

Ryntihlang CLF, Cham Cham (East Jaintia Hills)

The Ryntihlang CLF was formed on 20th November 2011. It comprises about 10 active SHGs, each with about 15 members. Most of the CLF community members are farmers and agricultural producers. The key agricultural produce in this area includes wheat, potatoes, various seasonal vegetables, ginger and turmeric. The produce either gets consumed by the households themselves, or sold in the local market.

The CLF was first introduced to the idea of Community Nursery as an enterprise by a field team from MBDA. The idea appealed to the CLF and it approached MBDA for the opportunity to officially start up the Community Nursery. After an initial assessment based on the official guidelines discussed earlier in this chapter by MBDA, the Community Nursery was started by the CLF on 18th April 2015.

Details of Operations

In accordance with the enterprise model of Community Nurseries, the CLF has signed a 3 year Social Agreement with MBDA. During this period, the CLF commits to certain responsibilities that include the setting up and upkeep of the Community Nursery, working to plant saplings for the greening of catchment areas, and undertake actions as required for long term sustainability of the Community Nursery.

In the 6 months since it started its Community Nursery, the CLF has already planted about 25,000 saplings and has so far received Rs. 90,000 from MBDA as startup funds for the same. As per the Community Nursery guidelines, 40% of these saplings will be used to green catchment areas and restore degraded land. The CLF has set up this Community Nursery on land it already owned. This land ownership is an advantage compared to other communities or CLFs that have had to arrange for land and pay a fee toward

Insights from Community Interactions

In comparison to Umsalait, the Ryntihlang CLF members mentioned the environmental benefits of this initiative in addition to the potential livelihood benefits. They mentioned that they saw this as an opportunity to green degraded land in and around their own village. They also mentioned that nurseries could help preserve the indigenous tree species of their region and the state, as many of these species were on the decline.

Demonstrating their entrepreneurial attitude to the Community Nursery, the CLF members also discussed how they had begun exploring market opportunities for independently selling their saplings even though they could depend upon MBDA in this initial period for sales support. In fact the Ryntihlang Community Nursery has quickly become such a model nursery, that it is also frequently used as a nursery training centre for other CLFs who have newly started their own Community Nurseries. The CLF itself has 2 Master Trainers who have been trained by MBDA officials on both Community Nursery and Seed Bank initiatives. These individuals are now resource persons for training members from other CLFs.

Compared to some other communities, the CLF appeared to have a more equal distribution of roles and responsibilities across the different SHGs when it came to the work required for maintaining the Community Nursery. For instance, if 10 individuals are required for a day's task, then typically all SHGs are requested to send in equal numbers of members to participate in the activity; rosters are maintained to record the hours contributed by an individual. This even distribution of work might reduce the potential for conflict within the Community Nursery.

In a short span of time, the CLF has converted its Community Nursery into an early success. The lack of too many other livelihood options in this area and the elimination of coal mining as a primary livelihood activity has forced these community members to seriously invest time and resources into making their Community Nursery a viable, alternate source of livelihood. Members of the CLF expressed their strong belief that with MBDA's support, this would indeed be the case.

Tehsonglang CLF, Pynter (East Khasi Hills District)

The Tehsonglang CLF was started in 2011 through the facilitation of Meghalaya Livelihoods Improvement Project for the Himalayas (MLIPH). Started under Iatehsong SHG Cluster Federation, it consists of 8 SHGs with a total of 70 members. Covering one village the CLF is well connected with an all-weather road which is 18 km from the district headquarters Pynursla and 64 km from Shillong. Sumo services are available till Pynursla. The key source of livelihood activities in this area includes broom grass, betel-leaf, betel-nut, black pepper, wage-earning etc.

This enterprise commenced work in April 2015 after discussions between CLF leaders and the IBDLP programme implementation team. The CLF got interested in this opportunity to both generate income and bring about afforestation in that area.

The participating members are happy with the activity and the support provided by MBDA. Two of their members – Mr. Kynjri Ksiar Nongkrot and Mr. Kroli Khonglam - are also master trainers for community nurseries. The IBDLP Programme implementation team provides on field handholding support via periodic supervision and monitoring.

Operational Details

In the 6 months since it started its Community Nursery, the CLF has so far received Rs. 90,000 from MBDA. They have utilised the money in purchase of materials such as poly bags, plastic water tank, pipes and other miscellaneous equipment. Expenditure also includes payment of wages (at the rate of Rs. 200 per day for women and Rs. 350 per day for men).

The 3 acres of land across which the Community Nursery is set up, was donated by Dorbar Shnong to the CLF specifically for this or similar activities and an agreement was signed between the two parties. The CLF leaders along with the master trainers manage all routine and decision-making activities. The master trainers have been assigned weekly monitoring duties, and consult the CLF leaders on issues of labour responsibilities and distribution of work for the nursery. Depending on the work requirements, each SHG is allotted a roughly equal number of representatives to send to the nursery farm such that every SHG is an equal participant in nursery activities and responsibility.

Most of the species available in the nursery are hard wood trees used for timber and firewood- DiengJem, Sohphan, Lymbaw, Shinai, Bti, Jyrngem, Shatnud, Shyrngan, Dieng Siar, Dieng Bishna, Dieng Sohpreh, Dieng Sohrymwai. Other horticultural varieties of plants are expected to be added in the coming season.

In a short span of time, the CLF has 25 beds filled with saplings of different species. About 17,000 saplings were sown initially, however due to excessive rain the saplings have reduced to about 13,500 at present. They have not started selling it yet; however, about 100 saplings were planted in village water catchment area during the World Environment Day 2015. Currently, CLF does not have contact with other agencies and solely depends on MBDA but soon it will be approaching Block Office, Line departments and neighbouring villages to increase the sapling production. At present the expected cost of the saplings is 13,500 x Rs. 8 = Rs. 1,08,000. However, the income may reduce if proper watering is not done during the dry season i.e. November to March.

Initial Challenges

With all the developments there have also been challenges during the dry season as the soil is sandy. The nursery also requires good fencing to protect it from animals and children. Moreover, there has been low germination rate and high mortality rate due to excessive rain. The community shared that to solve these problems it was experimenting with using cow dung in the soil.

Most of the CLF members are also only just learning the techniques of managing the plastic/polybags in the nursery, so increased experience is expected to contribute toward nursery success and plant health over time.

Insights from Community Interaction

People in the CLF appeared confident that their enterprise would be successful and bring good income in the coming days with the support of MBDA/IBDLP. Even the non- participating members of the village appeared to support the activity. It is expected that in the coming years saplings of potential economic value and horticultural species will increase at the nursery and thus fetch the CLF a good income.

Sahsniang CLF (West Jaintia Hills)

The Sahsniang CLF was formed in July 2011 with the facilitation of Meghalaya Livelihoods Improvement Project for the Himalayas (MLIPH). It comprises 18 SHGs with 187 members covering 1 village. The major livelihood activities of village community members includes agriculture (paddy, vegetables) livestock, horticulture (banana, orange), and also wage-based employment.

The Sahsniang CLF was first introduced to the idea of Community Nursery by the IBDLP programme implementation team. In May 2015, CLF leaders and MBDA staffs came together with this idea to generate income and promote afforestation in the area.

Two of the group members, Mrs. Ventina & Mrs. Babiana who are also community nursery master trainers, attended two days training on Community Nursery at Cham Cham Cluster Training Centre. The IBDLP team provided them with practical handholding through periodic supervision and monitoring. MBDA till date has invested Rs. 90,000 and the amount is utilised for purchasing materials such as poly bags, plastic water tank, pipe and other equipment.

Operational Details

This Community Nursery is located few metres away from the main road, spread across half hectare of land that was given by Mrs. Babiana Laloo. She has contributed the land free of cost for 5 years but will be getting some income depending on the revenue generated from the land.

During the initial discussions within the CLF, it was decided that the community nursery's responsibility would entirely be taken up by the Chiruplang SHG. It is the responsibility of the Group leaders of Chiruplang SHG to monitor the activity and assign work to the members as per the requirement. However, every member of the CLF is allowed work and earn labour in the community nursery and is provided with a wage at the rate of Rs. 200 a day for women and Rs. 300 a day for men depending on the availability of work. At present, the group has about 13,000 saplings of different local species (with approximate cost of Rs. 7 X 13,000= Rs. 91,000).

Selection of species is done by the community on the basis of economic value and availability of species in the area. The species available in the nursery include Vituo, Dein Puma, Chirngan, Rtiang, Sluka, Laphiang, Deinling, Jack fruit etc. Other horticultural variety such as orange, plum, pear etc shall be added in the coming season.

The CLF has not started sales as of now but soon the IBDLP programme implementation team will support with market linkages for at least 60% of the saplings. This CLF has established a good rapport with the Soil & Water Conservation Department as well which will use their sapling for its programmatic activities. The CLF is also in talks with the Block Development Office to explore possibilities of supplying sapling for implementation of other schemes. The initial expected cost of the saplings is 13,000 x Rs. 8 = Rs. 1,04,000. From the income earned 40% will go to CLF and the remaining 60% will be shared among the participating SHGs/members (after clearing the loan amount).

Initial Challenges

Challenges include water supply as the nearest water source is quite far from the nursery. This is expected to cause a problem during dry months. The community also appears to need more training in nursery management and accounting. Further steps are being taken to resolve some of these teething issues. For example, a plastic water tank will be placed inside the farm as a water source, and the community is also planning to invest in strong or live fencing.

Insights from Community Interactions

There has been a significant rise in the number of saplings belonging to locally grown tree species and horticultural species at the nursery. This is expected to fetch a fairly good income in addition to increasing green/ forest coverage in the area. Community members believe that as long as there is a market they can successfully raise more saplings and make a good income from the activity. A few non-participating members of the village are also beginning to show interest in joining the activity. After seeing the community nursery in the village, a few community members said that perhaps even individual households should start such nurseries, even if just for their own use.

Community Seed Banks

Seed banks are a facility where seeds of indigenous food crops or other valuable local species are stored and propagated such that they become a storehouse for local biodiversity. Meghalaya has a large variety of indigenous food crops but most of these varieties are being lost as farmers are using more easily available hybrid seeds. Deforestation can also cause great loss of biodiversity in a region, leading to a loss of plants that can be very valuable for their ecological or medicinal properties, for timber and non-timber products, etc. Towards mitigating this loss and taking one step towards preserving the great biodiversity wealth of Meghalaya, MBDA is partnering with ANNADANA Soil and Seeds Saver Network.

This unique intervention is being implemented through the Cluster Level Federation (CLF) that exists at the cluster level. As with Community Nurseries, this too is being implemented via a Social Enterprise approach.

To take stock of the situation and understand the perspective of the communities involved in the Seed bank initiative the Knowledge Management team of MBDA visited two seed banks one in North Garo Hills and the other one in Ri Bhoi. Case studies of both the CLFs are presented in the following pages. A comparison of the CLFs has also been presented for the benefit of our readers.

Seed Bank at Balgito CLF

The Balgito CLF is located at Chichotcheng village in Resulbelpera Block in the North Garo Hills District. Better connected by roads than many other villages in the Garo Hills districts, the CLF is about 4km away from NH 51 and 18 km from the district headquarters at Resubelpara. The seed bank consists of 265 members from 26 SHGs, and covers six villages – Bollongpang, Nokwal A'ding, Chichotcheng, Rongtnapal, Sorapara and Chisim Apal. The group was formed in October 2008, through the support provided under Meghalaya Livelihoods Improvement Project for the Himalayas (MLIPH). The seed bank under the Balgito CLF is a model seed bank in the Garo Hills.

In addition to this Seed Bank enterprise, the Balgito CLF is involved in a number of other activities and undertakings. It owns a Training Centre which is utilised for various community-based training programmes. The CLF has a power tiller that can be used by the community on payment of rent. A turmeric grinder machine has been similarly installed as a livelihood option for village community members. The CLF has also created a fish sanctuary to protect the local varieties of fishes and act as an attraction for eco-tourism.

On October 27, 2008, IBDLP programme implementation teams first met with the CLF's leaders to discuss the possibility of launching a seed bank in enterprise mode at Chichotcheng. Trainings and knowledge programmes commenced in 2014. Facilitation and regular supervision activities are being provided by the IBDLP team as well as representatives of ANNADANA. Three community members from the Balgito CLF undertook a training–cum-exposure programme at Bangalore and four CLF members were a part of a Seed Bank Workshop held at Shillong.

Operational Details

Till date, MBDA has invested Rs. 1,37,785 to the CLF towards labour costs and infrastructure set up. MBDA has also provided water pumps, drip irrigation materials, mosquito nets, plastic pheromone traps, packaging, poly-bags sprayers and a number of other items required for effective seed bank operations. This is in addition to continuing technical training, handholding, and knowledge sharing programmes.

For the development of this enterprise, a plot measuring 4,000 sq. mts. (1 acre) was negotiated by the CLF. Presently, only 93 sq. mts. is under cultivation. The land owner, signed an agreement with the CLF on the conditions that –

1) The CLF would utilise the land only for the purpose of a seed bank and for a period of 5 years.

2) A monthly rental charge of Rs. 600.00

The CLF makes implementation related decisions at its monthly meeting that is held on the 15th of every month. Each SHG within the CLF has an equal share in the Seed Bank and undertakes equal responsibility for its maintenance. The CLF has also formed a seed bank committee that carries out day to day management activity like tracking and monitoring, assigning work activities to the SHG members, and giving reports to the CLF for discussion at its monthly meeting. There are two master trainers in the cluster- Mr. Pinster Marak and Mr. Jamesworth.

Selection of species is done by the community. The species grown in the first cycle include chillies, brinjal, okra (or lady finger), melon, pumpkin, cucumber, cowpea, sorrel, sesame, ridge gourd, maize (or corn), and local beans. Records are maintained in the form of an attendance register, labour-cum-activity register, meetings register, cash book etc. These records are verified and maintained by the secretary of the CLF who is also a member of the seed bank committee.

While harvested seeds are not quantified, the date of harvest is recorded. The current output from the Seed Bank includes Okra, brinjal, chillies, corn, pumpkin, cucumber seeds, varieties of beans, etc. Unfortunately, a batch of tomatoes planted had not grown successfully. The CLF has not started selling in the market yet as its output is still small in scale. Much of the problem with the scale of harvest this year was due to late planting of crops which was compounded by unusually heavy rains.

Initial Challenges

One challenge is that of maintaining the enthusiasm of CLF members for continuing this activity. In the beginning as many as 26 members regularly participated in Seed Bank operations but since then many members opted to discontinue. At present only 6 CLF members are taking responsibility for the entire Seed Bank operations.

Operational challenges being faced by the CLF are cited by CLF members during the field interaction include the following:

- not getting input materials in time,
- lack of a green house for setting up the seedling nursery,
- severe difficulties in the transportation of cow dung (for manure),
- lack of adequate storage facilities,
- lack of support structures for climber & creeper plants,
- lack of fencing materials (bamboo is temporarily available in the local area and can be prohibitively expensive),
- difficulty of sourcing raw materials for preparation of Panchagavya (an input mixture recommended by ANNADANA)
- Further need of tools for weeding and drip irrigation and the need for more pheromone traps.

Further, excessive rain and flood this year has also contributed toward the members' woes as it has resulted in destruction of standing crops. The CLF has also faced difficulties in opening a bank account, the lack of which has delayed the payment for labour.

Conclusions from community engagement

As of now the members of this CLF are not sure that their Seed Bank enterprise can be sustained in the long run. The participating members are not getting immediate returns to meet their family's expenditure needs. This is a key reason that they have a negative attitude toward this undertaking. Many of the village community members who are not CLF members are also unaware of the seed bank activity and few have taken the initiative to find out more. However, as the earlier discussion noted, the CLF has been very active in undertaking a number of other activities for livelihood promotion in particular. Hence it is hoped that CLF members work with greater collaboration and get over these initial hurdles related to their Seed Bank.








Seed Bank at Lamjingshai CLF

The seed bank under the Lamjingshai CLF in Khweng village in the Ri Bhoi district of Meghalaya is one of the more successful examples of Seed Banks and is a model seed bank for Khasi and Jaintia Hills. This CLF was started under the erstwhile Meghalaya Rural Development Society (MRDS) and is one of the leading Cluster Level Federations in the state of Meghalaya. It was formed on September 28th, 2008 and includes 22 SHGs from 6 Villages. This CLF has about 200 members, with 175 of them being females. The sustained success of Lamjingshai CLF has been critical to the overall development of Khweng Village. Like with the CLF's other activities, its Seed Bank too has become a model whose best practices are being replicated at sites across the state. In fact, Khweng was one of the village communities hosting the International Terra Madre event (that was held in Shillong and in villages across Meghalaya from the 3rd to the 7th of November, 2015). Its community showcasing to national and international delegates its successful livelihood and biodiversity preservation activities as well as its ancient culinary traditions.

In December 2014, the CLF and the IBDLP programme implementation team met for an initial discussion on the concept of a seed bank and community nursery. The Lamjingshai CLF then decided to take up the Seed Bank in social enterprise as planned under IBDLP. Officials from MBDA came to Khweng to help CLF members in land and site selection. Three CLF members were sent to Bangalore for training so as to become master trainers. These master trainers also received training on techniques for making compost, Panchagavya and vegetable enzymes. Master trainers then provided training to other CLF members as well.

Operational Details

All 22 SHGs forming the CLF participate equally in this social enterprise and a labour register is regularly maintained. At least 2 to 3 members from each SHG work at the seed bank on a regular basis. The members who work at the seed bank are paid Rs. 153.00 while Rs. 97.00 is deposited into the common CLF fund. The CLF holds meetings once every month for coordination and decision-making.

The CLF and MBDA have entered into a 3 Year Social Agreement that notes responsibilities of both parties during this period, and the expected outcomes regarding sustainability etc. of the Seed Bank at the end of this initial handholding period. MBDA helps the CLF by providing technical knowledge on seed and seedling care, and physical inputs such as a poly-house, nets, seed trays and various other paraphernalia. While MBDA also acts as a seed provider, most seed varieties at this Seed Bank come from within and around the village itself. According to the Seed Bank model under IBDLP, if the community starts earning net revenue at the end of the social agreement period, the money is deposited into the CLF fund and becomes available for use by members for various CLF or individual activities.

A comparison between Lamjingshai and Balgito Seed Bank Cluster Level Federation(CLF)

The KM team's field explorations of Seed Bank clusters led to the realisation that the characteristics and efforts of the community-based organisation which takes up this initiative critically determine the outcome of this innovative initiative. The two CLFs investigated – Lamjingshai CLF (Ri-Bhoi district) and Balgito CLF (Garo Hills) – have approached their work with Seed Banks very differently, and are living and operating in very different contexts. This comparison seeks to highlight a few points that emerged from field interactions with the two CLFs and visits to their seed bank farms.

The Balgito CLF has about 245 members (both women and men) in its federated SHGs. Together, these SHGs cover about 6 villages. This entire area faces severe problems of connectivity, which means that Balgito CLF has trouble communicating quickly with IBDLP headquarters in Shillong, or the Seed Bank project implementation team that is also headquartered in Shillong. Speaking to the KM team, members of the Balgito CLF expressed that limited connectivity to this region meant that technical instructions as well as infrastructure and inputs reach them on an irregular and delayed schedule. Since planting seeds and growing saplings is a very technical and time-bound process, such delays often prevented them from being able to take necessary action on the farm during the appropriate season.

The model of the Seed Bank initiative as designed under IBDLP, essentially involves a 3 year initial social agreement, during which MBDA actively supports (training/learning/farming) activities of the community based organisation (CBO) that has taken up the CLF (conditional upon a few points that are similar to points noted in the guidelines for Community Nurseries). During this time, CBO members actively participating in the Seed Bank activities are provided with a stipend calculated on a daily basis as an incentive to maintain the Seed Bank for at least the pilot phase, and as a compensation for the environmental benefits they are providing for the State through their time and labour. Another feature of this initial period is that the seed varieties propagated and stored in each Seed Bank are meticulously tested by BRDC for viability, species identification, and certain other markers. It is only after an adequate period of testing that the community shall be given the approval to officially sell seeds from their Seed Bank under the label 'indigenous'.

However, specifically in the case of the Balgito CLF, very few members (only about 6) were actively participating in the Seed Bank activities. The KM team primarily interacted with these active participants, but feedback from those who were inactive or disinterested was that they perceived the Seed Bank activity to be non-remunerative and hence not necessarily worth their investment in the long run. Those who were participating actively however, said that they were carrying out this activity because they knew it was important to protect and nurture indigenous plant and crop varieties.

The case of Lamjingshai CLF was starkly different. The Seed Bank farm in Ri-Bhoi was maintained extremely well and CLF members were seen to be constantly working on the farm. Unlike in the Garo Hills case, Lamjingshai CLF saw high participation from its members in the Seed Bank. A roster was being maintained, and CLF members were working on the farm on a rotation basis. The wages and stipends due were being calculated on the basis of these roster records.

An advantage that the Lamjingshai CLF has is their proximity to Shillong. This has also led to their farm being selected de facto as a Model Seed Bank, which means regular and higher access to technical knowledge, site visits, and required inputs. As a supplementary activity, the Lamjingshai CLF had also taken up extensive vermin-composting with the support of IBDLP. When asked about the same on the Garo Hills side, the Balgito CLF said that vermi-composting was difficult for them due to their limited access to cow dung. However, they did not elaborate on alternative composting methods that they had tried or had been trained in.

Both the Lamjingshai CLF and the Balgito CLF however had interesting comments regarding the Seed Bank partnership with the reputed organisation ANNADANA. The Khweng CLF for example was worried that the indigenous seed varieties being grown by them and being collected by ANNADANA for testing (with BRDC) could be patented by ANNADANA in its name rather than in the name of the community itself. This is an important issue of mistrust that has been flagged by the KM team for the Seed Bank project implementation team, and will require further communication with the community to resolve.

Both the Lamjingshai CLF and the Balgito CLF also discussed the issue of traditional fertilizers and pest management methods with the KM team. For instance, while the Lamjingshai CLF uses a mixture containing chilli extract that it claims is really effective for pest control, the Balgito CLF has and continues to use a traditional mixture primarily consisting of Neem extract. Both communities were in favour of using traditional farming/fertilizing/pest management methods, which are also organic and perceived by these communities as being better for the environment.

An issue that came up though, involved the cost and contextual relevance of using non-local materials as fertilizer. As related by the CLF members, one of the fertilizer mixes advocated by ANNADANA was the Panchagavya, a mix of cow dung, cow ghee, cow urine, cow milk, coconut water, jaggery, banana and water. Given the relative absence of dairy or farm cattle in traditional communities of Meghalaya however, these materials can be exorbitant and also challenging to access for rural farmers. The communities also told the KM team that in addition to the prohibitive cost, they also doubted the appropriateness of these materials for the local soil, water and climatic conditions and the specific seed/plant varieties they were growing. Instead, they felt, simpler and cheaper traditional methods and inputs worked just as well if not better. Thus both CLFs were continuing with their local farming traditions when it came to their Seed Banks.

As the Seed Bank initiative has just been launched a few months ago, it shall be possible to assess outcomes across these different communities only after 2-3 years. It is expected that primarily communities which have used the technical and financial support being offered under IBDLP in this initial phase to further their own understanding of the seed propagation / seed marketing process, will show highly successful outcomes. Communities where members have invested a fair bit of their time, money and resources to grow healthy seeds and get them certified will likely have thriving Seed Banks that will be a hub for sales of local seed varieties post this initial period.

At the same time, this field interaction showed that communities are still unsure about the scale of revenues that this investment will bring. This might prevent many communities from making a sustained effort to maintain their Seed Banks, even if they take it up initially. Possibly, if the economic and livelihoods benefits of Seed Banks are better designed and communicated to Seed Bank CBOs, it shall motivate them in the long term and help the State better protect its rich plant biodiversity.

Springshed Initiative

The rains of Meghalaya are proverbial. Famous across the world as the place that gets the highest rainfall, Meghalaya's landscape is defined by its innumerable beautiful rivers, springs, lakes, and waterfalls. Given that "Water" and Meghalaya appear to be almost synonymous, it is remarkable to think that there could be problems of water scarcity in Meghalaya, or that there could be a lack of clean drinking water in some communities. And yet the seemingly impossible is starting to happen. Over the years, people who live near springs have seen them degrade, discharging lower and lower volumes of water or sometimes overgrown by algae. The once perennial streams are no longer perennial and springs - traditional sources of domestic water supply for many local communities - are also drying up. 'Springshed' which are a source of "springs" and a window to groundwater flow, are being increasingly impacted by deforestation, construction activity, mining and quarrying.

It was to address this that the Springsheds initiative was launched under IBDLP in the year 2014-15, under the collaborative leadership of MINR, Soil & Water Conservation Department, Water Resources Department, Meghalaya Water Resources Development Agency (MeWDA), GIZ, Meghalaya Water Foundation, Meghalaya Institute of Governance (MIG), and Community & Rural Development Department. Additional support is provided by the National Springs Initiative Network. Like all IBDLP initiatives, the Springsheds initiative is also community-based, hence the social objectives around Springshed rejuvenation include:

- Documentation of both traditional and modern scientific systems of water management ;
- Raising awareness of people statewide around the issues of water conservation and water pollution and mobilizing citizens to take action;
- Building institutional capacity of water sector stakeholders via public discussions, workshops, and networks with local, regional, and national level knowledge experts

Wah Shari degraded catchment before intervention

Tree planting in the catchment of Wah Shari

Wah Shari catchment after intervention

Fencing around water harvesting structure

'Cherrapunjee' epitomizes heavy rainfall but the Sohra plateau experiences water shortage during the non-rainy season. Of late, anthropogenic activities have further increased water problems in this area. The paradox of continued water shortage despite abundant rainfall highlights the importance of soil and water conservation measures. The "Wah Shari Spring" is one of the few perennial water sources in Sohra and falls under Khliehshnong Village. The catchment area of this water source has been severely degraded and unprotected till the restoration project was started. The initiative to protect the water source and its catchment was taken up due to the dwindling water availability from this source.

In the pre-project scenario. The area was devoid of any vegetation and the top soil was completely eroded with only skeletal remains of gravel and sand. The land was severely degraded due to mining activities and led to water scarcity during the dry season. In March 2015, the discharge of the spring – a key source of drinking water supply in the area - was 5 Litres/minute.

Steps of Intervention

- The first intervention was community mobilization to prevent the catchment area from mining activities. Capacity building and training workshops were organized for local community.
- Barefoot Environmental Educators (BEES) were identified from these communities to be the whistle blower for forest fires, unwanted grazing and other damaging occurrences.
- The next step involved the creation of Soil and Moisture Conservation works like silt retention dam, staggered boulder bunds, box terraces, contour trenches and afforestation with local indigenous species in the entire degraded catchment area.
- The last step was the construction of Water Harvesting Structures integrated with a filtration tank, storage tank and fencing off of the catchment.

Outcome

The positive change in the water body has been reported post the 3 levels of interventions detailed above. The intervention has ensured year round water security for about 225 households in this area. Soil loss through erosion has been tremendously controlled and water conserved. The monthly discharge of the spring is being continuously monitored to compare the flow rate before and after the spring rejuvenation intervention. A comprehensive impact assessment is being currently conducted and results will be disseminated across stakeholder groups.

Wah Shari water harvesting structure

Voices from the field about the Wah Shari case:

Mrs. Angelina Majaw

Mrs. Angelina Majaw is one of the oldest residents of the Khlehshong locality of Sohra. Now 85 years old, she has seen the region undergo many changes over the years, including significant ecological changes. She has seen how the perennial water source in her locality turned into what could only be described as a "drain" and how dirty and filthy it quickly became before the Cherrapunji Ecological Project was started by the Soil & Water Conservation Department (Govt. of Meghalaya) in 2013.

Members of the IBDLP Knowledge Management team sat down with Mrs. Angelina to understand these changes to the perennial water source that she has personally witnessed:

Q1. For how long have you been staying in this locality?
Answer: I have been staying in this locality for the past 15 - 20 years now.

Q2. Can you briefly describe the changes that you have seen the stream go through in these years?
Answer: Well, when my family and I migrated to Sohra 20 years ago, Wah Shari was the only source of water for all our needs. It still is the key source, but for a long time before the current reservoir was made, the spring got very dirty. We saw that as the number of people using the source and living around the source grew in number, the water got really dirty and almost impossible to use for personal needs.

Q3. How did mining affect Wah Shari?
Answer: Before ban imposed by the National Green Tribunal, we noticed that not only was the water source getting increasingly polluted but that there was also a very sharp fall in the discharge of the water from this source.

Q4. What is the water from this Wah used for by the community?
Answer: We use this water for various purposes, from drinking and washing to watering our kitchen gardens. At any given day you will find people washing their clothes along the Wah as well.

Q5. What about the land around the water source? Was it always fenced?
Answer: Before the Cherapunji Ecological Project, the land around the water source was really degraded. No, it was not fenced and we noticed that a lot of litter and garbage started to accumulate in and around the water.

Q6. Did the community ever get together to clean the Wah before the Ecological project?
Answer: Well yes, we did try to clean Wah before the Ecological project but it did not have any significant or long term effect. Although we had cleaning drives, not everybody participated. Also there were no stringent laws enforced to stop people from littering. The fencing around the source has been a boon in this regard.

Q7. What is the major change you see in this Wah then and now?
Answer: When there were few houses around Wah Shari, the water was plentiful and clean. As houses started increasing along this stretch of water, the water got dirty and water levels fell. Now the Wah has slowly begun to be revived and our whole community is benefiting from it.

Barefoot Environment Educator (BEE)

Q1. What is your name? How long have you been a barefoot environment educator (BEE)?
Answer: My name is Pynskhembor Kharmih, and I have been a BEE for close to 5 years now.

Q2. What motivated you to become a BEE?
Answer: My love of nature and trees is something that has been inculcated in me since childhood by my parents and grandparents. So when I got the opportunity to volunteer for the government to help protect the nature in my locality, I was keen to take it up. I feel that by becoming a BEE I will be able to contribute to the society in my own small way.

Q3. How many BEEs are there? What is your role as a BEE?
Answer: At present, there are 10 BEEs in the region. We keep an eye on activities in this area like if anyone is cutting trees, engaging in illegal mining etc. We try to prevent such activities from continuing but if we cannot then we report it to the Headman for appropriate action.

Q4. Have you encountered any kind of resistance while trying to perform your duty as a BEE?
Answer: Not generally since us BEEs belong to this community itself and most community members support our work.

Q5. What knowledge did you gain since you have started taking care of Wah Shari?
Answer: Personally, I have learned a lot. I now understand the importance of protecting areas surrounding the water source, the importance of the whole catchment area. All of now have knowledge about the steps we need to take to protecting and also restore our perennial water sources.

Mr. Pynskhembor Kharmih

We have taken steps to prevent the water from getting polluted again. For example, we have made a washing platform for washing clothes so that dirt and soap doesn't get into our clean drinking water. We have learnt to filter our drinking water as well. In fact our community is earning revenue by selling drinking water sourced from the Wah that has gone through a filtration process. The drinking water is sold at Rs. 100 per 1000 litres. We also have public bathrooms with good plumbing set up now; the fee to use them is Rs. 10 per person.

Q6.How do you feel as a BEE being chosen to look after the Wah Shari?
Answer: I feel privileged and proud that I am one of those who have been entrusted with the responsibility of looking after the Wah. Now that we have fenced these dams, there is a constant flow of water and the whole community is benefiting from it. It could have been a whole other story had we not acted in time. The stream might have stopped flowing or perhaps it would have been diverted and used by individuals for private benefit instead of collective benefit.

Q7. As you have said, one of the reasons you wanted to be a BEE is because you were taught by your parents to love and take care of the environment. So do you inculcate the same values in children in your community?

Answer: Like my grandfather use to say, love for nature should be nurtured at home, so I teach my own kids the importance of our Mei Ramew (Mother Nature). We BEEs do try constantly to help the young members of our community to understand the importance of the nature around us, enjoy it, and take care of it for future generations.

Rain Water Harvesting through Jalkunds

As discussed in the chapter on Springsheds, Meghalaya grapples with the paradox of scarcity amidst plenty particularly when it comes to water resources. During winters for example, people often face extreme shortage of water for drinking and irrigation. Thus water retention and water storage are priority areas under IBDLP's natural resource management activities.

Particularly in the last few decades, Meghalaya has started facing serious problems of pollution of surface and also ground water due to indiscriminate discharge of untreated municipal effluents. This problem comes from the fact that none of the urban areas have adequate wastewater or sewage collection and treatment infrastructure. Dumping of garbage in the rivers is also another source of pollution. Unorganized mining activities across many parts of the state have also contributed significantly to water contamination. In monsoons, the rivers and streams typically accumulate large amounts of silt. This has increased due to deforestation, sand quarrying and other types of land degradation which loosen the soil and allow it to be washed away into rivers and streams. Contamination of water bodies has also severely affected aquatic animals, whereby local aquatic species are becoming increasingly endangered. Many rivers in the Jaintia Hills areas for example, have become dead rivers.

It is to tackle all these growing water resource problems that the Government of Meghalaya has begun focusing significantly on initiatives in the water sector, with key activities including creating structures for water storage and rainwater harvesting throughout the state. Under IBDLP, the state government has taken up programmes on Jalkunds, Multi-purpose Reservoirs and Roof Top Water Rain Water. Of these, the following section provides a snapshot of Jalkunds and how their presence is impacting rural communities in Meghalaya.

Jalkunds

Jalkunds are small water harvesting structures that act as a supplementary source of irrigation water during the dry seasons and on hill slopes where perennial water sources are not available. Communities engaging in Jhum cultivation areas are especially targeted with Jalkunds to facilitate their conversion to settled cultivation practices.

Jalkund have been particularly helpful for very small and marginal farmers in the interior parts of the state, because they may not be eligible for most other irrigation support schemes.

Two types of Jalkunds are constructed, depending upon a given context:

1. Impounding Structures

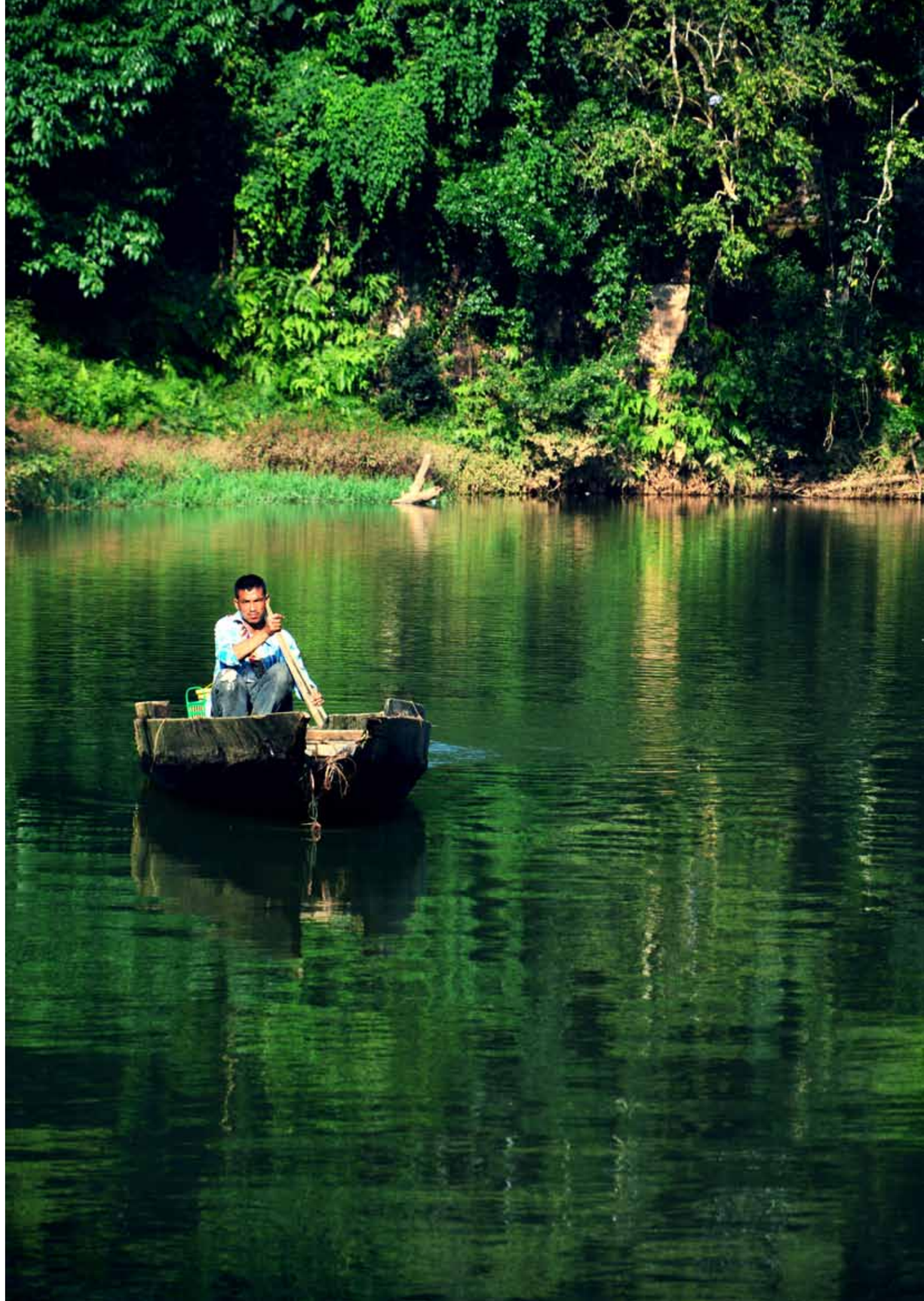
This is suitable in locations where the topography allows for the surface runoff or natural drainage patterns to be blocked by an impounding structure. The water collected can then be conveyed to the required locations through canals or pipes.

2. Dugout Ponds

These structures are primarily meant for rainwater harvesting on hill top areas. , They can be very helpful in facilitating conversion of jhum cultivation to settled cultivation by providing a convenient single water source.

The following photos are of a Jalkund at Laitnongkseh Village in Mawphlang Block of East Khasi Hills District. The Jalkund belongs to Mrs. Trabelin Nongbri. The project was implemented in the financial year 2013-14 by Water Resources Department and funded by Meghalaya Water Development Agency. Mrs. Trabelin Nongbri has greatly benefited from the jalkund as it has provided her water security. With the available jalkund water she has been able to reap good agricultural harvest even during the lean months.

Notes



Published by

Meghalaya Basin
Development Authority

Prepared By

SFAC
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