Verified Carbon Standard

THE NIHT TOPAIYO REDD+ PROJECT

NIHT INC

ep carbon

Document Prepared by EP Carbon

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1   PROJECT DETAILS

1.1   Summary Description of the Implementation Status of the Project

As of 2014, Papua New Guinea (PNG) surpassed Malaysia and became the world's sole largest exporter of tropical timber wood, exporting 3.8 million cubic meters of tropical wood that year (The Oakland Institute, 2016). Every year, the region loses approximately 1.4% of its forested land (University of PNG Remote Sensing Centre, 2008), and with it, critical habitat to some 5% of the world's biodiversity (FAO 2016) and alongside a massive global carbon sink. This makes PNG a key area for intervention. NIHT Inc. is in the unique position to make a global stance against unsustainable timber harvesting and become a key conservation leader in PNG.

NIHT has partnered with the traditional landowners of New Ireland and East New Britain to reduce deforestation initiated by industrial logging in the region. The preservation of these rainforests is essential to not only the carbon and biodiversity benefits mentioned above, but also the wellbeing and prosperity of the people of New Ireland. The project is located in the forested area of New Ireland and East New Britain, PNG, and has evolved based on the input from, and needs expressed by, persons living in the region.

During this monitoring period, the first Project Activity Instance (PAI) was added to the grouped project. The land in the PAI is under the ownership of the Kamlapar Incorporated Landowner Group (ILG) in the Konoagil Rural Local Level Government (LLG). In 2018, the Kamlapar ILG and NIHT entered into a Carbon Credit Contract, to partner in developing the timber assets owned by the Kamlapar ILG for carbon credit.

Since the forests within the PAI contain significant biodiversity, the benefits of protecting these forests extend beyond carbon storage and sequestration. However, the PAI was not protected from industrial logging prior to the project initiation and was slated to be commercially and unsustainably logged. This instance adds 10,443 hectares of tropical lowland and highland forest to the grouped project. Additional information regarding implementation of the project activity and adherence to the eligibility criteria as described in the Project Description (PD) is provided in sections 3.1 and 3.3, respectively.

The project has generated the majority of its emissions reductions through the avoidance of the initial planned industrial timber operations, and during this monitoring period it has maintained the integrity of the forest through forest monitoring, inventories, and community engagement. The project aims to alleviate these pressures on the forests through financial support of clans in the area. By providing an alternative livelihood and income source of carbon finance, it will be possible to avoid conducting industrial-scale commercial timber harvesting in the area, and instead provide revenues to communities through conservation and sustainable management initiatives. This project activity, beyond protecting local forests and biodiversity, contributes to social and economic development in one of the poorest and most isolated areas of PNG.

Through the avoidance of carrying out exploitative industrial commercial timber harvesting in the project area and the cascading deforestation that follows, the project expects to generate over 55 million tons of CO_2 emissions reductions across the 30 year project lifetime. This figure is assuming

future additional PAIs over the project lifetime. During this monitoring period the project has added one PAI and has generated net emissions reductions of 1,680,306 tCO$_2$e.

1.2   Sectoral Scope and Project Type

This project falls under VCS Sectoral Scope 14 "Agriculture, Forestry and Other Land Use" in the category of REDD (AFOLU-REDD+). As it focuses on reducing timber extraction and stopping the high-grading of forests in the project area, it is classified at Avoided Unplanned Deforestation and Planned Degradation (AUD). The baseline type is VM0009 type F-P1.b (see section 3.4).

This is a grouped project with the first PAI representing the Kamlapar ILG in the Konoagil Rural LLG.

1.3   Project Proponent

Organization name	NIHT, Incorporated
Contact person	Stephen Strauss
Title	Managing Director
Address	202 Enterprise Drive Oxford, MS 38655 USA
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1.4   Other Entities Involved in the Project

Organization name	Ecological Carbon Offset Partners, LLC
Role in the Project	Remote sensing, land use change analysis, VCS validation and verification support services
Contact person	Paz Lozano
Title	Technical Manager, Special Projects
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1.5   Project Start Date

MR.2 The project start date.

The project start date is 1 June 2017.

1.6   Project Crediting Period

MR.3 The project crediting period start date, end date, and length.

The PAI crediting period begins 1 June 2017 and continues until 31 May 2047 for a total 30 year crediting period. This first crediting period extends from 1 June 2017 to 31 December 2019.

1.7   Project Location

The designated geographic area for the project is the entirety of the island of New Ireland within PNG. This is a grouped project and areas that meet the Eligibility Criteria will be added to the project as additional PAIs. The first PAI, which consists of lands under the Kamlapar Clan's legal and customary ownership, is located in the Konoagil LLG within the Namatanai District of New Ireland.

MR.1 A digital (GIS-based) map of the project area with at least the above minimum requirements for delineation of the geographic boundaries.

MR.6 A digital (GIS-based) map of the project accounting areas with at least the above minimum requirements for delineation of the geographic boundaries.

Figure *1* details the boundaries of the designated geographic area for the project as well as the boundaries of the Kamlapar PAI within that area.
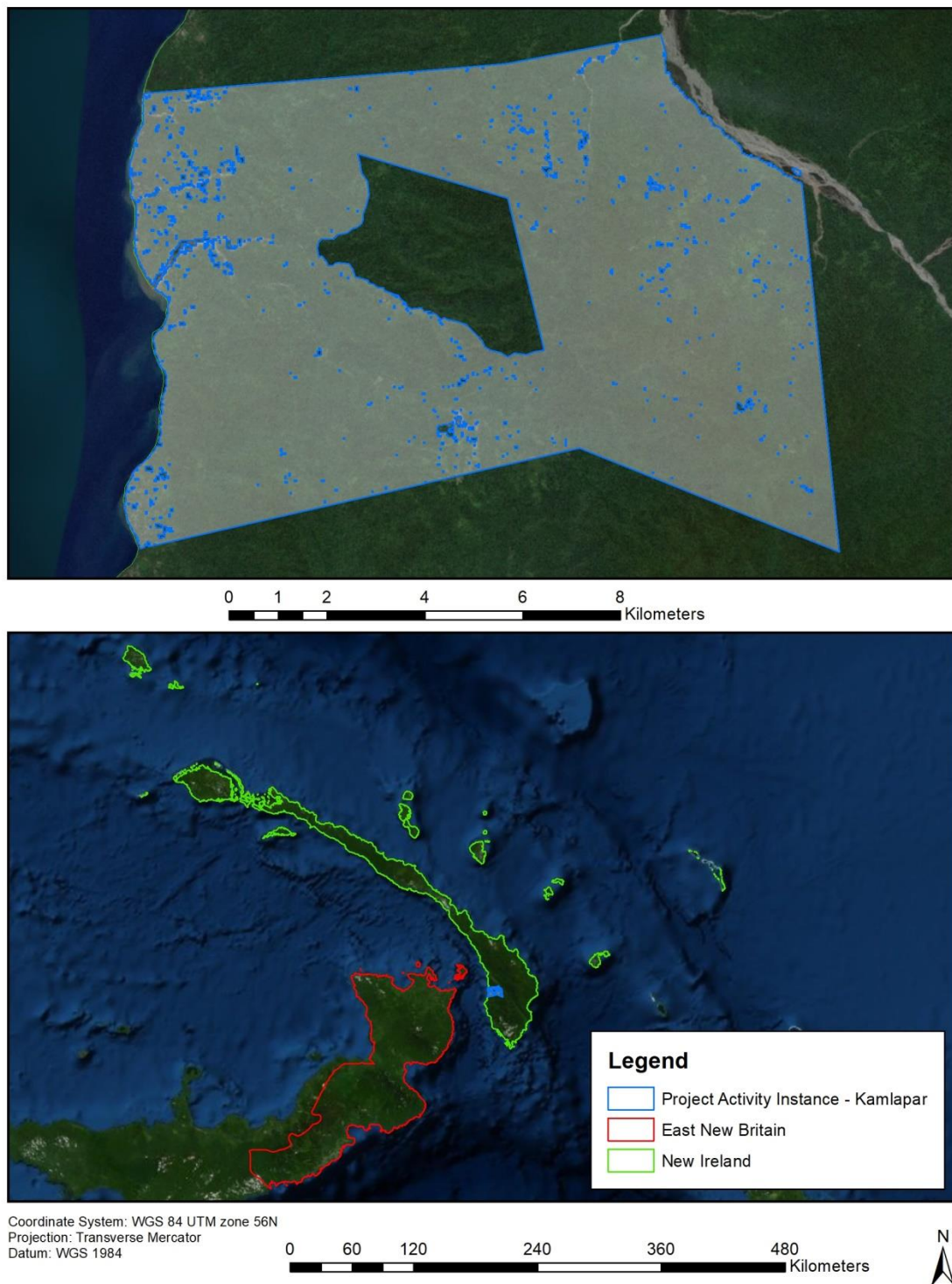
Figure *1*: Map of the first project activity instance, Kamlapar ILG, which is also the extent of the project accounting area. (Bottom) Map of the designated geographic area, in which additional activity instances may be added in subsequent monitoring periods.

1.8   Title and Reference of Methodology

The project is using methodology VM0009, the Methodology for Avoided Ecosystem Conversion v3.0.

1.9   Participation under other GHG Programs

The project is not currently seeking registration nor has ever been registered under any other GHG programs. In addition, the project has not been rejected by any other GHG programs.

1.10   Other Forms of Credit

The project is not involved in any other emissions trading program, and no activities that reduce GHG emissions are involved in any other emissions trading programs. VCS is the only program with which the project will be involved or trade emissions credits. In addition, the project has neither sought nor received any other form of GHG-related environmental credit.

1.11   Sustainable Development

Papua New Guinea is aiming to support the Sustainable Development Goals (SDGs) agreed upon by the United Nations and adopted by its member states in 2015 (United Nations, 2015). The project mainly plans to contribute to the following goals:

SDG 1: No Poverty

The project will offer an alternate source of income to communities in the project area. The project plans to offer communities 56% of the net revenues of the project, minus costs associated with the issuance and sale of generated carbon credits), which will go directly to clan members. Please see the document 'Kamlapar Contract_Final' for more information on the benefit distribution mechanism. Communities in the area live below the poverty line, and the financial resources that carbon credits will provide to them more resources for the purchasing of food, health services, and other benefits to help alleviate the impact of poverty.

SDG 3: Good Health and Well-Being

The project plans to increase opportunities for healthcare in the project region, specifically in regards to women's healthcare based on the needs expressed by community members themselves. The project plans to provide access mammogram machines and support access to doctors with training in women's health.

SDG 4: Quality Education

The project plans to work towards more opportunity for education in communities, specifically by allowing access to online schools, boarding schools, and internet access. The project proponent aims to be working towards their goal of 100% literacy for individuals 12 years old and over in the project area within the first 3 to 5 years of the project.

SDG 5: Gender Equality

The project plans to implement activities to improve access to women's healthcare, as well as addressing women's issues through providing access to opportunities in clan and project leadership. The project has ensured that women make up 40% of committee positions, are involved in the development and implementation of project activities, and can exercise decision-making power outside of day-to-day clan activities.

SDG 6: Clean Water and Sanitation

The project proponent plans to explore options for improved water quality and clean water access in communities. This will be done in conjunction with communities, taking into account each clan's individual needs and their input on what systems may work best.

SDG 7: Affordable and Clean Energy

The project proponents have started looking into options for increasing community access to alternative energy solutions. Currently, most clans do not have access to electricity, so the project has begun to explore opportunities in water, solar, geothermal, or even natural gas electrification.

SDG 8: Decent Work and Economic Growth

Community members will be given opportunities for jobs and employment related to project monitoring and implementation. The project proponent has hired eight full time in-country employees and has hired more than 40 part time individuals who have helped with the timber cruises and other various projects. Additionally, the proponent has hired three Papua New Guineans into positions requiring technical skills and knowledge. Room and board is provided for members of the project team working out of Kokopo. The project proponent plans to hire up to 20 more full time employees, providing significant employment opportunities to people in the project area and contributing to the goal of gainful employment and economic growth within the region.

SDG 9: Industry, Innovation, and Infrastructure

The project plans to implement activities to establish regional internet and cellular service in the area through Digicell, a local telecom provider. The project is working on developing partnerships with organizations like Google to help provide computers, cell phones, and other technologies the communities will need to help improve innovation, infrastructure, and global connectivity.

SDG 10: Reduced Inequalities

The project has implemented processes to reduce inequality in the area and amongst clans and clan members by ensuring fair distribution of benefits from carbon credit. To do this, the project has begun collecting census and birth data, which will further increase access to resources from government that require diligent record keeping. The focus on women's healthcare and women's rights in clan leadership and project activities, as well as the development of banks and increased access to resources for marginalized groups, will work toward the project's goal of decreasing overall regional inequalities.

SDG 13: Climate Action

By eliminating industrial timber harvesting in the project area and the subsequent deforestation from secondary drivers, the project is reducing the emissions of greenhouse gases into the atmosphere by nearly 45 million tCO_2e across the 30 year project lifetime. By keeping this carbon out of the atmosphere and increasing Papua New Guinea's carbon storage, the project is an active participant in the climate action goal.

SDG 15: Life on Land

Papua New Guinea is home to some 5% of the world's biodiversity, and its rainforests are havens to massive varieties of flora and fauna. Industrial timber operations and forest conversion destroy key habitat for many species, and further threatens already endangered species. By avoiding deforestation and timber activity, the project is conserving this key habitat and actively offering protection to the region's life on land.

SDG 16: Peace, Justice, and Strong Institutions

In developing a benefit distribution mechanism and ensuring that benefits will be shared evenly among community members, NIHT has taken an active role in gathering census data. Census and population data is extremely limited in these communities, and access to birth registration and other services specified under SDG 16 are important goals for the project, as the project wishes to achieve fair benefit distribution and promote the growth of strong institutions in the project area.

SDG 17: Partnerships for the Goals

Beyond the partnerships that the project proponents have developed and continue to foster with local communities, they also plan to partner with larger bodies and organizations that will aid the sustainable development within the project area. The project plans to partner with Google and other companies with important technology access in order to bring cell phones, internet, and improved technologies to the project area.

2 SAFEGUARDS

2.1 No Net Harm

The project does not expect any negative environmental impacts. Because the project activity prevents industrial logging and immigration by secondary agents as a result of greater accessibility within the region, the project will have positive outcomes for both climate change mitigation (through carbon storage and sequestration) as well as biodiversity impacts through the preservation of key habitats. Preservation of the forest in the project area will not only improve forest health but will also preserve many of the endemic and endangered flora and fauna of the species-rich region. Additionally, the project proponent is in the process of hiring a Papua New Guinean who worked for the United Nations Development Programme (UNDP) to develop a biodiversity baseline for the project.

The project proponent also does not expect any negative socio-economic impacts. Community-focused project activities are aimed at increasing economic growth in the area while keeping a specific focus on improving the lives of the marginalized (as shown in project activity toward enhancing women's rights and reduction of inequalities).

During this monitoring period, the project developed a robust grievance structure should community members have grievances or comments (see section 2.3), which will help insure community satisfaction with the project and mitigate any unforeseen negative impacts. Community input is highly valued in the project, as can be seen in community meetings and opportunities for community members to express opinions about the project and its benefits (see section 2.2).

2.2   Local Stakeholder Consultation

During this monitoring period, stakeholders and clans formed five committees per clan, consisting of Distribution, Finance, Community Development, Grievance, and Membership. These committees are made up of 3 to 7 people (as determined by each clan) and are required by the project structure to include at least 40% female representation. Project communication is generally handled through these committees when open attendance meetings are not an option, and the project proponent plans to disseminate information about any project updates, the validation, verification, site visit schedules (once determined), and spread results of monitoring and implementation through these committees.

Consultation with stakeholders was in large part organized through the clan leadership, who along with clan committee members are responsible for announcing dates and information on these meetings to members of their clans. Meeting types included individual clan meetings, clan meetings with clan leaders, meetings with remote villages conducted by timber cruise teams (February 2019 – December 2019), open attendance meetings, and clan committee meetings. Larger meetings are often held in venues that can hold more than 300 people; for example, the Kulau Lodge, Rabaul, the Sacred Heart Cathedral Kokopo meeting rooms, and the Kokopo Beach Bungalows. A clan meeting with clan leaders in September 2019 had an expected attendance of 80 leaders, but well over 300 leaders attended. In addition, numerous open attendance meetings were held where any clan member could come speak with NIHT management about the project. Meetings are documented with a designated note taker writing meeting minutes and taking photos of the meeting.

Through these open meetings and the grievance committees, clan member concerns have been expressed and addressed. The committees expressed interest in pursuing projects leading to increased access to education, healthcare (specifically women's healthcare), electricity, and support for clan business ventures. Some concerns have been raised about the fair distribution of project benefits per person and per clan land ownership, which have been addressed by the project proponent by setting aside the children's fair shares in trust funds for distribution to them when they turn 18, holding back 10% of total distribution to be used as a reserve for satisfying any distribution disputes, and using some of the proceeds for clan-specific projects that the clans themselves approve.

As demonstrated above, local stakeholders have had and will continue to have input on the project plan by providing them opportunities to provide input and feedback, which have been used to make

adjustments to the project. The following are examples of local clan members having direct input on the design of the benefit distribution mechanism:

- Equal distribution of benefits by person instead of by amount of land owned by each clan

- Setting aside children's shares into a trust to be held until they turn 18

- Holding 10% of total distribution in a fund in case individuals are missed in the initial process

- The use of proceeds to be used for clan projects.

The feedback on these issues prompted further discussion and joint decision making with the clans.

The PDD Summary was translated into the native language and issued in combination with the comment sheets to all the various stakeholders in order to address any questions and comments they have regarding project design or implementation, and open lines of communication are being kept through email, phone numbers, and the project proponent's offices in Kokopo. Further developments in project design, implementation, or monitoring will be communicated through meetings with the clan leadership, committee chairs, and events open to the public. The main pathway for disseminating important project information and updates to the clans begins by the project proponent contacting clan leadership and committees which then share the information with clan members.

Risks, costs, and benefits that the project may bring to local stakeholders have been identified and communicated to the local stakeholders, and consultation with local stakeholders regarding these effects is on-going. The project area is in a region with an average annual salary of less than $100 USD per year and a GDP for the region in the $100,000 USD or less range. The project represents the potential initiation of an annual input of capital of over $2,000,000 USD. There is a risk that without oversight individual clan leadership may not use the funds for projects as recommended by the Distribution Committee. This risk is a concern that stakeholders brought up during stakeholder consultation meetings and mitigation efforts are discussed in section 2.5. An additional risk may be the financial loss from not participating in a timber project. The possibility of financial loss is being mitigated by the income from the carbon project, as well as the additional project benefits outlined below. The only identified cost of the project to the local clans and their members is the costs associated with receiving official recognition as Incorporated Landowner Groups (ILGs).

The project offers numerous benefits, including empowerment, economic relief, and self-determination. The project will stop illegal logging, preserve the natural habitat, and preserve all of the endemic species. Additionally each clan member receives their equal share of 56% of the net revenue derived from the sale of the carbon credits, plus each clan is considered a partner and is treated as an equal in the process of developing the carbon credits. Many of these details have been determined from consultation with local stakeholders, and this communication will continue as discussed above in this section.

In terms of protections to stakeholders through workers' rights, Papua New Guinea maintains very little legislation or regulations. Due to a lack of laws, the project proponent has reverted to United States' labor law to ensure fair pay and treatment of all workers involved in the project, though currently only

one individual works in-country. Other employees have worked as consultants for the project proponent rather than as employees. The project proponent plans to hire more in-country employees as the project progresses, in which case Papua New Guinea's Employment Act of 1978 will be referenced *(Independent State of Papua New Guinea, 1978)*. These rights will be clearly communicated to all hires. Future PAIs will be required to have similar commitments, as required by Eligibility Criteria #9 in section 1.4.1 of the Project Description.

All updates regarding the validation and verification of the project, including the verifier's site visit, will be communicated to local stakeholders using the methods discussed above in this section.

2.3 AFOLU-Specific Safeguards

During this monitoring period, community-led surveys of the population in the PAI resulted in an estimate of 1,500 people in the Kamlapar clan region that will be impacted by the project. Membership committees have been tasked with gathering name, sex, birthdate, and banking information (if applicable) of each person in their communities. This information will be used in the benefit distribution process, and persons with confirmed records will be allotted a fair share of the 56% project net revenue that will be given to the clans.

Presently, the project has taken a clan-based approach to local stakeholder communication and consultation for the first instance. All complaints, ideas, and requests have been presented to the chief of each clan, who makes the ultimate decision and manages results regarding comments. Alongside chief support, public meetings have all been opened to a question and answer period, where clan members are able to voice questions and concerns to be answered directly by the project proponent. The project proponent will continue to assist clans with comments about the project, and has been supporting clans in establishing their own individual grievance committees to handle project complaints. Additional PAIs will implement similar processes that will be adaptive to the governance and institutions of the relevant communities and stakeholders.

The biggest concern expressed by communities in initial meetings has been mitigating the risk of the misappropriation of funds allocated to a community account. The following safeguards have been implemented to ensure transparency of use of funds and deter misappropriation of funds. During this monitoring period, the project proponent worked with the distribution and finance committees and the clan's accountants to build capacity through accounting and budgeting trainings to ensure all funding is properly managed and applied. The project proponent has set up a monitoring and auditing process for every clan whereby a NIHT team can monitor the project accounts in real time using the planned community centers. The community centers, once implemented, will provide free access to internet and reserve computers for the finance committees of each clan. Each clan will maintain QuickBooks accounts that the NIHT accounting team will be able to audit daily. In addition, the project proponent has worked extensively to mitigate this issue through numerous meetings and training sessions in the initial project area, and future PAIs will implement similar processes. These processes should ensure transparency through monitoring and auditing completed by the project proponent or a trained project partner. Additionally, this will ensure accountability within all communities so that they trust the project proponent.

Property rights are one of the basic cornerstones of the project plan. The Incorporated Landowner Groups (ILGs) maintain their ownership of the land and the land will never be hypothecated or assigned. Beginning in 2015, the standing timber, the asset being utilized for this program, was contracted to be managed in partnership with NIHT. In addition, beginning in 2018, Clan members and NIHT signed an agreement stating that the carbon credit assets will be managed and distributed by NIHT. To ensure the autonomy of ILGs, the project proponent will ensure clear communication of project updates and information through clan leadership and local committees.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The primary project activity is to prevent legal and illegal industrial logging within the project area and the cascading deforestation that typically follows these types of timber projects. During this monitoring period, the proponent carried out forest monitoring activities in conjunction with the forest inventory (information detailing the inventory is available in section 4.3). Forest inventory crews were also trained to socialize information regarding the REDD+ project to community members during the inventories. There were no instances of encroachment or logging reported from the inventory team. In addition to on the ground monitoring, satellite imagery was acquired to manually detect changes in forest cover 10 years prior to the project start date. All non-forest areas that were identified in the PAI area were not included in the PAA.

Creating alternative livelihoods is a critical component of ensuring the project's success. During this monitoring period, NIHT hired and trained local PNG teams to perform the timber inventory and monitoring and created supervisory roles for community members who will oversee future timber cruises. Moreover, the project proponent hired and trained a member of the Kamlapar Clan to oversee the training and management of additional lead accountants. NIHT plans to hire additional staff for management and administrative positions at community centers and to assist with various aspects of the monitoring and reporting of activities.

In an effort to increase the clan's agency and commitment to protecting their forest from unsustainable logging, trainings were held to socialize REDD+ project details prior to entering the Carbon Credit Contract with the clans. Since 2015, NIHT has been present at a minimum of two meetings with clan members and communities to conduct discussions on what was at first intended to be a logging project and is now this forest protection project. Since 2018, the frequency of these meetings has been increased to three annual meetings ("NIHT_Topaiyo_Meetings_v1.1").

In addition to the Papua New Guinean staff, employees of NIHT have had a continual presence in the country since August 2019. Between August 2019 and November 2019, NIHT members travelled throughout Konoagil and met with all 22 clans, including those in the Kamlapar ILG, to conduct workshops surrounding carbon credits, REDD+, and accounting methods. In tandem with these workshops, NIHT assisted clans in conducting internal censuses in order to aid in the equal distribution

of funds once the project is realized. Strengthening the clans' knowledge of REDD+ concepts through workshops not only helps to ensure their support, it also reinforces their commitment to protecting their forests, defending carbon assets, and reducing possible exploitation from external actors. Furthermore, communications that occurred during these trainings bolstered the project proponent's understanding of Clan member concerns, such as those described in Section 2.2.

To make certain that the clan members were in support of and accurately understood the project, members from the Climate Change and Development Authority (CCDA) in Papua New Guinea, met with the Kamlapar Clan and Silbat Clan in late January, 2020. The CCDA confirmed that the clans were aware of the project and in favor of its implementation ("CCDA_meetingEvidence.pdf"). NIHT initially introduced the project to the CCDA in 2018 and will continue to work with the CCDA to ensure that the project is executed correctly and to ensure transparency and partnerships with local agencies.

3.2   Deviations

3.2.1   Methodology Deviations
There are no methodology deviations at this time.

3.2.2   Project Description Deviations
There are no Project Description deviations at this time.

3.3   Grouped Projects

MR.4 A list and description of all instances in the group.

The project is a grouped project that will eventually include multiple PAIs within the designated geographic area. The project is beginning with only the Kamlapar PAI for this initial monitoring period.

MR.5 A map of the locations or boundaries of all instances in the group indicating that all instances are in the same region.

See Figure 1 for a map of the project boundaries.

MR.7 For each project activity instance in the group, its project activity instance start date.

The start date for the Kamlapar PAI is the same as the project start date, June 1, 2017.

3.3.1   Eligibility of Kamlapar Project Activity Instance

The PD lists 11 Eligibility Criteria that each PAI will need to fulfil in order to be eligible to join the project. Evidence that the initial PAI meets the eligibility criteria is provided below:

1. The PAI is additional per the application of the VCS AFOLU Project Activities (VT0001) version 3.0 in Section 3.5:

    a. The PAI boundaries were delineated using the area of the Kamlapar ILG, which was formed so that commercial logging could commence.

b. If not for the implementation of the REDD project, the Kamlapar PAI would have been logged over a period of two years (see 'Konoagil Logging Plan').

c. The PAI was not protected from logging until the project proponent decided to protect the area instead of initiating timber harvesting (see Business Plan).

2. The project accounting area (PAA) of the initial PAI was reduced to only areas that had been classified as forest for at least 10 years prior to the project start date using a conservative definition of forest.

3. The soil in the PAI is primarily brown forest soils and rendzinas. There are no peat soils in the PAI boundaries.

4. There is no evidence of livestock grazing within the PAI. Subsistence agriculture and fishing is the primary livelihood for most communities, along with a few cash crop plantations.

5. The baseline scenario for the PAI is consistent with baseline type F-P1.b projects. The Kamlapar ILG transferred the legal rights to commercial logging to the project proponent, which intended on harvesting the entirety of the harvestable areas of the PAI as established in the 'Konoagil Logging Plan'.

6. The project activity instance is located in the designated geographic area. It is located in the Konoagil LLG within the Namatanai District of New Ireland (see Figure 1). The following technologies and measures have been implemented within the Kamlapar PAI:

a. Prohibition of all commercial logging, unless FSC-certified, as of project initiation.

b. Conducted forest patrols as part of project measures.

7. The addition of the PAI to the PAA does not exceed the reference area size of 110,000 hectares. The PAA of this initial PAI is 10,443 hectares.

8. The Kamlapar PAI and the reference area meet the similarity criteria established by the methodology to fulfil these eligibility criteria.

a. There are a number of very small villages along the coast within the PAI, including the village of Watpi.

b. The Kamlapar clan maintains customary and legal use rights to the areas within the boundaries of the Kamlapar PAI.

c. The majority of secondary agent households within the area must practice subsistence agriculture, fishing, or a similar livelihood.

d. The Kamlapar PAI meets the landscape configuration requirements:

i. The maximum elevation within the Kamlapar PAI is 1,553 meters, which does not exceed the maximum elevation threshold established in the PD.

    ii.   The maximum slope within the Kamlapar PAI is 69.9 degrees and does not exceed the maximum slope threshold as established in the PD.

9.   The contractual rights to timber for the Kamlapar PAI are controlled by NIHT, Incorporated, so no additional agreement is necessary. The contract between the project proponent and the ILGs (see KamlaparContract Final) confers project management capacity and rights to GHG emissions reductions to NIHT, Incorporated (see "Topaiyo Legal Opinion Letter.pdf"). The contract stands for 30 years.

10.   The primary agent, which for this PAI is the project proponent NIHT, is committed to enrolling the entirety of areas in which clans have signed agreements with them. NIHT is not only committed to no industrial logging until these areas are enrolled, but is actively working with clans outside the PAI boundaries to prevent illegal logging until this happens (see MR.64 in Section 5.3.2 for more information).

11.   There has been no industrial logging within the Kamlapar PAI within the past 10 years. There have been no active concessions and there are no logging export records from within this area.

4   DATA AND PARAMETERS

4.1   Data and Parameters Available at Validation

Data / Parameter	α
Data unit	unitless
Description	Combined effects of β and q at the start of the historic reference period
Source of data	Reference area and historic reference period
Value applied	-3.7278244
Justification of choice of data or description of measurement methods and procedures applied	Landcover point interpretation within reference area
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	b
Data unit	unitless
Description	Effect of time on the cumulative proportion of deforestation over time

Source of data	Reference area and historic reference period
Value applied	0.0004784
Justification of choice of data or description of measurement methods and procedures applied	Landcover point interpretation within reference area
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	γ
Data unit	days
Description	Time shift from beginning of historic reference period to project start date
Source of data	Historic reference period
Value applied	-3425
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	q
Data unit	unitless
Description	Effect of certain covariates on the cumulative proportion of deforestation over time
Source of data	Reference area and historic reference period
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	All covariates conservatively excluded

Data / Parameter	ISOC

Data unit	proportion (unitless)
Description	Exponential soil carbon decay parameter
Source of data	Default values, literature estimates or empirical estimation based on reference area sampling
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	Soil carbon conservatively excluded at validation

Data / Parameter	$\hat{\sigma}_{EM}$
Data unit	standard deviation (unitless)
Description	The estimated standard deviation of the state observations used to fit the logistic function
Source of data	Remote sensing image interpretation
Value applied	0.103
Justification of choice of data or description of measurement methods and procedures applied	Calculations completed in workbook provided to auditors (UncertaintyCalculations_RefRegionENB)
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	$\mathcal{B}$
Data unit	set $\mathcal{B}$
Description	The set of all selected carbon pools in biomass. Is a subset of $\mathcal{C}$
Source of data	PDD Section 3.3
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	Selected carbon pools are listed in Table 3 of the PDD

Data / Parameter	$\mathcal{C}$
Data unit	set
Description	The set of all selected carbon pools
Source of data	PDD Section 3.3
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	Selected carbon pools are listed in Table 3 of the PDD

Data / Parameter	$\mathcal{I}$
Data unit	set
Description	The set of all observations of deforestation. When superscripted with a monitoring period, the deforestation observations are taken for leakage analysis.
Source of data	Remote sensing image interpretation or field observations in the leakage area.
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	

Data / Parameter	$\mathcal{M}$
Data unit	set
Description	The set of all monitoring periods
Source of data	Monitoring records
Value applied	N/A
Justification of choice of data or description of measurement methods	N/A

and procedures applied	
Purpose of Data	Calculation of project emissions
Comments	All monitoring periods for each project accounting area

Data / Parameter	ApAA
Data unit	ha
Description	Area of project accounting area
Source of data	GIS analysis prior to sampling
Value applied	10443.029
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	Apx
Data unit	ha
Description	Area of proxy area
Source of data	GIS analysis prior to sampling
Value applied	447.722
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	CLp
Data unit	tCO2e/ha
Description	Carbon stocks in project leakage
Source of data	Leakage area sampling
Value applied	N/A
Justification of choice of data or description of	N/A

measurement methods and procedures applied	
Purpose of Data	N/A
Comments	A leakage area is not required at validation or for first monitoring period

Data / Parameter	m
Data unit	tCO2e/ha/yr
Description	Average carbon in merchantable trees cut each year as a result of legally-sanctioned commercial logging
Source of data	Timber harvest plans or measurement of carbon stocks in merchantable trees in the project accounting area
Value applied	1,581,020.5
Justification of choice of data or description of measurement methods and procedures applied	Inventory of carbon stocks in merchantable trees in project accounting area
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	nd
Data unit	sample points
Description	Number of spatial points in the reference area
Source of data	Remote sensing image interpretation
Value applied	831
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	nd

Data / Parameter	oi
Data unit	binary
Description	State observation for the ith sample point in the reference area

Source of data	Remote sensing image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	Landcover point interpretation within reference area
Purpose of Data	Determination of baseline scenario
Comments	

Data / Parameter	pLME
Data unit	proportion (unitless)
Description	Portion of leakage related to market effects
Source of data	PDD Section 4.3.2
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	There is no market leakage at validation or for initial monitoring period

Data / Parameter	q
Data unit	days
Description	Lag between start of degradation and deforestation
Source of data	Methodology default
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	rCF B
Data unit	unitless

Description	Carbon fraction of biomass for burned wood b
Source of data	Methodology default
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	Burning is not a part of any project activities.

Data / Parameter	rRS
Data unit	unitless
Description	Expansion factor for above-ground biomass to below-ground biomass (root/shoot ratio)
Source of data	IPCC default root-to-shoot ratio for wet tropical forests
Value applied	0.37
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of baseline emissions
Comments	

Data / Parameter	rU
Data unit	unitless
Description	Onset proportion of deforestation immediately adjacent to project area
Source of data	GIS analysis and image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	Not applicable for FP1 projects

Data / Parameter	ti
Data unit	days
Description	The point in time of the observation made at point i
Source of data	Remote sensing image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	Please see workbook UncertaintyCalculations_RefRegionENB for details of calculation.
Purpose of Data	Determination of baseline scenario
Comments	Each point in time has a unique value based on the landcover observed

Data / Parameter	tPA
Data unit	days
Description	Time prior to the project start date when the primary agent began commercial logging in the project accounting area
Source of data	Harvest plans prepared for the project accounting area
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of Data	Calculation of baseline emissions
Comments	Harvesting in the baseline scenario would have begun on the project start date

Data / Parameter	tm
Data unit	days
Description	Length of project or logging in baseline scenario
Source of data	PD
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	

Purpose of Data	N/A
Comments	Will vary based on harvest plan for project accounting area. Emissions calculations use parameter tSA instead for end of commercial harvesting.

Data / Parameter	tPL
Data unit	days
Description	Length of project crediting period
Source of data	PD
Value applied	10957.5
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of Data	Calculation of baseline emissions
Comments	Total length of project crediting period of 30 years

Data / Parameter	tSA
Data unit	days
Description	Arrival time of secondary agents after start of commercial logging
Source of data	Expert knowledge and calculations of harvest period for initial PAI
Value applied	730
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of Data	Calculation of baseline emissions
Comments	Secondary agents begin arriving immediately following the end of commercial harvesting within a project accounting area. Thus, it will vary depending on the PAI. It will be conservatively assumed that T_{SA} will be the number of days for the entirety of a PAI to be harvested. After completion of harvesting, the primary agent will leave an area and no longer patrol it, leaving behind infrastructure (specifically roads) that provide access to degraded forest that is easier to be cleared for agriculture.

Data / Parameter	wi
Data unit	unitless
Description	weight applied to the ith sample point in the reference area
Source of data	Remote sensing image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	Please see workbook UncertaintyCalculations_RefRegionENB for details of calculation.
Purpose of Data	Calculation of baseline emissions
Comments	Estimated for each point in time of the landcover observation within reference area. Calculated using equation A.6 of the methodology.

Data / Parameter	x
Data unit	unitless
Description	Covariate values
Source of data	Participatory Rural Appraisal, analysis of public records, and/or expert interpretation of inventory data or remotely sensed imagery
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	Covariate values are conservatively excluded

Data / Parameter	xi
Data unit	geographic coordinates
Description	Latitude of the ith sample point
Source of data	Remote sensing image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	

Purpose of Data	N/A
Comments	Covariate values are conservatively excluded

Data / Parameter	xSA
Data unit	unitless
Description	Covariate values of secondary agents
Source of data	Participatory Rural Appraisal, analysis of public records, and/or expert interpretation of inventory data or remotely sensed imagery
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	N/A
Comments	Covariate values are conservatively excluded

Data / Parameter	yi
Data unit	geographic coordinates
Description	Longitude of the ith sample point
Source of data	Remote sensing image interpretation
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of Data	Determination of baseline scenario
Comments	Used to check the horizontal accuracy of historical reference imagery

4.2 Data and Parameters Monitored

MR.85 List of parameters from Appendix H, their values and the time last measured.

Data / Parameter	w[m]
Data unit	set

Description	The set of all burned wood
Source of data	Monitoring records
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	Summation over measurements
Comments	Parameter not used

Data / Parameter	A[m=0]P1
Data unit	ha
Description	Area of project area stratum 1 at project start
Source of data	GIS analysis prior to sampling
Description of measurement methods and procedures to be applied	GIS analysis of best available data
Frequency of monitoring/recording	At project start
Value monitored	10443.029016
Monitoring equipment	GIS
QA/QC procedures to be applied	Cross-check of GIS analysis
Purpose of the data	Calculation of baseline emissions
Calculation method	GIS analysis
Comments	

Data / Parameter	A[m=0]P2
Data unit	ha
Description	Area of project area stratum 2 at project start
Source of data	GIS analysis prior to sampling

Description of measurement methods and procedures to be applied	GIS analysis of best available data
Frequency of monitoring/recording	At project start
Value monitored	N/A
Monitoring equipment	GIS
QA/QC procedures to be applied	Cross-check of GIS analysis
Purpose of the data	N/A
Calculation method	GIS analysis
Comments	Parameter not used

Data / Parameter	B[m]b
Data unit	tonnes
Description	Biomass in burned wood b
Source of data	Measurements of biomass
Description of measurement methods and procedures to be applied	Scale
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	Summation
Comments	Parameter not used as no biomass was burned as part of project activities

Data / Parameter	C[m]B
Data unit	tCO2e/ha
Description	Baseline carbon stocks at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	B.2,6.4

Frequency of monitoring/recording	Every monitoring period
Value monitored	140.36
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	B.31
Comments	Determined by analysis of carbon inventory within proxy area

Data / Parameter	C[m]B B G B
Data unit	tCO2e
Description	Carbon not decayed in BGB at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	8.1.4
Frequency of monitoring/recording	Every monitoring period
Value monitored	726,840
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.32
Comments	Total carbon not decayed in BGB at end of first monitoring period

Data / Parameter	C [m] B DW
Data unit	tCO2e
Description	Carbon not decayed in DW at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	8.1.3

Frequency of monitoring/recording	Every monitoring period
Value monitored	765,143
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.36
Comments	Total carbon not decayed in DW at end of first monitoring period

Data / Parameter	C[m]B S O C
Data unit	tCO2e
Description	Carbon not decayed in SOC at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	B.2.4 and B.2.5
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	Subtraction
Comments	Parameter not used

Data / Parameter	C[m]B W P
Data unit	tCO2e
Description	Carbon not decayed in WP at the end of the current monitoring period.
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Appendix C
Frequency of monitoring/recording	Every monitoring period

Value monitored	277
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	C.1
Comments	Total carbon not decayed in WP at end of first monitoring period

Data / Parameter	c[m]B AGMT
Data unit	tCO2e/ha
Description	Baseline carbon stocks in above-ground merchantable trees at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	B.2.1
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	45.5
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Weighted per ha average. Described in NIHT Field Measurement Protocol.
Comments	

Data / Parameter	C[m]B BGMT
Data unit	tCO2e/ha
Description	Baseline carbon stocks in below-ground merchantable trees at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods	B.2.1

and procedures to be applied	
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	16.8
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Weighted per ha average. Described in NIHT Field Measurement Protocol.
Comments	

Data / Parameter	C[m=0]P AGMT
Data unit	tCO2e
Description	Project carbon stocks in above-ground merchantable trees at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2.1
Frequency of monitoring/recording	At project start
Value monitored	296.5
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Summation across plots in project accounting area
Comments	

Data / Parameter	C[m=0]P BGMT
Data unit	tCO2e
Description	Project carbon stocks in below-ground merchantable trees at project start
Source of data	Project accounting area sampling

Description of measurement methods and procedures to be applied	B.2.3
Frequency of monitoring/recording	At project start
Value monitored	109.7
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Summation across plots in project accounting area
Comments	

Data / Parameter	c[m]B b
Data unit	tCO2e/ha
Description	Baseline scenario average carbon stock in selected carbon pools
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	B.2.3
Frequency of monitoring/recording	Every time measured ($\leq$5 years)
Value monitored	140.4
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Weighted per ha average B.33
Comments	

Data / Parameter	C[m]B BM
Data unit	tCO2e/ha
Description	Baseline carbon stocks in biomass at the end of the current monitoring period
Source of data	Proxy area sampling

Description of measurement methods and procedures to be applied	B.2.3
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	140.4
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Weighted per ha average B.33
Comments	

Data / Parameter	c[m]B SOC
Data unit	tCO2e/ha
Description	Baseline soil carbon stocks at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	N/A
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	B.9
Comments	Soil carbon conservatively excluded

Data / Parameter	C[m]P
Data unit	tCO2e/ha
Description	Project carbon stocks at the end of the current monitoring period
Source of data	Project accounting area sampling
Description of measurement methods	B.2

and procedures to be applied	
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	B.33
Comments	

Data / Parameter	c[m-1]P
Data unit	tCO2e/ha
Description	Project carbon stocks at the beginning of the prior monitoring period
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Already monitored
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Already reviewed
Purpose of the data	Calculation of project emissions
Calculation method	B.33
Comments	There were no disturbances to carbon stocks during this monitoring period

Data / Parameter	C[m-0]P
Data unit	tCO2e/ha
Description	Project carbon stocks prior to first verification event
Source of data	Project accounting area sampling

Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	At project start
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	B.33
Comments	This is the first monitoring period and there were no disturbances to carbon stocks during this monitoring period.

Data / Parameter	c[m=0]P 1 BM
Data unit	tCO2e/ha
Description	Project carbon stocks in biomass in stratum 1 at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	F.17
Comments	Weighted average across project accounting area. All included pools are biomass, so project carbon stocks are equal to project carbon stocks in biomass.

Data / Parameter	C[m=0]P 2 BM

Data unit	tCO2e/ha
Description	Project carbon stocks in biomass in stratum 2 at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	N/A
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.17
Comments	Parameter not used

Data / Parameter	c[m=0]P 3 BM
Data unit	tCO2e/ha
Description	Project carbon stocks in biomass in stratum 3 at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	N/A
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.17
Comments	Parameter not used

Data / Parameter	C[m=0]P n BM
Data unit	tCO2e/ha

Description	Project carbon stocks in biomass in stratum n at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	N/A
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.17
Comments	Parameter not used

Data / Parameter	c[m=0]P AMGT
Data unit	tCO2e/ha
Description	Project carbon stocks in above-ground merchantable trees at project start
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	296.5
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Average of merchantable aboveground biomass in all plots in project accounting area
Comments	There were no disturbances to carbon stocks during this monitoring period

Data / Parameter	C[m=0]P BM

Data unit	tCO2e
Description	Project carbon stocks in biomass prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2.1
Frequency of monitoring/recording	Prior to first monitoring event
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.17
Comments	There were no disturbances to project accounting area carbon stocks during this monitoring period

Data / Parameter	c[m]P b
Data unit	tCO2e/ha
Description	Average carbon in biomass in the project accounting area
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Every time measured ($\leq$5 years)
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.17
Comments	There were no disturbances to project accounting area carbon stocks during this monitoring period

Data / Parameter	$C^{mP}_{s,b}$
Data unit	tCO2e/ha
Description	Average carbon in biomass for each project accounting area stratum s
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.17
Comments	Weighted average across project accounting area

Data / Parameter	$c^{m=0P}_{SOC}$
Data unit	tCO2e/ha
Description	Project soil carbon stocks prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	B.2.6
Frequency of monitoring/recording	At project start
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	N/A
Calculation method	N/A
Comments	Soil carbon conservatively excluded

Data / Parameter	C[m]P ΔWP
Data unit	tCO2e
Description	Project carbon stocks in wood products at the end of the current monitoring period
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	C
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	C.2
Comments	No timber harvested within the project accounting area during this monitoring period

Data / Parameter	E[m]Δ GER
Data unit	tCO2e
Description	GERs for the current monitoring period
Source of data	Area measurements
Description of measurement methods and procedures to be applied	8.4.1
Frequency of monitoring/recording	Every monitoring period
Value monitored	1,680,306
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of GER calculations
Purpose of the data	Calculation of emissions reductions
Calculation method	F.53
Comments	Calculations completed in document

	NIHT Accounting Model

Data / Parameter	E[i]Δ GER
Data unit	tCO2e
Description	GERs for monitoring period i
Source of data	Area measurements
Description of measurement methods and procedures to be applied	8.4.1
Frequency of monitoring/recording	Already monitored
Value monitored	1,680,306
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of GER calculations
Purpose of the data	Calculation of emissions reductions
Calculation method	F.53
Comments	Calculations completed in document NIHT Accounting Model. This is for the first and only monitoring period.

Data / Parameter	E[i]Δ NER
Data unit	tCO2e
Description	NERs for monitoring period i
Source of data	Area measurements
Description of measurement methods and procedures to be applied	8.4.3
Frequency of monitoring/recording	Already monitored
Value monitored	1,327,442
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of NER calculations
Purpose of the data	Calculation of emissions reductions
Calculation method	F.52
Comments	Calculations completed in document

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Data / Parameter	E[m]B
Data unit	tCO2e
Description	Cumulative baseline emissions at the end of the current monitoring period
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	8.1
Frequency of monitoring/recording	Every monitoring period
Value monitored	1,680,306
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.16
Comments	Calculations completed in document NIHT Accounting Model

Data / Parameter	E[m-1]B
Data unit	tCO2e
Description	Cumulative baseline emissions at the beginning of the current monitoring period
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	8.1
Frequency of monitoring/recording	Prior monitoring period
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.16

Comments	Calculations completed in document NIHT Accounting Model. This is the first monitoring period, so at the beginning of the current monitoring period there were no baseline emissions.

Data / Parameter	E[m]B Δ
Data unit	tCO2e
Description	Change in baseline emissions
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	8.1
Frequency of monitoring/recording	Every monitoring period
Value monitored	1,680,306
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.15
Comments	Calculations completed in document NIHT Accounting Model. Difference between cumulative baseline emissions at beginning and end of current monitoring period.

Data / Parameter	E[i]B Δ BGB
Data unit	tCO2e
Description	Change in baseline emissions from below-ground biomass during monitoring period i
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	B.2.3
Frequency of monitoring/recording	Already monitored
Value monitored	129,985

Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.30
Comments	Calculations completed in document NIHT Accounting Model. Difference between cumulative baseline emissions from BGB during monitoring period and carbon stored in BGB at end of monitoring period.

Data / Parameter	E[i]B Δ DW
Data unit	tCO2e
Description	Baseline emissions from dead wood in monitoring period i
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	B.2.4 and B.2.5
Frequency of monitoring/recording	Already monitored
Value monitored	135,820
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.35
Comments	Calculations completed in document NIHT Accounting Model. Difference between cumulative baseline emissions from DW during monitoring period and carbon stored in DW at end of monitoring period.

Data / Parameter	E[m]B Δ SOC
Data unit	tCO2e

Description	Baseline change in emissions from soil carbon
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.2 and B.2.6
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.26
Comments	Soil carbon conservatively excluded

Data / Parameter	E[i]B Δ SOC
Data unit	tCO2e
Description	Baseline emissions from soil carbon in monitoring period i
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.2 and B.2.6
Frequency of monitoring/recording	Already monitored
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.26
Comments	Soil carbon conservatively excluded

Data / Parameter	E[m]B AGMT
Data unit	tCO2e
Description	Cumulative baseline emissions from above-ground commercial trees at the end of the current monitoring period

Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.6
Frequency of monitoring/recording	Every monitoring period
Value monitored	2,337,699
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.37
Comments	

Data / Parameter	E[m]B BGB
Data unit	tCO2e
Description	Cumulative baseline emissions from below-ground biomass at the end of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.4
Frequency of monitoring/recording	Every monitoring period
Value monitored	726,840
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.30
Comments	

Data / Parameter	E[m-1]B BGB
Data unit	tCO2e
Description	Cumulative baseline emissions from below-ground biomass at the beginning of the current monitoring

	period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.4
Frequency of monitoring/recording	Already monitored
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.30
Comments	This is the first monitoring period so cumulative emissions for the prior monitoring period are 0.

Data / Parameter	E[m]B BM
Data unit	tCO2e
Description	Cumulative baseline emissions from biomass at the end of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.1, 8.1.2.1
Frequency of monitoring/recording	Every monitoring period
Value monitored	3,172,566
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.21, F.24
Comments	Result of Biomass Emissions Model

Data / Parameter	E[m]B DW
Data unit	tCO2e

Description	Cumulative baseline emissions from dead wood at the end of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	900,963
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	F.35
Comments	

Data / Parameter	E[m]B SOC
Data unit	tCO2e
Description	Cumulative baseline emissions from soil carbon at the end of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.2
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	N/A
Calculation method	N/A
Comments	Soil carbon conservatively excluded

Data / Parameter	E[m-1]B SOC
Data unit	tCO2e

Description	Cumulative baseline emissions from soil carbon at the beginning of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	8.1.2
Frequency of monitoring/recording	Already monitored
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	N/A
Calculation method	N/A
Comments	Soil carbon conservatively excluded

Data / Parameter	E[m]B A
Data unit	tCO2e
Description	Cumulative emissions allocated to the buffer pool at the end of the current monitoring period
Source of data	N/A
Description of measurement methods and procedures to be applied	8.4.4
Frequency of monitoring/recording	Every monitoring period
Value monitored	352,864
Monitoring equipment	
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of emissions reductions
Calculation method	VCS Non-Permanence Risk Tool
Comments	

Data / Parameter	E[m]L
Data unit	tCO2e
Description	Cumulative emissions from leakage at the end of the current monitoring

	period
Source of data	Measurements in the leakage area(s)
Description of measurement methods and procedures to be applied	8.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of leakage
Calculation method	F.45
Comments	

Data / Parameter	E[m-1]L
Data unit	tCO2e
Description	Cumulative emissions from leakage at the beginning of the current monitoring period
Source of data	Measurements in the leakage area(s)
Description of measurement methods and procedures to be applied	8.3
Frequency of monitoring/recording	Already monitored
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of leakage
Calculation method	F.45
Comments	This is the first monitoring period so cumulative emissions for the prior monitoring period are 0.

Data / Parameter	E[m]L Δ
Data unit	tCO2e

Description	Change in emissions due to leakage
Source of data	N/A
Description of measurement methods and procedures to be applied	8.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of leakage
Calculation method	F.43
Comments	Difference between E [m] L and E [m-1] L

Data / Parameter	E[m]L ASF
Data unit	tCO2e
Description	Cumulative emissions from activity-shifting leakage in forested areas at the end of the current monitoring period
Source of data	Measurements in the activity-shifting leakage area
Description of measurement methods and procedures to be applied	8.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of leakage
Calculation method	F.46
Comments	No activity-shifting leakage in forested areas for the first monitoring period

Data / Parameter	E[m]L ASG
Data unit	tCO2e
Description	Cumulative emissions from activity-shifting leakage in grasslands at the end of the current monitoring period
Source of data	Measurements in the activity-shifting leakage area
Description of measurement methods and procedures to be applied	8.3.3.4
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	N/A
Calculation method	F.46
Comments	Grasslands are not an included stratum in this project

Data / Parameter	E[m]L ME
Data unit	tCO2e
Description	Cumulative emissions from market effects leakage at the end of the current monitoring period
Source of data	Measurements in the market-effects leakage area
Description of measurement methods and procedures to be applied	8.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of leakage
Calculation method	F.51

Comments	No market effects leakage for the first monitoring period

Data / Parameter	E[m]P Δ
Data unit	tCO2e
Description	Change in project emissions
Source of data	Monitoring records for Forest Fire, Burning, logging, wood products, and natural disturbance events
Description of measurement methods and procedures to be applied	8.2
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	GIS, Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	F.41
Comments	

Data / Parameter	E[m]P ΔBRN
Data unit	tCO2e
Description	Cumulative project emissions due to burning at the end of the current monitoring period
Source of data	Monitoring plots in the project
Description of measurement methods and procedures to be applied	8.2.2
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	0
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	F.42

Comments	No monitored burns during the first monitoring period

Data / Parameter	E[m]P ΔLS
Data unit	tCO2e
Description	Cumulative project emissions due to livestock grazing at the end of the current monitoring period
Source of data	Monitoring plots in the project
Description of measurement methods and procedures to be applied	8.2.4
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of project emissions
Calculation method	F.43
Comments	Livestock grazing not included as a project activity

Data / Parameter	E[m]P ΔSF
Data unit	tCO2e
Description	Cumulative project emissions due to burning at the end of the current monitoring period
Source of data	Monitoring plots in the project
Description of measurement methods and procedures to be applied	8.2.2
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	0
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	F.42

Comments	Synthetic fertilizers not included as part of project activities

Data / Parameter	E[m]U
Data unit	tCO2e
Description	Cumulative confidence deduction at the end of the current monitoring period
Source of data	N/A
Description of measurement methods and procedures to be applied	8.4.1.1
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of emissions reductions
Calculation method	F.57
Comments	

Data / Parameter	n LS i
Data unit	count
Description	The number of head of livestock species/category I in the project area
Source of data	Monitoring in the project area
Description of measurement methods and procedures to be applied	8.2.4
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	0
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of project emissions
Calculation method	N/A
Comments	No livestock species during this

	monitoring period

Data / Parameter	p[m]L DEG
Data unit	proportion (unitless)
Description	Portion of leakage due to degradation at the end of the current monitoring period
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	8.3.2.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of leakage
Calculation method	B.9
Comments	No leakage area required during this monitoring period

Data / Parameter	p[m=0]L DEG
Data unit	proportion (unitless)
Description	Portion of leakage due to degradation at project start
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	8.3.2.3
Frequency of monitoring/recording	At project start
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Project verification
Purpose of the data	Calculation of leakage
Calculation method	B.9
Comments	No leakage area required during this

	monitoring period

Data / Parameter	$p[m=0]L\ CON\ G$
Data unit	proportion (unitless)
Description	Portion of leakage due to native grasslands prior to the first verification event
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	8.3.2.4
Frequency of monitoring/recording	First monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of leakage
Calculation method	N/A
Comments	Grasslands are not an included stratum in this project

Data / Parameter	$p[m]L\ CON\ G$
Data unit	proportion (unitless)
Description	Portion of leakage due to native grasslands conversion at the end of the current monitoring period
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	8.3.2.4
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of leakage
Calculation method	N/A

Comments	Grasslands are not an included stratum in this project

Data / Parameter	p[m-1]L CON G
Data unit	proportion (unitless)
Description	Portion of leakage due to native grasslands conversion at the beginning of the current monitoring period
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	8.3.2.4
Frequency of monitoring/recording	Every time measured (≤5 years)
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of leakage
Calculation method	N/A
Comments	Grasslands are not an included stratum in this project

Data / Parameter	p[m]SL
Data unit	proportion (unitless)
Description	Proportion of AGMT that is not merchantable and goes into slash estimated from inventory
Source of data	Estimated from inventory
Description of measurement methods and procedures to be applied	8.1.6.3
Frequency of monitoring/recording	Every monitoring period
Value monitored	0.385
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records

Purpose of the data	Calculation of baseline emissions
Calculation method	B.29 and B.30
Comments	

Data / Parameter	t[i-1]
Data unit	days
Description	Time from project start date to beginning of monitoring period i
Source of data	Monitoring records
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Already monitored
Value monitored	0
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of baseline emissions
Calculation method	Subtraction
Comments	Project start date is also beginning of initial monitoring period

Data / Parameter	t[m-1]
Data unit	days
Description	Time from project start date to beginning of current monitoring period
Source of data	Monitoring records
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Already monitored
Value monitored	0
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A

Purpose of the data	Calculation of baseline emissions
Calculation method	Subtraction
Comments	Project start date is also beginning of initial monitoring period

Data / Parameter	U[m]B
Data unit	tCO2e
Description	Total uncertainty in proxy area carbon stock estimate
Source of data	N/A
Description of measurement methods and procedures to be applied	6.8.10
Frequency of monitoring/recording	Every monitoring period
Value monitored	38.32
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	B.34
Comments	

Data / Parameter	U[m]EM
Data unit	tCO2e
Description	Total uncertainty in Baseline Emissions Models
Source of data	N/A
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Every monitoring period
Value monitored	0.103
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions

Calculation method	F.14
Comments	

Data / Parameter	U[m]P
Data unit	tCO2e
Description	Total uncertainty in project accounting area carbon stock estimate
Source of data	N/A
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Every monitoring period
Value monitored	27.05
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	B.34
Comments	

Data / Parameter	WC [m=0] Pi
Data unit	tCO2e
Description	Weighted average carbon stocks for biomass or SOC in the project for the set of selected strata
Source of data	Estimated from inventory
Description of measurement methods and procedures to be applied	Inventory, GIS
Frequency of monitoring/recording	Every monitoring period
Value monitored	465.9
Monitoring equipment	Equipment list in NIHT Field Measurement Protocol
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Weighted average within project

	accounting area
Comments	Weighted average of all carbon stocks in project accounting area

Data / Parameter	x[m]
Data unit	varies
Description	Covariate values
Source of data	Participatory Rural Appraisal, analysis of public records, and/or expert interpretation of inventory data or remotely sensed imagery
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	Every monitoring period
Value monitored	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	N/A
Comments	Covariate values conservatively excluded

MR.86 Quality assurance and quality control measures employed for each.

MR.87 Description of the accuracy of each.

These measures are listed in the table for each parameter.

MR.99 A list of all selected allometric equations used to estimate biomass for trees and non-trees.

The selected allometric equation was the pan-tropical model from Chave et al. (2014). The selected equation is:

$$AGB_{est} = 0.0673 * (pD^2H)^{0.976}$$

MR.100 For each selected allometric equation, a list of species to which it is being applied and the proportion of the total carbon stocks predicted by the equation.

As this is a pan-tropical question applicable "across tropical vegetation types" *(Chave, 2014)*, it is being applied to all tree species measured in the carbon inventory. This allometric equation only provides an estimate of the AGB of each tree inventoried. AGB is converted to aboveground carbon (AGC) using the IPCC default value of 0.47.

BGB is estimated as a proportion of the AGB pool using the IPCC default root-to-shoot ratio for tropical ecosystems of 0.37 *(IPCC, 2006)*. Thus, each tree is estimated to have 37% of its' AGC estimate stored in belowground carbon (BGC). Total carbon stocks only include the AGC and BGC pools, thus 73.0% of the total average carbon stocks ($C_{P\,b}^{[m]}$) are predicted from this allometric equation as:

$$C_{P\,b}^{[m]} = AGC + BGC \equiv AGC + AGC * 0.37 \equiv 1.37 * AGC$$

$$AGC = \frac{C_{P\,b}^{[m]}}{1.37} \equiv 0.73 * C_{P\,b}^{[m]}$$

MR.101 For each selected allometric equation, indication of when it was first employed to estimate carbon stocks in the project area (monitoring period number and year of monitoring event).

The selected allometric equation has been employed for both baseline estimates and in this first monitoring period. It is used for the inventories in both the PAA and in the proxy area.

MR.102 For each selected allometric equation, indication of whether was validated per sections 9.3.1.1 or 9.3.1.2.

The selected Chave equation is a widely accepted equation for tropical ecosystems that has been credibly cited in numerous peer-reviewed studies. Additionally, these equations have been found to provide the best estimate when DBH, tree height, and wood density are included in measurements *(Chave, 2014)*. DBH and tree height were both measured in the field, as well as the species of each tree. The densities of available species were found in the Global Wood Density Database *(Zanne, 2009)* and applied in allometric equations for each tree.

MR.103 Documentation of the source of each selected allometric equation and justification for their applicability to the project area considering climatic, edaphic, geographical and taxonomic similarities between the project location and the location in which the equation was derived.

The selected allometric equation is pan-tropical and applicable to the entire designated geographic area, which lies entirely within a tropical climate and ecosystem.

MR.104 A list of allometric equations validated by destructive sampling.

No allometric equations were validated through destructive sampling as the selected equation from Chave (2014) is the standard equation for pan-tropical areas.

MR.105 For each, the number of trees (or non-trees) destructively sampled and the location where the measurement were made relative to the project area.

MR.106 A field protocol used to measure destructively sampled trees (or non-trees).

MR.107 Justification that the field protocol for the destructive measurement method conservatively estimates biomass.

MR.108 For each allometric equation in the list, a figure showing all the descriptive measurements of biomass compared to predicted values from its selected allometric equation. MR.105, MR.106, MR.107, and MR.108 are not applicable as no trees were destructively sampled.

4.3   Monitoring Plan

The objective of the monitoring plan as set out in the VCS Project Description is to quantify the emissions reductions achieved by the project during each monitoring period, and consists of four main components: forest patrols and observations, plot measurements, identification of disturbances, tracking of any small-scale harvesting in project area. These core monitoring components will be able to help the project technical team to accurately assess the project's effectiveness and VCU generation during each monitoring period. The details of the monitoring plan are laid out in the sections below. As the project intends to undertake CCB validation and verification at some point in the future, the monitoring plans for impacts on community and biodiversity will be developed separately and presented at the time of CCB validation.

As new project activities are carried out within the project area, their specific monitoring methods will be added to the NIHT monitoring plan. If any project activities or monitoring activities are to be phased out or incorporated at a later date due to adaptive management, the monitoring and implementation plans for the NIHT Topaiyo REDD+ project will be updated accordingly.

Activity	Frequency	Method
Forest Patrols and Community Observations	Once every reporting period	Patrol teams monitor project area perimeters and various routes through project area
Plot Measurements	Once before every baseline update	Inventory teams re-inventory carbon stocks and merchantability within project area, proxy area
Identification of Significant Disturbances	Once every reporting period	Technical team reviews remote sensing products, satellite imagery, and field teams conduct ground-based verification of disturbances if necessary
Tracking and Recording of Harvest Volumes	When biomass harvesting occurs within project area	Harvesting volumes, species, and collateral damage is recorded as specified in prepared harvesting management plans if harvesting is carried out within the project area

Table 1: Project activities and measures and their frequency and methods

4.3.1   Monitoring Team Organizational Structure

The teams responsible for carrying out monitoring activities and the roles within each team are as follows:

Field Patrol Team

- Field Patrol Lead – responsible for carrying out patrol, noting all relevant patrol data and observations in field patrol forms, and conducting ground-truthing of any identified areas with disturbances

- Field Patrol Supports – optional support personnel that can contribute to patrol logs or can act as in-field support for lead

Carbon Inventory Field Team

- Carbon Cruise Manager – responsible for training team members, conducting quality control checks, data recording and transcription, and conducting ground-truthing of any identified areas with disturbances

- Carbon Cruise Technicians – responsible for taking measurements in the field based on training and inventory protocol, support manager in data collection and transcription

Technical Team

- Technical Manager – responsible for overseeing technical work to methodological and standard requirements, conducting quality control checks

- Technical Analyst – responsible for conducting technical analyses related to remote sensing and carbon stock quantification, quality control checks

4.3.2   Measures and Oversight for Quality Control, Accuracy

The technical team is responsible for carrying out all quality control measures on remote sensing, carbon stock estimates, and GHG quantification. The timber cruise manager is responsible for carrying out all quality control checks of field data and for ensuring that the data collected is done in keeping with the inventory protocol. If there a systematic deviation is found in the measurement and re-measurement of the parameter, the deviation is to be investigated and resolved. When updating data stored electronically, the file should be versioned.

The NIHT field teams and the Timber Cruise Manager minimized error by working to check the identification of tree species and diameter measurements, and by reviewing the data collected and inputted. To reduce and eliminate transcriptional error, a subset of spreadsheets was proofed by re-reading the field notebooks and comparing it to the data that was entered. Checks were also made for any values or variables that are outliers against the recorded data, and corrected if deemed to be transcription errors. All publically available satellite data used in monitoring, validation, verification and

certification will be archived and made available to auditors. Inventory plot sheets are saved both digitally as PDFs while physical copies of the sheets are saved within the field office.

Additional QAQC checks were made by the technical team that reviews and analyzes the data (please see Section 5.2.3 for a checklist of QAQC checks completed on the inventory data). Initial checks identified any outliers in the data, specifically with regards to height and diameter at breast height that would suggest a transcription error. Due to the large range of sizes in trees found within the project area, no specific value was identified as an outlier value. Instead, the treelist was sorted by both height and DBH and the trees with higher and lower values were manually checked on the plot sheets. Identified transcription errors were then corrected in the treelist. Species names are also confirmed by checking that there were not multiple spellings or names for the same species. This ensures that the wood gravity lookup accurately identifies the appropriate value for that species. An additional QAQC measure was to check that merchantable biomass did not exceed total biomass for any tree as this would indicate either a transcription or measurement error. If a tree does not pass any of these checks, plot sheets are manually checked to ensure that data is correctly transcribed. If it is not, the values are corrected in the treelist. If it is not clear if the data was correctly transcribed from the plot sheet, the technical team informs the project proponent, who works with the lead forester to correct this error. If the forester is able to identify the issue by reviewing the plot sheet and notes, the project proponent informs the technical team and an update is made to the treelist. All identified issues were able to be addressed without re-visiting plots in the final inventories, although issues were identified in an initial pilot cruise completed in early 2019. Rather than attempt to rectify these issues, the inventory was dropped and all plots were re-sampled after clarifications were made to field crews.

As discussed in the Project Description for the project, the VM0009 methodology does not have a specific precision requirement, but instead requires an uncertainty deduction depending on the standard error found within monitoring measurements. The results from equation F.57 of the methodology found that the project is not required to take an uncertainty deduction for this monitoring period and no additional sampling was completed.

MR.88 Documentation of training for field crews.

Starting on Wednesday, October 21, 2018 and ending Friday, October 23, 2018, a 3-day training was held to train field crews on proper inventory collection. An initial training was held in the village of Watpi in the province of New Ireland, and was attended by the team leaders, as well as a number of individuals that could participate in the data collection. The initial training reviewed the principles of the inventory protocol and specifically focused on the basics – DBH, clinometer use, and slope correction. The training was led by members of the management team from both NIHT and EP Carbon to ensure topics were covered thoroughly and translated for comprehension.

Figure 2. The image above was taken at the 3-day field crew training during the GPS training with team leaders.

The second training covered the use of the inventory protocol. It began by conducting a practice plot in a coconut plantation. Team leaders (as well as a large number of locals) practiced identifying and establishing plot center, laying out a plot, and taking all necessary measurements. A second plot was completed with just the team leaders in the afternoon to practice measurements in a more practical setting; the second plot was located in a native forest on a steep slope. This allowed the team leads to practice using slope corrections to lay out a plot, as well as take measurements in a forest with more diversity. Team leaders reviewed the process for measurements of dead, forked, irregular, buttressed, and fallen trees. Additional training for field crews has been conducted by NIHT staff members that participated in those initial training sessions and have continued as team leaders in the initial carbon inventories.

MR.89 If included in project activities, a description of procedures used to estimate the rate of biomass burning and charcoal production and demonstration that these estimates are conservative.

Biomass burning is not included in project activities.

MR.90 Documentation of data quality assessment such as a check cruise and plots of the data such as diameter distributions by strata or plot.

MR.91 Maps of a stratification (if any) and references to plot allocation.

The inventory for the PAI was split into two separate sampling frames so inventory fieldwork could begin while PAI boundaries were being finalized. There were 113 plots measured within the first sampling frame and 39 plots measured within the second sampling frame (Figure 3). More information on plot allocation and stratification can be found in the 'NIHT Field Measurement Protocol'.
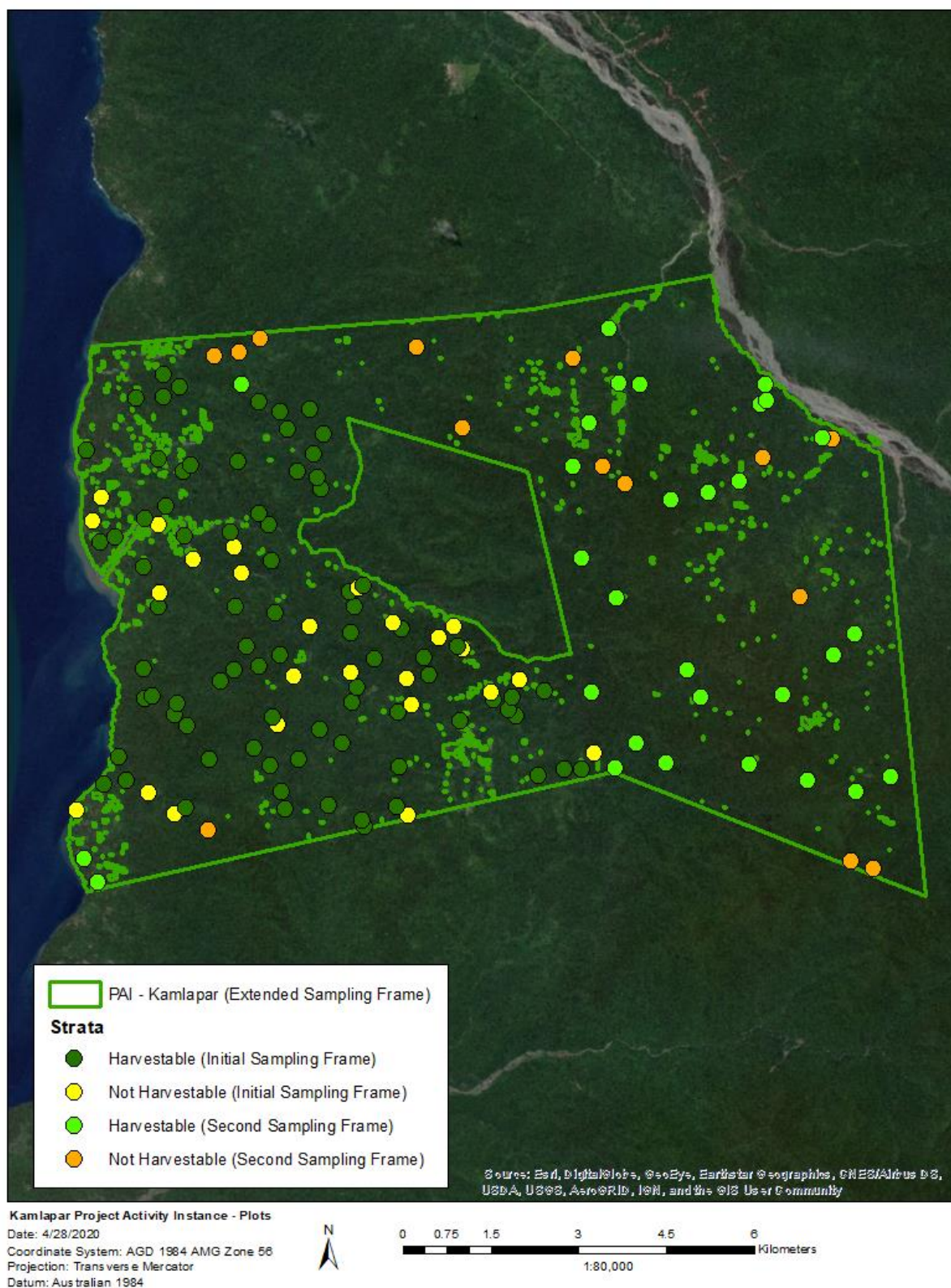
Figure 3: Inventory plots measured during this monitoring period within the Kamlapar PAI

MR.92 List of plot GPS coordinates.

Please see 'Kamlapar Plot GPS Coordinates v1.xlsx' for the list of GPS coordinates for all plots.

MR.93 Description of plot sizes and layout (such as the use of nests and their sizes) for each carbon pool.

Please see 'NIHT Field Measurement Protocol' for more information on the inventory design, which includes information on plot sizes and their layouts.

MR.94 If applicable, a detailed description of the process used to develop allometric equations, to include: a. Sample size b. Distribution (eg, diameter) of the sample c. Model fitting procedure d. Model selection

MR.94 is not applicable as no allometric equations were developed.

MR.95 The estimated carbon stock, standard error of the total for each stock, and the sample size for each stratum in the area selected.

The PAI was stratified into harvestable and non-harvestable areas. Total average carbon in biomass in the PAA ($C_{P\,b}^{[m]}$) was estimated from the sum of the two primary pools, aboveground and belowground biomass. Aboveground biomass was measured in the field in both strata while belowground biomass was derived from the aboveground biomass using the IPCC default root-to-shoot ratio of 0.37. Weighted averages based on the relative sizes of the strata were used to make these estimates. Aboveground biomass and carbon stocks in merchantable trees ($C_{B\,AGMT}^{[m]=0}$) were estimated from measurements of trees exceeding a merchantable size of 50 cm DBH, only within the harvestable stratum. Belowground biomass and carbon stocks of merchantable trees ($C_{B\,BGMT}^{[m]=0}$) were estimated with the same default root-to-shoot ratio within this sub-sample of trees. See 'NIHT Field Measurement Protocol' for more information on inventory procedures, plot allocation, and measurement within the PAA. The estimates in Table 2 below were calculated in the workbook 'NIHT_KamlaparILG_Treelist'.

Carbon Pool	Stratum	Average Carbon Stock Value (tCO$_2$e ha^{-1})	Standard Error (tCO$_2$e ha^{-1})	Sample Size
Total Average Carbon Across all Pools ($\mathbf{C_{P\,b}^{[m]}}$)	All	465.9	27.1	145
Total Average Carbon Across all Pools ($\mathbf{C_{P\,s\,b}^{[m]}}$)	Harvestable	493.4	39.7	106
Total Average Carbon Across all Pools ($\mathbf{C_{P\,s\,b}^{[m]}}$)	Non-Harvestable	385.3	71.6	39
$\mathbf{C_{B\,AGMT}^{[m]=0}}$	Harvestable	317.4	27.9	106
$\mathbf{C_{B\,AGMT}^{[m]=0}}$	Harvestable	117.4	10.3	106

Table 2: Estimated carbon stocks, standard errors, and sample size for each stratum in the PAA

MR.96 Log export monitoring records and standard operating procedure in the project area, if there is commercial harvest in the project scenario.

There has been no commercial harvesting in the Kamlapar PAI and thus there are no log export monitoring records.

MR.97 Deviations from the measurement methods set out in Appendix B or the monitoring plan, per current VCS requirement.

Measurement methods established in the document 'NIHT Field Measurement Protocol' follow the measurement methods set out in Appendix B of the VM0009 Methodology and there are no deviations for this monitoring period.

MR.98 The frequency of monitoring for each plot for all plots – all plots should be measured for the first verification. All leakage plots should be measured every verification, and all proxy and project accounting area plots at least every five years, or after a significant event that changes stocks.

As this is the first verification event for the NIHT project and the Kamlapar PAI, the plots in the Kamlapar ILG have only been measured once. The first set of plots was measured in mid-2019 while the remaining plots were measured in early 2020.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

MR.8 For each project accounting area, the value of t_{PAI}.

The value of t_{PAI} is 0, as the primary agents would have begun commercial logging in the Kamlapar PAI on the project start date of 1 June 2017. Please see 'Konoagil Logging Plan' as well as the Project Description for evidence that logging would have begun on this date.

MR.9 A table of covariate values as of the project activity instance start dates and a description of how the values were determined including any interpolation or extrapolation methods.

MR.9 is not applicable in this PAI during this monitoring period as covariate values are conservatively excluded.

,MR.10 Calculations of current baseline emissions $E_{B\,\Delta}^{[m]}$ as of the current monitoring period.

Current baseline emissions $E_{B\,\Delta}^{[m]}$ are 1,680,306 tCO2e during this first monitoring period.

MR.11 Calculations of baseline emissions $E_{B\,\Delta}^{[m-1]}$ from prior monitoring periods.

MR.11 is not relevant as this is the first monitoring period for the NIHT project and Kamlapar PAI.

MR.12 Calculations of cumulative baseline emissions for each selected pool ($E_{B\,BM}^{[m]}$ and $E_{B\,SOC}^{[m]}$) and undecayed carbon ($C_{B\,BGB}^{[m]}$, $C_{B\,DW}^{[m]}$, $C_{B\,SOC}^{[m]}$, and $C_{B\,WP}^{[m]}$), as of the current monitoring period.

Cumulative baseline emissions as of the end of the first monitoring period for each selected biomass pool are included in Table 3 below. No soil emissions or pools are included as they soil organic carbon is not an included pool. The equations and calculations for these emissions are taken from the VM0009 Methodology and were included in the Baseline Emissions section of the Project Description for reference.

Emissions Pool	VM0009 Parameter	Total Emissions in First Monitoring Period (tCO₂e)
Biomass Emissions Model	$E_{B\,BM}^{[m]}$	3,172,566
Carbon not Decayed - BGB	$C_{B\,BGB}^{[m]}$	-726,840
Carbon not Decayed - DW	$C_{B\,DW}^{[m]}$	-765,143
Carbon not Decayed - WP	$C_{B\,WP}^{[m]}$	-277
Cumulative Baseline Emissions	$E_{B}^{[m]}$	1,680,306

Table 3: Cumulative baseline emissions for selected biomass pools

MR.13 Calculations of cumulative baseline emissions from biomass EB BMm for the current monitoring period.

Cumulative baseline emissions are calculated using equation F.16 of the methodology:

$$E_{B}^{[m]} = E_{B\,BM}^{[m]} - C_{B\,BGB}^{[m]} - C_{B\,DW}^{[m]} - C_{B\,WP}^{[m]}$$

Please see 'NIHT_Accounting Model' for calculations of emissions reported in Table 3.

MR.14 Calculations of cumulative baseline emissions from biomass $E_{B\,BM}^{[m]}$ for all prior monitoring periods.

MR.14 is not applicable as this is the first monitoring period for the project.

MR.15 The order of strata from lowest carbon stocks to highest carbon stocks based on the average across all pools.

There are only two strata for the initial PAI. The harvestable stratum has the highest total carbon stocks at 493.4 tCO₂e ha⁻¹ while the not harvestable stratum has total average carbon stocks of 385.3 tCO₂e ha⁻¹ (see Table 2).

MR.16 Calculations for each step which are carried through from monitoring period to monitoring period.

MR.17 Calculations of cumulative baseline emissions from biomass $E_{B\,BM}^{[m]}$ for prior monitoring periods.

MR.16 and MR.17 are not applicable as this is the first monitoring period for the Kamlapar PAI.

MR.18 An estimate of current baseline emissions from SOC $E_{B\,SOC}^{[m]}$EB Δ SOCm as of the current monitoring period.

MR.19 An estimate of cumulative baseline emissions from SOC $E_{B\,SOC}^{[m]}$ for the current monitoring period.

MR.20 Calculations of cumulative baseline emissions from SOC $E_{B\,SOC}^{[m]}$for all prior monitoring periods.

MR.18, MR.19, and MR.20 are not applicable as soil carbon is not an included pool in the Kamlapar PAI for the first monitoring period.

MR.21 An estimate of carbon stored in non-decayed DW $C_{B\,DW}^{[m]}$ for the current monitoring period.

As of the end of the current and first monitoring period, it is estimated that the amount of carbon stored in DW ($C_{B\,DW}^{[m]}$) is 765,143 tCO₂e (see Table 3 and 'NIHT Accounting Model').

MR.22 An estimate of cumulative baseline emissions from DW $E_{B\,DW}^{[m]}$ for the current monitoring period.

As of the end of the current and first monitoring period, it is estimated that cumulative baseline emissions from DW ($E_{B\,DW}^{[m]}$) are 135,820 tCO₂e. This is calculated by taking the difference between cumulative carbon initially stored in DW prior to any decay, (900,963 tCO₂e) and carbon stored in non-decayed DW at the end of the current monitoring period (765,143 tCO₂e). It is based on default VCS decay models for DW, which assume a decay period of 10 years.

MR.23 An estimate of cumulative baseline emissions from AGMT $E_{B\,AGMT}^{[m]}$ for the current monitoring period.

Cumulative baseline emissions from AGMT ($E_{B\,AGMT}^{[m]}$) for the current monitoring period are estimated to be 2,337,699 tCO₂e.

MR.24 Calculations of cumulative baseline emissions from DW $E_{B\,DW}^{[m]}$ for all prior monitoring periods.

As this is the first monitoring period, baseline emission from DW ($E_{B\,DW}^{[m]}$) are 0 tCO$_2$e for all prior monitoring periods.

MR.25 Calculations of cumulative baseline emissions from AGMT $E_{B\,AGMT}^{[m]}$) for all prior monitoring periods.

As this is the first monitoring period, baseline emission from AGMT ($E_{B\,AGMT}^{[m]}$) are 0 tCO$_2$e for all prior monitoring periods.

MR.26 An estimate of carbon stored in non-decayed BGB $C_{B\,BGB}^{[m]}$ for the current monitoring period.

As of the end of the current and first monitoring period, it is estimated that the amount of carbon stored in non-decayed BGB ($C_{B\,BGB}^{[m]}$) has a value of 726,840tCO$_2$e (Table 3). It is calculated with equation F.32 of the VM0009 Methodology.

MR.27 An estimate of cumulative baseline emissions from BGB $E_{B\,BGB}^{[m]}$ for the current monitoring period.

Cumulative baseline emissions from decayed BGB ($E_{B\,BGB}^{[m]}$) for the current monitoring period are estimated to be 129,985 tCO$_2$e. This is calculated by taking the difference between cumulative carbon initially stored in BGB of felled trees (prior to any decay, calculated by equation F.31 of the VM0009 Methodology) as of the end of the current monitoring period (856,825 tCO$_2$e) and carbon stored in non-decayed BGB at the end of the current monitoring period (726,840 tCO$_2$e). It is based on default VCS decay models for BGB, which assume a decay period of 10 years.

MR.28 Calculations of cumulative baseline emissions from BGB $E_{B\,BGB}^{[m]}$ for all prior monitoring periods.

As this is the first monitoring period, baseline emission from BGB ($E_{B\,BGB}^{[m]}$) are 0 tCO$_2$e for all prior monitoring periods.

MR.30 Carbon stored in long-lived wood products $C_{B\,WP}^{[m]}$ after 100 years.

Carbon stored in long-lived wood products ($C_{B\,WP}^{[m]}$) after 100 years are estimated to be 277 tCO$_2$e.

MR.31 Calculations to determine $C_{B\,WP}^{[m]}$

All AGMT that is not considered slash is sequestered in long-lived wood products, specifically as roundwood, the primary timber export from PNG. The proportion slash is calculated from the merchantable biomass of each tree compared to the total biomass and calculated within the harvestable stratum within the workbook 'NIHT_KamlaparILG_Treelist'.

The amount of carbon stored in wood products is determined using equation [C.1] of the VM0009 methodology:

$$C_{B\,WP}^{[m]} = (1 - w)\left(E_{B\,AGMT}^{[m]}\right) \sum_{ty \in \mathcal{T}} p_{ty}^{[m]} l_{ty} \left(1 - f_{ty}\right)^{95}$$

The values for parameters w, lt,y, and f ty, were all taken from tables 8 and 9 of Appendix C of the methodology. Carbon stored in wood products is removed from annual baseline emissions.

5.2   Project Emissions

There are no quantifiable project emissions and/or removals during this monitoring period. Project activities have not resulted in significant emissions and there have been no observable disturbances to forest carbon stocks observed in field patrols and satellite imagery. Thus, project emissions within the Kamlapar PAI during this initial monitoring period are 0 tCO$_2$e.

MR.32 A map of the boundaries of any significant disturbances in the project accounting areas during the monitoring period.

The VM0009 Methodology captures carbon emissions by measuring changes in carbon stocks over time. As this is the first verification event for the Kamlapar PAI, occurring simultaneously alongside project validation, there have been no changes to carbon stocks within the initial PAI. Any disturbances to forest carbon stocks are being primarily observed through forest patrols, which have not made note of any significant disturbances. Additional observations for large-scale disturbances are made at the end of each monitoring period using satellite imagery. Landsat images near both the beginning and end of the monitoring period were downloaded and compared. No significant disturbances to forest carbon stocks are observable in these images (Figure 4).
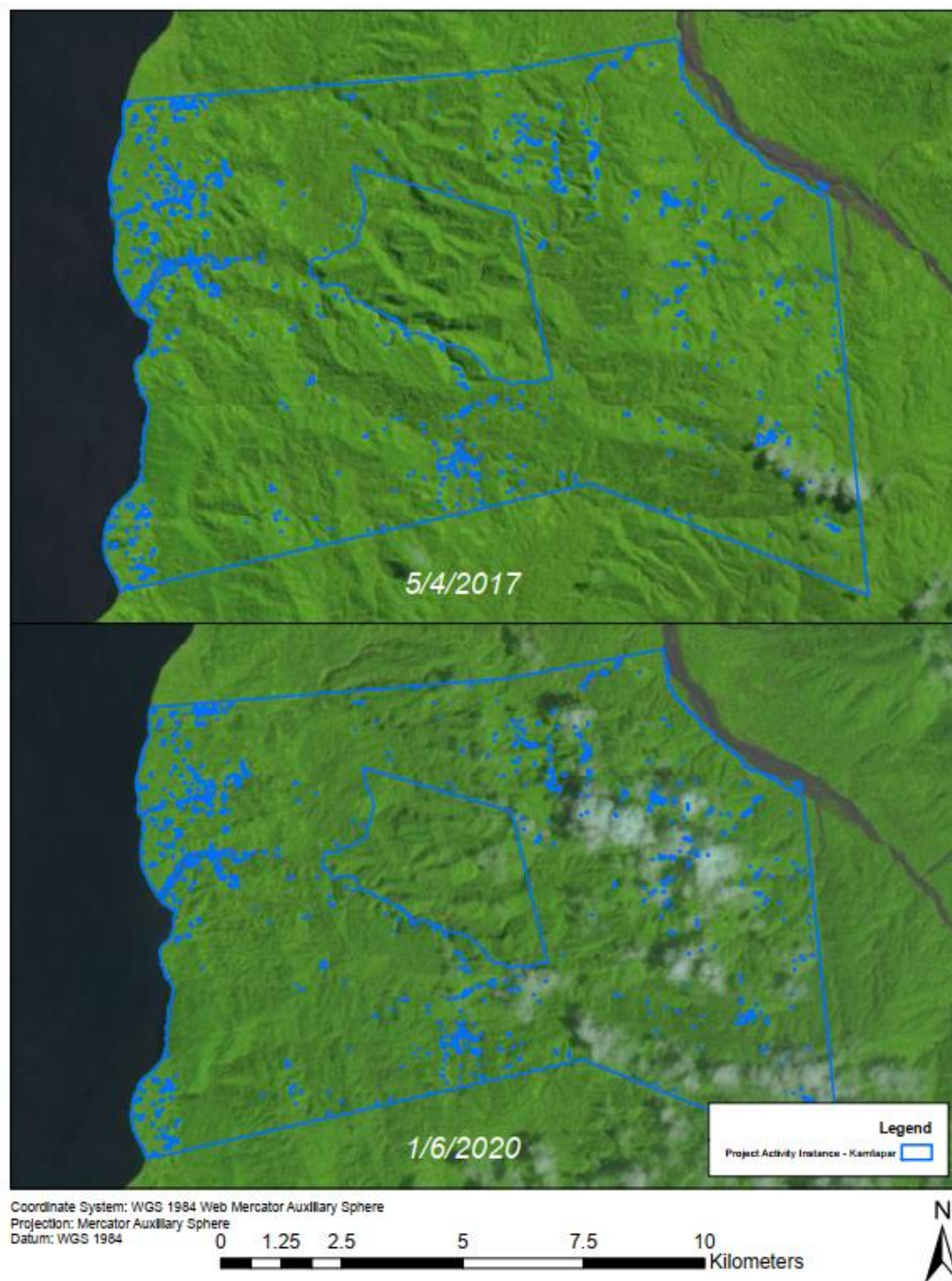
Figure 4: Landsat-8 images comparing the Kamlapar PAI at the beginning and end dates of the first monitoring period.

MR.33 Evidence that plots were installed into these disturbed areas and were measured per section 9.

MR.33 is not applicable as there were no disturbed areas that needed to be measured.

MR.34 A table of events when woody or herbaceous biomass was burned during the monitoring period, showing the weight of woody or herbaceous biomass in tonnes and the date consumed.

There was no burning of woody or herbaceous biomass as part of project activities during this monitoring period.

MR.35 Carbon stored in long-lived wood products CP Δ WPm after 100 years.

MR.36 Scale reports or records of carbon in log production by wood products type CP tym.

MR.37 Calculations to determine CP Δ WPm.

MR.35, MR.36, and MR.37 are not applicable during this monitoring period as there has been no logging as part of project activities.

5.3 Leakage

MR.44 A description of project activities that have been implemented since the project start date and the estimated effects of these activities on leakage mitigation.

Project activities are discussed in more detail in Section 3.1. As the primary project activity has been the prevention of the expansion of logging within the region, leakage is mitigated by ensuring that commercial logging does not expand outside of the initial PAI into neighboring areas. In addition to the agreement with the Kamlapar Clan, the project proponent already has agreements in place with 22 clans within the Konoagil LLG of New Ireland. Under these agreements, commercial logging rights have been transferred to the project proponent, who has committed to implementation of this REDD+ project. Thus, there is no possibility for legal industrial logging to expand into areas outside the Kamlapar PAI.

Additionally, the project proponent has made educational efforts alongside members of the Kamlapar Clan to build social capital through recognition of the legal and traditional rights they have to their land and forests. Recent efforts made by outside actors claiming logging rights to the area were rebuffed by local community members and reported to the project proponent, eliminating a potential expansion of illegal logging.

The project proponent has also provided employment opportunities to local community members that have participated in forest patrols as part of the teams completing the inventories. This employment provides an alternative livelihood that monitors any disturbances to forests both inside and outside of the Kamlapar PAI boundaries.

MR.45 A list of mitigation activities reducing demand for forgone goods and services.

As there has been no recent industrial logging within the Kamplapar PAI, there has been no change to the supply of wood products or other goods and services as a result of project activities. Thus, there has been no need to reduce demand for any such goods and services at this time.

MR.46 Quantities for the reduction or replacement of goods and services if they are used in section 8.3.3.4.

MR.47 Methods for measuring the reduction or replacement of goods and services.

MR.46 and MR.47 are not applicable as project activities have not changed the supply of commodities, goods, and services.

5.3.1 Activity-Shifting Leakage

MR.48 Calculated cumulative emissions from activity-shifting leakage for the current monitoring period ($E_{L\ ASF}^{[m]}$,) and supporting calculations.

Activity-shifting leakage is not applicable to the Kamlapar PAI and cumulative emissions from activity-shifting leakage ($E_{L\ ASF}^{[m]}$) for this monitoring period are 0 tCO$_2$e.

MR.49 Calculated cumulative emissions from activity-shifting leakage for the prior monitoring periods ($E_{L\ ASF}^{[m]}$). If an activity-shifting leakage area is not installed, then include results from the participatory rural appraisal and/or expert knowledge, with an analysis of the nearest suitable forest cover for activity-shifting leakage.

This is the first monitoring period so activity-shifting leakage emissions from prior monitoring periods are 0 tCO$_2$e.

There is no activity-shifting leakage for the Kamlapar PAI as a result of its' fulfillment of Eligibility Criteria #10. The Kamlapar ILG signed logging rights within the boundaries of the PAI over to NIHT, Incorporated, which has committed to developing this REDD+ project within all areas to which it has logging rights within PNG. This project will be developed in place of the industrial logging project originally planned for not only this PAI, but also for all the clans within the Konoagil LLG that also agreed to initially signing over logging rights to NIHT, Incorporated and are now preparing to eventually enroll in the project as additional PAIs. Additional information on how this approach prevents activity-shifting leakage is provided in the Project Description.

MR.50-MR.57 are not applicable as there is no activity-shifting leakage for the Kamlapar PAI in this monitoring period.

5.3.2 Market Leakage

MR.60 The selected approach to determining emissions from market leakage.

The selected approach for market leakage is described in more detail in the Project Description. The Kamlapar PAI fulfills Eligiibility Criteria #11 and there has been no industrial timber harvesting within any area of the PAI within the 10 years prior 1 June 2017, the date on which this PAI joined the project. Since there have been no large timber projects within the boundaries of the PAI, this project does not

have an impact on the supply of timber from within PNG. Without a change in supply, there cannot be market leakage and there are no market leakage emissions for this monitoring period.

MR.61 Estimated cumulative emissions from market leakage for the current monitoring period $E_{LME}^{[m]}$ and supporting calculations.

MR.62 Calculated cumulative emissions from market leakage for the prior monitoring periods $E_{LME}^{[m]}$.

The value for $E_{LME}^{[m]}$ is 0 tCO$_2$e for this monitoring period. This is the first monitoring period and there are no cumulative emissions from market leakage from any prior monitoring periods.

MR.63 Provide location-by-location evidence that management plans and land-use designations of all areas under the project proponent's control within the country have not changed as a result of the project. For entities with a conservation mission, provide evidence of the organization's policy not to change the land use of other owned and managed lands, and evidence of compliance with such a policy.

NIHT, Incorporated has committed to this REDD+ project across the entirety of the land under its' control and is also interested in enrolling other clans and logging operators within the project as additional PAIs. NIHT, Incorporated currently has signed agreements with 22 clans within the Konoagil LLG that have agreed to participation in the project. All of these clans have been officially recognized by the government of PNG as ILGs, or are in the process of receiving ILG status. The clans that have not yet received ILG status have signed contracts with ILG clans, which allows these 'sister clans' to use another clans ILG within their own lands. These areas will then be eligible to join the project (assuming they meet all other Eligibility Criteria) and project activities will further expand within these areas, protecting forested areas and spreading benefits to their communities.

Evidence for this plan is provided in the document 'Business Plan-7.17', which establishes the project proponent's decision to switch from an industrial logging project to a forest conservation project.

MR.64 Provide evidence in the form of GIS imagery, PRA evidence, or the baseline operator's management plan that management plans or land-use designations have not changed in the baseline operator's other lands.

The project proponent has committed to this forest protection project and has stopped all industrial logging plans within not only the Kamlapar PAI, but the entirety of Konoagil to which local clans originally signed over their logging rights. Not only has the project proponent prevented their own originally intended logging operations from moving forward, they are actively working with communities to prevent illegal logging by unlawful actors from encroaching on the area. During this monitoring period, a task force identified and shut down two illegal logging operations within Konoagil but outside of the PAI. Additionally, when a foreign company arrived in the region claiming logging rights, local communities involved in the project informed them that was incorrect and did not allow them to move

forward with operations. The baseline operator for the Kamlapar PAI is not only protecting the forest within the Kamlapar PAI, but their work continues to protect forests throughout the region.

5.4   Net GHG Emission Reductions and Removals

MR.65 Quantified GERs for the current monitoring period including references to calculations.

Gross Emissions Reductions[1] (GERs) for the current monitoring period are 1,680,306 tCO$_2$e.

MR.66 Quantified GERs for the prior monitoring period.

This is the first monitoring period.

MR.67 A graph of GERs by monitoring period for all monitoring periods to date.

Figure 5 demonstrates annual vintage year GERs while Figure 6 shows cumulative GERs across the first monitoring period.
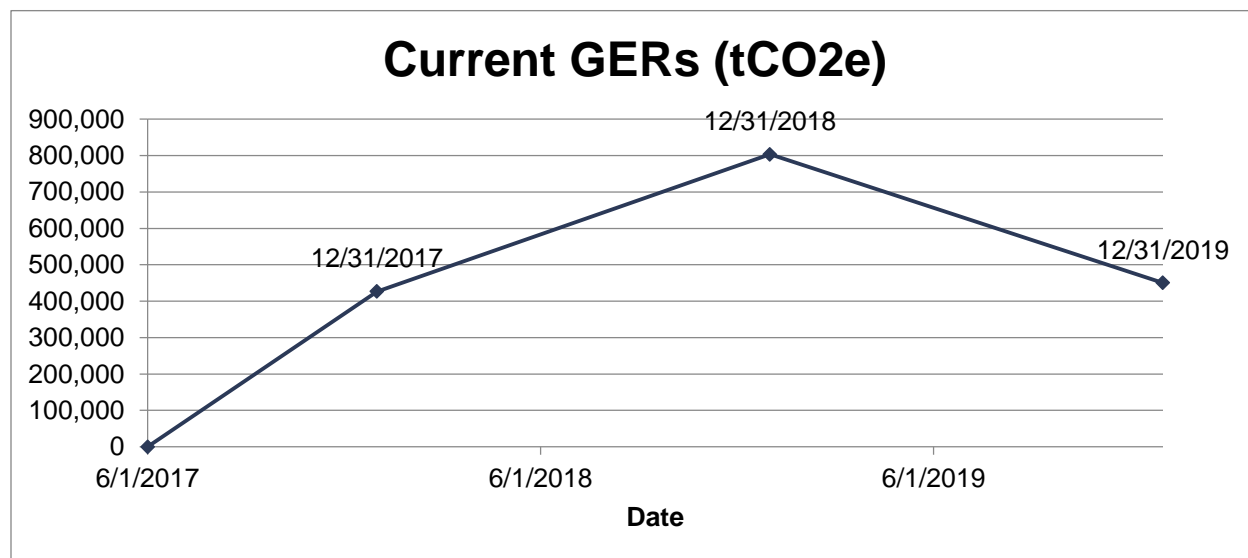

Figure 5: Annual GERs by vintage year for the first monitoring period

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[1] *Gross Emissions Reductions per the VM0009 Methodology are equivalent to Net GHG Emissions Reductions or Removals (NERs) in the VCS Standard v4.0.*
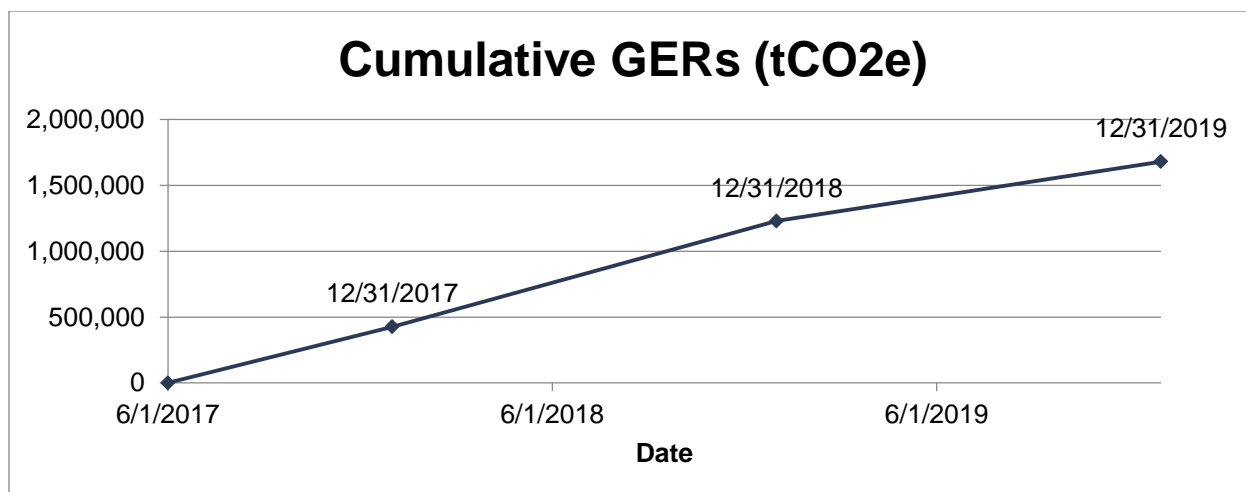
Cumulative GERs (tCO2e)

Figure 6: Cumulative GERs across the first monitoring period

MR.68 The confidence deduction ($E_U^{[m]}$) and estimated standard errors used to determine the confidence deduction.

The confidence deduction ($E_U^{[m]}$) is estimated to be 0 tCO$_2$e for this monitoring period. Standard errors and their sources used to determine this confidence deduction are included in Table 4. The confidence deduction calculations and specific sources for uncertainty calculations can be found in the 'NIHT_Accounting Model'.

Uncertainty Source	Value	VM0009 Parameter Derived from Source	Description	Source
Logistic Function of Conversion in Reference Area	0.10 (unitless)	$U_{EM}^{[m]}$	Total uncertainty in Baseline Emissions Model	Reference Area Point Interpretation
PAA Inventory	27.05 tCO$_2$e	$U_P^{[m]}$	Total SE of all pools estimated from PAA inventory	Kamlapar PAI Inventory and Treelist
Proxy Area Inventory	38.32 tCO$_2$e	$U_B^{[m]}$	Total SE of all pools estimated from proxy area inventory	Proxy Area Inventory and Treelist

Table 4: Sources of uncertainty used in confidence deduction calculations

MR.69 Reference to calculations used to determine the confidence deduction.

The confidence deduction ($E_U^{[m]}$) is calculated with equation F.57 of the VM0009 Methodology:

$$E_U^{[m]} = E_{B\,\Delta}^{[m]} \left[\frac{1.64}{E_{P\,\Delta}^{[m]} + A_{PAA}c_p^{[m]} + A_{PAX}c_B^{[m]}} \sqrt{(U_{EM}^{[M]})^2 + (U_P^{[m]})^2 + (U_B^{[m]})^2} - 0.15 \right]$$

MR.74 Quantified NERs for the current monitoring period including references to calculations.

Quantified NERs[2] for the current monitoring period are 1,327,442 tCO$_2$e. NERs are calculated from equation F.55 of the VM0009 Methodology:

$$E_{\Delta\,NER}^{[m]} = E_{\Delta\,GER}^{[m]} - E_{BA}^{[m]}$$

MR.75 Quantified NERs for the prior monitoring period.

This is the first monitoring period.

MR.76 -A graph of NERs by monitoring period for all monitoring periods to date.

Figure 7 demonstrates annual vintage year NERs while Figure 8 shows cumulative NERs across the first monitoring period.
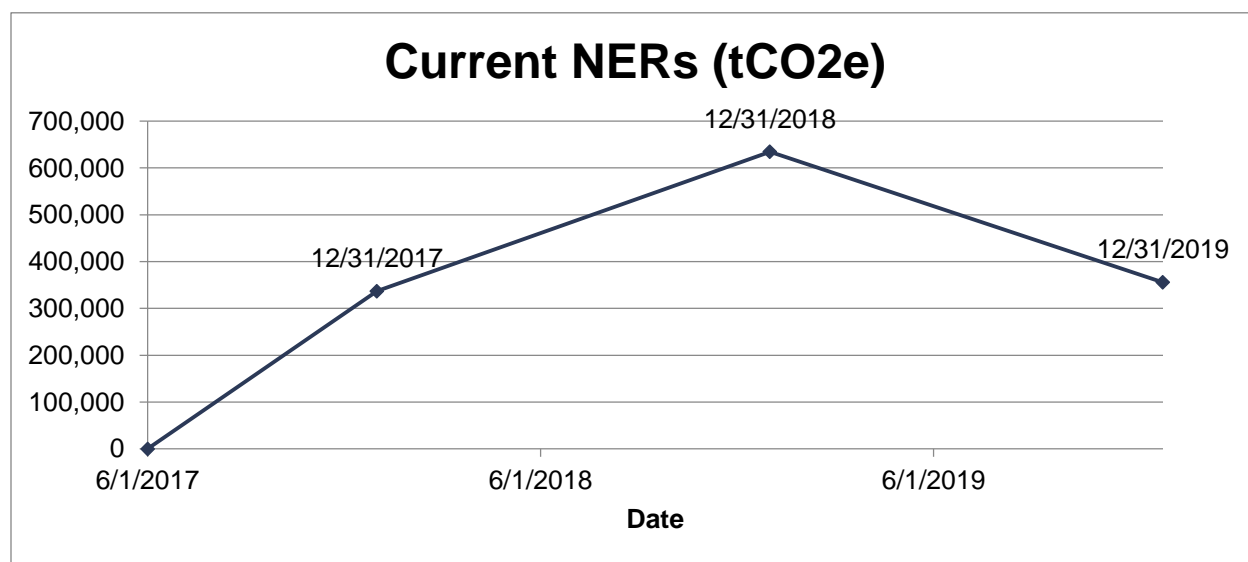

Figure 7: Annual NERs by vintage year for the first monitoring period

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[2] *Per the VM0009 Methodology, Net Emissions Reductions (NERs) are GERs minus buffer account allocation, which is equivalent to a Verified Carbon Unit (VCU). The following sections use the term NER to comply with the terminology of the methodology, but these are equivalent to VCUs per VCS Standard v4.0.*
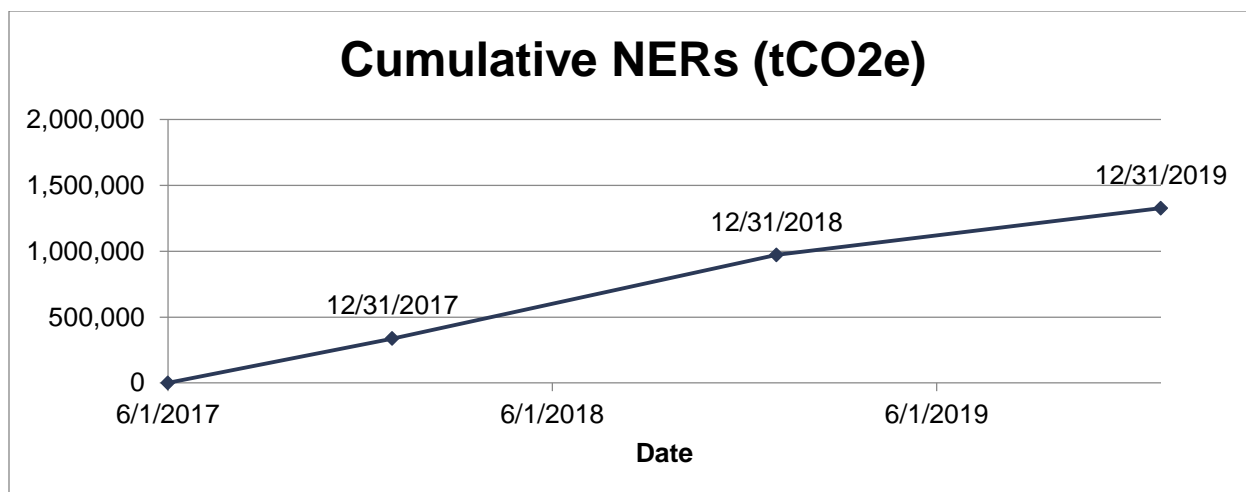
Figure 8: Cumulative NERs by vintage year for the first monitoring period

MR.77 Reference to the VCS requirements used to determine the buffer account allocation.

The buffer account allocation was determined by following the requirements of VCS Standard v4.0. The document 'NIHT Non-Permanence Risk Report for Kamlapar PAI' provides further detail on how the risk rating of 21% was determined.

MR.78 Reference to calculations used to determine the buffer account allocation.

The buffer account allocation is calculated per the following equation:

$$E_{BA}^{[m]} = E_{\Delta\, GER}^{[m]} * RR_{PAI}^{[m]}$$

The parameter $RR_{PAI}^{[m]}$ is the risk rating for the current monitoring period, which has a value of 21%.

MR.79 Quantified NERs for the current monitoring period including references to calculations.

MR.80 Quantified NERs for the prior monitoring period.

MR.81 A graph of NERs by monitoring period for all monitoring periods to date.

MR.79, MR.80, and MR.81 are not applicable as the PAA of the Kamlapar PAI is currently the only PAA included in the project.

MR.82 Quantified NERs by vintage year for the current monitoring period including references to calculations.

The current monitoring period extends from 1 June 2017 – 31 December 2019, covering the three vintage years of 2017, 2018, and 2019. NER estimates for these three years are provided in Table 5 below.

Vintage Year	NERs (tCO$_2$e)

2017	337,081
2018	634,698
2019	355,663
Total	1,327,442

Table 5: Quantified NERs by vintage year for the current monitoring period

MR.83 Comparison of NERs presented for verification relative to NERs from ex ante estimates.

MR.84 Description of the cause and effect of deviations from ex-ante estimates.

MR.83 and MR.84 are not applicable as this is the first monitoring period for this project and verification and validation are occurring simultaneously. Ex-ante estimates are based on the results of this initial PAI and there is no deviation between the numbers presented in this monitoring report and the PD for the current monitoring period.

5.4.1 Summary Tables

Table 6 summarizes carbon accounting estimates per the requirements of the VCS Standard v4.0.

Year	Baseline emissions or removals (tCO$_2$e)	Project emissions or removals (tCO$_2$e)	Leakage emissions (tCO$_2$e)	Net GHG emission reductions or removals (tCO$_2$e)	Buffer pool allocation	VCUs eligible for issuance
2017	426,685	0	0	426,685	-89,604	337,081
2018	803,415	0	0	803,415	-168,717	634,698
2019	450,206	0	0	450,206	-94,543	355,663
Total	1,680,306	0	0	1,680,306	-352,864	1,327,442

Table 6: Summary of baseline, project, and leakage emissions, including buffer pool allocation and total VCUs by vintage year