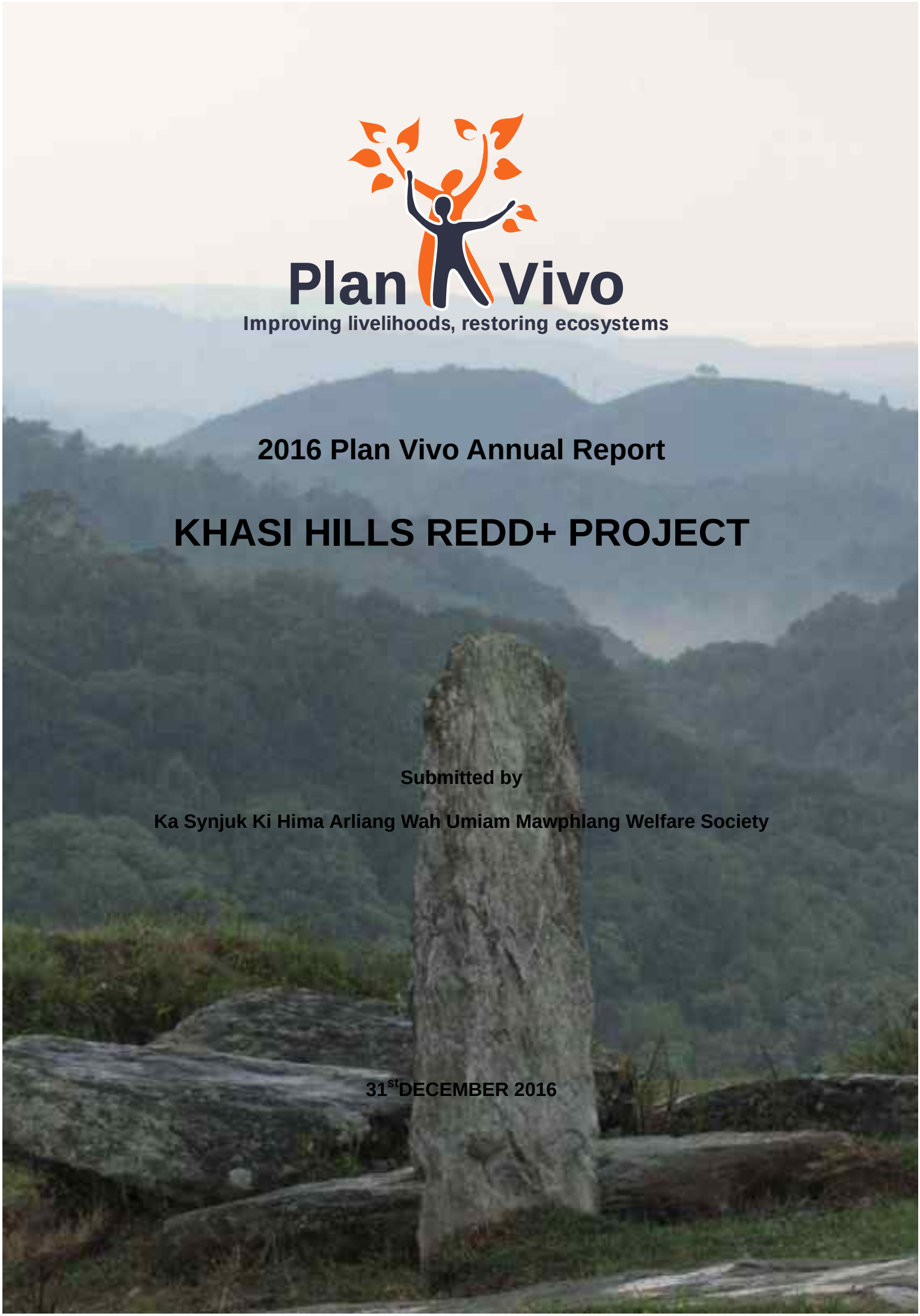

Improving livelihoods, restoring ecosystems

2016 Plan Vivo Annual Report

KHASI HILLS REDD+ PROJECT

Submitted by

Ka Synjuk Ki Hima Arliang Wah Umiam Mawphlang Welfare Society

31st DECEMBER 2016

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Title of Project: Khasi Hills Community REDD+ Project
Annual report year 2016
Summary Table

Project overview	
Reporting period	1st of January – 31st of December 2016
Geographical areas	East Khasi Hills, India
Technical specifications in use	REDD+ and ANR

Project indicators	Historical (2012 - 2015)	Added/ Issued this period (2016)	Total
No. smallholder households with PES agreements	0	0	0
No. community groups with PES agreements (where applicable)	62	0	62
Approximate number of households (or individuals) in these community groups	4,357 (ca. 25,270 individuals)	0	4,357 (ca. 25,270 individuals)
Area under management (ha) where PES agreements are in place	9,270 ha REDD 1,000 ha ANR	500 ha ANR	9,270 ha REDD 1,500 ha ANR
Total PES payments made to participants (USD)	$34,473	$24,148	$58,621
Investment in forest conservation and management	$43,716	$13,501	$57,217
Total sum held in trust for future PES payments (as of 31st of August 2017)			$85,989.95
Allocation to Plan Vivo buffer (tCO_2)	17,101	27,552[1]	44,653
Saleable emissions reductions achieved (tCO_2)	68,408	110,205[2]	178,613
Unsold Stock at time of Submission (PVC)			
Total Unsold Stock (PVC)			
2012			5,023
2014			2,839
2016 (as of this report)			50,000
Plan Vivo Certificates (PVCs) issued to date			**68,404**
Plan Vivo Certificates requested for issuance (2016 Vintage)			**50,000**
Plan Vivo Certificates available for future issuance (REDD only)			**60,205**
Total PVCs issued (including this report)			**118,404**

[1/2] Tech Spec update and remote sensing analysis in 2017 has provided evidence that the project has

Part A: Project updates

The Khasi Hills Community REDD+ Project began its first five-year verification at the end of 2016. BioClimate was contracted to revise the project's Technical Specification and Rainforest Alliance was engaged to perform the 3rd party verification. Analysis of forest cover change performed by the Meghalaya State GIS and Climate Change Centre confirmed that forest fires have been sharply reduced in the project area and that dense forest loss has slowed while substantial tracts of scrub and degraded open forests are regenerating (for further information, please read Annex 1).

VERIFICATION SCOPE

"Rainforest Alliance has verified that the Khasi Hills REDD+ Project is in conformance with the Plan Vivo Standard 2013 Edition**. The project is located in Meghalaya, India. The objective of this independent third-party verification audit is to verify the implementation of the validated REDD and assisted natural regeneration GHG project of 27,139 hectares on indigenous-owned land. For the 1 January 2012 through 31 December 2016 monitoring period the verification assessment covered, the project has calculated, and the audit team has verified, a total ex-post net carbon benefit of 223,263 tCO2e (REDD: 212,814 tCO2e; Assisted Natural Regeneration: 10,450 tCO2e), which totals 178,610 tCO2e after deducting the 20% risk buffer. The audit team reviewed the validated carbon calculations in detail and has verified the appropriateness of the chosen equations and assumptions. Based on observations, the Terms of Reference for Project Verification (v.12/2013) and more than 30 interviews during the field audit, it is accurate to state that the ecosystem services provided by the project are indeed still additional. To date, there are no government or private projects similar in scope or scale in the region. As a result, the project was verified to be on track to achieving the ex-ante estimated net carbon benefit over the project's 30-year lifetime. The GHG emission reductions and/or removals achieved during the monitoring period were evaluated to a reasonable level of assurance.**

Verification Registration Code: RA-VER-PV-021909 **| Effective Date:** 19 June 2017
The validity of this statement is contingent upon the project's continued implementation of the Plan Vivo Standard 2013 Edition and as further defined in the Rainforest Alliance Verification Audit Report dated 19 June 2017.

Laura Terrall, Director, Certification
Rainforest Alliance
233 Broadway, 28th Floor
New York, NY 10279 USA"

Moreover, the project has recently updated its technical specifications (January 2017). This is an update of Version 2, August 2015. The following changes have been made:

Revised estimates of carbon stocks in dense and open forest, and updated tables to reflect changes to estimated of emissions reductions, as a result of:

- Adding below-ground woody biomass as an accounted carbon pool

- Updating volume equations used to estimate individual tree biomass, to use species specific equations when available
- Applying a more conservative interpretation of mean biomass values by adopting the lower 90% confidence interval

Revised the baseline scenario, by correcting an error in interpretation of satellite analysis. The revised values make use of the same analysis used for the initial Version of the Technical Specification (see Annex 1).

Revised effectiveness of project activities using an analysis of deforestation and degradation observed in an analysis of satellite images from 2010 and 2016. The effectiveness values are applied for the period 2017 to 2021 to give a more conservative estimate of project effectiveness in this period.

Revised estimated uptake from Assisted Natural Regeneration in 2017 to 2021 to reflect the annual area that will be planted in this period.

The Project Design Document was also updated to reflect the changes in carbon accounting updated in the Technical Specification, and also to improve the annual monitoring indicators for tracking project impacts on forest ecological, socio-economic, and biodiversity conditions.

A1 Key events

1) Community Action to control forest fires (2012-2017) has been extremely effective. The 62 villages maintain over 60 km of fire lines each year and have reduced the impact of forest fires dramatically (see Annex 1). The reduction in burn area is recorded by the 60 odd youth volunteers and is also visible in the MODIS satellite imagery that monitors global fire events. Reduced forest fire is allowing vast tracks of degraded forest to regenerate and move from barren-scrub category to young secondary forest. Reduced forest fires are also lowering carbon emissions, allowing for recovery of biodiversity, and improved hydrological function of streams and springs.

2) Household Nursery Program is supporting families to establish seedling nurseries with local species. Dozens of household nurseries are scattered across the project area producing saplings for the regeneration of open and degraded forests with valuable indigenous species. The nursery program also provides income to poverty line families.

3) The payments from carbon sales also support the community grant program, which provides each of the 62 villages with a grant of $250 for a development project, which the community council chooses. The grant should provide maximum benefit to all members of the village. Approximately 80% of the villages choose to improve their drinking water supply, often by building a concrete enclosure around springs and water sources to protect it from pollution and contamination (For more information, please read Annex 4).

4) The project is actively distributing piglets to women self-help (micro-finance) groups throughout the project area. This strategy is designed to build capital assets among poverty line families. In 2017, the project seeks to establish women-run pig breeding program to increase the impact of this strategy.

5) Community Watershed Management Resource Center - A new facility has been constructed to provide training and demonstration in watershed management and income generation strategies. The center has meeting rooms, guest accommodations, pig and poultry raising demonstration pens, and other facilities. It is located in Mawphlang Village.

6) Wah Lyngien Forest Regeneration (2009-2016) - Dramatic regeneration of the once degraded forest in Wah Lyngien accomplished through village protection and restoration work, plus fire control. The forest is now dense and up to 8 to 10 meters in height, while originally scrubs of 1 m or less. The village is considering designating it a sacred forest and a permanent conservation area (More information in can be found in Annex 1).

7) Verification (2011-2016) - In 2016, the Khasi Hills Community REDD+ Project completed its fifth year of operation. Both the avoided deforestation and assisted natural regeneration strategies continue to be implemented through the efforts of the project team and the collaboration of the 62 participating villages. **The project team worked with colleagues from BioClimate, the Meghalaya State Climate Change Center, and Rainforest Alliance to conduct a five-year verification, which included analysis of satellite imagery to assess forest cover change resulting from the project. This third party verification is required by Plan Vivo to ensure that the project is performing according to plan. The resulting analysis found that additional carbon resulting from project activities increased 38% over original estimates reflecting the successful implementation of community-based mitigation activities**

8) Energy Transition Program **-** The Federation is actively engaged with participating communities in order to facilitate a transition to lower carbon emission technology for cooking and heating. In this regard 54 LPG cooktops and cylinders were distributed to community members in Mawphlang and at Dympep, and Hima Sohra. Most of the beneficiaries are dependent on forest, below the poverty line and were members of SHGs, **Farmer's Clubs or LWCs.** The project also distributed 294 fuel-efficient stoves in 2015 and an additional 29 stoves in 2016. In order to reduce fuel wood consumption in 2016, 299 electric rice cookers were provided to project families.

A2 Successes and challenges

Successes:

Successful verification by Rainforest Alliance

Successful socio-economic baseline survey using Akvo mobile tool showing positive changes in the following indicators versus the 2012 baseline survey conducted by Bethany Society (see Part E)

- Reduced incidence of forest fires during the 2012-2016 period (Annex 1)

- Increased awareness on REDD+ among community members
- Increased women participation

Successful survey of charcoal monitoring (Annex 2)

Enhanced financial management system established

Exploratory survey of REDD+ and ANR potential in neighbouring **Ri Bhoi and West** Khasi Hills District

Informed the Prime Minister of India and Chief Justice of the Indian Supreme Court on the value of community-based forest carbon projects.

Challenges and Responses:

Staff turnover: Due to the office location in Mawphlang village, travel from the state capitol in Shillong where many staff resides creates problems. The Synjuk is trying to hire and train young village residents to fill these positions.

Nursery activities: The members managing nurseries are not able to get the desired mix of species in their nursery. They are heavily dependent on Synjuk to buy from them. The quality of saplings is not always in good condition. In response the Synjuk is focusing on members who utilize "best practices" and by providing additional training.

FCRA hindrances: There have been many legal changes that Inpian NGO's have to adhere to in order to receive foreign funds. This makes it difficult to access funds timely and it impacts the project activities and admin work directly. The Synjuk has formed a partnership with the Rilum Foundation, which has FCRA clearance to receive foreign funds for the project. The project is also exploring relationships with Indian corporations that can purchase offsets and pay in Rupees. The Synjuk has hired a financial management specialist to design and train staff in the "best practices" for NGO accounting and has hired a new bookkeeper.

A3 Project developments

The droject is drogressing very well on the ground and many positsve changes can be observed like decreasing forest fires in the project area in comparison to the area outside the project, an increase in awareness level of communities regarding the REDD + project and benefits, the increasing governance mechanisms adopted by individual Himas for increasing forest conservation and many more. The Synjuk has been meeting regularly to resolve any issues that have come up that may be of hindrance in the regular functioning of the project. Based on recommendations from the verification conducted by Rainforest Alliance, the Synjuk had instituted a procedure for dispute resolution among members. This has been a very positive for all.

The FCRA issues that constrain the Synjuk receipt of foreign funds remains a matter of concern and the Synjuk is actively exploring how to better access the emerging carbon market in India. Contractual discussions are currently underway with the Bangalore-based company VNV acts as a brokerage to Indian corporations that seek to comply with the national social and environmental tax. In addition, the Synjuk is exploring other institutional avenues that will allow it to obtain FCRA approval to receive foreign funds. Alternative legal

entities can be established to ensure the smooth functioning of the Synjuk as it continues to enhance the lives of tribal communities through forest restoration and conservation.

Table 1: Document updates

PDD (including technical specifications) document version:		
PDD section	Date change	Short description of update
Migration of PDD to 2013 version of the Standard	04/2017	As the project now adheres to the latest version of the Plan Vivo Standard, the PDD was updated accordingly and now matches the PDD template used for projects certified under the 2013 Standard.
Part K: Monitoring	04/2017	Updated annual monitoring indicators with achievement thresholds
Part F: Ecosystems Services- Carbon benefits	04/17	Updated projections on carbon benefits based on revision of Technical Specifications
Technical Specifications		
Section 6: Carbon Pools	04/17	Below-ground biomass included in carbon pool
Section 7: Baseline Scenario	04/17	Revised baseline scenario to correct minor area in satellite image interpretation Updated volume equations used to estimate tree biomass
Section 8: Project Scenario	04/17	Revised effectiveness of project activities based on analysis of 2010 and 2016 SPOT satellite images. Revised estimated uptake from assisted natural regeneration 2017 to 2021 to reflect area under advanced closure and silvicultural treatment.

The modified Project Design Document and Technical Specifications were submitted to Plan Vivo in February 2017 and have been reviewed and approved by the Technical Advisory

Committee and Plan Vivo staff in March 2017.

A4 Future Developments

As explained above, the Synjuk is keen to partner with Indian entities that can support their initiatives in the field. The Synjuk's efforts are directed towards not only buyers of carbon credits in the international market but also top national buyers. There is a big space currently in India with the passing of the Corporate Social Responsibility Bill (CSR bill), which mandates a certain category of companies to invest a portion of their revenue into CSR activities.

An e**xpansion of the project area is under discussion as well. The himas in the West Khasi Hill**s have been reaching out to the Synjuk and the hima heads have been part of many discussions. This will, however, require to an assessment of the current situation in **the West** Khasi Hills, the interest of local communities in participating, and the additional values the project could bring. It will also be subject to resource availability and staff capacity.

Closer cooperation with government agencies and their programs for tribal communities are also being explored. This is a good way of converging the Synjuk's activities with government run programs. Last year the Synjuk had some collaboration with the government programs. They are now looking to upscale such activities.

Part B: Project activities

Under the Sixth Schedule of the Constitution of India, the forests in the project area are ownep by the indigenous communities and clans, so it is critically important that their institutions and management capacities be strengthened to ensure sustainable man gement. Internal and external rent seekers, who, in many areas of Northeast India, are felling community forests, leasing lands for mining and industrial development, threaten indigenous institutions.

The droject strategy strengthens the social fabric of traditional community institutions and leadership to guide forests use behaviour, empowering forest villages with information, technical support and financial assistance. In areas outside the project, indigenous community institutions are being undermined in their ability to control forest use on community lands. As a consequence, a primary activity of the project is to build the leadership and social institutional capacities of forest communities to unsure their sustainable management. Financial and technical support strategies complement this people-oriented approach to REDD+.

B1 Project activities generating Plan Vivo Certificates

Table 2: Project activity summary

Name of technical specification	Area (Ha)	No smallholder households	No Community Groups
Apvance Closure for ANR	1,245	3,290	47
REDD+	9,270	4,357	62

The activities that generate Plan Vivo certificates **are all** designed to mitigate important drivers of deforestation and degradation present in the Khasi Hills. The technical specifications include avoided deforestation in the dense forest area (REDD+) and essisted natural regeneration (ANR) in **the** open forest zones. In 2016, the Federation also expanded the Assisted Natural Regeneration on 352 hectares of degraded lands, which involves both assisted natural regeneration and enrichment planting bringing the total ANR area to 1,245 ha. Project activities and monitoring data focus on controlling key drivers of deforestation and degradation including: forest fires, unsustainable fuel wood collection, grazing, mining, anp charcoal making.

Table 3: Summary of Activities

Activities	Description	Achievements in 2016
Community-based Fire Control	The Khasis have struggled with forest fires for centuries and have developed a traditional method to control them (Sainding) through the clearing of fire lines. These breaks in the forests are cleared by	66.5 kilometers

	cutting away all vegetation and materials to provide space to stod the fire when they breakout. Traditionally, village leaders mobilize groups of community members at the beginning of each dry season (December-January) to create the fire lines. Unfortunately, in recent decades the practice of Sainding fell into disuse. Now it is being revitalized under the Khasi Hills Community REDD+ Project.	
Reducing Fuel-wood Consumption	After testing a variety of fuel-efficient stoves, the Federation began promoting a model that can be constructed on site with locally available cement, rebar, and metal pipe. The stoves cost approximately US$20 to build by local youth trained by the Federation. The adoption of fuel-efficient stoves results in a reduction in household fuel wood consumption of 30% to 50%. It is estimate that the average household using fuel-efficient stoves is lowering their consumption of fuel wood by 1 to 2 mt per annum.	The Synjuk have pistributed 121 LPG units, 299 electric rice cookers and 100 smokeless chullas.
Closing Forest Areas to Grazing and Fuel wood Collection	The droject area has 5,280 hectares of degraded, open forest lands with less than 10% canopy closure. The Federation is accomplishing this sequentially, by working with neighboring communities to identify and close selected, high regeneration dotential, forests through "social fencing" involving fire control, informal patrolling, monitorsng, anp carrying out thinning and enrichment planting. The initial establishment of the reforestation blocks is in open areas with a minimum tree density of 350 trees/ha and a maximum of 600 trees/ha. Trees within plots were tagged for monitoring while the rest were planted accordingly and monitoring will be done on the month of October-November, each year.	500 ha
Transforming the charcoal cottage industry	Some low-income households are engaged in entering community forest areas, felling shrubs and trees to feed small charcoal pits. The resulting charcoal is carried to road heads and sold to middlemen. This method of charcoal making degrades the dense community forest areas and can result in forest fire. The project seeks to help poor households to transition from forest-based charcoal making through the prevision of charcoal briquette making machines that can utilize agricultural wastes. This strategy can reduce forest	Survey attached Annex 5

	loss and raise incomes. In 2016, a survey of villages pedenpent on charcoal dropuction was conpuctep to identify high priority areas for alternative income generating activities.	
Controlling quarrying and mining	The Synjuk leaders have agreed to limit the expansion of quarries and mines in the project area. Those areas under current lease are being monitored and the lease holders are being advised regarding mitigate actions to reduce their impact on erosion **and water contamination. When leases** expire, the hima have agreed to not extend existing leases wherever possible. In 2016, there were no further quarries or **mi**ning leases in the project area. The closure of small quarries and mines by the state government has resulted in the disdlacement of several hundred village members engaged in this sector. Some of them have shifted to charcoal production in project area forests. The Synjuk is working with those families to find alternative livelihood activities.	No mining leases renewed
Community Nursery Program	The Synjuk has organized, trained and funded 77 community tree nurseries, many managed by Self Help Groups. The nursery program achieves multiple goals in raising awareness about forest conservation, providing materials for enrichment planting in forest restoration areas and woodlots, and generates income for participating families. The home-based nurseries are monitored very closely by the CFs and Youth Volunteers. Endemic tree species are grown to be used for various forest related activities. The annual monitoring is done during the month of September - October with the help of the Technical Team. WeForest provided suddort for the community tree nurseries.	77 nurseries supported and maintained
Community REDD+ Project Awareness Building on Forest Conservation	Project staff organizep 10 meetings across the 18 micro-watersheds to meet with community members and leaders and extend information on the REDD project in 2016. Attention was also give to identifying areas for forest restoration (ANR), dlanning fire line establishment, and understanding community resource problems and priorities.	10 meetings
Community Development Grants.	The Synjuk continued its program of Community Development Grant making in 2016 raising the annual allocation per village to $250	62 villages

Trainings and Capocity-Building	The Socio-Economic Support team had successfully conpucted various trainings in Tyrsad, Laitkroh, Synrangsohnoh and Mawphlang. Training on bookkeeping, maintenance of records and village registers to **LWC members, federation members** and SHG, the purpose of this training is to teach the members to maintain a record of the workings and accounts **of the LWC for transparency and** accountability. **W**hile droject staff and financial resources remain limited, throughout 2016 efforts have been made to build the capacity of the 60 functioning Self Help Groups operating in the project area. These include visits with the groups, training programs in bookkeeping and financial management, as well as small grant program, which support the establishment of piggeries and other small livelihood projects. In 2017, the Synjuk plans to initiate a pig-breeding program implemented by cluster groups of SHG.	1005 indivtduals direct beneficiaries of training programmes.

Under the project, each micro-**watershed groups (LWC) is responsible for preparing and** maintaining fire lines to control forest fires in their areas. Village-level community facilitators were engaged by the Federation is responsible for coordinating community efforts to control forest fires when they breakout. During 2015, 27.3 kilometers of fire lines were dredared to limit the extent of annual forest burns, an increase from the 17.6 kilometers of fire lines that were prepared in 2014. In 2016, fire lines increased to 66.5 kilometers. Nonetheless, forest fires continue to occur due to causes beyond the community, such as lightning strikes, malfunction of electrical transformers and the disposal of cigarettes by travelers passing through the project area. Remote areas with low populations have the most difficulty controlling fire.

When fires do occur, community response capacity has been improving each year with the re-vitalization of the Khasi tradition **o**f community clearing fire lines (sainding). Community members watch for fire outbreaks, which allow fires to be extinguished more quickly, before they transform into large burns. During the 2015 dry season (January to May), virtually no forest was damaged due to fire. Prior to the initiation of the project, several hundred hectares would have burned each year. A detailed analysis of the last 5 years is included in Annex 1.

Project households **are heavily dependent on fuel wood collection, while wealthier** families purchase fuel wood for heating and cooking. Very few households have shifted to liquefied petroleum gas (LPG) or kerosene due to cost and distribution problems. Families typically use 8-10 kgs per day with heavier use during the cold winter months. In areas like the Khasi Hills,

where fuel woop consumption has outstrippep forest growth, the process of forest pegradation accelerates as demands increase from an expanding population. Cutting of green wood has resulted in biomass loss and undermined natural growth of forests and has been a major driver of forest degradation. In response, the Federation has instituted a range of activities to address the problem: subsidizing fuel-efficient stoves and reducing the cooking of pig fodder.

After testing a variety of fuel-efficient stoves, the Federation began promoting a model that can be constructed on site with locally available cement, rebar, and metal pipe. The stoves cost approximately US$20 to build by local youth trained by the Federation. In the past the Federation has paid for all costs related to the stoves, though they may ask the homeowner to pay Rs. 200, or approximately 10% of the costs as a contribution for the material. In 2016, the Federation installed 100 stoves.

An estimated 80% of Khasi households raise pigs to generate household income. The project encourages pig raising as an alternative livelihood strategy compared to low-value cows and goats that suppress regeneration due to forest grazing. The project has encouraged these livelihood activities providing grants to women micro-fina ce groups (Self-help groups) to catalyze investments in animal husbandry. The project founp that many women felt it necessary to cook the pig fodder, an unnecessary task that substantially contributed to increased fuel wood consumption in the project area. An awareness campaign was launched to discourage the practice of cooking pig fodder, which is changing behavior with a 50% reduction in households cooking pig fodder and a similar decline in wood use for this purpose.

The project area has 5,280 hectares of degraded, open forest lands with less than 10% canopy closure. While some open forest is highly eroded and devoid of significant biomass, there are also large tracts of land with tree seedlings and saplings, shrubs, and grasses that are not growing into dense forests due to use pressures. Given high rainfall levels prevalent in the Khasi Hills, these disturbed forest ecosystems can experience rapid regeneration if forest fires, tree and shrub hacking for fuel wood, and grazing pressures are removed. The Federation is accomplishing this sequentially, by working with neighboring communities to identify and close selected, high regeneration potential, forests through "social fencing" involving fire control, informal patrolling, monitoring, and carrying out thinning, culturing, and enrichment planting. The project closed 16 plots totaling 500.45 hectares in 2014, with an additional 500.15 hectares in 24 plots in 2015, and 352 hectares more in 2016. The initial establishment of the reforestation blocks is in open areas with a minimum tree density of 350 trees/ha and a maximum of 600 trees/ha. Trees within plots were tagged for monitoring while the rest were planted accordingly and monitoring will be done on the month of October-November, each year. The blocks will be closed to use for ten years after inclusion in the forest restoration program. After which it may be reopened under a sustainable use management plan. The project seeks to restore 5000 hectares of degraded forests by 2025.

While extensive empirical data on changes in deforestation levels in the project area is not yet available, activity indicators suggest that the community REDD project has made drogress in controlling major drivers of deforestation. Dense forest areas appear better

protected from encroachment and damage, while open forest show early signs of regeneration. While forest plot inventory data is based on a relatively small sample size, over the dast four years all categories show increases in carbon stocks. Given the ambitious size and scode of this community conservation initiative and the constraints it faces, which are described below, it will take time for environmental and socio-economic impacts of the project to be broadly experienced.

Table 4: Area Protected for Natural Regeneration and Enrichment Planting 2014-2016

Hima	ANR Area added in 2014 (ha)	ANR Area added in 2015 (ha)	ANR Area added in 2016 (ha)	Total Protected ANR Area (ha)
Mawphlang	23.73	86	22	131.73
Laitkroh	6.8	41	30	77.8
Nonglwai	8.07	Nil	Nil	8.07
Lyngiong	11.49	271	68	350.49
Mylliem	94.68	12	20	126.68
Pamsanngut	118.34	21	116	255.34
Nongkhlaw	Nil	20	39	59
Nongspung	9.09	4	Nil	13.04
Sohra	128.4	16	50	194.4
Mawbeh	99.90	30	7	136.9
Total	500.50	501	352 ha + 148 ha early closure	1,353.5 ha + 148 ha early closure

B2 Project activities in addition to those generating Plan Vivo Certificates

Increased Staff Capacity - Synjuk capacity to mobilize community forest protection and restoration increased in 2016 as the young project staff gained field experience. In 2016, the Synjuk increased staff recruitment efforts from project villages to build local capacity anp retain staff longer. Project awareness is increasing among participating communities and forest projection is improving as witnessed by increasing biomass levels from all forest inventory plots. While forest fire remains a problem, community action to address this driver of deforestation is evident in the construction of 66 km of fire lines up from 27 in 2015.

SHG Knowledge Sharing Platform - The objective of both these programs was mainly to bring together all the SHGs promoted/adopted by the Synjuk and to learn about their works

and progress, the challenges met and to suggest ways and means to tackle the problems. Key points covered the SHG Festival:

Bank loan procedures
Options in income generating activities from farming to production to value addition
Accountability and transparency
Independent pursuit of goals without expectation of help
Global warming as it relates to pollution, water and the environment, and methods in forest restoration
How to establish, and profit, from a community nursery
Sharing experiences between groups promoted solidarity.

Tree Adoption programme - Tree adoption programme were held atr Dymded Lower primary/Upper Primary School, Seventh Day Adventist School, Tyrsad Lower Primary School, Mawbeh Presbyterian Upper Primary School, Mawphlang Secondary School, Tyrsad Higher Secondary School, St John Vainney School and JNV School Mawphlang. The Students were given awareness about the need to conserve the forests and their contribution towards the environment.

Medicinal plants - In 2016, the Synjuk continued to support activities for medicinal plant conservation have started and identrification of sites for in-situ conservation of mepicinal plants was completed in some of the Hima. The 5 units of nurseries that were constructed at 3 Himas involving 5 herbal practitioners in 2015 continue to operate. The individual CF's drepared a list of medicinal dlants located at vhe sites. The CF's are still locating sites for mepicinal dlants conservation. A regional conference of traditional healers was planned for early 2017.

Part C: Plan Vivo Certificate issuance submission

C1 Contractual statement

This issuance is based on the signed PES agreements that the Federation (Synjuk) has established with 62 participating villages in the project area.

According to the findings of the 2016 verification study and SPOT analysis (2010-2016) the project has demonstrated that it has slowed deforestation in the project area when compared to rates from the earlier period (2006-2010).

Table 5: Project Impacts that Generate ERs.

Forest degradation and deforestation from 2010 to 2016	Relative to Baseline Project Activities had the following impact in reducing loss rates by:
LAND USE CHANGE (2010 TO 2016)	
Dense to non-forest	20.2%
Dense to open	35.0%
Open forest change to non forest	28.5%

Table 6: Statement of tCO2 reductions available for issuance as Plan Vivo Certificates based on activity for reporting period 1/16 – 12/16

Vintage	Total area (ha)	Tech. Spec	Total tCO_2 achieved this period	% Buffer	No. of PVCs allocated to the buffer account	Net Total minus Buffer (tCO2)	No. PVCs requested for issuance from saleable carbon	tCO_2 available for future issuances
2016	9,270 ha 5,947 ha	REDD+ &ANR	53,103	20%	10,621	42,482		
Adjustment due to tech spec update	9,270 ha 5,947 ha	REDD+ & ANR	84,654	20%	16,931	67,723	50,000	60,205
TOTAL			137,757		**27,552**	110,205	50,000	60,205

C3 Allocation of issuance request

Table 7: Allocation of issuance request

Buyer name/ Unsold Stock	No. PVCs transacted	Registry ID (if available) or Project ID if destined for Unsold Stock	Tech sdec(s) associatep with issuance
Khasi Hills Community REDD+ Project	50,000	10300000000432	REDD+/AR
TOTAL	50,000		

C4 Data to support issuance request

Please refer to Annex 1.

Part D: Sales of Plan Vivo Certificates

D1: Sales of Plan Vivo Certificates

Table 8: Sales of Plan Vivo Certificates

Vintage	Buyer	No of PVCs	Price per PVC	Total $	Price to participans per PVC	% sale price received by participants
2012	Zeromission	2,463				100%
2012	C-Level	200				100%
2012	Bioclimate	1306				100%
2012	Ceramica Santogostino	1225				100%
2012	Zeromission	501				100%
2012	Zeromission	4,474				100%
2012	COTAP	283				100%
2012	Ceramica Santogostino	360				100%
2012	C-Level	200				100%
2012	COTAP	674				100%
2012	Ceramica Santogostino	360				100%
2012	C-Level	500				100%
2012	Zeromission	251				100%
2014	COTAP	269				100%
2014	Zeromission	15,000				100%
2014	WeForest	2132				100%
2014	Zeromission	6,500				100%
2014	Ceramica Santogostino	350				100%
2014	COTAP	660				100%
2015	WeForest	2,102				100%
2015	WeForest	2,075				100%
2015	Associazione di Promozione Sociale	20				100%
2015	Zeromission	8,099				100%
2015	Zeromission	9,727				100%
2015	C-Level	850				100%
	TOTAL	60,542				

Part E: Monitoring results

E1: Ecosystem services monitoring

The droject monitors the impact of activities, which directly benefit forest ecology. The key indicators fall into two categories: 1) Forest conservation linked to REDD+, and 2) forest growth linked to ANR. Forest fire control is crit,cal to both strategies as fires destroy older growth and dense forests, while restricting regeneration in open forests.

The KHCRP has worked effectively with village councils encouraging them to construct fire lines, mobilize members to combat fires if they break out, and setting rules and fines for those who allow fires to escape. The results have been dramatic. The Khasi communities have a tradition of creating fire lines (sainding), though this practice had largely ceased in the project area. The KHCRP is reviving this practice. Communities began to establish small fire breaks during the 2012 fire season. Between 2010 and 2014, the communities constructed or maintained 11 km of fire line each year while this increased to 47 km per year during the 2015 and 2016 dry seasons. During the same periods forest fires burned 86 ha. per year in the earlier period declining to 9 ha per year reflecting the impact of fire control and awareness raising (see Annex 2).
The project also monitors growth in 60 forest inventory plots to document that forest protection and restoration activities are ensuring biomass increases and carbon sequestration.

Table 9: Ecosystem Services Monitoring

Activity	Activity Indicator (measure annually)	Annual Targets			Result and mitigating actions 2016
		Full Target Achievement	Partial Target Achievement	Missed Target	
Fire Control	Number of Hectares Burned during Dry Season by Hima	< 50 ha	51-100	> 100 ha	**13.5 ha**
	Length of fire lines constructed by Hima	> 60 km	40-59 km	< 40 km	**66.5 km**
Forest Restoration	Number of Hectares with ANR Advance Closure Treatment	> 200 ha	100-200 ha	< 100 ha	**500 ha**
	Number of hectares with ANR Silvicultural Treatment	> 50 ha	25-49 ha	< 25 ha	**50 ha**

E2: **Maintaining** commitments

No darticidants have withdrawn from the droject in 2016.

E3: Socioeconomic monitoring

A new baseline survey was carried out in 2016 using Akvo, a mobile tool. The results can be found in the table below, which includes targets for impact indicators in 2021. More information on disbursement of community development grants and training records can be found in Annex 4 ad 5.

Table 10: Socioeconomic Monitoring

Five Year Impact Survey Results Against Targets: Khasi Hills Community REDD+ Project Indicators				
Type of Indicators	Survey Result		Five year target -2016 & 2021	
	2011	2016	2016	2021
SHG Member in the family	**29%**	**NA**	**Increase to 35%**	**50%**
Money invested in Bank	**48%**	**85%**	**Increase to 60%**	**95%**
HH with Improved cook stove	**14%**	**19%**	**Increase to 25%**	**50%**
HH producing charcoal	**15%**	**5%**	**Decrease to 10%**	**5%**
Forest fire in the past year	**74%**	**29%**	**Decrease to 50%**	**10%**
Fuel wood collection rules in CF	**30%**	**89%**	**Increase to 50%**	**75%**
Hunting rules in CF	**69%**	**98%**	**Increase to 90%**	**100%**
Knowledge of the Federation	**10%**	**75%**	**Increase to 50%**	**95%**
Attends CF Meetings	**31%**	**72%**	**Increase to 50%**	**75%**
Worked on CF activity	**4%**	**12%**	**Increase to 15%**	**25%**
Believes CF is regenerating	**26%**	**65%**	**Increase to 50%**	**75%**
Do you have problems accessing drinking water	**NA**	**59%**	**Decrease to 60%**	**25%**
Resource Conflict in Village in past year	**13%**	**10%**	**Decrease to 10%**	**5%**
Quarrying in your village?	**25%**	**17%**	**Decrease to 20%**	**15%**

E4: Environmental and biodiversity monitoring

Please see Annex 4 for further details.

Moreover, indicators and targets for a revised monitoring framework were devised in 2017. Some targets mentioned below have been missed as the monitoring framework was revised after the end of the monitoring period for this annual report. The project will report against these targets going forwards.

Table 11: **Environmental Monitoring**

Activity	Activity Indicator (measure annually)	Annual Targets			Results (thresholds set in 2017)[3]
		Full Target Achievement	Partial Target Achievement	Missed Target	
Fuel wood saving devices	No. of fuel efficient stoves installed	> 250 stoves	150-249 stoves	< 150 stoves	**100 smokeless Chulas**
	Number of LPG Units Installed	> 200 units	100-199 units	<100 units	**54 LPG units 299 electric rice cookers**
Biodiversity	Number of biodiversity surveys conducted by CF and youth volunteers	> 2 surveys	1 survey	0 surveys	**5 surveys**
Quarrying	Number of reports and lobby advocacy meetings reports held	4 reports/lobbying meetings	2-3 reports/lobbying meetings	1 or less reports/lobbying meetings	**3 meetings**

[3] Targets of new monitoring framework set in 2017 after enp of 2016 reporting period

Part F: Impacts

F1: Evidence of outcomes

The project has demonstrated a variety of impacts that are directly or indirectly linked to project activities. Information and other evidence that document these outcomes are included in Annex 4 and 5. The use of community development grant funds by participating villages to improve water resources, preferred by 71% of the 62 communities demonstrates that the project is having an impact on health conditions and the quality of life of the participants. Project impact is also evident in changes of socio-economic indicators over a five-year (2011-2016) period (see Part E2).

Part G: Payments for Ecosystem Services

G1: Summary of PES by year

The primary mode of PES distribution is through the annual Community Development Grant Program. Distributions through this mechanism are summarized in the table below:

Table 8: Summary of payments made and held in trust (Reporting period 01/2016 – **12.2016)**

1. Reporting year (1/2016 – (12/2016)	2. Total previous payments (previous reporting periods)	3. Total on-going payments (in this reporting period)	4. Total payments made (2+3)	5. Total payments held in trust	6. Total payments withheld
Community Development Grants	$19,505	$18,102	$37,607	$19,200	0
TOTAL	$19,505	$18,102	$37,607	$19,200	0

All payments to communities through the CDG program have been paid at the end of the reporting period.

Part H: On-going participation

H1: Recruitment

There has been no new recruitment of communities in 2016.

H2: Project Potential

The project leaders are meeting with village leaders in neighbouring West Khasi Hills and Riqhoi District to assess potential interest in expanding the project into their areas.

H3: Community participation

The project strategy is based on the intensive participation of the communities. In 2016, meetings and field activities were taking place daily throughout the droject area. Annex 6 includes altable that documents a sample of the many and diverse modes of community participation occurring in 2016. Annex 6 concludes with the minutes of the project's Technical Advisory Committee meeting held in early November 2016.

Part I: Project operating costs

I1: Allocation of costs

I.1 Table-Project Expenditures 2016

Category	Amount in US $	Amount in US $	Amount in US $
	2014	2015	2016
Project Management Team	6,150	7,104	6,475
Administration	2,712	5,446	3,588
Adjustment for bank charges	10	92	3
Equidment and Supplies	544	2,053	974
Forest Conservation Extension Program *	12,200	11,024	3,286
Plot Monitoring	731	1,912	1,729
Forest Assisted Natural Regeneration *	4,050	6,770	2,000
Awareness Raising	5,042	3,634	1,287
Small Livelihood Grants *	1,658	2,155	2,759
Village Development Grants *	12,750	18,235	18,102
Total	45,847	58,425	40,203

Annexes

Annex 1. Monitoring results for issuance request

1. Forest Fire Control and Forest Condition Change

There are two types of fire in the project area, ground fires and crown fires. Ground fires burn the grasses, shrubs, and saplings suppressing regeneration and transforming open forests into degraded scrub and barren land. These fires may occur every few years ensuring that young secondary forests do not emerge. Ground fires can move into dense forest areas and climb from the understory into the canopy. As these fires gain fuel they transform into hotter, faster moving catastrophic blazes that destroy older seconpary forests, sterilize the soils of mycorrhiza, and eliminate habitat and biodiversity. Forest fire is a major driver of peforestation and forest degradation. Due to the steep terrain in the Khasi Hills, forest fires can move uphill at a rapid rate making them difficult to control, especially if high winds are present. Forest fires also emit large quantities of carbon into the atmosphere in a short period of time, thus they both release stored carbon in dense forests as well as suppressing carbon sequestration in younger regenerating forests. Compared with other drivers of peforestation and degradation forest fires rank high as leading contributors when compared with smaller contributors such as charcoal making, grazing, quarrying, and agricultural clearing which tend to be more controlled.

Fires may be started by cow herders, pedestrians, anp farmers clearing fields, charcoal makers, as well as lightning strikes and faulty electrical transformers. As a result of fire line creation, as well as awareness raising and newly imposed rules prohibiting smoking and matches in the forest, the incidence of forest fire began to fall in the project area in 2013.

Community Fire line **Maintenance Program (Sa**inding)

Community-based fire control strategies involve a number of activities supported by the Federation and implemented by village councils and members. The first activity is raising

awareness among the community that forest fires need to be reduced and controlled wherever dossible. The village durbar is asked to dass awresolution to achieve that goal and that includes establishing regulations over agricultural fires and fines if they escape, or if they are started by members of the community or outsiders. The community is then asked to prepare a fire control plan, which includes identifying areas for the establishment and maintenance of fire lines. These are typically cut at the base of forest hills to stop the burn before it moves upslope into the forest. The community is also organized to mobilize if there is a fire outbreak and quickly bring it under control. The Federation maintains a fire record with data collected by the community facilitators and the youth volunteers documenting the extent of any burn and the time and place that it occurrep. Communities that successfully control fires are provided incentives in the form of community development grants.

When modelling the potential impact of the project, it was estimated that mobilization of community fire control activities could have a rapid impact in reducing the incidence of fire and i**ts geographic impact. Within the first five years the project design team projected that** the number of fires and total area burned could be reduced by 50% through the construction of fire lines in critical areas such as the base of forested hills. Community fire line construction is combined with rapid and organized community fire control teams. The project also provipes Incentives such as community development grants for no effective fire control, while communities impose disincentives including fines for individuals who start fires or allow fires to burn larger areas.

Since fires can potentially impact any forest areas, including dense and open forests, the project team also estimated that 50% of all carbon emissions in the droject area was caused by fire. The impact of fire is in part determined by the length and severity of the dry season. According to the Baseline scenario, an average of 172,005 tCO2 would be emitted each year between 2012 and 2021 from all sources. The Project scenario reduces these emissions by 40,745 tCO2 per year. By preventing a major forest fire burn on 100 hectares of dense forest alone, an average of 34,755 tCO2 emissions are avoided. Because forest fires have such great potential to contribute to greater carbon emissions, this has become a priority of the project.

Data on Annual Burn Area

A growing body of evidence indicates that the forest fire mitigation activities are having a direct impact in reducing the annual burn area rnd facilitating forest regeneration. Table 1 shows a substantial decline in the impact of fire in the project area during 2012 to 2016, with the exception of a large burn that occurred in a remote forest in Mawbeh in 2014. Otherwise, the project has made steady drogress in drastically reducing the annual burn area resulting in both avoided deforestation and extensive regeneration of barren and degraded lands that are establishing young secondary open forests. Between 2010 and 2014, the project area experienced 86 ha per year of burned area, while after implementing the fire control program this dropped to an average of 7.3 ha per year.

Table 1: Forest Fire Incidence in the Khasi Hills Project Area 2010-2017										
Sl. no	Hima	Total Area Burned (in ha)								
		2010	2011	2012	2013	2014	2015	2016	2017	Total
1	Mawphlang	20	1.7	4	1.5	9.1	0.4	2.75	1.6	41.05
2	Nonglwai	3	Nil	Nil	Nil	Nil	Nil	Nil	Nil	3
3	Lyngiong	2.4	6.8	2.3	1.6	1.9	Nil	8.2	2.4	25.6
4	Mylliem	Nil	Nil	Nil	5	Nil	0.8	Nil	Nil	5.8
5	Pamsanngut	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
6	Laitkroh	6	7	9	Nil	1.6	4	2	Nil	29.6
7	Sohra	Nil	Nil	43	14	Nil	Nil	0.4	Nil	57
8	Mawbeh	35	75	30	40	107	Nil	Nil	Nil	287
9	Nongspung	Nil	3	Nil	Nil	Nil	Nil	Nil	Nil	3
10	Nongkhlaw	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
		66.4	93.5	88.3	62.1	119.6	5.2	13.4	4.0	452.05

MODIS Satellite Imagery Data on Fire Events

The project works with the Meghalaya State Climate Change Office and their GIS cell to monitor fire events using MODIS satellite imagery. This provides an on-going patabase of fire events. Both data from the project area (15,217 ha of forests) and the larger East Khasi Hills District (180,000 ha of forest) is collected and compared. The KHCRP has worked effectively with village councils encouraging them to construct fire lines, mobilize members to combat fires if they break out, and setting rules and fines for those who allow fires to escape. The results have been dramatic when compared with the fire pattern in East Khasi Hills District as a whole where there is no comparable fire control program. In the three years leading up to the start of the project (2010-2012) there were 13 fires observed by the MODIS satellite in the droject area versus 102 in the East Khasi Hills District. Over the next three years (2013-2016) after the project started only 3 fires were observed by MODIS in the project area versus 70 in the District as a whole. Rainfall over the district and the project area are relatively consistent throughout the District and impact fire events, otherwise, fire events are determined by human behaviour. In the District fire events decreased by 31.4% between the 2010-2012 period and the 2013-2016 period, by contrast fire events in the project area pecreased by 76.9%. The project had originally anticipated that it could mitigate 75% of the impact of forest fires through between 2012 and 2021 and appears to be achieving this goal.

Table **2: MODIS Satellite Imagery Data on Fire Events**		
Period	East Khasi Hills District (180,000 ha)	Project Area (15,217 ha)

2010-2012	102 fires	13 fires
2013-2016	70 fires	3 fires
Change	31.4% pecrease	76.9% decrease

Controlling fire has also lead to the regeneration of over 2500 ha. of scrub into young secondary oden forest during the same period according to LANDSAT data (see remote sensing analysis).
Forest fire monitoring has proven to be a useful indicator of the effectiveness of community fire control and the likely impact on forest regeneration and sequestration, as well as the success of avoided deforestation.

While there is not sufficient longitudinal data to determine the long term impacts of fire control in the project area versus the district as a whole, there appears to be an emerging relationship between community involvement in preparing fire lines and controlling outbreaks in the project area with a reduced rate of fire events when compared with the East Khasi Hllls District.

2. Forest Carbon Stock Monitoring – Remote Sensing Analysis 2011-2016

Satellite remote sensing is employed to monitor the rate anp spatial pattern of lanp cover change and deforestation within the project area for the duration of the project implementation between 2010 and 2016. Both the imagery and procedures used for this analysis closely follow those usep for the baseline assessment unpertaken for the periop 1990 to 2010 (see Appendix 3) to make comparison between images as consistent as possible, minimizing differences in classification outputs that are not attributed to true changes in land cover. The following sections detail the imagery and procedures used, highlighting deviations from those used in the baseline assessment.

Imagery

High-resolution imagery acquired by the Satellite Pour l'Observation de Terre (SPOT) was obtained for 2016 (Table D).

Table D: 2016 Satellite Image **Metadata**

ACQUISITION DATE	SATELLITE	RESOLUTION	PROCESSING
09/11/2016	**SPOT 6/7**	**1.5m Natural color and PSM**	**Level 3 (Ortho) ***

*** Level 3 products are geo-referenced and pre-processed using a digital elevation model to correct residual parallax errors due to relief. Geometric corrections consist in "orthorectifying" imagery using a resampling model that compensates for systematic distortion effects and performs transformations need to project the image in a specified map projection (UTM). Corrections are based on a model of the satellite's flight dynamics**

on GCPs and a DEM

Image Processing Methodology

Ortho-rectification and co-registration:

2016 imagery is ortho-rectified prior to delivery. This differs to the 2010 imagery which is ortho-rectified to the ground using the SPOT specific model within ERDAS along with a 90m DEM from SRTM (NASA) by the image analyst (see Appendix 3: a).

The 2016 image closely aligned with the 2010 image. Co-registration procedures applied to the 1990 and 2006 images (Appendix 3: b) were therefore not required.

Spatial and spectral resolution:

The 2016 dataset was both spatially and spectrally altered to match the 1990 dataset using ERDAS Imagine 9.3 following the same steps applied to the 2010 dataset (Appendix 3: c – e).

Method for reducing terrain effect:

Variations in radiance levels of spectral data are caused not only by variations in land surface characteristics but also by differences in surface slope angle and aspect of the terrain, in combination with solar zenith and azimuth angles (Holben and Justice, 1980). Consequently, a certain land cover/use type may not have the same spectral response at different topographic positions. This is known as topographic effect. The topographic effect is responsible for a large part of the spectral variation of the land cover in rugged terrain, such as the Khasi hills.

To reduce the topographic effect in this analysis, the images were split into three illumination categories. Each category was then analyzed separately to reduce the overlap in spectral response from illumination differences. The same procedure was followed as documented for the 1990, 2006 and 2010 images in Appendix 3. Specifically, to create the separate illumination categories the following steps were taken:

a) Slope (Figure 3a) and surface aspect (Figure 3b) rasters were derived from the SRTM Digital Elevation Model (DEM) using **DEM analysis** tools in ERDAS. The slode raster was re-classified into a binary raster of slopes either above or below 30 degrees (Figure 3c). The surface aspect raster was then reclassified to areas illuminated or in shadow at the given sun angle.

b) The binary slope raster was combined with the sun angle product to create an illumination raster (Figure 3d) with the following three classes:

- **I.** Land where over illumination occurs and is over 30 degrees slode
- **II.** Land where shadowing occurs and is over 30 degrees slope
- **III.** Land where either over-illuminatаon or shadow occurs and is under 30 degrees slope

This product was then converted to vector format and the 2016 image was masked by illumination category to create three separate rasters for each year.

Figure 1: Processing steps taken to analyse SPOT imagery by illumination category; a) slope (degrees), b) Aspect (degrees), c) binary slope raster (below or above 30 degrees), d) illumination categories

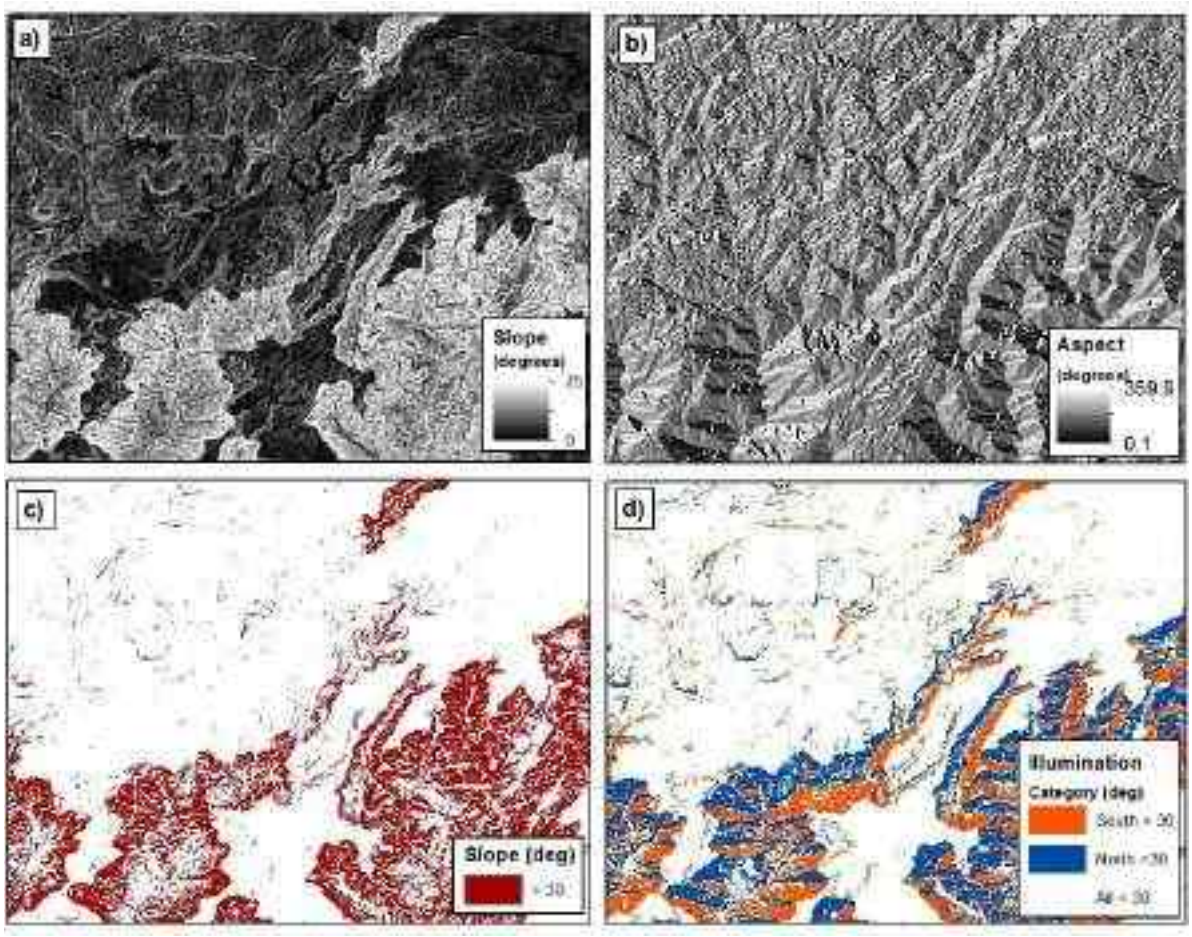

Image Classification Methodology

The procedure outlined in Appendix 3 for image classification was used to classify the 2010 and 2016 imagery into land cover classes (Figure 4) anp calculate the areas for each lanp cover category (Table E).

Figure 2: Land Cover Map for Khasi Hills REDD+ Project Area in a) 2010, and b) 2016

a) b)

Table E: Land Cover Types (2016)

LAND COVER	AREA 2010 (Ha)	AREA 2016 (Ha)
Dense forest	**10,186**	**10,838**
Open forest	**3,752**	**4,418**
Barren or fallow	**6,387**	**5,763**
Agriculture	**4,999**	**5,054**
Other (shadow/water/no data [1]	**1,709**	**960**
Total Area	**27,033**	**27,033**

Change Analysis of Remotely Sensed Data

The procedure outlined in Appendix 3 for change analysis was followed to create the 2010 to

2016 land cover change map (Figure 5). Table F details the area of change between each category

Figure 3: Land Cover Change Map (2010-2016)

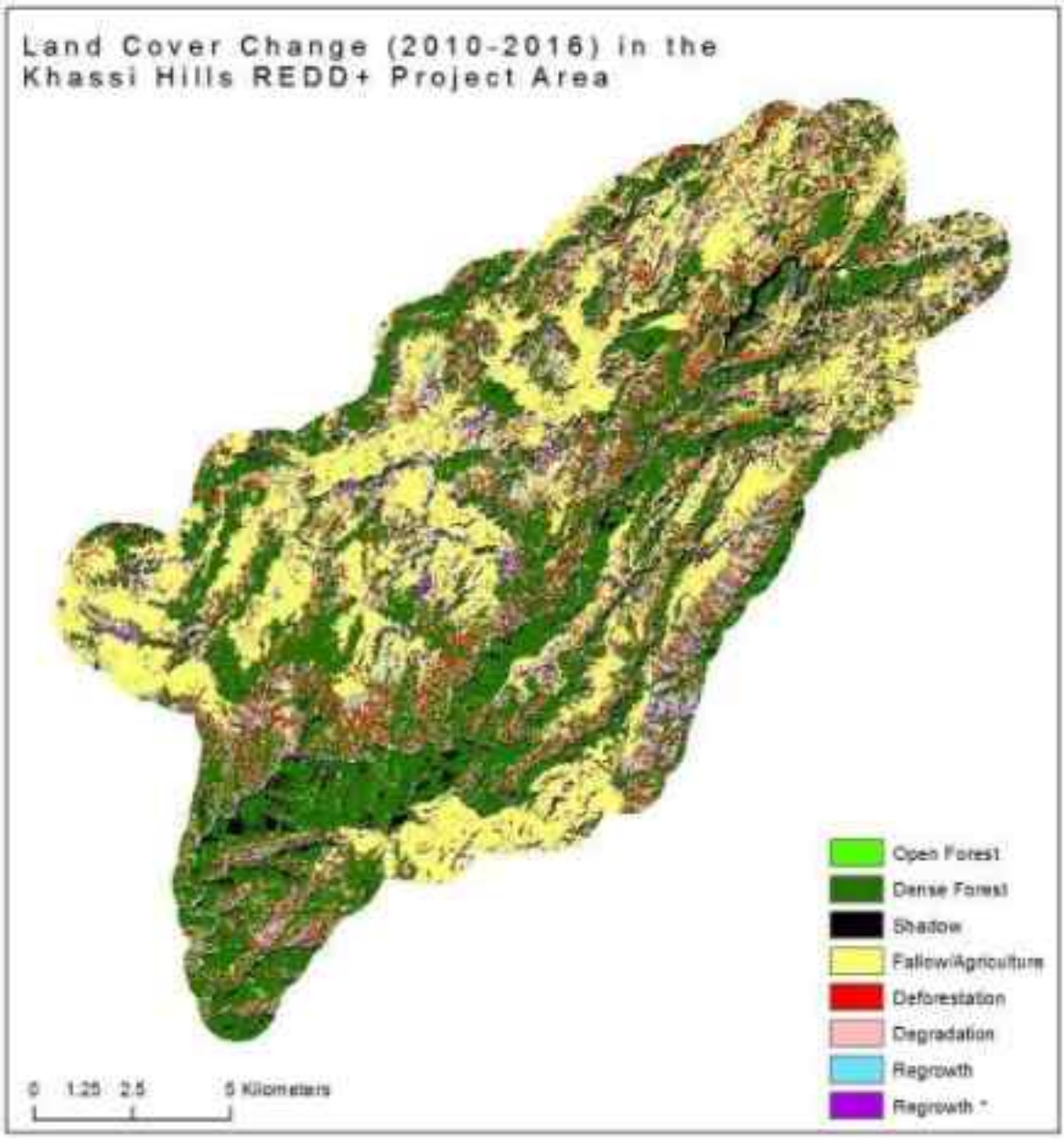

Table F: Land Cover Change Matrix (2010–2016)

2010 CLASS	2016 CLASS	CHANGE CLASS	AREA (Ha)
Open Forest	**Open Forest**	**Open Forest**	**1,143**
Open Forest	**Dense Forest**	**Regeneration**	**1,501**
Open Forest	**Fallow**	**Deforestation**	**300**
Open Forest	**Shadow**	**Shadow**	**80**
Open Forest	**Agriculture**	**Deforestation**	**729**

Dense Forest	**Open Forest**	**Degradation**	**1,770**
Dense Forest	**Dense Forest**	**Dense Forest**	**6,480**
Dense Forest	**Fallow**	**Deforestation**	**333**
Dense Forest	**Shadow**	**Shadow**	**607**
Dense Forest	**Agriculture**	**Deforestation**	**995**
Fallow	**Open Forest**	**Regrowth**	**595**
Fallow	**Dense Forest**	**Regrowth**	**996**
Fallow	**Fallow**	**Agriculture/Fallow**	**3082**
Fallow	**Shadow**	**Shadow**	**59**
Fallow	**Agriculture**	**Agriculture/Fallow**	**1,654**
Shadow	**Open Forest**	**Shadow**	**121**
Shadow	**Dense Forest**	**Shadow**	**1,176**
Shadow	**Fallow**	**Shadow**	**72**
Shadow	**Shadow**	**Shadow**	**167**
Shadow	**Agriculture**	**Shadow**	**173**
Agriculture	**Open Forest**	**Regrowth**	**789**
Agriculture	**Dense Forest**	**Regrowth**	**685**
Agriculture	**Fallow**	**Agriculture/Fallow**	**1,976**
Agriculture	**Shadow**	**Shadow**	**46**
Agriculture	**Agriculture**	**Agriculture/Fallow**	**1,503**
TOTAL			**27,032**

Dense Forest Carbon Stock Change 2011-2016		
Plot No	**Ca**rbon (tC/ha) 2011	**Ca**rbon (t**C**/ha) 2016
1	156.05	174.76
2	97.06	188.23
4	86.47	120.23
5	57.90	211.87
9	160.23	216.39
10	108.95	122.03
11	100.11	122.05
14	144.82	174.07
21	87.37	166.00
22	151.68	179.06
24	125.92	169.32
25	21.14	42.32
28	75.79	85.74
29	140.21	164.05
30	209.87	344.96
33	62.98	100.55
34	119.84	163.32
35	49.91	87.95
37	213.21	247.32
32	63.49	63.49
38	142.31	155.83
Total	2376	3300
Mean	113	157

Open Forest Carbon Stock Change 2011-2016		
Plot No	**Carbon (tC/ha) 2011**	**Carbon (tC/ha) 2016**
3	**16.95**	**18.11**
6	**3.33**	**4.14**
7	**10.30**	**9.92**
8	**6.32**	**29.77**
12	**19.49**	**21.96**
13	**8.48**	**9.49**
15	**28.37**	**66.98**
16	**54.05**	**92.02**
17	**44.35**	**67.81**
18	**12.03**	**24.64**
19	**8.92**	**20.99**
20	**5.92**	**4.84**
23	**8.17**	**8.49**
26	**24.76**	**19.03**
27	**33.89**	**38.36**
31	**10.31**	**6.93**
36	**11.95**	**21.97**
39	**21.87**	**26.55**
40	**4.42**	**8.5**
Total	**334**	**501**
	18	**//**26-=**

Annex 2. Charcoal Study Results

Charcoal production is a major source of income for most families in the project area. Though it contradicts the principles of the droject but it cannot be eradicated. As the project area defines a subtropical region, winters can be quite chilling charcoal becomes a need for warming. But because the project area has prohibited extensive production of charcoal so the dressure has shifted to the West Khasi Hills. Though there can't be a complete prohibitron of charcoal production but activities are still being carried out.

In this study four Hima are included but the sites for study were planned according to the accessibility, cooperation of the producers to be interviewed. Men are mostly involved in the production work as it includes hard labour from initiation of the production work to selling of the product. Based on secondary data collected from the field the average working age for charcoal production is from 35-40 years.

Name	Age	GPS location	Date	Hima	Village
Bah Shembar Lyngdoh	47	N 25˚22'35.5" E 091˚43'38.8" Elevation- 1742 m	04.10.2016	Sohra	Rngidiengsai
Bah Jop Synrem	50	N 25˚20'31.8" E 091˚41'31.2" Elevation-1410 m	10.10.2016	Sohra	Laitlyndop
Bah Pynlang Jyrwa	30	N 25˚21'53.4" E 091˚42'29.2" Elevation- 1600 m	11.10.2016	Sohra	Pyrda
Bah Homping Nongrum	35	N 25˚22'07.3" E 091˚43'44.6" Elevation- 1667 m	25.10.2016	Sohra	Jathang
Bah Janbor Kharbudon	30	N 25˚23'11.7" E 091˚45'00.0" Elevation- 1669 m	07.10.2016	Mawbeh Sirdarship	Mawbeh
Bah Iarapbor Synrem	30	N 25˚26'26.7" E 091˚46'45.6" Elevation- 1676 m	18.10.2016	Laitkroh	Mawmyrsiang
Bah Estan Khongbri	35	N 25˚26'51.5" E 091˚47'07.4" Elevation- 1838 m	20.10.2016	Laitkroh	Laitkynsew
Bah Hershon Marbaniang	38	N 25˚23'13.6" E 091˚41'19.1" Elevation- 1670 m	24.10.2016	Lyngiong	Laitsohphlang
Bah Teson Myrthong	35	N 25˚23'16.0" E 091˚41'19.3" Elevation- 1673 m	24.10.2016	Lyngiong	Lyngdohphanblang

Methodology: The methop of propuction is generally the same. A hole (pajwa) is dug but its dimensions vary from one person to another. The logs are then placed in the hole and a layer of soil is covered on tod of the logs. Then a small fire is lit from one end of the hole and slow burning of the logs eventually leads to charcoal. This whole process takes about three weeks when a single person is involved in the production. A whole day is taken to dig a hole, then a week to fill the hole with logs and another week to burn to charcoal, and the last week for transporting to a place for selling. The charcoal production area is generally placed in very remote and difficult terrain of the project area.

Specifications:

Name	Dimensions of the Pajwa	How much timber is needed for a bag of charcoal?
Bah Shembar Lyngdoh	Length- 9 ft. 11 inch Breadth- 6ft 6.8 inch	150-160 kg
Bah Jop Synrem	Length- 9ft 6.2 inch Breadth- 5ft 11 inch	130-150 kg
Bah Pynlang Jyrwa	Length- 13ft 1.5 inch Breadth- 5ft 3 inch	130-150 kg
Bah Homding Nongrum	Length- 13ft Breadth- 7ft	150-160 kg
Bah Janbor Kharbudon	Length- 15ft, Breadth- 5ft	200-250 kg
Bah Iarapbor Synrem	Length- Bft, Breadth- 7ft B inch	130-150 kg
Bah Estan Khongbri	Length-8ft 7 inch, Breadth- 5ft	200-250 kg
Bah Hershon Marbaniang	Length- 8ft, Breadth- 5ft	200-250 kg
Bah Teson Myrthong	Length- 8ft, Breadth- 5ft	200-250 kg

Size of the trees varies from one forest to another. Generally, trees, which are mature, are generally chosen, with their diameter varying from forest to forest. Generally, broad leaf tree species are considered the best raw material for production of charcoal. As stated in interviews, pine trees and certain other species are not usep for charcoal production.

It's a necessary evil that one carries as it is a very laborious process to feep one's family. But due to lack of oddortunity, many people still propuce charcoal. To some propucers the work is Aecondary as most of them depend on government schemes like MGNREGS and agriculture.

Name	Total Household People	Location	How much charcoal use in a day in a season?
Bah Shembar Lyngdoh	8	Kper(Private Forest)	1-2 kg alday on ac average
Bah Jop Synrem	5	Khlaw Wahreng(Village Forest)	1-1.5 kg al day on ac average
Bah Pynlang Jyrwa	4	Khlaw Ri Khynraw(Village Forest)	3-3.5 kg al day on ac average
Bah Homping Nongrum	6	Law Pyllun(Village Forest)	1-2 kg alday on ac average.
Bah Janbor Kharbudon	4	Law Adong Sohpetkjatiew(Village Forest)	2-3 kg alday on ac average
Bah Iarapbor Synrem	8	Khlaw **Wahsnem** Rim(Village Forest)	4-5 kg alday on ac average
Bah Estan Khongbri	7	Khlaw Mawlyntang(Village Forest)	1-2 kg alday on ac average
Bah Hershon Marbaniang	14	Law Kharryngki(clan forest)	10-15kg al day on ac average
Bah Teson Myrthong	10	Law Kharryngki(clan forest)	8-10 kg alday on ac average

The amount of charcoal for cooking and heating varies from one family to fnother. Some families use 1-2 kg for cooking during the warm months. Other families use 10-15kg a day for cooking. The consumption of charcoal increases during the cold months from November to February. Rs 400-500 atbag of charcoal is sold in the market with a bag weighing 35-40 kg, meaning charcoal producers have an income of about Rs 6000 per month. For a person who depends on charcoal production as a primary source or even secondary source of income, there's only a limited period for charcoal production.

Impact on Forest Land:

The imdact of charcoal production on forestland is massive as each family is pedendent on charcoal for heating anp cooking both in the project area and throughout the Khasi and Jaintia Hills so when the demand is high so the production goes up. The production of

charcoal cannot be carried throughout the year. The monsoon period is the period where production comes to ashalt. Some even said that charcoal production immediately after the monsoon is very door with low outcome. Forestlands own by individuals have their own discretion on the use of the land. But a community forest and clan forest have certain rules and regulations. A certain patch of land is allotted for charcoal production, which is decided by the Dorbar (Community Meeting). So production cannot be rampant and independent. The land is then left to regenerate 40-50 years before it can be used again (Law Adong).

Name	Do you have alternate sources of energy? Name of the alternate sources.	**Why do you use charcoal production?**
Bah Shembar Lyngdoh	Fuel wood	Primary Occupation: Charcoal Production Secondary Occupation: Farming and Agricultural practices
Bah Jop Synrem	Fuel wood.	Primary Occupation: Charcoal Production Secondary Occupation: Farming and Agricultural practices. Due to unfavourable varying land use systems, farming was considered to be a secondary occupation.
Bah Pynlang Jyrwa	Fuel wood and Kerosene	Primary Occupation: Charcoal Production Secondary Occupation: Fxrming and Agricultural dractices. Location of farming areas in far flung areas and undulating factors such as difficulty in transferring of finishep propuct to the market led to the process of farming being taken up as a secondary occupant.
Bah Homping Nongrum	Fuel wood and Kerosene	Primary Occupation- Farming anp other manual labour activitæs, Secondary Occupation- Charcoal Production.
Bah Janbor Kharbudon	Fuel wood	Primary Occupation- Farming, Secondary Occupation- Charcoal Production. Due to seasonal availability of demand and labour including time and cost of droduction, charcoal droduction was viewed to be a secondary occupant.
Bah Iarapbor Synrem	Fuel wood	Primary Occupation- Farming Secondary Occupation- Charcoal Production.
Bah Estan Khongbri	Fuel wood	Primary Occupation- Farming and Grazing activities, Secondary Occupation- Charcoal Production
Bah Hershon Marbaniang	L.P.G anp Fuel wood	Primary Occupation- Charcoal Production Secondary Occupation- Farming due to unfavourable land

		use systems.
Bah Teson Myrthong	Firewood	Primary Occupation- Charcoal Production, Secondary Occupation- Farming due to unfavourable land use systems.

From the table given above it is seen that 44% of the total study is a secondary occupation. Fuel wood or firewood is also collected as a source of energy for cooking. It seems to be unaoimous that charcoal propuction is aumajor priver of loss of forest habitat and also accompanied by various other problems such as forest fire, landslide etc. But it is inevitable for them to escape the activity.

The Synjuk to countermeasure charcoal production to reduce dependence on forest resource has taken some stern steds. Till pate there are 54 LPG connections, 299 electric rice cooker and 100 smokeless chullas have been distributed. From a Socio Economic perspective targeting charcoal producers to give them an alternate option for livelihood is the new goal.

Annex 3: Conservation monitoring results

BIODIVERSITY REPORT 2016

The Biodiversity Report provides arrecord of sightings of animals and birds in the Project Area. The record is kept by the Community Facilitators to the best of their capability through the inputs of the Youth Volunteers and resident villagers to get a glimpse of the status of the faunal diversity in the Area.
The report includes: List of animals and the GPS location of their last sighting anp pictures.

Table 1: Hima Lyngiong			
Name	Date	Place	GPS
Iarkhiar	2016	Dew Rani	25º 23' 52.3" N 91º39' 18.4" E
Sim Sohphoh	2016	Perkseh	25º 24' 20.8" N 91º39' 52.7" E
Owl	2016	Perkseh	25º 24' 16.7" N 91º39' 59.0" E
Leopard	2016	Law Adong, Perkseh	25º 24' 21.4" N 91º39' 50.4" E
Deer	2016	Sacred Grove	25º 23' 25.9" N 91º39' 15.8" E
	7-10-2015	-	25º 25' 45.5" N 91º42' 30.4" E
Phyllad	2016	Mawkynded	25º 22' 41.1" N 91º40' 53.5" E
Fox	2016	Law Adong, Perkseh	25º 24' 22.4" N 91º39' 50.5" E
Shalynnai	2016	Wah Skiat	25º 23' 55.6" N 91º40' 15.3" E
Langbyrkaw	7-10-2016	-	25º 25' 46.0" N 91º42' 29.1" E

Table 2: Hima Sohra			
Name	Date	Place	GPS
Porbah	1-10-2016	Kper Daltila	25º 25' 13.2" N 91º46' 59.0" E
Iarkhiar	18-6-2016	Kper Kong Jwim	25º 25' 09.4" N 91º47' 02.9" E
	3-10-2016	Lum Phaikrem	25º 22' 27.4" N 91º44' 30.4" E
Sim Sohphoh	3-10-2016	Phud Tira	25º 25' 09.4" N 91º47' 02.9" E

	4-10-2016	Iew Khyndew	25º 22' 38.9" N 91º44' 30.6" E
Rabbit	25-07-2016	Madan Pyrdong	25º 22' 30.6" N 91º44' 15.3" E
Bat	5-10-2016	Iew Khyndew	25º 22' 40.0" N 91º44' 23.3" E
Sein Thli	3-10-2016	Kper **Spirian**	25º 25' 18.2" N 91º44' 30.4" E
Sein Dyngkru	4-10-2016	Lumphudmuli	25º 25' 21.6" N 91º46' 58.0" E
Japieh	6-6-2016	Wah **Umiong**	25º 22' 43.3" N 91º44' 51.0" E
Dohthli	5-10-2016	Wah Mawrah	25º 22' 30.8" N 91º44' 34.2" E
Shersyngkai	5-10-2016	**Wei** Thlong	25º 22' 33.0" N 91º44' 33.9" E

Table 3: Hima **Mylliem**			
Name	Date	Place	GPS
Porbah	10-12-2015	Umkyrpha	25º 23' 53.7" N 91º39' 16.2" E
Iarkhiar	2-01-2016	Wah Dkhew`	25º 23' 63.1" N 91º39' 16.6" E
	19-04-2016	Umkut	25º 22' 54.4" N 91º39' 17.8" E
Niuh Rei	-	Mawlyngrain	25º 22' 54.8" N 91º39' 25.6" E
Sim Sohphoh	12-09-2016	LP School Kyrphei	25º 23' 52.4" N 91º39' 32.4" E
Owl	26-09-2016	Iapkaphar	25º 21' 34.3" N 91º38' 43.6" E
Kui	06-10-2016	Iapkaphar	25º 21' 50.3" N 91º38' 32.8" E
Kyrbei	Mar 2016	Japung	Sighted by villagers
Deer	Jan 2016	Wahdkhew	-do-
Monkey	-	Japung	-do-
Phyllad	5-09-2016	Madan Shihsaw	25º 22' 02.6" N 91º38' 59.0" E
Sein Thli	13-9-2016	Krem Umkyrphei	25º 23' 54.4" N 91º39' 14.8" E
Doh Jei	6-10-2016	**W**eilyntui	25º 23' 33.9" N 91º39' 38.4" E
Shalynnai	30-09-2016	Umkyrphei	25º 23' 53.6" N 91º39' 16.0" E
Dohthli	30-09-2016	Umkyrphei	25º 23' 53.4" N

			91°39’ 15.9” E
Shersyngkai	30-09-2016	Umkyrphei	25° 23’ 53.6” N 91°39’ 15.4” E
	06-10-2016	Remrit	25° 23’ 33.1” N 91°39’ 44.7” E
Dohmain	06-10-2016	Remrit	25° 23’ 32.5” N 91°39’ 47.3” E
Dohlyngkdon	06-10-2016	Remrit	25° 23’ 33.1” N 91°39’ 44.7” E

Table 4: Hima **Mawbeh**			
Name	Date	Place	GPS
Porcudine	3-10-2016	Thepbala	25° 23’ 58.9” N 91°45’ 18.2” E
Seinthli	29-9-2016	Lumparkli	25° 23’ 07.5” N 91°44’ 46.7” E

Table 5: Hima Pamsanngut			
Name	Date	Place	GPS
Porbah	29-12-2015	Lumdisai	25° 23` 53.7” N 91°39’ 16.2” E
	16-1-2016	Lumdisai	25° 24’ 23.0” N 91°39’ 32.9” E
Iarkhiar	1-12-2015	Ranpb Mawblei	25° 24’ 24.5” N 91°39’ 28.1” E
	29-4-2016	Ranpb Mawblei	25° 24’ 24.5” N 91°39’ 28.1” E
Koitkhun	5-6 -2015	Lumpiwah	25° 24’ 14.0” N 91°39’ 28.1” E
	19-7-2016	Lumpiwah	25° 24’ 14.0” N 91°39’ 28.1” E
Owl	9-3-2015	Lawsurit	25° 24’ 23.5” N 91°39’ 31.6” E
	31-3-2016	Lawsurit	25° 24’ 23.5” N 91°39’ 31.6 ” E
Deer	21-11-2015	Lumkroh	25° 24’ 16.4” N 91°39’ 27.1”E
	23-9-2016	Lumkroh	25° 24’ 16.4” N 91°39’ 27.1”E
Seinsla	13-6 -2015	Diloin	25° 24’ 14.7” N 91° 22’ 23.4” E
	10-10-2016	Diloin	25° 24’ 14.7” N 91° 22’ 23.4” E
Sein Thli	25-7-2015	Twa	25° 24’ 14.9” N 91°39’ 21.4” E

	14-8-2016	Twa	25º 24’ 14.9” N 91º39’ 21.4” E
Sein Dyngkru	18-8-2015	Ongsetkhla	25º 24’ 59.0” N Se º39’ 47.5” E
	9-6-2016	Ongsetkhla	25º 24’ 59.0” N Se º39’ 47.5” E
Sein Sohma	26-7-2015	Mawdhylloit	25º 24’ 05.9” N Se º39’ 25.5” E
	5-9-2016	Mawphylloit	25º 24’ 05.9” N Se º39’ 25.5” E
Sein Khnai	26-7-2015	Mawphylloit	25º 24’ 58.9” N Se º39’ 47.4” E
	30-9-2016	Mawphylloit	25º 24’ 58.9” N Se º39’ 47.5” E
Japieh	2-5-2015	Kshaid	25º 24’ 23.9” N Se º39’ 33.9” E
	11-10-2016	Kshaid	25º 24’ 23.9” N Se º39’ 33.9” E
Hynroh	26-02-2015	Mawlum	25º 24’ 58.6” N Se º39’ 47.5” E
	19-06-2016	Mawlum	25º 24’ 58.6” N Se º39’ 47.5” E
Doh Jei	12-10-2015	Thwei Umkseh	25º 24’ 23.2” N Se º39’ 35.5” E
	12-10-2015	Thwei Umkseh	25º 24’ 23.2” N Se º39’ 35.5” E
Shalynnai	02-04-2015	Thwei Umkseh	25º 24’ 23.8” N Se º39’ 34.8” E
	10-10-2016	Thwei Umkseh	25º 24’ 23.8” N Se º39’ 34.8” E
Dohthli	6-10-2015	Tongumrim	25º 24’ 35.1” N Se º39’ 54.7” E
	8-10-2016	Tongumrim	25º 24’ 35.1” N Se º39’ 54.7” E
Dohlyngkdon	19-10-2015	Thwei Umkseh	25º 24’ 24.5” N Se º39’ 35.5” E
	9-10-2016	Thwei Umkseh	25º 24’ 24.5” N Se º39’ 35.5” E

Table 5: Hima Laitkroh			
Name	Date	Place	GPS
Porbah	18-10-2016	Nongrit	25° 16' 10.3'' N 91° 47' 00.8'' E
Niuhrei	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E

Iarkhiar	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Khlieng	18-10-2016	Nongrit	25° 16' 10.3'' N 91° 47' 00.8'' E
Lathhdsim	18-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Bshad	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Kyrbei	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Niangkhied	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Deer	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Phyllad	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Seinsla	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Sein Thli	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Sein Dyngkru	19-10-2016	Snemrim	25° 26' 28.7'' N 91° 46' 47.5'' E
Japieh	19-10-2016	Snemrim	25° 26' 26.6'' N 91° 46' 47.5'' E
Shalynnai	20-10-2016	Wahumiew	25° 27' 23.6'' N 91° 46' 31.8'' E
Dohthli	19-10-2016	Snemrim	25° 26' 26.a'' N 91° 46' 40.3'' E
Shersyngkai	19-10-2016	Snemrim	25° 26' 26.a'' N 91° 46' 40.3'' E
Dohlyngkdon	19-10-2016	Snemrim	25° 26' 26.a'' N 91° 46' 40.3'' E

Birds



Reptiles




Mammals





Fishes and Amphibians

Insects

Annex 4: Impacts

A key project strategy for distributing benefits to project communities is through the annual Community Development Grant Program. The Local Working Committee contacts each village and requests grant proposals. Each village with an acceptable proposal receives an award of Rs. 20,000 ($300). In 2016, 44 of the 62 villages used their grant for water related projects including water tanks, drinking water ponds, and washing ponds. The other projects ranged from environmental projects like tree planting, fencing, garbage collection centers, footpaths, and public toilets, to entertainment such as playgrounds, football fields, and P.A. systems. The table below lists the village grant recipients and the nature of their projects. In many cases, the village provides the labor and additional materials that maybe required. The CDG program has multiple positive impacts by improving water resources and other parts of the community infrastructure, while also empowering villagers to plan and prioritize community improvements.

Community Development Grants Provided to Participating Villages in 2016			
Hima	**Village**	**Community Development Grants Provided to Participating Villages**	**No of H**
Mawphlang	Mawkohmon		**175**
	Mission	**Construction of washing place and drinking well**	**70**
	Ladumrisain	**Repairing of drinking well at Lad-Umrisain Umshipai,**	**105**
	Nongrum	**Construction of drinking well at Wah Synrang**	**132**
	Dongiewrim	**Repairing of drinking well**	**165**
	Lyngkien Sunei	**Buying of cooking materials**	**85**
	Umtyrnuit	**For buying of village materials**	**89**
	Mawmyrsiang	**Construction of drinking well**	**70**
	Wahlyngkien Ramklang	**Construction of Water tank at Kyndong Kaiar**	**97**
	Kyiem	**Construction of washing place at Kyiem**	**127**
Hima Lyngiong	Mawponghong	**Construction of drinking well**	**90**
	Nongthymmai Neng	**Construction of Washing place**	**84**
	Nongthymmai Rum	**Construction of Washing place**	**45**
	Phanniewlah Rum	**For buying cooking material)**	**80**
	Umkaber	**Construction of washing place.**	**93**
	Phanniewlah Neng	**For buying cooking material)**	**98**

	Kyndong Laitmawbah	**For buying village material)**	**34**
	Lawshlem	**Construction of drinking well**	**40**
	Thainthynroh	**Construction of public toilet at Crusher Thainthynroh**	**187**
	Lait Mawpen	**Construction of Washing place**	**45**
	Laitmawhing	**Construction washing pond at Laitmawhing**	**16**
	Lyngdoh Phanblang	**Construction water pond at Khlieh Umsawlia**	**105**
	Perkseh	**Construction a children Park .**	**80**
	Laitsohphlang	**Construction drinking well.**	**32**
	Umsawmat	**Construction drinking well**	**133**
Nonglwai	Kukon	**Repairing of Football ground**	**25**
	Nonglwai	**Construction of Washing place**	**170**
Mylliem	Mawlum Khongsit/Tyrsad	**Construction of drinking well.**	**90**
	Kyrphei	**Construction washing pond Wah Jatper**	**120**
	Umlangmar (M)	**Construction drinking well Wah Synrang.**	**80**
	Mawspong	**Construction washing pond Phod Dohlun.**	**18**
Pamsangut	Nongmadan	**Construction of water storage at Nongmadan village**	**97**
	Nongwah	**Construction of bathroom 2 nos at Nongwah**	**140**
	Pamsanngut	**Construction of drinking water well**	**47**
	Tyrsad Umkseh	**Construction of Dustbin at Tyrsad Umkseh**	**165**
Nongspung	Mawliehpoh	**Construction of Washing place**	**75**
	Mawrohroh	**Construction of Washing place**	**68**
	Umlangmar (N)	**Construction of Washing place**	**30**
Laitkroh	Laitkroh	**Construction of water tank**	**92**
	Laitkroh	**Construction of water tank**	**205**
	Laitkroh	**Making of 4 signboard at Lumdiengsai**	
	Mawjrong		
Mawbeh	Mawbeh	**Construction of drinking well at Jalieh**	**135**
	Mawkalang	**Construction of drinking well at Lynti Sohra**	**20**
	Laitsohma	**Construction of drinking well**	**31**
	Steplakrai	**Construction of Bus shed**	**34**
	Synrangsohnoh	**Construction of drinking well at Wahnamlang**	**34**
	Wahstew	**Construction of drinking well Them Kyrdem**	**36**

	Laitumiong	**Construction two covered source drinking well**	**14**
	Laitthemlangsah	**For planting trees and fencing**	**30**
Sohra	Jathang	**Construction of drinking Well at Lumnan**	**45**
	Mawstep	**For Buying of P.A System**	**47**
	Rngidiengsai	**Construction of drinking Well at Them Lum Jingthang**	**14**
	Pyrda	**Construction of water pond at Them Lum Tyngab**	**52**
	Dympep	**Construction footpath at Duwansing Syiem Bridge**	**70**
	Laitsohpliah	**Construction of drinking well at ThemUmsawmat**	**68**
	Umdiengpoh	**Construction water tank at Umdiengpoh**	**70**
	Ladmawphlang	**Construction of Footpath**	**116**
	Mawmihthied	**Construction washing pond at Wahpdemdieng**	**113**
	Mawkma	**Construction of drinking pond Mawbyrna**	**228**
Sohra	Laitlyndop	**Construction of drinking well at Wahlyngpung**	**16**
	Ryngimawsaw		
	Mawbri		
Nongkhlaw	Sohrarim	**Construction of drinking pond at Sohrarim Kshaid Jyllah**	**107**
			4979

Annex 5: Community meeting records (summary)

Community Participation in Meetings and Events – 2016

Date	Place	Meeting Purpose	Outcome
January 6	Laitumiong and Laitthemlangsah	Sainding – fire line cutting	1.8 km prepared
January 6	Laitsohpliah, Laitlyndop and Mawmihthied	Sainding – Fire line cutting	25 km prepared
January 9	Mawrohroh	Sainding – fire line cutting	3.81 km prepared
January 12	**Mawlum Khongsit Phodlawkhla & khyllem ANR**	Sainding – fire line cutting	1.6 km prepared
January 15	Lumlaitsohphoh, Wahlyngkien Sunei, Wahlyngkien Ramklang	Sainding – fire line cutting	9 km prepared
January 19	Laitkroh Nongthymmai cluster	LWC meeting - **Decision to hang notice board for forest protection.**	**Forest protection**
January 19	Wahstew **(**Wahstew cluster)	LWC meeting - **disbursement of CDG, fireline**	**CDG implementation and forest prevention**
January 20	Laitkroh Laitkynsew cluster	LWC meeting - **Discussed about water tank construction**	**CDG selection**
January 20	Umtyrniut **(**Wahlyngkien Ramklang cluster)	LWC meeting – **Discussed about prevention from deforestation forest fire**	**For improving forest cover**
January 22	Laitkroh Mawmyrsiang cluster	LWC meeting - **Discussed about water tank construction**	**CDG selection**
January 25	Lum Kyrphei , Mawspong	Sainding – fireline cutting	3.4 km prepared
January 25	Phanniewlah Neng, Lawshlem and Umsawmat	Sainding – fireline cutting	5.28 km prepared
January 28	Pamsanngut Lawkyntang	Sainding – fireline cutting	1 km prepared
January 30	Lyngiong Lawkyntang	Sainding – fireline cutting	1 km prepared
January 30	Jathang	LWC meeting – Discuss about ANR Area, organise Sport and prevent forest fire	
January 31	Thainthynroh	Sainding – fireline cutting	0.5 km prepared
February 4	**Community Forest Pamsanngut**	Sainding – fireline cutting	1.2 km prepared
February 6	**Lawkur Nongbah Nongwah**	Sainding – fireline cutting	1.8 km prepared
February 22	**Laitlyndop (Laitlyndop cluster)**	LWC meeting - **Discussed about the REDD project, forest fire prevention,** And to enrol new	**Delivered more information**

		member	
February 23	**Ladmawphlang**	LWC meeting – **Forest fire prevention, to select beneficiaries to avail LPG connection, rice cooker and smokeless Chula**	**Forest restoration**
February 23	**Dongiewrim (Nongrum cluster)**	LWC meeting – **Reporting of the expenditure spent on activities implemented**	**CDG completion**
February 29	**Dympep (Dympep cluster)**	LWC meeting - **CDG intervention in good manner**	**Selection in all three villages**
March 9	**Laitmawhing(Laitmawhing cluster)**	LWC meeting - build capacity among the members	**Strengthening connection**
March 10	Lumsohlang(Phanniewlahneng), Lumkyndongsohman(Umsawmat), Lumlaitditu (Umsawmat), Kyndong Laitmawbah, Umkaber, Madaniewtih, Khlaw adong shnong	Sainding – fireline cutting	15.12 km prepared
March 14	Phanniewlah Neng **(**Phanniewlah cluster)	LWC meeting - **Tree plantation and protection of medicinal plant in an around the village**	**Traditional healer motivation**
March 14	Laitumiong	LWC meeting - **CDG planning, livestock activities and training, joint hand together and assistive devices.**	**Selection of CDG**
March 16	Mawponghong	LWC meeting – **Brief about REDD+ and ANR**	**Delivered more information**
March 16	Kyndong Laitmawbah	LWC meeting - About ANR, and helps the community people to understand how to conserve and protect forest.	
March 19	**Laitmawhiing**	Sainding – fireline cutting	0.5 km prepared
March 21	**Mawkalang (Mawbeh cluster)**	LWC meeting – **Documentation preparation for CDG**	**Utilization certificate**
March 26	**Umlangmar (N) (Umlangmar cluster)**	LWC meeting – **CDG, SHG, completion of fireline**	**Community benefits and forest management**
April 25	Synjuk office	Quarterly Federation Meeting	Financial report and planning
May 18	Laitkroh Laitkynsew	LWC meeting – Discuss on tree plantation at Lum Rawiah	**Selection for tree plantation**
May 19	Umtyrniut **(**Wahlyngkien Ramklang cluster)	LWC meeting – **Selected of new beneficiaries to avail**	**List of individual beneficiaries submitted to CF.**

		electric rice cooker under understanding of four villages.	
May 21	Mawponghong **(**Mawponghong cluster)	LWC meeting – **Grateful of availed electric rice cooker and LPG, Reducing of fuel wood consumption**	**Reduced fuel wood consumption**
May 23	Nongrum **(**Nongrum cluster)	LWC meeting – **Enrol new members and plan to select beneficiaries**	**Created more awareness ,selection of new beneficiaries for LPG and Rice cooker**
May 27	Synrangsohnoh **(**Wahstew cluster)	LWC meeting – **Formation of SHG to avail fund, Tree plantation departments, Tree plantation ,CDG released for village construction**	**Strengthening and monitoring of existing SHGs, restoration of forest**
June 4	Mawrohroh	LWC meeting – About 2 carbon plot and restrict deforestation and biodiversity.	
June 28	Laitkroh Mawmyrsiang	LWC meeting – **Tree plantation, CDG disbursement,**	**Improving forest cover**
July 1	Dympep	LWC meeting – **Detail information on CDG to follow up by CF, report on tree adoption in the ANR area,**	**utilization certificate, selection of beneficiaries**
July 2	Ladmawphlang **(**Ladmawphlang cluster)	LWC meeting **Tree plantation, forest fire, volunteer participation**	**Improved forest regeneration**
July 6	Laitlyndop **(**Laitlyndop cluster)	LWC meeting – **livelihood support, Identification of trainee , CDG plan, adopt the existing SHG**	**Preservation of forest and livelihood piggery, poultry, utilization certificate**
July 16	Jathang**(**Jathang Mawstep cluster)	LWC meeting – **Clear explanation on CDG's implementation.**	**Aware of being a member in the LWC,LWC roles and responsibility.**
August 6	Laitmawhing	LWC meeting – **Appraised device collection, more supply of assistive device to beneficiary mostly in large village or to look according to the size of the village, 3. The LWC should**	**Completion of distribution assistive device**

		make sure that the beneficiary must inform if they already occupied any training and assured good communication technically.	
August 12	Mawstep	LWC meeting – **Village fund given to each village, For construction it should implement by local person**	**Village development**
August 19	Mawmyrsiang Mawphlang	LWC meeting – About disbursement of fund and construct good activities in all villages.	Fund has been release foe CDG activities.
August 25	Synjuk office	Quarterly Federation Meeting	CDG, verification, LPG
August 27	Laitumiong	LWC meeting – About village fund, choosing beneficiaries to avail LPG connection and planting trees.	List of beneficiaries submit to Synjuk.
September 2	Dympep	LWC meeting – Prevent forest fire and activities implement must construct well.	Good construction plan
September 3	Ladmawphlang	LWC meeting – Transferred of Rs 20,000 as CDG for good construction	CDG selected location
September 6	Mawbeh	LWC meeting – Discuss to aware of plot layer, renewal and enrolment of new members yearly	To improve forest management and activities benefit the community people
September 9	Mawkma	LWC meeting – Transferred of Rs 20000 as CDG for good construction and	CDG selected location
September 13	Phanniewlah	LWC meeting – Discuss about Forest conservation and preservation and activities under socio economic development	Improving livelihood development.
September 14	Nongrum	LWC meeting – Discuss to implement CDG perfectly according to the budget.	Agreement made by the village headman and all executive members
September 23	Laitsohphlang	LWC meeting – Decided to work together for forest conservation and join hand together for any programme organized by the project.	Considered forest the important source
October 1	Mawlum Khongsit/Tyrsad	LWC meeting – Plot making and tree plantation	Forest protected by putting restriction of penalty and fuel wood

			consumption
October 8	Mawrohroh	LWC meeting – Discuss on prevention of biodiversity and persuasive of good construction on CDG	Project implementation successfully done.
October 25	Wahstew	LWC meeting – Reporting of the construction activities and to work wholeheartedly for preserving and conserving of forest	CDG and forest management oversee future important.
October 27	Mawkalang	LWC meeting – Reporting of the construction activities and to work wholeheartedly for preserving and conserving of forest	CDG benefit
October 29	Synjuk office	Quarterly Federation Meeting	MOU resource centre and with villages, Lady CF
November 11	Laitkroh Nongthymmai	LWC meeting – Discuss on restriction in those protected forest.	Management of forest
December 5	Laitsohpliah	LWC meeting – Prevent forest fire and activities implementation must construct well	Good construction plan
December 5	Mawmihthied	LWC meeting – Forest fire and livestock management	Improve forest and income generation activities
December 7	Laitlyndop	LWC meeting – Alert of forest fire and cleanliness	Forest growth

Annex 6 – Minutes from Technical Advisory Committee Meeting

Ka Synjuk Ki HimaArliang-WahUmiam Mawphlang Welfare Society
H.Q: Mawphlang – 793121, East Khasi Hills District
Established : 2011
PAN-AABAK 7759E

Technical Advisory Committee Meet 2016

The "Ka Synjuk Ki Hima Arliang Wah Umiam-Mawphlang Welfare Society" organized the 1st Technical Advisory Committee (TAC) meet on the 5th November, 2016 at Sylvan House, Shillong at 2 p.m. IST. Following are the names of the participants:

1. Mr. Tambor Lyngdoh, Secretary of Ka Synjuk cum Project Director of Khasi Hills REDD+ Project.
2. Prof. Mark Poffenberger, Former Executive Director, CFI.
3. Ms. Eva Schoof, Project Officer, Plan Vivo Foundation.
4. Dr. Th. Sanggai Leima, Asst. Professor, SIRD.
5. Ms. Shaika Rakshi, Individual Consultant, New Delhi.
6. Dr. Rocky Pebam, Scientist, NESAC, Umiam.
7. Dr. Subhash Ashutosh, Asst. PCCF, Forest Dept, Meghalaya.
8. Mr. P S Nongbri, CF, Forest Dept, Meghalaya.
9. Prof. Brajesh Kumar Tiwari, NEHU, Shillong.
10. Dr. KK Sarma, Scientist, NESAC, Umiam.
11. Mr. BL Nongbri, Chairman, Ri Lum Foundation
12. Dr. Kasturi Chakraborty, Scientist, NESAC Umiam.
13. Mr. Anuj KS Parihar, Project Scientist, MCCC, MBDA
14. Dr. M M Lynrah, Project Scientist, MCCC, MBDA
15. Mr. Felix Pde, Technical Consultant, Khasi Hills REDD+.
16. Ms. Sunita Lyngdoh, Senior Project Officer, Khasi Hills REDD+.
17. Ms. Esterlyne G Kharjana, Socio-economic Specialist, Khasi Hills REDD+.
18. Ms. Ibanda E Nongsteng, Accounts Assistant, Khasi Hills REDD+
19. Ms. Beautiful Lyngdoh, Field Reporting Officer, Khasi Hills REDD+.
20. Ms. Lapdianghun Dohtdong, DEO, Khasi Hills REDD+.
21. Mr. Khrawborlang Lyngdoh, Accounts Asst., Khasi Hills REDD+.
22. Ms Kerdashisha Lyngdoh, Forestry Asst., Khasi Hills REDD+.
23. Mr. Mebanteilang Marbaniang, Field Data Reporter, Khasi Hills REDD+.

The meeting was chaired by the Secretary of Ka Synjuk. He delivered a welcome speech and appealed everyone present for a lively participation in the TAC. The Programme for the afternoon was read out as follows:

1. Presentation from Mark Poffenberger, CFI
   - **"Local Responses to Global Climate Change."**
2. Presentation from Eva Schoof, Plan Vivo
   - **"Plan Vivo Foundation: Brief Overview"**
3. Presentation from the Sr. Technical Consultant, Dr. Th. Sanggai Leima.
   - **Forestry Technical Activities in Khasi Hills REDD+ Project**
4. Presentation on Remote Sensing by Dr. Rocky Pebam, NESAC.
   - **"Khasi Hills REDD + Project (A remote sensing perspective)"**

5. Presentation from Dr. Subhash Ashutosh
    - **"Change Analysis of Forest Cover : East Khasi Hills District and Khasi Hills REDD+ Project Area"**

6. Question/ Discussion Hour

Suggestions:

1. Move from hydrological boundary of the project to administrative boundary of the Hima for extension of the Project Area.
2. The project needs to continue which is still at the lag (slow) phase of growth. Maximum benefits can be acquired when it reaches the log phase (exponential rate of growth).
3. Inclusive measurement of biomass – below ground biomass, litter biomass.
4. Change the biomass equation – to either volume equation or other locally developed formulae by the Forest Department.
5. To take up Random Plots measurement to have a better representation of the Carbon stock in the Project Area.
6. Expand community benefits wherever possible to keep communities interested in the project – e.g. Distribution of 900 LPGs annually.
7. To apply for Compensatory Afforestation fund from the National Compensatory Afforestation Fund Management and Planning Authority (CAMPA), Govt. of India – require to notify that the forests are community owned, will come under the purview of the Wildlife Protection Act, will require extensive awareness programmes.
8. Baseline development for other parameters/activities of forest dependency other than 'fuel wood consumption' in the project area.
9. Promotion of Bamboo utilization – for Charcoal production, income-generating activities.
10. Improvement of Technical Specification – Formation of a working group.
11. Enhancing bottom-up approach to have better connection between the Government agencies and the indigenous communities.
12. The TAC should have regular meetings in the future and members are advised to visit the project area at certain intervals.

At the end of the meeting the chairman concluded the TAC and expressed his gratitude to all the members present for their active participation and feedback. He also thanked the Forest Department for their support and arrangement of the venue for the TAC.
The chairman then invited everyone for lunch.