



2022 Plan Vivo Annual Report

KHASI HILLS COMMUNITY REDD+ PROJECT

Submitted by

**Ka Synjuk Ki Hima Arliang Wah Umiam
Mawphlang Welfare Society**



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Title of Project: Khasi Hills Community REDD+ Project
Annual Report Year: 2022
Summary of Project

Project overview	
Reporting period	1 January 2022 – 31 December 2022
Geographical areas	East Khasi Hills, India
Technical specifications in use	REDD+ and ANR

Project indicators	Historical (2012 - 2021)	Added / Issued this period (2022)	Total
No. of smallholder households with PES agreements	0	0	0
No. of community groups with PES agreements (where applicable)	85	1 (village re-joined the Project)	86
Approximate number of households (or individuals) in these community groups	7,262 households 38,375 individuals	502 households 2,603 individuals	7,764 households 40,978 individuals
Area under management (ha) where PES agreements are in place	15,334 ha REDD 1,639.7 ha ANR	108 ha REDD (Updated mapping) 11.3 ha ANR	15,442 ha REDD 1651 ha ANR
Total PES payments made to participants (USD)	\$350,450.74	\$122,533.14	\$472,983.88
Investment in forest conservation and management	\$253,894.85	\$44,921.71	\$298,816.56
Total community benefit	\$604,345.59	\$167,454.85	\$771,800.44
Total sum held in trust for future PES payments (USD)	\$290,994.22	0	\$290,994.22
Allocation to Plan Vivo buffer (tCO ₂)	87,462	15,210	102,672
Saleable emissions reductions achieved (tCO ₂)	349,841	60,837	410,678
Unsold stock at time of submission (PVC)			0
Plan Vivo Certificates (PVCs) issued to date			349,841
Plan Vivo Certificates requested for issuance			60,837
Plan Vivo Certificates available for future issuance			0
Total PVCs issued (including this report)			410,678

PART A: PROJECT UPDATES

- The Project held an on-site third-party audit for verification of the REDD+ Project in the Khasi Hills area in October 2022. This included both field audits, video conferencing, as well as a thorough review of documents by the verification team. Following the audit, the team carried out a training on proper measurement of carbon plots as a refresher to the team who conduct the annual measurements. The verification audit also identified that the biomass calculations were very conservative, which led to the team revising the calculation methods in the PDD. The requests for future action include more information on the biodiversity sightings including locations and data of the camera traps. The Project was successfully verified by SCS Global Services in May 2023.
- The team has submitted Project Identification Notes (PINs) to Plan Vivo to develop REDD+ Project extension areas for communities in Ri-Bhoi District in Meghalaya and with the Kuki community in the state of Manipur. The team is discussing the option of developing a state-wide project for Meghalaya and a multi-district project in Manipur in order to include more villages throughout the Project period. At the time of review of this Annual Report, October 2023, the Kuki project in Manipur is on hold indefinitely and the Ri-Bhoi project will move forward as a separate project.
- The fuelwood reduction programme continued to reach Project families by distributing 470 LPG (Liquified Petroleum Gas) cookstoves and cylinders (domestic and commercial) and rice cookers to households and commercial kitchens throughout 2022. Distributing LPG cookstoves to those who provide daily meals to children significantly reduced the amount of firewood that had been used previously.
- The Project introduced training in sustainable agriculture including new crops such as buckwheat and button mushrooms. These products are both fast growing and can fetch a good rate in the market. This year training was organised for beneficiaries interested in food processing and preservation. Food processing provides additional income for producers, reduces waste, and can be used as part of the eco-tourism initiative by promoting local foods.

A1: Key events and impacts

1) Mitigating Forest Fires: The Project continued its community-based effort to control forest fires. Awareness raising and rapid mobilization to halt outbreaks has been extremely effective in reducing forest fires. In 2022, the team took a different approach to measuring the impact of fire. The team segregated the area of forest which was affected by fire from the grassland and scrubland that was affected by fire within the Project area. Under this scenario, the forest fire area was minimal and can be credited to the construction and maintenance of the fire lines which are built by community members around forested area. The Project is confident that due to its fire mitigation measures the overall impact fires may have had on carbon stocks compared to the baseline has been minimized due to the work of the communities and prompt emergency measures to contain fires.

2) Community Development Fund Programme: The annual Community Development Funds (CDFs) are one of the major benefits provided by the Project to the participating communities and households. In 2022, 6,891 families benefited from funding to 85 villages. Each community determines how the funds will be spent to benefit the most families and have the greatest impact. In 2022, the communities primarily selected public health improvement activities including safe drinking water systems and improved bathing and washing facilities. Others purchased equipment for community functions and renovated public buildings including schools. In 2022, the Community Development Fund programme budget was doubled from the previous year providing funds of over \$41,000 to Project communities. See Annex 1 for details. The Community Development Fund is one of the many different support mechanisms that sit under the overall Payments for Ecosystem Services (PES) to communities.

3) Eco-Tourism Infrastructure Programme: The state of Meghalaya and the Project area have seen a steady increase in tourism of both domestic and international travelers in the years prior to the Covid-19 Pandemic and once again following the lift of associated travel restrictions. The state government has provided many incentives and increased budget spending to improve tourism infrastructure in the state. This year the Eco-tourism Development Team held its first public festival in the village of Umsawmat based on a local delicacy (grass caterpillar). It provided a space to showcase the location and activities that can draw tourists who may be more interested in cultural awareness as well as trekking, eating local foods, and enjoying the natural environment. The team has mapped out destinations and worked with community members to provide homestays, guides, and facilities for tourists throughout the Project area. Communities undertook grants in 2022 for eco-tourism-based projects worth \$14,000 in order to continue to update and build facilities, maintain trekking paths, and begin new initiatives.

4) Reduced Fuelwood Programme: This programme, aimed at reducing the use of fuelwood, is a long-term strategy that has been modified throughout the years based on availability and beneficiary interest. However, the end goal remains to help transition families to more energy efficient methods of heating and cooking. The Project helps by working with local dealers to provide LPG cookstoves and cylinders or rice cookers to Project families. This year, the Project also introduced the distribution of commercial LPG to organizations such as the Integrated Child Development Service (ICDS) which provides meals for children. In some of the kitchens they have been able to completely stop using fuelwood, which previously amounted to 35 kg per day. The benefits include reduced pressure on local forests and forest habitat, improved air quality, and a 50% reduction in carbon emissions. The fuelwood alternatives also save families substantial time in the cutting and transport of firewood as well as reduced time spent preparing food. This incentive is especially popular among village families and has increased the recognition of the Federation's service to the communities.

5) Biodiversity Rehabilitation: The Project has updated its approach in biodiversity conservation to include camera traps in order to better understand which species are found in the Project area. Field staff and Youth Volunteers continue to record the location and provide photo documentation of rare and endangered flora and fauna throughout the Project area. The intervention encourages the inhabitants of the Project area to cease hunting threatened species and to protect the habitat in which they live. This year, the forestry team held a programme for Community Facilitators (CFs) and Youth Volunteers on conservation of biodiversity. The programme was presented by two resource persons from the Biodiversity Board of Meghalaya and was attended by 131 participants. Furthermore, a training programme was conducted on the installation of camera traps and their use in documenting biodiversity sightings. All of the Community Facilitators from the ten Hima attended the programme which was presented by the Wildlife Department. Field staff report increasing frequencies of sighting key species including leopard and civet cats, several bird species, and rare and endemic plant species. This is directly linked to the rehabilitation of forest habitat as well as the linking of forest fragments to create larger wildlife corridors. Those animals which were found injured or in danger were rescued and handed over to the Meghalaya Wildlife Department for rehabilitation and release. See Annex 2.

6) Self-help Groups and Farmer's Clubs: The Project is distributing vermicompost units and materials, temperate fruit tree saplings, mushroom spawn, piglets, and chicks through subsidies from the Synjuk and convergence with Government departments of Meghalaya and the Central Government, while also providing training programmes on proper nutrition, common diseases, and treatment. The beneficiaries are also visited to ensure the shed and feeding systems for the animals are in good condition both prior to distribution and during follow-up monitoring visits. Similarly, monitoring of all distributions is conducted by the Community Facilitators, Youth Volunteers, and the staff. Two-hundred and sixty SHGs have joined with the Project are continuously being supported and provided advice on building their capital assets to finance micro-loans to their members allowing a proliferation of small income generating businesses.

7) Fruit Tree Plantations: The Project has been working to meet the needs of the interested participants for horticulture by procuring tree saplings from ICAR (Indian Council of Agricultural Research) and the Horticulture and Agriculture Departments of the Government of Meghalaya to carry out a plantation programme. The Project distributed 500 fruit tree saplings to 49 interested beneficiaries in 2022. The types of fruit trees distributed included peach, chestnut, pear, plum, pomegranate, kiwi, and apple. This year training was conducted by the Meghalaya Department of Horticulture for CFs and Youth Volunteers on pruning of fruit trees in order to maximize the production of fruit and to keep the trees healthy. Fifty-two participants attending the training.

8) SHG Federation: In 2022, after several discussions and meetings on forming an SHG Federation, one Hima has decided to join their SHGs together. This will strengthen the bargaining power of the

SHGs, provide linkages to more market opportunities, and increase the loaning available to members. The SHG Federation also offers groups from different areas to meet on a regular basis to strategize, discuss benefits and challenges, and exchange ideas with one another. The Project is anticipating that other Hima may decide to create their own Federation of SHGs in the future.

9) Food Processing: In 2022, the socio-economic team initiated a three-day training conducted by the office of the Assistant Director of Horticulture for beneficiaries in food processing. This is a way to add value and shelf-life to existing goods that the beneficiaries are producing. For example, using the hygienic methods that they are taught, the beneficiaries can make excess produce into pickles and sauces. With the addition of marketing assistance, Project participants can increase their economic status.

10) Traditional Herbal Practitioners: The entire Project Team is involved in supporting traditional Khasi herbal practitioners by bringing together those interested to form a group and assist with tools, equipment, promotion, and resources. In 2022, the Forestry Team worked with communities to locate areas to build herbal gardens to ensure sustainable sources of the herbs that are needed in their line of work. The Eco-tourism Team is also working to incorporate the practice of traditional massage into tourism and trekking packages.

A2: Successes and challenges

Successes:

- The Project was able to provide several trainings this past year from experienced resource people from government departments and scientific institutions, which helps to bolster the investments in the resources that are distributed to community members. It also allows beneficiaries to develop their skills and increase their knowledge in order to perform their roles effectively.
- There were new alternative livelihood activities introduced this year including food processing, button mushroom cultivation, and pig breeding. These initiatives were launched following feedback from the SHGs and beneficiaries and based on their interests.
- The Project team has seen continuation of activities from beneficiaries which is helping them to improve their financial status and reduce their impact on the forest. For example, around 80% of beneficiaries have continued cultivating mushroom and are investing their income into purchasing inputs for increased production. Vermi-composting has also been a successful activity with low inputs and quick rewards. Besides selling the product, beneficiaries are also able to use the compost to increase production of their own crops.
- Project communities continue to be involved and take ownership of the Project. There is an increased interest in the Project and the team has been addressed by other communities who want to learn more and be a part of forest conservation and regeneration of forests.

Challenges:

- Climate change and inclement weather conditions continue to threaten Project participants' livelihoods and wellbeing. With colder, drier winters and longer, more intense monsoon seasons, livestock and bees are negatively affected. Furthermore, when natural disasters occur, the ability to procure materials for livelihood activities becomes challenging. For example, due to hail and windstorms rice straw which is used in mushroom cultivation and vermicomposting was difficult to obtain.
- Increased prices of goods posed another challenge for beneficiaries. For example, poultry rearing became more of a challenge due to the rise in price of the poultry feed. The price of refilling LPG cylinders is also expensive and the Project is working on investing in alternatives which are sustainable for long-term use by the beneficiaries.
- It has been difficult to continue to add areas for Assisted Natural Regeneration (ANR) every year as communities have set aside land for other purposes or may have already closed area off for ANR. The team continues to work with Headmen to make Village Management Plans which include ANR for future years.

A3: Project developments

During 2022 the updated Technical Specification (TS) and the Project Design Document (PDD) for the Khasi Hills Community REDD+ Project were accepted by Plan Vivo. The Project continues to work with The Landscapes and Livelihoods Group (TLLG), an Edinburgh-based company to develop the Project as it expands into other areas of Northeast India. In October 2022 a consultant from TLLG joined the team for three weeks to visit the Project areas and assist with procedures for stakeholder engagement, sociological and environmental risks assessments, and to better understand the theory of change. During this visit the team also started to collect data points on land cover classes to develop more accurate maps for the Project and reference areas.

In 2022, the Project increased its presence in the Eco-tourism sector. The team continues to develop tourism strategies which both showcase the natural beauty of the area while protecting the forests from deforestation by providing communities with alternative livelihoods such as guiding, homestays, local foods, etc.

A4: Future developments

The Project will continue to develop relationships with villages throughout Meghalaya in order to expand the Project area and to assist in implementing REDD+ activities there. The team is working on developing a project in Ri-Bhoi District, Meghalaya and is currently working on the PDD.

The socio-economic team is continuously implementing and monitoring income generating livelihood activities. They will continue to assess their future viability, adjust as needed, and provide training based on expert knowledge.

The Project is interested in conducting more research on water quality and how reducing deforestation is affecting water sources for those in the Project area. They are looking forward to working with hydrologists in this effort. See Annex 3 for 2022 monitoring results. Similarly, the team is working on developing methods to assess the Project’s effect on biodiversity in the Project area.

PART B: PROJECT ACTIVITIES

B1: Project activities generating Plan Vivo Certificates

Project activities to generate Plan Vivo certificates continued in 2022. An additional 11.26 hectares were taken up for advance closure and silvicultural treatment bringing the total ANR to 1,651 hectares. The most recent ANR forest plot monitoring has shown that these young regenerating forests were sequestering carbon at an annual rate of 1.40 tC/ha for open forests and 2.43 tC/ha for dense forests per year (Tables G8b and G8c, 2021 KHCRP Technical Specification V4.1). These rates show similarities with the range of rates seen in studies of similar open Chir pine forests in Nepal (Jina et al, 2008) (Shrestha, 2010).

Avoided forest degradation and deforestation (REDD+) in dense forests is succeeding through community fire control, reduced fuelwood consumption, and raising community awareness through the preparation of village forest plans and maps. Fire control efforts by communities in 2022, including the maintenance of 90 km of fire lines, limited the area of forested affected by fire to 6.2 hectares. This year, the Project team monitored both grassland and scrubland separately from the forested area while assessing fire damage. The fire lines are made to protect the forested area and they have been successful in that effort. The unforested area affected by fire in the Project area was measured at 42.6 hectares.

Table 1: Project activity summary

Name of technical specification	Area (Ha)	No. Smallholder Households	No. Community Groups
Advance Closure for ANR	1651	4,333	48
REDD+	15,442	7,764	86

Tables 2a and 2b: Area protected for natural regeneration and enrichment planting in 2022 and the first two implementation phases in hectares.

Hima	ANR area added 2014	ANR area added 2015	ANR area added 2016	ANR area added 2017	ANR area added 2018	ANR area added 2019	ANR area added 2020	ANR area added 2021	ANR area added 2022	Total ANR to date
Mawphlang	24	85.9	21.7	8.3	0	0	20	17.7	0	177.6
Laitkroh	6	40.9	29.9	0	100	0	11	0	0	187.8
Nonglwai	8	0	0	0	0	0	0	0	0	8
Lyngiong	9.6	278.5	68	0	20	0	30	10.7	0	416.8
Mylliem	32.1	12	20.2	0	20	0	40	28	10	162.3
Pamsangut	7.3	21	115.4	0	0	0	15	0	0	158.7
Nongkhlaw	0	19	30.6	0	10	0	5	0	0	64.6
Nongspung	9	3.9	0	0	0	0	10	11.7	1.3	35.9
Sohra	19.7	18.6	200.9	0	20	19	20	0	0	298.2
Mawbeh	34.9	30.7	7.1	0	20	6	35	7.4	0	141.1
Total	150.6	510.5	493.8	8.3	190	25	186	75.5	11.3	1651

ANR TREATMENT TYPE	IMPLEMENTATION PHASE 1 2012-2016 (ha)	IMPLEMENTATION PHASE 2 2017-2021 (ha)	IMPLEMENTATION PHASE 3 2022-2026 (ha)	TOTAL 2012-2021 (ha)
ANR advance closure	1154.9	484.8	11.3	1651.0
Silviculture activity	500	484.8	27.6	1012.4

B2: Project activities in addition to those generating Plan Vivo Certificates

The Project's strategy in generating additional social and economic benefits depends on the involvement of members of the 86 participating villages. In order to engage nearly 41,000 people scattered over 270 square kilometres, the Project has hired and trained a staff of community organizers. Table 3 illustrates the steady growth in staff over the past six years, with the number of female staff members increasing over the same period as well. Over 90 percent of the Project staff are members of the participating communities and include both men and women, young and old. The allocation of Project resources for socio-economic activities is guided by the input from the Project participants themselves.

The governance of the Federation or Synjuk that oversees the Project is comprised of the leaders of the ten participating Indigenous governments (*Hima*), representatives from the SHGs and FCs, and members of the staff including Youth Volunteers. This approach to bottom-up planning and local management allows the Project to be grounded in and owned by the participating communities

providing it with greater sustainability. The Project’s efforts to engage school students in conservation activities directly links these young Khasi youth to their traditional environmental values as well as motivates them to engage in ongoing and future forest and land stewardship projects.

Table 3: Project Staff Engaged in Community Development and Resource Management

Year	Office Staff	Male Community Facilitators	Special Task Community Facilitators	Assistant Community Facilitators	Female Community Facilitators	Male Local Youth Volunteer	Female Local Youth Volunteer	Total
2016	9	5	1	0	0	62	0	77
2017	12	6	1	3	4	62	62	150
2018	8	5	1	4	6	62	62	148
2019	14	9	0	6	10	62	62	163
2020	15	9	0	6	10	62	62	164
2021	19	9	0	8	10	85	85	216
2022	19	9	0	8	10	86	86	218

- Training Programmes:** An important component of the Project strategy is capacity building. The team conducted a series of vocational training sessions on vermicomposting, buckwheat cultivation, temperate tree pruning, pig breeding, button mushroom cultivation, food processing, tour guiding, photography, camera trap placement and monitoring, tree plantation, carbon plot monitoring, scrubland plot making, and nursery management to both refresh knowledge of those who were already involved in the Project and to orient those who are new to the Project activities. Orientation sessions were also conducted for CFs and Youth Volunteers as well as SHGs.

PART C: PLAN VIVO CERTIFICATE ISSUANCE SUBMISSION

C1: Contractual statement

The Federation (Synjuk) has signed PES (Payment for Ecological Services) agreements with 86 participating villages in the Project area.

Table 4: Statement of tCO2 reductions available for issuance as Plan Vivo Certificates based on activity for reporting period 1/22 – 12/22

Total area (ha)	Tech. Spec	Saleable ERs available (tCO2) available from previous periods.	Total ER's (tCO2) achieved this period (2022)	% Buffer	No. of PVCs allocated to buffer from ER's (2022)	Saleable ERs available (2022)	Issuance request (PVCs) Vintage	ER's (tCO2) available for future issuances
15,442	REDD+	0	71,000	20	14,200	56,800	56,800	0
1,651	ANR	0	5,047	20	1,010	4,037	4,037	0
Total		0	76,047	20	15,210	60,837	60,837	0

C2: Allocation of issuance request

Table 5: Allocation of issuance request

Buyer name/ Unsold Stock	No. PVCs transacted	Registry ID (if available) or Project ID if destined for Unsold Stock	Tech spec(s) associated with issuance
Khasi Hills Community REDD+ Project	60,837	10300000000432	REDD+/ANR
TOTAL	60,837		

C3: Data to support issuance request

See monitoring results Annex 4. During 2022, plots were monitored and carbon was calculated as per the Technical Specifications in the Project Design Document V4.0-4.1:

A biomass expansion factor (BEF) was applied to convert stem biomass estimates to estimates of whole tree biomass was applied. Biomass expansion factors recommended by Brown (1997) were applied:

- When inventoried biomass was >190 t/ha a BEF of 1.74 was applied;
- When inventories biomass as <190t/ha a $BEF = EXP(3.213 - 0.506 * LN(BV))$, was applied where BV=inventoried volume;
- For plots dominated by pines a BEF of 1.3 was applied.

In the past this procedure had not been consistent, and a more conservative approach was being used where a BEF of 1.3 was applied for all open forest plots. Due to this discrepancy, the Project has recalculated the previous years using this consistent method in order to compare figures.

PART D: SALES OF PLAN VIVO CERTIFICATES

Table 6: Sales for the reporting period 01/22 – 12/22

Vintage	Sale Date (M/D/Y)	Buyer	No of PVCs	Price per PVC (\$)*	Total sale amount (\$)*	% Sale received by participants
2021	04/25/2022	Zero Mission	25,000			80
Total for 2022			25,000			

*Pricing reported for internal monitoring purposes only.

See Annex 6 for the historical sales data.

PART E: MONITORING RESULTS

The Project 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 critical to both strategies as fires destroy older growth and dense forests, while restricting regeneration in developing forests. These targets are from the revised monitoring framework found in the Technical Specification (V4.0-4.1) Table K1a which were revised during in 2021 and reviewed throughout the Project monitoring period based on realistic assumptions and reflective of the past monitoring results.

The monitoring targets for socio-economic activity is divided into two sections, 1) benefit sharing and participation and 2) institutional capacity. The baseline and monitoring targets for socio-economic monitoring from Table K2 in the Technical Specifications (V4.0-4.1) were revised in 2021.

Table 7: Monitoring targets

Activity	Activity Indicator (measured annually)	Means of Assessment	Annual Targets			
			Full Target	Full Target Achievement	Partial Target Achievement	Missed Target
Forestry Indicators						

Fire control	Length of fire lines constructed by <i>Hima</i>	The project team keeps records of km of fire line reported annually by the CF of each <i>Hima</i> and is included in the annual report.	> 60 km	89.65		
Forest restoration	Number of hectares with ANR Advance Closure Treatment	CFs collect data from village members and Youth Volunteers who record data from the field using GPS units. The results are published in the annual report.	50 ha			11.26 ha
	Number of hectares with ANR Silvicultural Treatment	CFs collect data from village members and Youth Volunteers who record data from the field using GPS units. The results are published in the annual report.	50 ha		27.6 Ha	
Fuelwood saving devices	Number of fuelwoods saving units installed (LPG, rice cookers, etc.)	Data is collected by the CFs and the project team throughout the year and analyzed at year's end for inclusion in the annual report.	>150 units	470 units		
Charcoal making	Number of households who have been involved in charcoal making who are now involved in alternative activities	Data is collected by the CFs and the project team throughout the year and analyzed at year's end for inclusion in the annual report.	>5%		1.8 %	
Socio-economic Indicators						
Benefit sharing and participation	Number of villages with Community Development Funds (CDFs)	The data is collected by the CFs from the village leaders and members to gain their input and is analyzed by the project team to identify any problems and implications for the coming year's grant program. The findings are included in the annual report.	>70 villages	85 villages		
	Number of families accessing CDFs	The data is collected by the CFs from the village leaders	>2000 HH	6891 households		

		and members to gain their input and is analyzed by the project team to identify any problems and implications for the coming year's grant program. The findings are included in the annual report.				
Institutional capacity	Number of trainings programs	This data is collected by the project team throughout the year and is analyzed at year's end by the team to determine if capacity is improving. The quantitative data is supplemented by case studies and in-depth interviews. The data is reported in the annual report to Plan Vivo and other stakeholder institutions.	10 programs	10 programs		
	Percentage of participants who take up an activity after receiving training (within 1 year)	This data is collected by the CFs and project team throughout the year and is analyzed at the year's end by the team to determine if the training is beneficial. The data is reported in the annual report to Plan Vivo.	>50%		30%	
	Number of families participating in Income Generating Activities	Data is collected by CFs from village leaders and members and is analyzed by the project team. The findings are included in the annual report.	>200 families	260 families		

Environmental and Biodiversity Indicators

Biodiversity	Number of biodiversity surveys conducted by CFs and Youth Volunteers	The CFs and Youth Volunteers record any observations on biodiversity record sheets. Information recorded includes the name of the species observed, time and place, GPS location, evidence of its presence (scat, fur, animal or bird, call, etc.), and the	>2 surveys	6		
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		condition of the location. The record is presented and reviewed by the project team at the end of the year.				
Quarrying	Number of reports and lobby advocacy meetings/reports held	The data is collected by the CF and reported to the project team which analyses the data and includes it in the annual report and shares it with the <i>Hima</i> leadership and village councils.	2 reports or meetings			0

Although the targets for forest restoration were not met this year for the number of hectares that were added to ANR and part of silvicultural activities, the Project continues to work with communities to increase the amount of land that is set aside for regeneration and will commit to including more land for ANR to meet the five-year target of 250 hectares which is included in the PDD. The success of ANR within the Project continues to be monitored carefully and the team is looking forward to analysing which activities are making the most impact in the communities.

New monitoring targets were set within the updated PDD for the monitoring period 2022-2026 for charcoal production. The team has monitored charcoal production in the past, however, the new annual target was only partially met. It is difficult to monitor realistic changes in households involved in charcoal making as there are a number of factors involved including location, number of people in the household depending on the income, the number of months a household might be involved in the activity, and the type of forest that is used for such purposes. The team is actively working with communities to introduce alternative livelihoods which would decrease the need to use the forest for charcoal making.

During 2022, the CFs and team were unable to achieve the targets for meetings and reports on quarrying. This continues to be a challenge as quarries are often on private land, but the Project is dedicated to reaching the targets in the upcoming years in order to reduce quarry activity in the Project area.

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 the Annex.

Forest cover and conditions are improving throughout the 23,500-hectare Project within the Umiam Watershed as community awareness has heightened village forest protection activities. This, in turn, has resulted in improving hydrological function with increased stream and spring flow through the dry season. Biodiversity of flora and fauna appears to be strong (as represented by the number of sightings of rare species), though the team is unable to provide conclusive evidence of any increase in biodiversity at this point given the data. Now that data is being collected through camera traps, the team can use the information as a baseline for continued monitoring at precise locations.

The area of forest impacted by fire was heavily reduced in 2022 as forests were protected by community driven action of fire lines, pre-controlled burning, and the use of fire watchers who quickly notify the community to keep existing fires from spreading. The Project has also assisted in household transition from fuelwood to alternative energy sources by distributing LPG cooktops and cylinders to a total of 2,537 beneficiaries throughout the Project years, including 220 units in 2022. The Project also distributed 250 rice cookers to households in 2022.

Co-benefits reflecting the Sustainable Development Goals can also be seen as household incomes increase due to Project supported entrepreneurial and innovative farming systems including organic agriculture. The use of Community Development Funds by participating villages to improve village forests in 85 communities in 2022 demonstrates that the Project is having an impact on improving environmental conditions. More than 7,764 households have benefited from access to the mature forest for fuelwood, support for livelihood, support for the poor families, and as a watershed source for drinking water. An important impact from the Project is the increasing participation rates and interest of the approximately 41,000 people in the watershed. From the outset, the Khasi Hills Community REDD+ Project was ambitious in taking on 62 communities with a population of 25,000. The continued success of the Project is reflected in its steady growth of villages and as neighbouring communities request to be included in the forest conservation and restoration activities. The Project has been contacted by other tribal communities, governments, and NGOs in India in the past few years, further demonstrating its impact as a model for a successful approach to village resource management.

An additional Project impact has been the adoption of Project innovations by the World Bank funded Meghalaya Community Watershed Project that draws on the Khasi Hills experience. The Project is thereby shaping national and state-level policy regarding how communities can be empowered to address climate change through REDD+ and afforestation and reforestation projects.

PART G: PAYMENTS FOR ECOSYSTEM SERVICES

G1: Summary of Community Development Funds by year

Payments for Ecosystem Services (PES) include all socio-economic activities, restoration, and environmental services. The breakdown for these funds can be found in Part I, Table 9. The primary mode of PES distribution is through the annual Community Development Funds (CDF) Programme. In 2022, the Project was able to distribute the highest payments to date to Project participants. Payments were made to assist 6,891 households in 85 villages (the 86th village was re-added after CDF had been distributed), see Annex 1, Table 1 for detailed information. Distributions through this mechanism are summarized in Table 8 below:

Table 8: Summary of payments made and held in trust

Reporting year		Total previous payments (previous reporting periods) \$	Total ongoing payments (in this reporting period) \$	Total payments made (2+3) \$	Total payments held in trust \$	Total payments withheld \$
01/2022-12/2022	Community Development Funds	146,052.72	41,077.14	187,129.86	0	0
	Small Livelihood Grants	18,842.07	37,892.00	56,734.07	0	0
01/2021-12/2021	Community Development Funds	128,909.86	17,142.86	146,052.72	857.14	0
	Small Livelihood Grants	11,373.97	7,468.10	18,842.07	0	0
01/2020-12/2020	Community Development Funds	100,219.61	28,690.25	128,909.86	2,357.00	0
	Small Livelihood Grants	10,152.33	1,221.64	11,373.97	0	0
01/2019-12/2019	Community Development Funds	83,108.21	17,111.40	100,219.61	14,307.69	692.31
	Small Livelihood Grants	9,344.33	808.00	10,152.33	1,769.00	0
01/2018-12/2018	Community Development Funds	68,584.41	14,523.80	83,108.21	0	952.38
	Small Livelihood Grants	8,559.33	785.00	9,344.33	0	0
		48,822.41	19,762.00	68,584.41	1,563.00	1,563.00

01/2017-12/2017	Community Development Funds					
	Small Livelihood Grants	6,541.33	2,018.00	8,559.33	0	0
01/2016-12/2016	Community Development Funds	30,720.41	18,102.00	48,822.41	19,200.00	0
	Small Livelihood Grants	3,782.33	2,759.00	6,541.33	0	0
01/2015-12/2015	Community Development Funds	12,750.00	17,970.41	30,720.41	0	0
	Small Livelihood Grants	1,658.33	2,124.00	3,782.33	0	0
01/2014-12/2014	Community Development Funds	0	12,750.00	12,750.00	0	0
	Small Livelihood Grants	0	1,658.33	1,658.33	0	0
TOTAL			243,863.93			

Please note that this is only comparing Community Development Funds and Small Livelihood Grants throughout the years. The Community Benefit extends to other services which are summarised in Table 9.

PART H: ON-GOING PARTICIPATION

H1: Project Potential

The Project leaders are meeting with village leaders in neighbouring Ri-Bhoi District, adjacent villages to the Project area and in Manipur to assess potential interest in expanding the Project into their areas.

H2: Community Participation

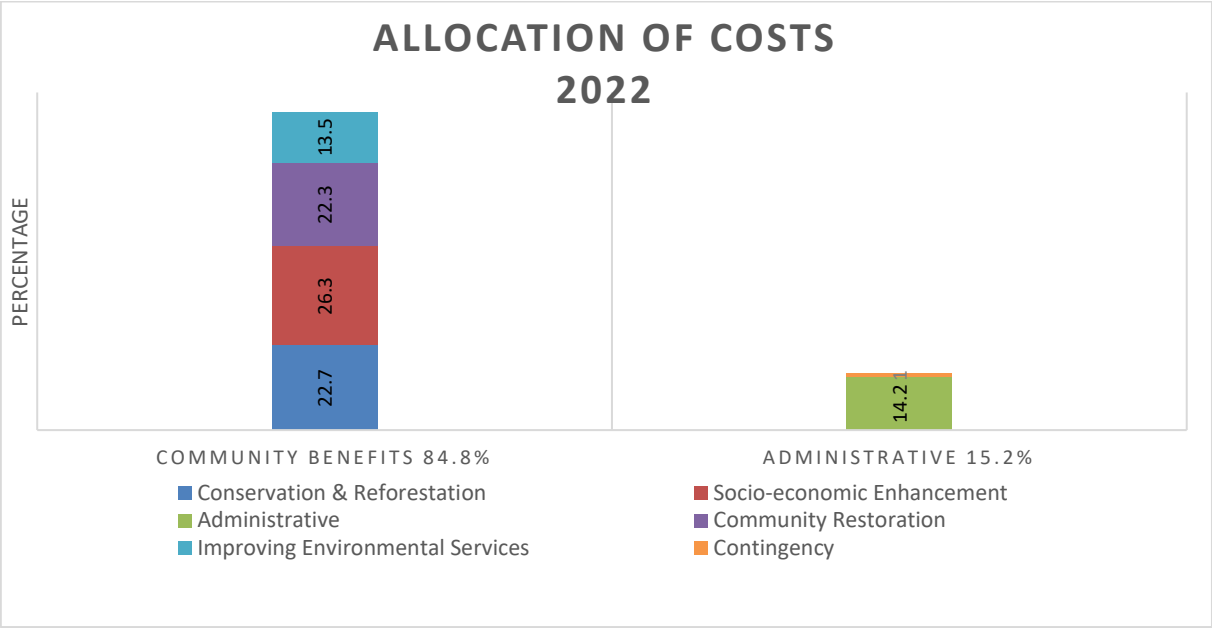
The Project strategy is based on the intensive participation of the communities. During 2022, the team prepared for the five-year verification and field audit of the Project. Due to this, the Community Facilitators worked closely with both the team and the community members to ensure all activities were taking place and that beneficiaries were available and prepared for meeting with the audit team. Additionally, the Project employed 218 individuals drawn from the participating villages, an increase from 77 staff in 2016. The Project strategy relies on local people to both manage and implement the

Project to strengthen the sense of ownership, utilize local knowledge regarding development priorities and environmental problems, and to reduce overhead costs. The Project has emphasized the involvement of women and youth in order to create an age and gender balance that reflects the larger community, while drawing on the experience and authority of traditional leaders.

PART I: PROJECT OPERATING COSTS

Table 9: Allocation of costs 2022

COMMUNITY BENEFITS	INR	USD	%
Conservation & Reforestation			
Conservation & Reforestation: LPG Distribution, plantation, training, silviculture, site selection, capacity building	3,144,520	44,921.71	22.7%
PES Payments			
Socio-economic enhancement: Temperate fruit trees, livestock, vermi-composting, mushroom cultivation, SHGs, LWCs, FCs, training, Community Development Fund, Special Village Grant, solar streetlights, income generating activities	3,631,820	51,883.14	26.3%
Assist community with restoration: CFs, Training, Tree Adoption Programme, Fireline	3,082,700	44,038.57	22.3%
Improving Environmental Services: Eco-tourism grants, Biodiversity monitoring, Advocacy and Networking	1,862,800	26,611.43	13.5%
Total	11,721,840	167,454.85	84.8%
ADMINISTRATIVE OVERHEADS	INR	USD	%
Administrative	1,963,920	28,056.00	14.2%
Contingency	145,000	2,071.43	1.0%
Total	2,108,920	30,127.43	15.2%
TOTAL COSTS	13,830,760	197,582.28	100%



See Annex 1, Table 2 for a complete list of community benefits provided by the Project.

ANNEX

Annex 1: Community impacts

Table 1: Community Development Funds provided to 85 participating villages in 2022.

Community Development Funds for the year 2022				
Sl. No	Village	Activity	Number of Households	Benefitted Households
1	Mawkohmon	Repairing and painting Dorbar Hall.	223	223
2	Mission	Repairing toilet and water tank at Dorbar Hall.	85	85
3	Ladumrisain	Repairing 12 solar streetlights and 4 signboards.	135	135
4	Nongrum	Purchasing of speaker wire and installation of speaker, making of wooden podium and making of signboard.	145	145
5	Dongiewrim	Making gate and construction canal at Pungum Palong	196	196
6	Lyngkien Sunei	Buying village materials.	99	99
8	Umyrniut	Buying village materials.	102	102
8	Mawmyrsiang	Buying P.A. system	80	80
9	Lyngkien Ramklang	Buying village materials.	126	126
10	Kyiem	Renovation of drinking well at Ummawiong.	131	131
11	Wahrahaw	Purchasing plastic chairs	86	86
12	Ur Ur	Construction of toilet at Community Hall	110	110
13	Wahumlawbah	Purchasing village materials.	100	100
14	Laitmawpen	Purchasing village materials.	65	65
15	Lawshlem	Purchasing plastic chairs.	48	48
16	Kyndonglaimaw bah	Purchasing plastic chairs and one table.	50	50
17	Phaniewlah Neng	Restoring agricultural land from MB road to Laitsynning.	84	84
18	Phaniewlah Rum	Construction of washing place at Mawlyngru.	110	110
19	Umkaber	Construction of two railings at the washing place at Mawlariang and Khlemman.	81	81
20	Nongthymmai Rum	Construction of washing place.	53	53
21	Lyngdoh Phanblang	Construction of water pond at Perstew.	112	112

22	Perkseh	Construction roof top of washing place.	78	30
23	Laitsohphlang	Purchasing plastic chairs.	38	38
24	Mawponghong	Construction of water pond.	103	103
25	Umsawmat	Construction washing place at Tihjaud	129	129
26	Laitmawhing	Construction of two dustbin at Lailad.	64	64
27	Thainthynroh	Fencing drinking well at Donglum.	225	20
28	Nonglwai	Buying plastic chairs	207	207
29	Laitsohum	Purchasing cooking materials and plastic chairs.	70	70
30	Kukon	Construction of washing place at Wah Hima Kukon.	22	22
31	Mawlum Tyrsad	Continuation of roof top of washing place at Thwei Sohphareng.	102	102
32	Kyrphei	Making drawer and benches.	169	169
33	Umlangmar M	Buying plastic chairs.	85	85
34	Mawspang	Construction of water pond.	27	27
35	Nongmadan	Construction of washing place	131	131
36	Pamsanggut	Construction of place to perform rituals (Duwan Knia shnong)	50	50
37	Mawsawrit	Construction of washing place.	65	65
38	Nongwah	Purchasing water tank & pipe at the toilet of Children Park at Nongwah	147	147
39	Remdong	Construction of washing place	30	30
40	Tyrsad Umkseh	Repairing office of Dorbar Shnong	200	200
41	Mawliehpoh	Buying village materials.	68	68
42	Mawrohroh	Construction of steps at Dorbar Hall.	66	66
43	Umlangmar(N)	Construction of toilet at Dorbar hall.	33	33
44	Lawkhla Mawlong	Purchasing drawer for the Community Hall.	44	44
45	Lawkhla	Construction of washing place	72	40
46	Laitniangtlong	Construction of drinking well at Pdeng Shnong	52	52
47	Wahrisain	Buying village materials.	32	32
48	Mawsadang	Making of tables and chairs at Dorbar Hall.	121	121
49	Niamsang	Construction of footpath.	41	41
50	Pyndenumbri	Buying PA system.	40	40
51	Mawbeh	Construction of toilet at Lumsder Mawbeh.	144	144
52	Laitsohma	Construction of toilet at the Community Hall	38	38
53	Steplakrai	Construction of toilet at Seng Khasi School Steplakrai.	41	41
54	Mawkalang	Construction of pond at Lynti Sohra	22	22
55	Wahstew	Construction of waiting shed at Wahstew	54	54

56	Laitthemlangсах	Continuation of viewpoint at Lum Thwei U Ren	21	21
57	Laitumiong	Construction of washing place.	13	13
58	Synrangshohnoh	Continuation of bus shed at Wahnamlang.	42	42
59	Jathang	Purchase of water tank, drawer, bench and tarp.	48	48
60	Mawstep	Construction of washing place at Madan Pyrdong.	53	14
61	Rngidiengsai	Repair washing place at Wah Thoh Syntai Rngidiengsai.	15	10
62	Pyrda	Construction of washing place at Wahthem Sohshur Pyrda.	63	35
63	Dympep	Silviculture at Law Adong at riat U Nok U Sain Wah Sohra Dympep.	76	76
64	Laitsohpliah	Construction of washing place at Wah -U-Se.	88	25
65	Umdiengpoh	Construction of canal at Pynsumkulai.	88	88
66	Mawkma	Construction of drinking well at Persohriew Mawkma	268	15
67	Laitlyndop	Buying water pipe.	154	154
68	Lad-Mawphlang	Repairing washing place at Wahkhlaw Lad Mawphlang	104	90
69	Mawmihthied	Construction of washing at Riat Thapbalieh.	139	125
70	Mawbri	Construction of two dustbins at Lumsohpen and Mawshongthaid	30	30
71	Sohrarim	Repair water pond at Wahmawbah Sohrarim.	138	138
72	Lumkyntung	Purchasing village materials.	76	76
73	Umtynnggar	Repair Aganwadi centre	89	89
74	Shankhla	Construction of washing place at Phud Shyngiar	22	22
75	Lyngkienshih	Construction of drinking well.	56	56
76	Kynton Syrwa	Construction of washing place at Myrthoh Kynton Syrwa.	56	56
77	Mynsain	Construction of washing place at Umsawlia	87	87
78	Nongthymmai Pdeng	Renovation of washing platform at Nongthymmai Pdeng.	27	27
79	Lummawkong	Buying village materials.	91	91
80	Kyrdemkhla	Purchasing village materials.	106	106
81	Diengkynthong	Purchasing village materials and repair of washing place	88	88
82	Mawjriong	Buying P.A. System	126	126
83	Mawmyrsiang	Construction of washing place	129	60

84	Tiewlieh	Construction of drinking well at Wah Umsuh.	131	131
85	Laitkynsew	Construction of public toilet at Law Adong	206	206
			7661	6891

Those villages in which less than 100% of the households were beneficiaries of the CDF is due to the location of the project which was given in the plan of the village. The households may have benefitted from past funds or may benefit from funds in the future based on the village plan presented.

Table 2: Structure of Community Benefits

Community Benefits		
Conservation & Reforestation		LPG Distribution
		Plantation
		Training
		Silviculture
		Site selection
		Capacity building
PES	Socio-economic Enhancement	Vermi-composting
		Temperate fruit trees
		Shade nets
		Livestock
		Mushroom cultivation
		SHGs/Farmers Clubs
		Income Generating Activities
		Training
		LWC
		Community Development Funds
		Special Village Grants
		Rain harvesting
		Solar streetlights
		Assist Communities with Restoration
	Tree adoption programme	
	Community Facilitators	
	Youth Volunteers	
	Training	
	Forest Conservation Extension Programme	
	Improve Environmental Services	Eco-tourism Grants
		Advocacy and networking
		Biodiversity documentation

Annex 2: Conservation monitoring results

The biodiversity survey provides a record of sightings of flora and fauna in the Project area. The survey is kept by the Community Facilitators (CFs) to the best of their capability through the inputs of the Youth Volunteers and resident villagers. All sightings are documented with photos and GPS coordinates.

This year, through convergence with the Meghalaya Department of Wildlife, the Project added camera traps to get a better sense of which fauna are present without disturbing their habitats. Four camera traps were purchased by the Project and nine were provided by the Wildlife Department. Each camera trap remains in place for approximately one month before the data is collected and it is moved to another location. Overall, the Project has gathered data from 52 locations in 2022.

Sightings by Community	Village	Action Taken
Nightjar bird	Nongwah	Rehabilitated
Leopard prints (spotted twice)	Lum Kyrphei	None
Leopard cubs	Mawrathud	Rehabilitated
Tern bird	Mawlum Tyrsad	Rehabilitated
Slaty-legged crane bird	Mawrohroh	Rehabilitated
Hooded pitta bird	Mawkoma	Rehabilitated
Hare	Phanniewlahneng	Rehabilitated
Nepenthes khasiana	Umsawmat	Protected
Deer faeces	Hima Myllem	None
Unidentified bird	Nongwah	Rehabilitated
Ground orchid (possibly <i>Spathoglottis</i>)	Mawbeh	None
Blue whistling thrush bird	Mawmyrsiang	Rehabilitated
Ferret badger	Umlangmar Myllem	Wildlife Dept. contacted, but animal died before treatment
Civet cat faeces	Mawlangrain Umlangmar	None
Owl	Mawlum Tyrsad	Rehabilitated
Oriental day owl	Laiphew Diengngan	Rehabilitated
Leopard cubs	Lawkhla Mawlong	Rehabilitated
Sightings by Camera Trap		Number of Sightings
Civet cat		7
Chipmunk		5
Pheasant		11
Bird		7
Yellow-throated Marten		4
Squirrel		8
Deer		7
Porcupine		1
Leopard cat		3

Annex 3: 2022 water quality monitoring results

SL.NO	HIMA	VILLAGE	LOCATION	CONSTRUCTED BY	HOUSEHOLD BENEFITTED	PHYSIOGRAPHICAL FEATURE AND TYPE OF TREES	FINDINGS	REMARKS
1	Nongkhlaw	Sohrarim	Wah Mawsapiur	MGNREGS	20	Open Forest with loamy and clay soil, the soil is mostly moist. Trees consisting of <i>Castanopsis hystrix</i> , <i>Castanopsis indica</i> , <i>Ex bucklandia populnia</i> , <i>Schima khasiana</i> , <i>Myrica esculenta</i> , <i>Lithocarpus fenestrata</i> , <i>Elaeocarpus lanceifolius</i> .	There is regular availability of water in the area. The water sample collected have been taken for tested and found traces of <i>E.coli</i> which might indicates the fecal contamination. The water is unfit to drink and to be consumed after boiling.	Silviculture to be done in the area.
2	Mawbeh	Laitthemlangah	Wahpham				There is regular availability of water in the area. The water sample collected have been taken for tested and found to be slightly acidic.	It is advised to boil the water before consumption.
3	Sohra	Lad Mawphlang	Wahmawbor	Community	Whole village (Occasionally when there is shortage of water during winters)	Soil type is loamy and clay soil with mostly <i>Castanopsis indica</i> and <i>Myrica sp.</i> growing in the area.	There is regular availability of water in the area. The water sample collected have been taken for tested and found traces of <i>E.coli</i> . The water is unfit to drink and to be consumed after boiling.	
4	Laitkroh	Mawmyrsiang	Wahsohkrit (Private land)	Open Well	30	Soil type is sandy and loamy with majority of <i>Cryptomeria japonica</i> and	Desiltation of the water pond is needed to improve the quality of the water. The	Restoration and improvement

						some of <i>Pinus kesiya</i> , <i>Engelhardtia spicata</i> , <i>Quercus grafitii</i> , <i>Alnus nepalensis</i> , <i>Rhododendron arboretum</i> , <i>Myrica sp.</i> , <i>Pyrus communis</i> .	water is unfit to drink and to be consumed after boiling.	of the pond is needed.
5	Nonglwai	Nonglwai	Kyndong Waharkum	Special Grant funded by Synjuk.	52	The soil is slightly moist and heavy soil with small clay particles. The tree species growing in the area are <i>Pinus kesiya</i> , <i>Quercus grafitii</i> , <i>Ex bucklandia populnia</i> , <i>Quercus fenestrata</i> , <i>Castanopsis hystrix</i> , <i>Betula alnoidus</i> .	There is regular availability of water in the area. The water sample collected have been taken for tested and found traces of <i>E.coli</i> . The water is unfit to drink and to be consumed after boiling.	
6	Pamsanngut	Tyrsad Umkseh	Tyrsad Umkseh	MGNREGS	60 (Occasionally)	Mostly bamboo shoots	The shed is situated in the vicinity of the village. All the activity within the watershed somehow affects the watershed's natural resources and water quality which make the water unfit to drink.	It is advised to boil water before consumption.
7	Lyngiong	Perkseh	Perkseh	MGNREGS	30 (Regularly) 60 to 70 (Occasionally)	The type of soil is shallow to dense to loamy soil and tree species grown in the area are <i>Quercus fenestrata</i> , <i>Pinus kesiya</i> , <i>Pyrus Persia</i> , <i>Docynia indica</i> , <i>Camilia kesiwall</i> , <i>Corot hichanu</i> , <i>Myrica</i>	There is regular availability of water in the area. The water sample collected have been taken for tested and found to be unfit for consumption and to be consumed after boiling.	

						<i>esculenta, Symplocus cynansis.</i>	
8	Mawphlang	Ladumrisain	Pung Shipai	MGNREGS and repaired by Synjuk through CDG.	30	The soil type has poor well-drained soil with soil type of sandy to clay soil. <i>Quercus fenestrata, Pinus kesiya, Rhododendron arboretum, Alnus nepalensis</i> Dieng Lasyrngieng are the tree species that grows in the area.	There is regular availability of water in the area. The water sample collected have been taken for tested and found traces of <i>E.coli</i> which might indicates the fecal contamination. The water is unfit to drink and to be consumed after boiling.
9	Nongspung	Mawsadang		Community	7	The soil type has poor well-drained soil with soil type of sandy to clay soil. <i>Quercus fenestrata, Castanopsis indica, Myrica sp., Quercus grafitii, Jalaba</i>	There is regular availability of water in the area. The water sample collected have been taken for tested and found to be slightly acidic.
10	Mylliem	Kyrphei					There is regular availability of water in the area. The water sample collected have been taken for tested and found traces of <i>E. coli</i> which might indicates the faecal contamination. The water is unfit to drink and to be consumed after boiling.

Annex 4: REDD+ and ANR carbon monitoring results for issuance request

Tables 1 and 2 show the carbon stock in the open and dense REDD+ forest inventory plots that are monitored annually. The 2022 sample includes 52 randomly selected open forest plots and 62 dense forest plots. Tables 3 and 4 show the average growth in the 32 randomly selected ANR plots.

Table 1: REDD+ Open Forest plot carbon stock for 2018-2022 in tC per hectare

Plot No.	2018 Open (tC/ha)	2019 Open (tC/ha)	2020 Open (tC/ha)	2021 Open (tC/ha)	2022 Open (tC/ha)
1	10.431	11.082	14.675	15.184	-
2					
3	10.376	10.811	11.792		-
4					
5	51.528	52.937	55.434	64.639	48.886
6	58.284	60.640	63.844	69.406	61.517
7	50.376	51.470	53.659	54.161	55.401
8	41.056	41.630	42.699	43.576	67.925
9	57.157	58.538	60.427	62.039	66.797
10	12.256	12.380	13.009	13.316	13.749
11	57.625	58.400	61.445	66.477	66.625
12	46.443	47.536	49.244	50.132	78.087
13	60.522	61.356	62.180		-
14					
15	52.907	54.669	59.321	62.714	62.474
16	50.806	51.683	51.187	54.775	-
17	42.298	43.363	44.400		-
18	11.067	11.946	13.494		-
19	45.693	46.640	49.229	50.496	53.916
20	56.120	57.240	57.296	58.162	58.846
21	54.080	54.961	57.316	59.522	62.426
22	6.328	6.697	6.824	7.816	8.752
23	49.801	50.933	52.545	54.968	61.119
24	39.901	40.852	43.310	46.559	54.446
25	14.190	15.392	17.218		22.369
26	7.080	7.117	7.506	8.934	9.974
27					-
28					
29	44.095	45.209	47.676	48.964	43.684
30	2.697	2.818	3.126		-
31	11.409	11.761	12.755		-
32	4.930	5.208	5.903		-
33	9.402	9.799	10.606		-
34	13.262	13.790	15.316		-

35	12.045	12.513	17.372	21.521	22.043
36	39.674	40.733	50.405	55.954	55.787
37	28.555	29.915	42.439	46.206	47.811
38	61.114	61.772	65.298	67.131	67.513
39	5.146	5.416	7.062	6.658	7.891
40					
41	9.798	10.380	10.862		-
42				54.336	54.336
43				4.271	3.786
44				28.479	28.919
45				4.340	5.448
46				40.112	41.676
47				57.803	59.800
48				7.455	9.597
49				19.083	19.238
50				51.003	48.253
51				12.328	12.901
52				46.066	32.443
53				14.656	25.812
54				30.659	29.699
55				57.250	58.791
56				82.718	85.869
57				74.811	83.016
58				39.027	37.150
59				105.839	107.062
60				36.056	35.458
61				26.392	27.746
62				115.137	109.040
63				27.248	27.844
64				17.611	19.409
65				15.835	15.543
66					85.848
67					32.599
68					10.698
69					13.878
70					11.440
71					24.971
Total					
Mean (tC/ha)	32.242	33.070	35.339	42.871	42.835
Std Dev	21.18	21.52	22.10	25.851	26.746

Table 2: REDD+ Dense Forest plot carbon stock for 2018-2022 in tC per hectare

Plot No.	2018 Dense tC/ha	2019 Dense tC/ha	2020 Dense tC/ha	2021 Dense tC/ha	2022 Dense tC/ha
101	80.325	80.985	83.182		93.034
102	31.213	31.459	32.681		-
103	76.865	77.484	80.270	84.752	87.600
104	124.088	125.809	127.939		-
105	126.880	127.612	134.450		-
106	107.716	108.900	116.454	118.657	115.926
107	-	-	-	-	-
108	59.287	60.275	64.065		-
109	64.394	65.880	68.613	69.787	74.225
110	69.885	70.559	72.530		-
111	134.670	135.783	136.040	140.674	139.048
112	66.460	67.997	70.189	73.113	64.121
113	69.431	71.135	74.565	73.853	79.494
114	108.484	109.505	109.794		-
115	126.821	128.046	125.905	149.640	149.084
116	24.291	25.536	27.949		-
117	65.045	66.852	70.752	71.426	69.753
118	31.032	31.891	38.161	38.801	46.005
119	46.033	46.888	49.071		-
120	15.000	15.948	23.819	19.845	35.921
121	21.905	22.490	26.971	27.873	33.410
122	112.210	113.317	120.472	126.460	116.606
123	154.102	154.570	157.695	151.452	-
124	34.115	34.730	50.545		-
125	102.083	103.825	109.872	116.311	108.673
126	172.541	173.502	179.370	175.197	168.932
127					
128	92.193	93.786	94.979	97.589	91.499
129	148.434	150.010	153.051	158.217	145.875
130	91.101	93.090	102.234	105.235	106.255
131	88.367	91.141	95.420	99.271	96.955
132	121.011	123.165	127.935	131.288	136.632
133	117.292	119.090	123.191	123.597	124.434
134					
135	170.654	172.473	176.031	188.412	195.793
136					
137	145.216	146.128	150.960	156.040	150.085
138	124.594	125.461	137.148	133.250	134.961
139	156.411	157.098	166.716	173.031	158.987
140	103.224	104.827	108.055		-

141	135.743	138.119	143.498	144.879	149.056
142	109.681	111.129	114.709	116.883	111.990
143	54.220	56.521			-
144	56.369	57.846	67.427	69.500	71.519
145	93.365	94.583	97.214	101.978	98.885
146	65.209	66.850	70.546	71.907	-
147	23.793	24.510	26.871	28.090	28.780
148	79.937	81.157	86.251	87.735	89.568
149	72.047	72.944	67.464	68.532	-
150	31.002	32.266			-
151					
152					
153					
154	49.982	51.915	56.161	56.769	54.824
155					
156	83.728	84.970	92.687	94.670	88.529
157	79.755	80.668	81.962	87.266	85.650
158	16.108	16.443	17.636		-
159					
160	29.877	30.824	40.263	42.922	45.884
161	15.228	15.407	17.884	19.512	19.765
162	75.201	76.691	76.893	79.963	81.086
163	95.980	98.265	101.835		-
164	84.412	86.612	90.981	89.470	84.567
165	132.488	134.253	137.800	145.306	138.613
166				36.555	37.414
167				105.999	102.864
168				63.516	62.540
169				20.963	-
170				114.042	119.362
171				16.46	20.410
172				23.924	26.209
173				139.490	140.707
174				117.508	116.021
175				115.400	115.916
176				103.994	103.424
177				123.609	123.104
178				107.059	112.753
179				114.525	113.957
180				24.427	23.191
181				120.227	122.797
182				56.450	52.164
183				144.502	145.684
184				112.881	115.526

185				72.505	73.962
186				49.549	47.884
187				140.529	152.574
188					25.802
189					49.385
Total					
Mean (tC/ha)	85.134	86.415	92.133	95.7666	94.769
Std Dev.	42.63	42.80	42.88	44.185	42.711

Table 3: ANR open forest plot carbon stock for 2016-2022 in tC per hectare

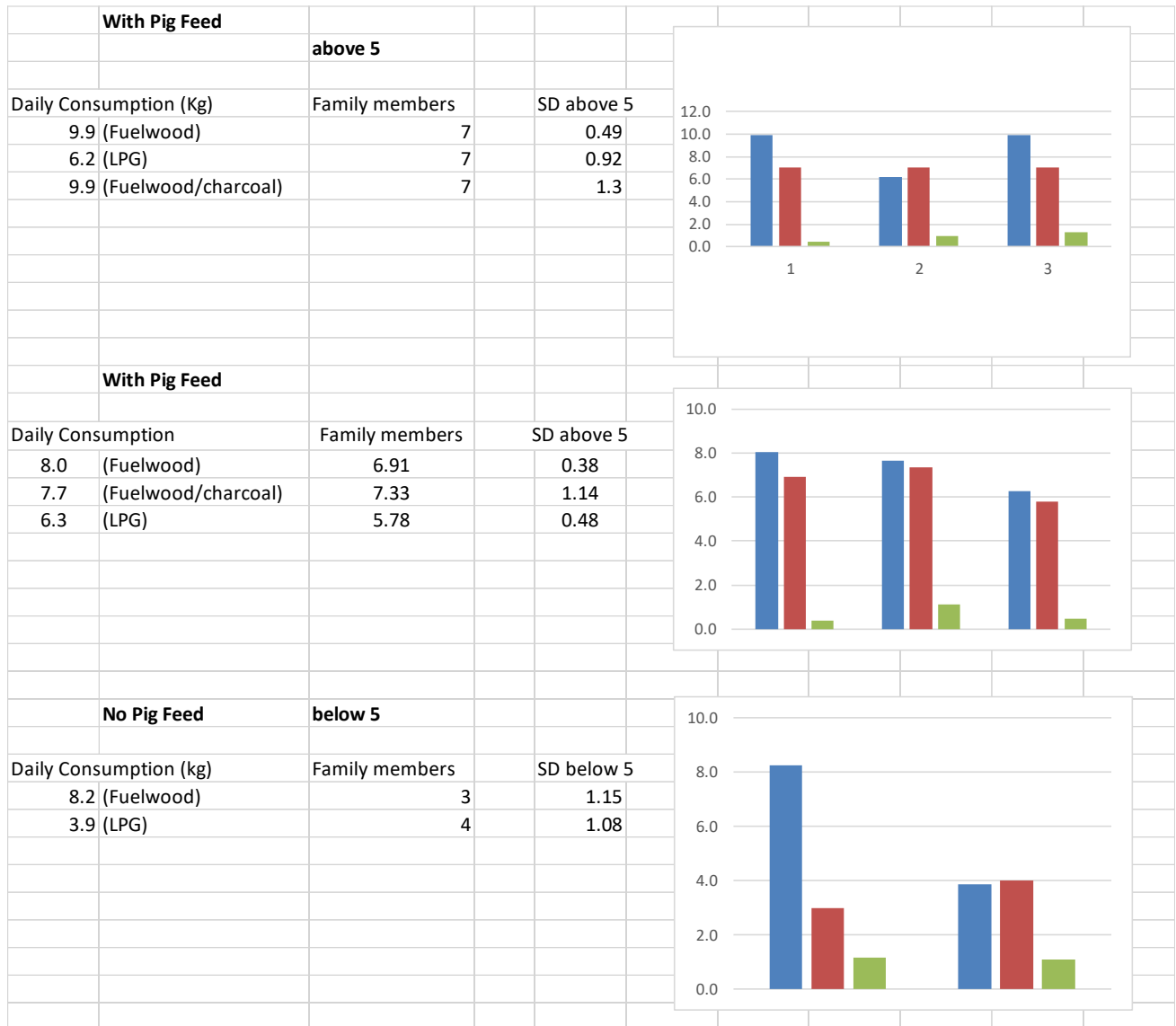
Open Forest ANR Sample Plots		Biomass (tc/ha)							
Plot No.	ANR Site	2016	2017	2018	2019	2020	2021	2022	Beta
4	Law Shlem	0.0	0.0	13.9	14.4	17.9	21.3	16.6	2.8
28	Phodumdewsaw, Hima Pamsangut	0.0	0.0	5.5	6.0	8.4	10.2	10.1	2.1
27	Lawsubah, Pamsangut	0.0	0.0	61.9	63.1	69.5	0.0	0.0	4.4
2	Lum U Mong, Laitkroh	0.0	0.0	2.0	2.2	2.6	3.8	4.1	1.1
14	Sohrarim, Lumnonglum	0.0	0.0	55.4	56.2	58.4	56.7	58.9	2.2
S	Lawsubah	0.0	18.9	0.0	20.6	0.0	22.8	0.0	1.0
S	Kyiem	0.0	11.4	0.0	13.7	0.0	15.6	0.0	1.1
S	Lummawtong	0.0	37.8	0.0	43.3	0.0	48.5	0.0	2.7
S	Lumphari	0.0	16.0	0.0	20.6	0.0	35.3	0.0	5.3
S	Lumpolum	0.0	1.8	0.0	2.0	0.0	2.2	0.0	0.1
O_ANR	Jathang Lum Riatsawlia = Law Khliehriat Sawlia, Community Forest, Sohra Syiemship	20.6	0.0	0.0	0.0	0.0	48.8	50.4	6.8
O_ANR	Phudlawkhla	2.0	0.0	0.0	0.0	0.0	17.2	19.6	4.0
40	Lumdiengsai, Laitkroh	3.4	0.0	7.4	7.7	9.1	10.1	10.0	1.5
O_ANR	Laitmawhing	16.2	0.0	0.0	0.0	0.0	69.8	66.2	11.8
O_ANR	Lummawmarok	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Themlumkhwai Laitsohpliah, Sohra Syiemship	0.0	0.0	0.0	0.0	0.0	71.8	70.2	-3.2
0	Lum Pyllun community Forest, Jathang, Sohra Syiemship	0.0	0.0	0.0	0.0	0.0	38.1	35.9	-4.5
0	Law Phudumblang Kyrphei, Myllem Syiemship	0.0	0.0	0.0	0.0	0.0	37.0	37.4	0.8
0	Lumhati, Mawkalang, Mawbeh Sirdarship	0.0	0.0	0.0	0.0	0.0	5.1	7.7	5.2
								AVERAGE GRC	2.5
								LOWER 90% C	1.4

Table 4: ANR Dense forest plot carbon stock for 2016-2022 in tC per hectare

Dense Forest ANR Sample Plots									
Plot No.	ANR Site	Biomass (tc/ha)							Beta
		2016	2017	2018	2019	2020	2021	2022	
151	Kseh Myllem, Nonglwai	0.0	0.0	90.9	92.3	97.4	100.1	102.2	5.0
134	Lumphudumsim, Nonglwai	0.0	0.0	101.1	103.0	112.4	110.5	113.9	6.1
155	Lumwaharkum, Hima Nonglwai	0.0	0.0	27.3	28.2	27.2	29.9	38.3	11.6
159	Wah Mawlong, Laitumiong, Mawbeh	0.0	0.0	67.1	68.3	71.8	79.1	120.8	0.0
127	Khlaw Rani, Pamsangut	0.0	0.0	136.5	137.8	143.4	149.5	141.9	4.8
S	Mawlangrain	0.0	56.1	0.0	58.6	0.0	62.6	0.0	1.6
S	Umkaber	0.0	53.9	0.0	55.3	0.0	57.2	0.0	0.8
S	Lumlaitlyding	0.0	94.8	0.0	98.0	0.0	101.7	0.0	1.7
S	Laitthemlangсах	0.0	109.2	0.0	118.1	0.0	123.6	0.0	3.7
O_ANR	Phanniewlahneng = Umlangnei, Lyngiong	89.3	0.0	0.0	0.0	0.0	93.7	94.8	1.2
152	Lumkyndong Kmie Brial, Mawphlang	0.0	0.0	31.9	33.4	36.3	39.9	42.7	4.9
136	Wahthymmei Esdiwot, Nongspung	0.0	0.0	121.3	123.4	126.8	132.6	132.9	5.2
153	Imsotti, Nongspung	0.0	0.0	124.1	125.5	128.0	140.8	140.8	8.9
								AVERAGE GRC	4.6
								LOWER 90% C	2.4

Annex 5: Fuelwood reduction analysis

Fuel usage surveys were conducted with 250 families in the Project area to determine the benefit of LPG distribution to communities dependent on wood and charcoal for fuel.



Annex 6: Historic sales data

Vintage	Sale Date (M/D/Y)	Buyer	No of PVCs	Price per PVC (\$)*	Total sale amount (\$)*	% Sale received by participants
2012	06/15/2013	Zeromission	2,463			70
2012	07/31/2013	C-Level	200			60
2012	08/09/2013	Bioclimate	1,306			60
2012	09/02/2013	CeramicaSantogosti	1,225			60
2012	09/25/2013	Zeromission	501			60
2012	04/30/2014	Zeromission	4,474			70
2012	06/10/2014	COTAP	283			60
2012	07/15/2014	CeramicaSantogosti	360			60
2012	05/15/2014	C-Level	200			60
2012	03/16/2015	COTAP	674			60
2012	06/12/2015	CeramicaSantogosti	340			60
2012	06/15/2015	C-Level	500			60
2012	07/03/2015	Zeromission	251			60
2012	07/11/2016	ShaikaRakshi	1			(this was a test)
2014	11/04/2015	COTAP	269			60
2014	10/15/2015	Zeromission	15,000			70
2014	12/10/2015	WeForest	2,132			70
2014	03/02/2016	Zeromission	6,500			70
2014	06/09/2016	CeramicaSantogosti	350			60
2014	09/14/2016	COTAP	660			60
2015	07/08/2016	WeForest	2,102			70
2015	11/24/2016	WeForest	2,075			70
2015	11/10/2016	Anima Impreza	20			60
2015	12/06/2016	Zeromission	8,099			70
2015	05/05/2017	Zeromission	9,727			70
2015	06/02/2017	C-Level	850			60
2016	09/13/2017	COTAP	1,467			70
2016	10/25/2017	Zeromission	250			60
2016	12/27/2017	Zeromission	9,718			70
2016	03/09/2018	WeForest	1,876			70
2016	05/14/2018	Zero Mission	300			60
2016	07/21/2018	Zero mission	10,530			70
2016	09/01/2018	COTAP	1,912			70
2016	11/28/2018	Zero Mission	5,700			70
2016	12/31/2018	Zero Mission	403			60
2016	03/31/2019	Zero Mission	600			60
2016	04/30/2019	Zero Mission	1,500			60
2012	05/13/2019	COTAP	1,644			70
2014	05/12/2019	COTAP	573			60
2016	06/14/2019	Weforest	2,565			70
2016	08/16/2019	Zero Mission	5,500			70

2016	09/03/2019	Zero Mission	5,146			70
2016	09/30/2019	Zero Mission	530			60
2018	10/31/2019	Zero Mission	10,000			70
2016	01/13/2020	COTAP	5,299			70
2016	03/31/2020	Zero Mission	5,000			70
2016	05/26/2020	Climate Seed	1,000			60
2019	07/02/2020	Zero Mission	7,001			70
2012-2016	06/02/2020	Lund Fund	24,000			70
2012-2016	06/02/2020	Lund Fund	22,000			30**
2012-2016	06/02/2020	Lund Fund	22,000			70
2017	06/18/2020	C-Level	2,000			70
2019	06/18/2020	C-Level	***1,000			60
2017	07/08/2020	We Forest	2,475			70
2018	07/30/2020	Zero Mission	5,313			70
2019	08/28/2020	Zero Mission	5,738			70
2018	09/22/2020	Zero Mission	2,565			70
2019	12/08/2020	Zero Mission	20,000			70
2017	01/06/2021	Climate Seed	537			60
2019	03/24/2021	Climate Seed	1,000			60
2017	04/29/2021	Climate Seed	318			60
2020	07/14/2021	Climate Seed	8,000			70
2020	08/26/2021	Zero Mission	20,000			70
2019	08/27/2021	COTAP	30			60
2017	08/27/2021	COTAP	2,699			70
2019	08/27/2021	COTAP	1,000			70
2020	10/10/2021	Carbon Partnership	3,000			70
2018	11/01/2021	Zero Mission	20,282			80
2017	11/01/2021	Zero Mission	19,718			60
2020	11/19/2021	C-Level	2,000			0****
2021	04/25/2022	Zero Mission	25,000			80
Total Sales 2012-2022			349,214			

*Pricing reported for internal monitoring purposes only

**70% of this sale was used for Issuance, Verification, and to pay for technical consultation at TLLG

***This amount was corrected from previous annual reports from 2,000 to 1,000

****100% of this sale was used for technical consultation at TLLG