



MADAGASCAR IMPROVED COOKSTOVE PROJECT BY KCM-WOOD#CPA-W-030



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Project ID	2794
Monitoring period	01-May-2024 to 31-December-2025 (both dates included)
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Prepared by	Korea Carbon Management Ltd

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

This is a community-based project activity that implemented energy efficient improved cooking practice at households to replace inefficient open firing practice at the baseline. This project is designed as Grouped Project activity of 10 different Instances which were initially registered as 'Component Project Activity' (CPAs) of a "Programme Of Activities" (PoA) registered under 'Clean Development Mechanism' (CDM) of UNFCCC which was later withdrawn and applied as instances under this grouped project ID 2794, currently applied for second verification under VCS.

Project instances¹ 01–10 are referred as below (with CPA reference & VCS ID for internal reporting purposes):

Coordinating/Managing entity (PP)	: Korea Carbon Management Ltd. (KCM)
Instance 1	CPA 31 (earlier VCS 2795)
Instance 2	CPA 33 (earlier VCS 2797)
Instance 3	CPA 35 (earlier VCS 2799)
Instance 4	CPA 37 (earlier VCS 2801)
Instance 5	CPA 39 (earlier VCS 2803)
Instance 6	CPA 41 (earlier VCS 2805)
Instance 7	CPA 30 (earlier VCS 2794)
Instance 8	CPA 43 (earlier VCS 2807)
Instance 9	CPA 32 (earlier VCS 2796)
Instance 10	CPA 45 (earlier VCS 2809)

The main objective of this grouped project activity is dissemination of the efficient improved cooking stove (ICS) woody biomass-based ICS to the rural household of Madagascar, which has resulted in reduced firewood consumption leading to climate change mitigation in a sustainable manner. Overall objectives are reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality.

The ICS promoted under this grouped project activity are of two types viz. (i) SoaRehitra portable ICS and (ii) Lamasinina fixed ICS made of clay liner baked to high standards and insulated with outer metal sheet, which are commonly available in Host Country. Lamasinina design is developed with a chimney for releasing the smoke outside, having two combustion chambers that specify this model. It's joined with a mortar of high quality, which holds together the clay liner and metal sheet. In particular, the design made have higher pressure than the atmosphere, hence raising the airflow rate in the improved cook stove tunnel, as it is heated at the bottom.

¹ Here instances are considered in sequential order based on their ICS distribution dates (even though the CPA ID references are in different sequence).

This way, the top point of the improved cook stove experiences more pressure and heat. The details of the stove design and technicalities are discussed under the section 1.12 below.

The project activity targets households in rural communities with no previous ICS access. The geographical boundary of the Project Instances is within the national boundary of the host Country “Madagascar”. ICS are distributed free of cost to users. Korea Carbon Management Ltd. (KCM) financed the implementation of the Instances under the Grouped Project in full.

Each project activity instance has been fully implemented under the grouped project. A total of 10 project activity instances are included, of which 8 instances involve the distribution of Portable ICS called “SoaRehitra” and 2 instances involve the distribution of fixed ICS model called “Lamasinina”. For the SoaRehitra Portable ICS instances, 13,752 cookstoves were distributed per instance, resulting in a total distribution of 110,016 SoaRehitra cookstoves across 8 instances. For the Lamasinina Fixed ICS instances, 13,604 cookstoves were distributed per instance, resulting in a total distribution of 27,208 Lamasinina cookstoves across 2 instances. These distribution numbers were calculated using the small-scale methodological threshold for energy savings, described under the ER sheet.

Accordingly, a total of 137,224 improved cookstoves have been distributed and implemented under the grouped project. Each project activity instance includes only one type of ICS (i.e. either SoaRehitra or Lamasinina as described above), ensuring homogeneity in terms of technology type and beneficiaries. Each household received one ICS under the project activity.

Table 01: Summary of ICS Implementation Instances

Instances	ICS Type	Implementation start date
Instance 1	Portable ICS (SaoRehitra)	21-April-2022
Instance 2	Portable ICS (SaoRehitra)	09-June-2022
Instance 3	Portable ICS (SaoRehitra)	30-June-2022
Instance 4	Portable ICS (SaoRehitra)	29-August-2022
Instance 5	Portable ICS (SaoRehitra)	14-November-2022
Instance 6	Portable ICS (SaoRehitra)	19-December-2022
Instance 7	Fixed ICS (Lamasinina)	14-February-2023
Instance 8	Portable ICS (SaoRehitra)	17-April-2023
Instance 9	Fixed ICS (Lamasinina)	30-June-2023
Instance 10	Portable ICS (SaoRehitra)	17-July-2023

The scenario existing prior to the implementation of the project is the actual baseline scenario which is equal to the existing common practice in the region i.e. in absence of the project activity the equivalent amount of thermal energy generated using firewood in three stone open fires to meet the cooking energy demand. During the current monitoring period total emission reductions achieved by the grouped project activity is 838,810 tCO_{2e}.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
CDM Validation & CPA (30, 31, 32, 33, 35, 37, 39, 41, 43, 45) Inclusion	01-March-2022 to 29-February 2032	CDM	KBS Certification Services Pvt. Ltd	10 Years Fixed -
VCS Gap Validation	21-April-2022 to 29-February-2032	VCS	LGAI Technological Center S.A. (Applus+ Certification).	09 years 10 months 9 days
VCS Verification I (Joint Validation & Verification)	21-April-2022 to 30-April-2024	VCS	LGAI Technological Center S.A. (Applus+ Certification)	2 years 00 Months 10 days
VCS Verification II	1-May-2024 to 31-December-2025	VCS	VKU Certification Pvt. Ltd.)	1 year 08 months 00 days

This 2nd verification under VCS. The current monitoring period is considered from 01-May-2024 to 31-December-2025 (includes both the dates), which is part of the fixed crediting period from 21-April-2022 to 29-February-2032 (includes both the dates) Instance wise total GHG emission reductions generated in this monitoring period are as below: (calculated value to be referred in the ER sheet).

Table 02: Total GHG Emission Reductions Achieved During Monitoring Period (01-May-2024 to 31-December-2025)

Instances	MP: 01-May-2024 to 31-December-2025 Total emission reduction (tCO ₂ e) achieved
Instance 1	81,139
Instance 2	81,785
Instance 3	82,098
Instance 4	82,836
Instance 5	83,135
Instance 6	83,904
Instance 7	86,577
Instance 8	84,631
Instance 9	87,088

Instance 10	85,617
Total =	838,810

1.3 Sectoral Scope and Project Type

Sectoral scope²	03 - Energy demand
Project activity type	Type II - Energy efficiency projects with maximum output of 60 GWh (electrical) or 180 GWh (thermal) per year

Sectoral scope	This section is only required to be filled for AFOLU projects & this is not an AFOLU project.
AFOLU project category³	This section is not applicable as the project pertains to ICS distribution of sectoral scope 3 i.e., (Energy Demand) & This section is only required to be filled for AFOLU projects & this is not an AFOLU project.
Project activity type	This section is only required to be filled for AFOLU projects & this is not an AFOLU project.

1.4 Project Proponent

Organization name	Korea Carbon Management Ltd.
Contact person	Mr. Thomas Winklehner
Title	Chief Executive Officer
Address	9F, N'deavor Tower, 45, Seocho--dearo 74--gil, Seocho--gu, Seoul,
Telephone	06626, Republic of Korea
Email	+82 2 3487 6050

1.5 Other Entities Involved in the Project

Organization name	Not Applicable
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² Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes:
<https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

³ See Appendix 1 of the VCS Standard

Role in the project	Not Applicable
Contact person	Not Applicable
Title	Not Applicable
Address	Not Applicable
Telephone	Not Applicable
Email	Not Applicable

1.6 Project Start Date

Project start date	21-April-2022
Justification	The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or carbon dioxide removals. Since this is a grouped project activity with 10 instances, hence the date of installation of first ICS under this grouped project activity has been considered as the start date of the project activity, which is (21-April-2022).

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☒ Ten years, fixed ☐ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
Start and end date of first or fixed crediting period	21-April-2022 to 29-February-2032 ⁴

1.8 Project Location

The project activity under this grouped project has been implemented in households across several villages under different commune and fokontany across the districts Vohipeno and Manakara Atsimo, Mananjary, Ikongo, Ifanadiana and Nosy Varika under the region of Vatovavy

⁴ The end date of crediting period is considered as 29th February 2032 which is the end date of the fixed crediting period under CDM. Here, the start date of CP is revised in line with the start date of the group project instance. Therefore, in line with the section 3.9.7 of the VCS Standard v4.7 the end date of the crediting period for the grouped project is limited to that of the CDM CP of the earliest of the instances included under this grouped project, which is 29 February 2032.

Fitovinany, of Madagascar. The exact list of beneficiaries, respective villages, districts etc. recorded in the ICS distribution database, which is available for verification and cross check during the site visit.

Table 03: The coordinates of the Region are mentioned below for reference

Latitude: -22° 24' 59.99" S and Longitude: 47° 51' 59.99" E (Vatovavy Fitovinany)

Instances	Region	District
Instance 1 (CPA 31)	Vatovavy Fitovinany	Vohipeno
Instance 2 (CPA 33)		Vohipeno
Instance 3 (CPA 35)		Manakara Atsimo
Instance 4 (CPA 37)		Manakara Atsimo
Instance 5 (CPA 39)		Ikongo
Instance 6 (CPA 41)		Mananjary and Mankara Atsimo
Instance 7 (CPA 30)		Vohipeno and Manakara Atsimo
Instance 8 (CPA 43)		Mananjary and Ifanadiana
Instance 9 (CPA 32)		Manakara Atsimo
Instance 10 (CPA 45)		Mananjary and Nosy Varika

The locations are indicated in geographical maps below for better presentation:

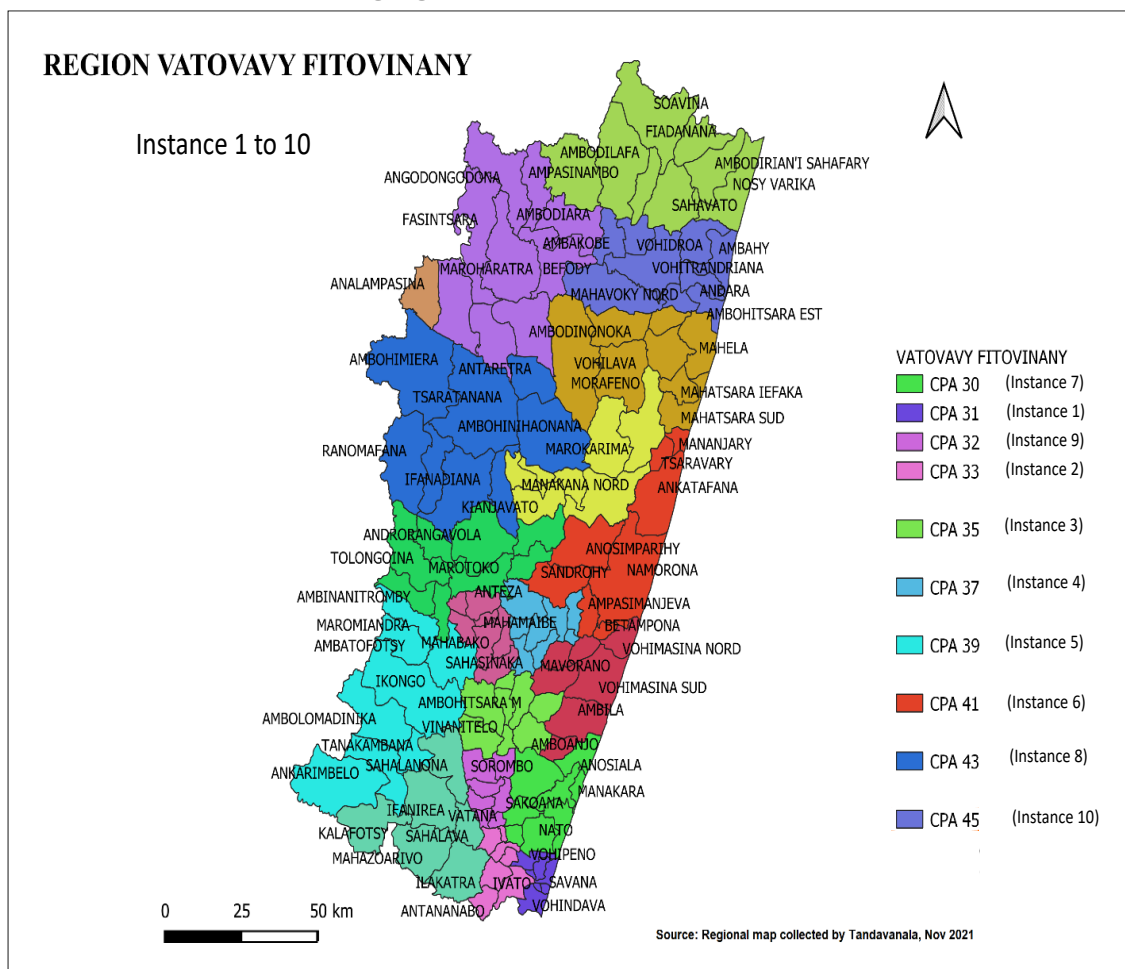


Figure 1. Project Location Map

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	AMS-II.G. ⁵	Energy efficiency measures in thermal applications of non-renewable biomass	09.0
Tool	CDM TOOL30 ⁶	Calculation of the fraction of non-renewable biomass”	04
Tool	TOOL33 ⁷	Default values for common parameters	2.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

The project activity has already been registered under Clean Development Mechanism (CDM) of UNFCCC, under Kyoto Protocol. This project is a Component Project Activity (CPA) under a registered Programme of Activities (CDM-PoA). The details are as follows:

CDM-PoA Registration number: 10443

Title: Madagascar Improved Cookstove Project by KCM

Weblink:

https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/KUFLHQD3N8E5W2BIMRAVTGJXO14S76/view

This project activity has claimed Certified Emission Reductions (CERs) under CDM as a part of the CDM-PoA till 31-December-2020⁸; however no further verification has been conducted under CDM. The monitoring period from 21-April-2022 to 30-April-2024 (inclusive of both dates). had been considered under VCS 1st verification, and monitoring period from 01-May-2024 to 31-December-2025 (inclusive of both dates). has been considered as 2nd verification under VCS

⁵ <https://cdm.unfccc.int/UserManagement/FileStorage/F3ISTOABY87UK5DVNJ69XW4MR2OLZP>

⁶ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-30-v4.0.pdf>

⁷ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-33-v2.0.pdf>

⁸ https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/KUFLHQD3N8E5W2BIMRAVTGJXO14S76/view (the status of issuance of CERs till 31-December-2020 can be checked from the serial number Block end: MG-5-942524-2-2-0-10443)

(inclusive of both dates). Hence, there is no double accounting⁹ of emission reductions for the current monitoring period

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☒ Yes ☐ No

The project activity of the instances have already been registered under Clean Development Mechanism (CDM) of UNFCCC, under Kyoto Protocol. Thus, these instances are the Component Project Activity (CPA) under a registered Programme of Activities (CDM-PoA), details are as follows:

Title	:	Madagascar Improved Cookstove Project by KCM
UNFCCC reference number	:	10443

Is the project active under the other program?

☐ Yes ☒ No¹⁰

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

The project activity and the GHG emission reductions are not included in any emission trading program or any other mechanism that includes GHG allowance trading.

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system.

☐ Yes ☒ No

The project activity has been registered as a CPA under a CDM-PoA (Ref. 10443) and GHG emission reductions generated by the project will not be used for any compliance under any programs or mechanisms, except CDM. The project activity has already received the 'Letter of Approval' (LoA) from Host Country Designated National Authority (DNA).

⁹ An official declaration has been submitted to VVB confirming the same.

¹⁰ Attested declaration of PP submitted to the VVB

The project activity under VCS shall not claim emission reductions for the same period that has been/will be covered under CDM as a part of the registered PoA. Thus, there will not be any possibility of double accounting⁵ of emission reductions.

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

The project activity includes distribution of energy efficient cookstoves which are locally manufactured. This includes some goods & services from manufacturers, suppliers, implementers etc. (i.e. third parties). However, there are no specific or identified/measured/disclosed Scope-3 inventory emissions in the supply chains of the manufacturing unit. Hence there is no potential risk of any double accounting or claiming of such scope-3 emissions across the projects. These can be further referred from the statements¹¹ submitted by the manufacturing entity involved in the project.

If yes: Not applicable

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

If yes: Not applicable

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."

☐ Yes ☒ No

If yes to all: Not applicable

Provide evidence of the public statement. Evidence must be provided in this section or in an appendix.

1.12 Sustainable Development Contributions

This grouped project is community-based activity that implemented energy efficient improved cooking practice at rural households of Madagascar to replace inefficient open firing practice at the baseline. The project contributes to sustainable development in a number of ways:

Environmental Sustainability

- The programme will lead to the reduction in GHG emission due to reduction in use of non-renewable biomass, thus assisting in conserving existing forest stock and the protection of natural forest eco-systems and wildlife habitats.

¹¹ Copies of the declarations/statement received from ICS manufacturer and local implementing partner submitted to VVB.

- The reduction in biomass consumption for cooking through efficient use leads to improved ecological balance.
- The protection of standing forests will ensure the maintenance of watersheds that regulate water table levels and prevent flash flooding

Social Sustainability

- Reduction in the drudgery of women attributable to a reduction in the amount of time spent collecting fuelwood and cooking. Hence, women save their time spent on laborious and unpaid work which can be utilized in a more effective manner by engaging in income-generating activities. This can help in improving the overall socio-economic status of the family as well as the overall well-being of the women.
- Adoption of energy-efficient cookstoves will lead to a reduction in the amount of air emissions released during cooking thereby decreasing the levels of indoor air pollution within the households of beneficiaries. This will lead to a reduction in exposure to harmful air pollutants, hence improving the overall health status of beneficiaries.
- The programme will contribute to the preservation of wood resources so as to avoid intercommunal and/or inter-ethnic conflict over resources.
- The stove provides a safer method for combusting biomass for cooking, helping to reduce burn injuries, especially for children, in the family home.

Economic Sustainability

- The fabrication, operation and repair and maintenance of ICS's are expected to provide employment to the local people throughout its lifetime. This will lead to improvement of the overall economic status of local inhabitants of the country.
- The time saved for collecting fuelwood and cooking meals can be utilized in a productive manner by engaging in income-generating activities which is sure to improve the overall economic status of the household.
- The costs incurred in the purchase of firewood will be reduced through increased efficiency of the ICS thus leading to lesser firewood consumption that leads to fuel economy improvement for households.

The project leads to the achievement of the following SDGs

Estimated Project Contribution	Monitoring approach
Strengthen financial conditions of local people: People associated with this project are at shared responsibility level. The project contributes to generation of employment in various functions of the project activity since the beginning. This includes both admin, skilled and unskilled workers. Financial benefits (i.e. gain in their household incomes) due to saving in fuel cost as well as provision for new income opportunities due to saving in cooking time with project ICS.	Net Benefit = Employment (Project) - Employment (Baseline) Employment Baseline = 0, in absence of project activity no employment opportunities would have been created. Employment (Project) = Employment generation in project scenario
Decrease in Mortality rate and ambient air pollution: Due to clean and energy efficient cooking device implemented, it released less smoke hence reduces the fine particulate matter (PM2.5) emitted during the cooking practice; thereby improving overall health outcomes attributed to household and ambient air pollution and reducing burdens of airborne diseases.	This claim is supported by the “Madagascar Death Rate 1950-2025” statistics which published¹²: (a) The death rate (%) reported in the country during 2023 to 2025 is 7.53 to 5.42 (b) The death rate (%) reported in 2015 was 7.46, in 2010 is 7.83 and further compared to year 2000 that reports 10.46, This value is further on higher side as we view historic trend, Hence, this claim can be further justified with the basis of national statistics. Nevertheless, such effects are better visible/realizable in long run.
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all: Regular/periodic Trainings on ICS & cook practice imparted to the beneficiaries. Contributed to community-level exposure and awareness of climate change, sustainable development, health, and nutrition well-being, through informal	Net Benefit = Training (Project) - Training (Baseline) Training (Project) = Trainings provided in project scenario Training (Baseline) = Trainings provided in baseline.

¹² <https://www.macrotrends.net/countries/MDG/madagascar/death-rate>

training on these topics related to and the operation of the improved cookstoves Such trainings help bringing both qualitative employment for staff as well as helps gaining continuous and lifelong learning opportunities for all.	A value of 0 shall be considered as in absence of project activity, these trainings would not have been undertaken by PP.
Proportion of time spent on unpaid domestic and care work, by sex, age, and location: Due to the project activity, each and every woman in the household experiencing reduction in drudgery, specifically for women and children, as time saved through reduction of time spent collecting fuelwood and cooking time due to efficient ICS technology.	Net Benefit = Time Spent (Baseline) – Time spent (Project) Time Spent (Baseline): Average time spent in fuel collection and cooking in baseline scenario. Determined once prior to or concurrent with first verification Time spent (Project): Average time spent in fuelwood collection and cooking in project scenario Source: SDG Sampling Survey & Focus Group Discussion Reports
Proportion of population with primary reliance on clean fuels and technology: Contribute to increasing access to clean cooking device for 13,752/ 13,604 households [equivalent to 13,752/13,604 (depending on instance) kitchen] which reduces the consumption of non-renewable biomass in the region.	Net Benefit = ICS (Project) × N_y ICS (Project): Number of ICS installed representing access to clean technology in project scenario N_y: Proportion of operational stoves Source: ICS distribution records and ex-post monitoring surveys conducted to determine proportion of operational stoves
fatal and non-fatal occupational injuries: Contribute to Zero occupational injuries, zero mortality during the monitoring period.	Net Benefit = Occupational Injuries (Baseline) – Occupational Injuries (Project) Source: The contribution is supported from the monthly record statement related to health & safety and occupational hazards.
Reduction in emissions as compared to baseline scenario (open fire): Project contributes to emission reduction from the replacement of baseline cooking practice/stoves with an energy efficient ICS called “SoaRehitra” or “Lamasinina”.	$ER_{y,ij} = B_{y,savings,ij} \times N_{y,ij} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$ Source-VCS Joint Project Description & Monitoring Report for the corresponding period of VCS Project

Reduction in deforestation rate owing to the consumption of woody biomass from forests surrounding the communities and reducing pressure on forest reserves.	$B_{y,savings,i,j} = B_{old} \times \left(1 - \frac{\eta_{old}}{\eta_{new,i,j}} \right)$ Source-VCS Joint Project Description & Monitoring Report for the corresponding period of VCS Project
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Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	1.1	User defined indicator under SDG 1.1: Strengthen financial conditions of local people to reduce risk of low income vulnerability against the poverty line, according to national definitions	Implemented activities to increase	Contribution type A: direct local employment 477¹³ dedicated people are locally employed across the instances, i.e. at the group project level and more than 272 people are associated with this group project at shared responsibility level. Instance wise employment details are referred in the signed employment report. Whereas overall employment achieved across various functionalities at programme level is 749. Thus, current project contribution claimed for this project is 477 people, which were locally employed in various functions of the project activity since the beginning. This includes both admin, skilled and unskilled workers.	Overall contribution under Type A: direct employment of 477 resources. Overall contribution under B: Total contribution at instance level accounted to 13,752 and 13,604 households/beneficiaries respective to the ICS type SoaRehitra & Lamasinina respectively. These households received gain in their household incomes due to saving in fuel cost as well as provision for new income opportunities due to saving in cooking time with project ICS. The benefits or the contribution can be referred from the SDG survey report conducted by the local team. Additionally, there were focus group discussions (FGDs)¹⁴ at project levels which also confirms the same However, this attribute (SDG indicator) will be a continuous process across the lifetime of the project which will ensure more number of positive impacts in coming time.

¹³ To be referred from the Employment records and summary report (confidential)

¹⁴ Focus Group Discussion (FGD) records were submitted to VVB for reference.

			Contribution type B: financial benefits (i.e. gain in their household incomes) due to saving in fuel cost as well as provision for new income opportunities due to saving in cooking time with project ICS. 13,752 (SaoRehitra) and 13,604 (Lamasinina households received financial benefits (i.e. gain in their household incomes) due to saving in fuel cost as well as provision for new income opportunities due to saving in cooking time with project ICS. The benefits or the contribution can be referred from the SDG survey report conducted in 2021. The measured outcomes can be statistically reported as follows: (a) 98% of the surveyed population confirmed that financial gain & improvement in livelihood for households (via saving in fuel cost and saving in cooking time leading to more earning opportunities) is more than 75% as compared to baseline conditions. (b) 2% of the population also reported the same benefits as more than 50% as compared to baseline conditions.	
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2)	3,9	3.9.1 Mortality rate attributed to household and ambient air pollution.	Implemented activities to decrease	Positive impacts created to 13,752/ 13,604 households (depending on instance level) included under the project activity. Due to clean and energy efficient cooking device implemented at project level, it released less smoke hence reduces the fine particulate matter (PM2.5) emitted during the cooking practice; thereby improving overall health outcomes attributed to household and ambient air pollution and reducing burdens of airborne diseases. This directly impacts on health of the households, especially because all Malagasy kitchens are in-house, and cooking is always done inside the house. Thus, this health benefits resulted from reduction in PM2.5, can be directly attributed to mortality rate, which is also evident from the computation method published¹⁵ under this indicator 3.9.1 This claim is further supported by the “Madagascar Death Rate 1950-2025” statistics which published¹⁶: (a) The death rate (%) reported in the country during 2023 to 2025 is 7.53 to 5.42 (c) The death rate (%) reported in 2015 was 7.46, in 2010 is 7.83 and further compared to year 2000 that reports 10.46, This value is further on higher side as we view historic trend Hence, this claim can be further justified with the basis of national statistics. Nevertheless, such effects are better visible/realizable in long run.	Same as current project contributions. Overall attributes: reduce the fine particulate matter (PM2.5) emitted during cooking thereby improving overall health outcomes and reducing burdens of disease.
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¹⁵ https://data.unicef.org/sdgs/goal-3-good-health-wellbeing/#tab-mnch_airpol_mr-16

¹⁶ <https://www.macrotrends.net/countries/MDG/madagascar/death-rate>

3)	4.0	Goal Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	4: Implemente d activities to increase	Current contribution is accounted as: At community level: <table><tr><th rowspan="2">Instances</th><th colspan="2">Number of Trainings</th></tr><tr><th>Year 2024</th><th>Year 2025</th></tr><tr><td>Instance 1 CPA 30</td><td>01</td><td>02</td></tr><tr><td>Instance 2 CPA 31</td><td>01</td><td>02</td></tr><tr><td>Instance 3 CPA 32</td><td>01</td><td>02</td></tr><tr><td>Instance 4 CPA 33</td><td>01</td><td>02</td></tr><tr><td>Instance 5 CPA 35</td><td>01</td><td>02</td></tr><tr><td>Instance 6 CPA 37</td><td>01</td><td>02</td></tr><tr><td>Instance 7 CPA 39</td><td>01</td><td>02</td></tr><tr><td>Instance 8 CPA 41</td><td>01</td><td>02</td></tr><tr><td>Instance 9 CPA 43</td><td>01</td><td>02</td></tr><tr><td>Instance 10 CPA 45</td><td>01</td><td>02</td></tr></table> Regular/periodic Trainings on ICS & cook practice imparted to the beneficiaries. Contributed to community-level exposure and awareness of climate change, sustainable development, health, and nutrition well-being, through informal training on these topics related to and the operation of the improved cookstoves. At team level:	Instances	Number of Trainings		Year 2024	Year 2025	Instance 1 CPA 30	01	02	Instance 2 CPA 31	01	02	Instance 3 CPA 32	01	02	Instance 4 CPA 33	01	02	Instance 5 CPA 35	01	02	Instance 6 CPA 37	01	02	Instance 7 CPA 39	01	02	Instance 8 CPA 41	01	02	Instance 9 CPA 43	01	02	Instance 10 CPA 45	01	02	Cumulative project contribution 139 trainings (33 from previous monitoring period + 106 from the current monitoring period) Overall attributes: 139 trainings. Contribute to community-level exposure and awareness of climate change, sustainable development, health, and nutrition well-being through informal training on these topics and the improved cookstove. The staff training includes both technical and managerial based learnings.
Instances	Number of Trainings																																							
	Year 2024	Year 2025																																						
Instance 1 CPA 30	01	02																																						
Instance 2 CPA 31	01	02																																						
Instance 3 CPA 32	01	02																																						
Instance 4 CPA 33	01	02																																						
Instance 5 CPA 35	01	02																																						
Instance 6 CPA 37	01	02																																						
Instance 7 CPA 39	01	02																																						
Instance 8 CPA 41	01	02																																						
Instance 9 CPA 43	01	02																																						
Instance 10 CPA 45	01	02																																						

Instances	Number of Trainings	
	Year 2024	Year 2025
Instance 1 (CPA 30)	02	03
Instance 2 (CPA 31)	05	05
Instance 3 (CPA 32)	02	03
Instance 4 (CPA 33)	04	04
Instance 5 (CPA 35)	08	04
Instance 6 (CPA 37)	02	04
Instance 7 (CPA 39)	02	05
Instance 8 (CPA 41)	04	04
Instance 9 (CPA 43)	03	04
Instance 10 (CPA 45)	03	05

Such trainings help bringing both qualitative employment for staff as well as helps gaining continuous and lifelong learning opportunities for all.

4)	5.4	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age, and location.	Implemente d activities to decrease	At least 13,752/ 13,604 (depending on instance) women were positively impacted at the project level. Due to the project activity, each and every woman in the household experiencing reduction in drudgery, specifically for women and children, as time saved through reduction of time spent collecting fuelwood and cooking time due to efficient ICS technology. The measured outcomes (as can be referred from the SDG Reports (i.e. SDG Sampling Survey & Focus Group Discussion Reports)) can be statistically reported as follows: (a) 98% of the surveyed population confirmed that they achieved more than 75% improvement compared to baseline scenario in their livelihood. And the key indicators reported are direct savings in fuel cost, saving in wood collection time and overall cooking time, etc. which led to more earning opportunities for households). (b) Similarly, the remaining 2% of the population also reported the same benefits in the range of 50% improvement as compared to baseline conditions. Thus, it is evident that a signification portion of time spent earlier on unpaid domestic work (e.g. cooking, drudgery etc.) is now reduced with the ICS and directly impacts on overall livelihood.	Total contributions are equal to 13,752 / 13,604 (depending on instance) women which are part of the project since beginning. Overall attributes¹⁷: Here, the value reported is conservative as only one woman per household is considered to have this positive impact. However, in practical more than one person per family is getting positively impacted due to reduced drudgery, specifically for women and children, as time saved through reduction of time spent collecting fuelwood and cooking time
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¹⁷ In order to establish and count such claim/contributions PP has conducted a detailed SDG related survey previously for the other operational CPAs of the program. This survey covered 120 households as survey samples and results were documented both in survey forms and in the form of an official report. This document is referred as supporting for such contributions claimed under the project. Similarly, Focus Group Discussions (FGDs) were conducted at project instance level and overall outcomes are positive that refers to the SDGs. Such impacts are applicable and being achieved under all CPAs being implemented by PP. Additionally, there are FGDs conducted during 2024 & 2025, also conducted previously during 2024 which are specific to these 10 instances of this grouped project.

5)	7.1	7.1.2 Proportion of population with primary reliance on clean fuels and technology	Implemented activities to increase	13,752/ 13,604 households [equivalent to 13,752/13,604 (depending on instance) kitchens] received access to clean technology of “SoaRehitra” and “Lamasinina” which are the energy efficient cooking devices that reduce the consumption of non-renewable biomass in the region.	Same as current project contributions. Overall attributes: Increase access to clean cooking technology with ICS installations in 13,752/ 13,604 (depending on instance) Madagascar households which are covered under the project lifecycle.
6)	8.8	8.8.1 fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status	Implemented activities to decrease	1) Zero occupational injuries, zero mortality during the monitoring period. The contribution is supported from the monthly record statement related to health & safety and occupational hazards. 2) Additionally, regular trainings are imparted (as reported under the SDG #4 above). This also ensures that there is adequate awareness to achieve such health safety requirements. Conducted regular training programs (139) at the ICS manufacturing sites and also regular trainings at household level and at team/staff level during the reporting period to ensure occupational health and safety practices for workers and users etc.	Overall Contribution: Zero fatal & non-fatal occupational injuries reported so far across the project lifetime. Total contribution achieved over the project lifetime is equal to the contributions monitored and reported as on 31-December-2025 which are supported by monthly monitoring records (confirming zero occupational injuries and zero fatality) and conducted to ensure such safe operations. Such monitoring, training, awareness etc. are managed via local implementing partner in Madagascar.

7)	13.0	13.0	Implemente d activities to increase	13,0:	Total contributions are considered to be equal to 1,531,176 tCO ₂ e which are aggregated value of VCS monitoring period 1 st , 2 nd																						
	13.1	Reduction in emissions as compared to baseline scenario (open fire)		Achieved reduction of tCO ₂ e emissions during the current monitoring period as below.																							
				<table><tr><th>Instances</th><th>MP: 01-May-2024 to 31-Dec-2025 Total emission reduction (tCO₂e)</th></tr><tr><td>Instance 1</td><td>81,139</td></tr><tr><td>Instance 2</td><td>81,785</td></tr><tr><td>Instance 3</td><td>82,098</td></tr><tr><td>Instance 4</td><td>82,836</td></tr><tr><td>Instance 5</td><td>83,135</td></tr><tr><td>Instance 6</td><td>83,904</td></tr><tr><td>Instance 7</td><td>86,577</td></tr><tr><td>Instance 8</td><td>84,631</td></tr><tr><td>Instance 9</td><td>87,088</td></tr><tr><td>Instance 10</td><td>85,617</td></tr></table>	Instances	MP: 01-May-2024 to 31-Dec-2025 Total emission reduction (tCO ₂ e)	Instance 1	81,139	Instance 2	81,785	Instance 3	82,098	Instance 4	82,836	Instance 5	83,135	Instance 6	83,904	Instance 7	86,577	Instance 8	84,631	Instance 9	87,088	Instance 10	85,617	This is the second monitoring period under VCS for the project activity and hence the total contribution achieved over the current monitoring period under this grouped project is limited to 8,38,310 tCO ₂ e
Instances	MP: 01-May-2024 to 31-Dec-2025 Total emission reduction (tCO ₂ e)																										
Instance 1	81,139																										
Instance 2	81,785																										
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Instance 4	82,836																										
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Instance 6	83,904																										
Instance 7	86,577																										
Instance 8	84,631																										
Instance 9	87,088																										
Instance 10	85,617																										
		13.1 strengthen resilience and adaptive capacity to climate related hazards and natural disasters.		13.1: All the beneficiaries of the households (equals to 13,752/13,604) is receiving resilience building capacity towards climate change and related hazards. In this regard, Training Framework ¹⁸ of Tandavanala is referred which specifically prescribes outcomes of trainings correlated with adaptive capacity measures. In this regard methods, guidelines and standard referred towards Training, Resilience and Adaptive Capacity are as follows: (a) Andragogy Method (internal reference) (b) ILO Guidelines (external reference) (c) IPCC, Fourth Assessment Report, Section 6.6.4 Adaptive capacity	Overall attributes claimed: Thus, the project contributes to emission reduction from the replacement of baseline cooking practice/stoves with an energy efficient ICS called “SoaRehitra” or “Lamasinina”. The claim of total ER achieved across the lifetime so far is limited to current monitoring period only, which is equal to 8,38,310 tCO ₂ e Also, the resilience development practices will be a continuous process across the lifetime of the project.																						

				(d) Adaptive capacity index (2010) - ClimAfrica WP4 Also, to substantiate the adaptive capacity, following adaptive measure has been considered for reference: (i) Reduction in fuelwood at households which is an indicator for resilience against deforestation. This can be linked with the target of “100% operation of ICS at households”; and (ii) it has been achieved through regular training and spot checks at project level, which are as per training framework. The sampling survey and spot check monitoring practices ensured that 100% ICS are operational across the project.	
8)	15.1 15.3	15.1.1 Forest area as a proportion of total land area 15.3.1 Proportion of land that is degraded over total land area.	Implemented activities to increase (15.1) Implemented activities to decrease (15.3)	Considered equivalent to the f_{NRB} value, which is 96.6%. Rational: The project impact is continuous and contribution achieved at the project level is equivalent to the land area which may produce the equivalent volume of firewood that is now saved at project level.	Same as current project contributions. It will be a continuous process and impact shall be achieved & realized over the lifetime of the project. Overall attributes: Reduction in deforestation rate owing to the consumption of woody biomass from forests surrounding the communities and reducing pressure on forest reserves.

¹⁸ The copy of the Training Framework and Andragogy Method report submitted for reference.

1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	The stakeholder's identification starts by listing all the people or groups who might have an influence over or be impacted by the project. The local village committees and village officials were considered as the key informants and focus groups who know best about the local residents 1) Local residents around project area 2) Traditional stove users 3) Users of an ICS 4) Field assistants 5) NGO representatives
Legal or customary tenure/access rights	ICS is a completely voluntary activity and households in participating villages are free to choose whether they take part or not. This is a free cookstove distribution project. So, not applicable
Stakeholder diversity and changes over time	The project activity targets households in rural communities with no previous ICS access. ICS are distributed free of cost to users. The project activity is fully implemented with a total of 13,752 / 13,604 (depending on instance) numbers of households which were covered under this project. Each household received one ICS. Therefore, there is no changes in the beneficiaries over time.
Expected changes in well-being	1. Direct local employment

	2. financial benefits (i.e. gain in their household incomes) due to saving in fuel cost as well as provision for new income opportunities due to saving in cooking time with project ICS. 3. reduce the fine particulate matter (PM2.5) emitted during cooking thereby improving overall health outcomes and reducing burdens of disease and attributed to low mortality rate in long run 4. Due to the project activity, each and every woman in the household experiencing reduction in drudgery, specifically for women and children, as time saved through reduction of time spent collecting fuelwood and cooking time due to efficient ICS technology 5. The project contributes to emission reduction from the replacement of baseline cooking practice/stoves with an energy efficient ICS called “SoaRehitra”. 6. Reduction in deforestation rate owing to the consumption of woody biomass from forests surrounding the communities and reducing pressure on forest reserves.
Location of stakeholders	The project activity targets households in rural communities in the project region¹⁹ where households did not have previous ICS access .ICS are distributed free of cost to users. The project activity is fully implemented with a total of 13,752 / 13,604 (depending on instance) numbers of households for each instance which were covered under this grouped project. Each household received one ICS.
Location of resources	The location of resources is distributed across the project region, as described under the section 1.8 above and under the ICS distribution database. PP would like to further update that the project activity includes portable/Fixed cookstoves which are locally manufactured. This includes some goods & services from manufacturers, suppliers, implementers etc. The project activity targets households in rural communities with no

¹⁹ Here project region refers to all the areas (i.e. villages in different municipality zones, across districts and region) that encompass the entire population of 13,752 / 13,604 households. These can be referred from the ICS database

	previous ICS access. ICS are distributed free of cost to users. The project activity is fully implemented with a total of 13,752/ 13,604 numbers of households which were covered under this project. Each household received one ICS.
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2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	In order to have a ongoing communication and consultation between the PP and stakeholder groups, PP take regular feedback and inputs from stakeholders via local team of Tandavanala and adapt management accordingly. The PP has also placed a grievance register onsite which is available & accessible at the Tandavanala office, wherein, the stakeholders can put down his/her feedback. Additionally, the grievance mechanism also include various points of contacts through which one can submit his/her grievance or any feedback. This flow chart of communication can be referred in the first page of the grievance register. Any input to the register is reviewed and if found genuine will be addressed, However, there was no grievance related input has been reported within this monitoring period. Therefore, no action was required to undertake.
Date(s) of stakeholder consultation	13-June-2018
Communication of monitored results	A hard copy of all the project related documents is maintained with local office in the host country which is accessible to all the stakeholders associated with the project, especially end-users. Considering that the project documents are very technical and will be difficult for the end-users to comprehend, a non-technical summary detailing the project activities and its outcomes is also available at the local office in the host country. During the distribution of the project stoves, enhanced focus is laid on verbally communicating the information about accessibility of project documents among implementing partners, staff, and local community members. In addition to verbal communications, a dedicated helpline number is provided to the end-users through which they can contact the ground staff to access the project documents.

	Further, PP also posts these reference documents on its VERRA VCS project website²⁰ offering open access to all the stakeholders. An effort is also made to ensure that end-users understand the process of accessing these documents on website by providing them verbal communication. Therefore, it can be concluded that all the project documents including the results of monitoring for the monitoring period under assessment, has been made accessible to all stakeholders.
Consultation records	All the information collected during the stakeholder's consultation has been stored in the electronic database available with PP and the same were approved and confirmed during the registered CDM process. These records database are available at the project office of Tandavanala for VVB to verify at any point of time at verification. Hard copies of the stakeholders' consultation documents kept onsite and the database have a backup. All original documents stored in the main office of the PP. A backup of the stakeholder consultation database also stored on an electronic medium by the PP. All data of stakeholder's consultation will be kept for two years after the end of the crediting period or the last issuance of VCUs for the project activity, whichever is later. The project participant has established a record keeping system and if any feedback/complain received shall be recorded and remedy to same will be done with information to concern person/entity.
Stakeholder input	Consultations with local stakeholders are essential steps in implementing a project. Different stakeholders participated in interactive training and demonstration sessions led by the project proponent and implementation partners. These sessions gave the participants details on the benefits of improved cookstoves, the advantages for the environment and human health, how to use ICS, and maintenance.

²⁰ <https://registry.terra.org/app/projectDetail/VCS/2794>

	PP welcomed any inquiries/ input about stoves from the stakeholders throughout the consultation. All the stakeholders' input recorded in the registered book. Details pertaining to the Local Stakeholder's Consultation will be provided to the VVB during the verification process.
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2.1.3 Free, Prior, and Informed Consent

Consent	FPIC does not apply to the project activities since they do not infringe on or otherwise concern land rights. In addition, ICS is a completely voluntary activity and households in participating villages are free to choose whether they take part or not.
Outcome of FPIC	Not Applicable

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
There was no grievance related input has been reported within this monitoring period	During the monitoring period, no grievances were reported under this CPA. However, a clear grievance redress mechanism is in place to ensure beneficiaries can easily raise and resolve any concerns. Team Tandavanadla, the local NGO partner, is responsible for direct engagement with beneficiaries. Local field agents maintain open communication channels, and their contact numbers and office location are provided in the End User Agreement for easy access. Any grievance, if raised, would be recorded in the Grievance Register, acknowledged within 48 hours, and resolved through direct communication or field visits. Each case would be verified, documented, and marked "closed" in the stakeholder grievance records once the beneficiary confirms satisfaction. This system ensures transparency, accessibility, and timely response to beneficiary needs, reinforcing accountability within the ICS project framework

2.1.5 Public Comments

Summary of comments received	Actions taken
Any cost associated with cookstove for beneficiaries?	Free distribution of ICS by Korea Carbon Management
Who is providing fund for the project?	This Project will get register under VERRA-VCS Framework for carbon financing to source the fund under this project
For how many person's food can get cooked at once with this cookstove?	4 to 5 people food can get easily cooked at once with the help of this cookstove
What are the benefits of the Cookstoves?	The cookstove will produce very less smoke which will further reduce the impact of several diseases. This will also reduce the quantity of biomass wood usage and the impact of overall global warming. The project will create direct employment for the local people.

There are no comments received outside of the public comment period

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

Korea Carbon Management Ltd. (KCM) is the Project Proponent of this Project. This project activity is being implemented and managed via local NGO Tandavanala and further supervised, coordinated and monitored by WeAct Pty Ltd. All these three entities are experienced in this sector. While KCM and WeAct is managing similar projects globally, Tandavanala is implementing similar projects in the country since last many years. This can be further referred from the CDM PoA (10443) and their CPAs which were managed by these entities since 2018.

2.2.2 Risk assessment

As part of risk assessment, PP has implemented policy²¹ measures in place to monitor and address if any risk is identified during the course of the project. The policy documents are submitted to VVB for further reference and summary of the risk assessment is included below

Risk identified	Mitigation or preventative measure taken
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²¹ There are different policy measures developed by PP and implemented via local representative Tandavanala. The copies of these policies and monitoring practices are submitted for reference.

Natural and human-induced risks to stakeholders' wellbeing	No risk identified	Not applicable. Currently no mitigation or preventive measures are required as project has not faced any such risk. Project is continuously operational since 2019 and there was no such risk across the project
Risks to stakeholder participation	"No risk identified"	Not applicable. ICS is a completely voluntary activity and households in participating villages are free to choose whether they take part or not. Thus, the project does not pose any risks to stakeholder participation. Also, the PP is ensuring open and transparent dialogue with the stakeholders through continuous input in the form of grievance or feedback input mechanism.
Working conditions	"No risk identified"	Not applicable as no risk is identified, whereas there is reduction of the workload as a result of reduced time for collecting the firewood, which can be used more productively for other income generating activities.
Safety of women and girls	"No risk identified"	Not applicable. There is no safety related risks identified in the project. Instead, the safety & security of the households, especially for women & children are enhanced due to this project as frequency of fuelwood collection is significantly reduced. Also, the project leads to prevention of fire hazards in the household kitchen and the improved cooking stove technology is environmentally safe.
Safety of minority and marginalized groups, including children	"No risk identified"	Not applicable. The project leads to prevention of fire hazards in the household kitchen and the improved cooking stove technology is environmentally safe. The project ensures the safety of minority and marginalized groups, including children, by promoting inclusive participation, reducing exposure to indoor air pollution, and minimizing the need for fuelwood collection. Continuous monitoring and community

		engagement activities are conducted to safeguard the well-being of these groups.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	"No risk identified"	Not applicable. The project activity does not release any noise, any discharge to water and does not lead to generation of any waste, hazardous materials etc. which can be verified from the operational condition of the project. Instead, project brings positive impact related to air-based impacts. The Project improved health conditions of ICS users due to improved indoor air quality (reduction in Indoor Air Pollution from wood smoke). Due to clean and energy efficient cooking device implemented at project level, it released less smoke hence reduces the fine particulate matter (PM2.5) emitted during the cooking practice; thereby improving overall health outcomes attributed to household and ambient air pollution and reducing burdens of airborne diseases. This directly impacts on health of the households, especially because all Malagasy kitchens are in-house, and cooking is always done inside the house. More information is already reported under the SDG 3.9.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified	Mitigation or preventative measure(s) taken
Discrimination	"No risk identified"	Not applicable as no instances of discrimination have been reported or identified within the project (inclusive of staff and contracted workers employed across the project). However, PP has ensured no discrimination through the implementation of comprehensive policies and training aimed at preventing and promptly addressing such issues. PP believes that

		discrimination in all its forms (gender, race, religion, sexual orientation, or other habits) and sexual harassment and assault have no place within the company and the policies reflect the same.
Sexual harassment	"No risk identified"	Not applicable as no instances of any sexual harassment have been reported or identified within the project (inclusive of staff and contracted workers employed across the project). However, PP has ensured no discrimination through the implementation of comprehensive policies and training aimed at preventing and promptly addressing such issues.
Gender equity in labor and work	"No risk identified"	Not applicable as no instances of any inequalities have been reported or identified within the project (inclusive of staff and contracted workers employed across the project). PP supports diversity, inclusion, and equity with attention to vulnerable populations, including women and female children. PP prohibits any form of discrimination, harassment, or assault, all being grounds for dismissal of employment, termination of the contract, an immediate discreet investigation of the reported incident, and where warranted, reports to the applicable authorities. In this regard the existing policies can be referred.
Forced Labor	"No risk identified"	Not applicable as no instances of any forced labour have been reported or identified within the project (inclusive of staff and contracted workers employed across the project). Also, the local implementing partner Tandavanala is a registered national entity who operates and follows all required practices, hence there is no chance of engaging any forced labour. Additionally, as mentioned under the footnote #21 PP has implemented policy measures to ensure

		that project is safeguarded from any such risk factors.
Child Labor	"No risk identified"	Not applicable as no instances of any child labour have been reported or identified within the project (inclusive of staff and contracted workers employed across the project). Also, the local implementing partner Tandavanala is a registered national entity who operates and follows all required practices, hence there is no chance of engaging any child labour. Additionally, as mentioned under the footnote #21 PP has implemented policy measures to monitor regularly and ensure that project is safeguarded from any such risk factors.
Human trafficking	"No risk identified"	PP abides by the labour laws in the countries where it operates and contract individuals, the project proponent, and implementing partners welcome any beneficiary who requests project services and is committed to the stated terms and conditions of project participation. The project does not use victims of human trafficking, forced labor, and child labor.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	Not applicable as no instances of any human rights violation or concern has been reported or identified within the project (inclusive of staff and contracted workers employed across the project). Also, the local implementing partner Tandavanala is a registered national entity who operates and follows all required practices, hence there is no chance of encountering any risk or violation to human rights. Additionally, as mentioned under the footnote #21 PP has implemented policy measures to monitor regularly and ensure that project is safeguarded from any such risk factors. Thus, due care was taken to abide with all possible practice throughout the monitoring period and no complaint was received in connection with dereliction of rights of the staff working for the PP in the said project

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	No mitigation or preventive measures are required. No instances or concerns related to indigenous peoples or their cultural heritage have been reported or identified within the project boundary in Madagascar. Community consultations conducted during the project design phase confirmed that there are no indigenous communities or cultural heritage sites located within or adjacent to the project area. The local implementing partner, Tandavanala, is a registered Malagasy entity operating in full compliance with national social and environmental safeguard regulations. The project is implemented uniformly across rural communities, ensuring that no cultural or heritage assets are affected. Regular community meetings are held to maintain engagement, gather feedback, and confirm continued social acceptance of the project. In addition, SDG impact surveys are periodically conducted to assess the social and environmental outcomes of ICS usage, including improvements in household health, time savings, and reduced fuelwood consumption. These activities help to monitor and verify that the project remains culturally appropriate, inclusive, and free from any adverse impacts on indigenous peoples or their heritage. The Project Participant (PP) maintains a monitoring policy and submits updates to the VVB for review during each monitoring period, ensuring sustained compliance and transparency

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	Not applicable. The project activity has not encountered risks related to protecting and preserving the property rights of IPs, LCs, and customary rights holders, and also no impact on protecting legal or customary tenure/access rights to territories. This is because the project is only limited to distribution, implementation and operation of ICS which improves the overall cooking condition and helps achieving various sustainable benefits. Thus, no direct or indirect risk with Property Rights.

	Additionally, PP has implemented policy measures to monitor regularly and ensure that project is safeguarded from any such risk factors. The policies are submitted to VVB for review. .
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2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The benefit sharing plan is not applicable as project activity don't insure any risk related to property right ,as explained in the previous section. Additionally, the project activity is completely based on free distribution of ICS to the households where ICS were received by beneficiaries free of any cost with full ownership of the ICS. Also, there are regular monitoring, training, hand holding support being given to the households and help achieving various SD benefits for long run.
Benefit sharing during the monitoring period	NA

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	"No risk identified"	The project contributes to the reduction of woody biomass removal from nearby forests due to the adoption of Improved Cookstoves (ICS), which use less firewood. This results in decreased pressure on forest resources and promotes an increase in above-ground biomass.
Soil degradation and soil erosion	"No risk identified"	The project only involves the distribution and use of Improved Cookstoves, which does not require land clearance or soil disturbance. Hence, there is no impact on soil quality or erosion.
Water consumption and stress	"No risk identified"	The project activity involves the distribution of Improved Cookstoves (ICS), which does not require any water usage. There is no additional water consumption or stress on

		local water resources due to the project. Existing water access remains unaffected
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2.4.1 Rare, Threatened, and Endangered species

Species or habitat	Not applicable. The project ICS are portable devices which are used inhouse as replacements to old cooking practices. Hence, project is not implemented in any area which may cause negative impact to habitats for rare, threatened, or endangered species.
Areas needed for habitat connectivity	Not applicable

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risks identified	NA
Areas for habitat connectivity	No risks identified	NA

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
NA	NA	NA	NA

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
NA	NA

This section is applicable to AFOLU projects and the current applicable project is a cookstove distribution project

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risks identified	NA

2.4.3 Ecosystem conversion

Not Applicable. The project activity is related to energy efficiency

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risks identified	NA

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Under this grouped project activity, the distribution of improved cookstoves was initiated on 21-April-2022, which was under instance 1, followed by other instances and the entire grouped project activity has been fully implemented. The project activity remains fully operational during the second monitoring period, with no new distribution activities undertaken during this period. A total of 137,224 improved cookstoves have been distributed to households across the selected project regions of Madagascar under the project activity, and the project continues in the operational phase during the current monitoring period. .

During the current monitoring period, no incident or event occurred, that could affect GHG emissions reduction and approved monitoring plan.

Table 04: This is a grouped project activity and total 10 instances are covered under this grouped project, which are included as per their respective start date (i.e. date of commissioning) as follows:

Instances	Internal Reference	Earlier VCS Ref. ID (as per Listing status)	ICS type	Total number of ICS distributed	Start Date of commissioning
Instance 1	CPA 31	2795	SoaRehitra	13,752	21-April-2022
Instance 2	CPA 33	2797	SoaRehitra	13,752	09-June-2022
Instance 3	CPA 35	2799	SoaRehitra	13,752	30-June-2022
Instance 4	CPA 37	2801	SoaRehitra	13,752	29-August-2022
Instance 5	CPA 39	2803	SoaRehitra	13,752	14-November-2022
Instance 6	CPA 41	2805	SoaRehitra	13,752	19-December-2022
Instance 7	CPA 30	2794	Lamasinina	13,604	14-February-2023
Instance 8	CPA 43	2807	SoaRehitra	13,752	17-April-2023
Instance 9	CPA 32	2796	Lamasinina	13,604	30-June-2023
Instance 10	CPA 45	2809	SoaRehitra	13,752	17-July-2023

As demonstrated under the previous sections of this report, the above 10 instances included under this grouped project are the 10 registered CDM CPAs which are also the individual VCS project activities already listed under VCS for gap validation. However, the transition from individual VCS projects (i.e. VCS listed status) to a Grouped Project (i.e. the current status) was required as per VCS Standard v4.7 para 3.23.9 (2) because of the conditions that all these projects are owned by the same Project Proponent and project boundaries intersect within 10 km

radius. Under CDM PoA, these project instances were numbered in between CPA #30 to #45 wherein sequentially the CPA #30 (i.e. VCS ID 2794) was listed first in VCS pipeline which is also the first CPA registered out of these 10 CPAs under the CDM PoA. Therefore, PP has considered to retain the VCS ID 2794 (i.e. CPA #30) and its project title as the main project to be re-designated as “Grouped Project” in line with the VCS Standard 4.7 para 3.23.9 (2) where all other 9 projects considered as individual instances under this grouped project. Whereas, the nomination of instances (i.e. Instance #1 to 10) has been done as per the definition & eligibility of group project instance as per VCS standard.

3.2 Deviations

3.2.1 Methodology Deviations

There were no methodology deviations during the current monitoring period or in any previous monitoring period

3.2.2 Project Description Deviations

There were no deviations in the project description during the current monitoring period or in any previous monitoring period

3.3 Grouped Projects

No new project activity instances are included under this grouped in this current monitoring period.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass
Source of data	Sub national survey report conducted by "The Regional Center of Documentation and Information (CEDII)"
Value applied:	$= 0.966 * (1 - 0.26)^{22}$ $= 0.714$
Justification of choice of data or description of measurement methods and procedures applied:	The f_{NRB} calculation has been referred in line with the para 51(a) of the methodology AMS-II.G which prescribes that “conduct local studies to determine the local f_{NRB} value (sub national values) as per the methodological tool “Calculation of fraction of non-renewable biomass”. Thus, the value has been established from sub national survey report conducted for the project region and this value will be fixed ex-ante. The f_{NRB} value has been calculated using the equation 1, 3, 5 & 6 of the methodological tool 30: “calculation of fraction of non- renewable biomass” Version 01 (version applied in the PoA-CPA registered PD). The calculation of the f_{NRB} value has been submitted in an excel sheet. The survey had been conducted and values & calculations are reported by an independent third party (CEDII) which was further approved by the host country DNA. The supporting documents are submitted to VVB.
Purpose of Data	Calculation of emission reductions
Comments	The value is fixed ex-ante. The f_{NRB} adjustment factor is applied to calculate f_{NRB} value as per exemption received from VERRA.

²² f_{NRB} has been discounted as per the provision of the exemption request approval from VERRA on dated 06 February 2025.

Data / Parameter	$\eta_{old,i,j}$
Data unit	Fraction
Description	Efficiency of pre-project device
Source of data	Default value (AMS-II.G)
Value applied:	0.1
Justification of choice of data or description of measurement methods and procedures applied	A default value of 0.1 must be used if baseline device is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney.
Purpose of Data	Calculation of emission reductions
Comments	No comments

Data / Parameter	$B_{old,i,j}$
Data unit	tonne/year
Description	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j
Source of data	Survey Report conducted by CEDII (Regional Center of Documentation and Information)
Value applied	4.39
Justification of choice of data or description of measurement methods and procedures applied	The annual quantity of wood that would have been consumed in absence of the project activity will be calculated as below: $B_{old,i,j} = B_{old,HH} / N_{d,HH}$ Where, $B_{old,HH}$ was determined through survey at the time of validation and $N_{d,HH}$ is a monitoring parameter
Purpose of Data	Calculation of Baseline Emissions
Comments	PP plans distribution of only one ICS per households hence $B_{old,i,j}$ equals $B_{old,HH}$

Data / Parameter	$EF_{projected_fossil\ fuel}$
Data unit	tCO ₂ /TJ
Description	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
Value applied:	121.46 ²³ EF _{wf,CO2} - CO2 emission factor for non-renewable woody biomass 112 EF _{wf,non CO2} - Non-CO2 emission factor for non-renewable woody biomass 9.46
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of Data	Calculation of emission reductions
Comments	No comments

Data / Parameter	Adj_{LE}
Data unit	Fraction
Description	Adjustment factor to account for leakage related to the non-renewable woody biomass saved by the project activity
Source of data	Default value
Value applied:	0.95
Justification of choice of data or description of measurement methods and procedures applied	AMS-II.G; Version 09.0
Purpose of Data	Calculation of emission reductions

²³ Emission Factor has been updated as per exemption request approval from VERRA on dated 06 February 2025.

Comments	No comments
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Data / Parameter	μ_d
Data unit	%
Description	Adjustment factor for f_{NRB} (Uncertainty deduction)
Source of data	VMR0006; Version 1.2
Value applied:	26%
Justification of choice of data or description of measurement methods and procedures applied	Default value
Purpose of Data	Calculation of emission reductions
Comments	No comments

Data / Parameter	$NCV_{biomass}$
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted or reduced
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction
Value applied:	0.0156
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of Data	Calculation of emission reductions
Comments	No comments

Data / Parameter	Life span
Data unit	Number of years
Description	The operating lifetime of the project device

Source of data	Lab test report by National Agency
Value applied	SoaRehitra: 5.5 Lamasinina Fixed ICS: 15
Justification of choice of data or description of measurement methods and procedures applied	The value is taken from third party certified test reports conducted for ICS performed by experienced professional under “THE NATIONAL INDUSTRIAL AND TECHNOLOGICAL RESEARCH CENTER” (under Ministry of Higher Education and Scientific Research, Madagascar).
Purpose of Data	For calculation of baseline emission
Comments	The value is fixed ex-ante

4.2 Data and Parameters Monitored

Data / Parameter	$N_{y,i,j}$
Data unit	Number
Description	Number of project devices of type i and batch j operating during year y
Source of data	Stove distribution database and survey records
Description of measurement methods and procedures applied	The total number of appliances by type and age deployed during period y is tracked in the Project Database of the project, which is updated regularly. All appliances distributed will be recorded for installation date and recipient /location. The distribution date for each appliance listed in the Project Database. Sampling Frame: Project Database as defined by distribution date, appliance type, serial number, and end-user information. Sample Size and Desired Precision: it refers to the PoA-DD, Part II, Section I.7.2. Sample Method: it refers to the PoA-DD, Part II, Section I.7.2. The number of stoves still operating will be determined based on representative sampling. The total number of operational stoves shall be calculated as the fraction of stoves of type i and age a found operational in the sampling survey multiplied by total number of stoves of type i and age a in the project database.
Frequency of monitoring/recording	At least once every two years

Value applied:	SoaRehitra portable ICS: $13,752 \times 100\% = 13,752$ Lamasinina Fixed ICS: $13,604 \times 100\% = 13,604$ Total ICS Operational = 1,37,224
Monitoring equipment	Sampling survey
QA/QC procedures applied	PP maintains a distribution record to calculate this parameter. The PP supervises the activities of project implementer (when not the PP itself), and provides training, guidelines and templates to facilitate accurate testing and record keeping. In the case the desired precision is not met, lower bound values shall be used against repeating the survey to determine the operational fraction of stoves of type i and age a.
Purpose of data	Calculation of baseline emission
Calculation method	As per sampling method
Comments	All data sources are maintained as transparent and verifiable. It is assumed ex-ante that there is only one project stove being used per household for calculating $B_{old,i,j}$ therefore, ex-post sampling based monitoring shall also include assessment of presence of multiple operational project stoves in a sampled household. The number of project stoves in the shall be adjusted accordingly to claim emissions reduction only for one operational project stove per household to ensure equivalence with the baseline established.

Data / Parameter	$n_{y,i,j}$
Data unit	Fraction
Description	Proportion of commissioned project devices of type i and batch j that remain operating in year y (fraction)
Source of data	Sample survey
Description of measurement methods and procedures applied	Measured directly or based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 95/10 confidence/precision levels. Separate samples shall be taken for each batch
Frequency of monitoring/recording	At least once every two years

Value applied:	100%
Monitoring equipment	Sampling survey (Visual inspection of the premises to see if ICS is operational and in use. Interview with end user if required to verify that ICS is still in use (Yes/No)
QA/QC procedures applied	-
Purpose of data	Calculation of emission reduction
Calculation method	-
Comments	Further referred under the section 4.3 below.

Data / Parameter	μ_y
Data unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices during the year y
Source of data	Stove distribution database and Sample Survey Records
Description of measurement methods and procedures applied	As per sampling method A sampling monitoring survey has been conducted on calculated sample size as per the sample plan and in line with the provision given under the methodology AMS-II.G to record usages consumption level in lieu of continued baseline stoves. The option 2 of the methodology has been referred while conducting the sampling survey as baseline devices are three stone fire across all the households. As per the methodological requirements, the survey was designed to capture the cooking habits and stove usage of households for the identified samples, including quantification of use of baseline devices. Thus, number of meals cooked with project ICS, fulfilment of cooking needs, etc. were captured and also in case of samples where baseline stoves were identified their usages detail were recorded. Since this parameter is a proportion (i.e., fractional value), the sampling result has been expressed as a proportional value. Thus, the Fractional value derived based on sampling survey has been considered as “μ” and the value has been used for required adjustment to account number of baseline stoves still operating. Please refer to the sampling survey sheets for the results derived from the survey and also the ER sheet for application of the values.

Frequency of monitoring/recording	At least once every two years
Value applied:	100%
Monitoring equipment	Not Applicable
QA/QC procedures applied	In the case the desired precision is not met, lower bound values shall be used against repeating the survey to determine the operational fraction of stoves of type i
Purpose of data	To calculate baseline emission
Calculation method	As per sampling method
Comments	The record to be kept for crediting period + 2 years The value monitored under sampling survey can be referred in the sampling survey data sheet.

Data / Parameter	$\eta_{\text{new},i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type i and batch j implemented as part of the project activity
Source of data	WBT conducted by a third party on operational ICS post commissioning and during distribution, for each ICS type (Refer to 'additional comments' section for more details)
Description of measurement methods and procedures to be applied	Water Boiling Test (WBT) on randomly selected Households from the database, selected as per sampling size calculation. Such WBT is conducted after commissioning/distribution of ICS, in order to estimate the operational efficiency of ICS for the 1st year of operation. The value has been considered as ex-ante fixed for same ICS type for the year 1. Thereafter, the yearly loss in efficiency of ICS is calculated as per para 37 of the methodology, AMS-II.G. Version-09.0 and respective vintage wise efficiencies have been determined.
Frequency of monitoring/recording	(i) Recorded at the time of commissioning/distribution (ii) Adjusted for the loss of efficiency per annum as per para 37 of AMS- II.G. version—09.0.
Value monitored	SoaRehitra ICS: 32.2% i) 31.50% (value considered for ICS in 'vintage period 1') ii) 29.41% (adjusted value considered for ICS in 'vintage period 2' as per para 27(a) of the applied methodology)

	iii) 27.32% (adjusted value considered for ICS in 'vintage period 3' as per para 27(a) of the applied methodology) iv) 25.23% (adjusted value considered for ICS in 'vintage period 4' as per para 27(a) of the applied methodology) v) 23.14% (adjusted value considered for ICS in 'vintage period 5' as per para 27(a) of the applied methodology) Lamasinina Fixed ICS :33% For Lamasinina ICS: I. 31.71% (value considered for ICS in 'vintage period 1') II. 30.93% (adjusted value considered for ICS in 'vintage period 2' as per para 27(a) of the applied methodology) III. 30.15% (adjusted value considered for ICS in 'vintage period 3' as per para 27(a) of the applied methodology) IV. 29.37% (adjusted value considered for ICS in 'vintage period 4' as per para 27(a) of the applied methodology) V. 28.59% (adjusted value considered for ICS in 'vintage period 5' as per para 27(a) of the applied methodology)
Monitoring equipment	Based on WBT conducted by third party agency, equipment used are thermometer, weighing scales, moisture content meters etc. as listed in the third-party report.
QA/QC procedures to be applied	The value is used from the third-party report, hence not required.
Purpose of the data	Calculation of baseline emission
Calculation method	Water Boiling Test (WBT) on randomly selected Households from the database, selected as per sampling size calculation. Such WBT is conducted after commissioning/distribution of ICS, for each ICS type, in order to estimate the operational efficiency of ICS for the 1st year of operation. The value has been considered as ex-ante fixed for same ICS type for the year 1.
Comments	If any sample stove is found to be operating below the 20% efficiency, the proportionate number of stoves of that type included in the instance will be considered to be non-operational and not accounted for ER calculation.

Data / Parameter	Date of commissioning of batch j
Data unit	Date
Description	To establish the date of commissioning, the Project Participant opted to group the devices in "batches" and the latest date of

	commissioning of a device within the batch shall be used as the date of commissioning for the entire batch
Source of data	Stove distribution database
Description of measurement methods and procedures to be applied	For each batch the date of distribution of first and last ICS will be recorded and the last date shall be used as date of commissioning for that batch. The ICS under the program is continuously being manufactured, uniquely numbered and continuously distributed; hence each ICS under the CPAs are being continuously recorded in the database and total number of ICS distributed in a particular month is considered as a batch for the purpose of emission reduction calculation. More details are provided under “Additional comments” and batch wise commissioning dates are included under the ER sheet.
Frequency of monitoring/recording	Recorded at the time of commissioning/distribution of first ICS of the batch
Value monitored	To be referred from the ER calculation sheet
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of the data	To establish the Start Date for ER accounting
Calculation method	As per sampling method
Comments	The record to be kept for crediting period + 2 years. In order to be conservative in emission reduction calculation, PP has considered the last date of distribution of a particular month as the date of complete commissioning of the stove batch distributed for that particular month (here a batch is referred to as total numbers of stoves distributed in a particular month). Therefore, start date of accounting of emission reductions for stoves distributed in a particular month has been considered as the next day of the last date of stove distribution for that month. Whereas, for the purpose of identification of ICS numbers vintage-wise, the year fraction for each ICS has been calculated from the date of its distribution. Therefore, this is a conservative approach both for the purpose of ER calculation and calculation of yearly efficiency as per para 37 of the methodology AMS-II.G. The details related to date of accounting of stoves are of provided in the ER calculation sheet.

Data / Parameter	$N_{d,HH}$
Data unit	Number
Description	Number of project devices distributed per household
Source of data	Stove distribution database
Description of measurement methods and procedures applied	-
Frequency of monitoring/recording	-
Value applied:	1
Monitoring equipment	Recorded at the time of commissioning/distribution of project devices and it can be crosschecked with user details having number of ICS.
QA/QC procedures applied	-
Purpose of data	Calculation of emission reduction
Calculation method	-
Comments	-

4.3 Monitoring Plan

As per the provision of the registered PoA (#10443), the sampling is considered at PoA level for all the CPAs to be covered under a particular Monitoring Period, hence a PoA level sampling is generally conducted by PP. However, this project is currently a Grouped Project activity under VCS with independent VCS listed projects are the Instances to this Grouped Project. Therefore, the sampling monitoring approach has been adopted at Group level covering all the 10 Instances. In this regard, there were sampling surveys conducted by the PP, viz. (i) one set of surveys during May to November 2024, (ii) followed by a recent biennial sampling from November to December 2025 for this grouped project.

These two sampling surveys are based on biennial sampling survey, can be applied to the current monitoring period as per the applicability of biennial sampling survey results as per "General guidelines for SSC CDM methodologies"; therefore, the PP has the option to use survey values separately from both surveys, specific to the period allowed under biennial sampling, or to apply conservative results across the entire monitoring period. The overall consideration of the monitoring plan, sampling parameters, sampling equations, etc., as demonstrated below for reporting purposes, is based on the monitoring surveys conducted during 03 May to 05 November 2024 and between 28-November to 03-December-2025.

Table 05: This provides a summary of the sampling survey results from the previous and current monitoring periods:

	Previous sampling Survey	Current sampling survey
Year:	2024	2025
Approach:	biennial sampling 95/10	biennial sampling 95/10
Monitored Parameter ($N_{y,i,j}$):	Result 100%	Result 100%
Monitored Parameter ($\mu_{y,i}$):	Result 100%	Result 100%

Both sampling surveys resulted in the same outcome (further details referred under the sampling survey sheet); therefore, for the current monitoring period, the same value has been applied across the entire 20-month monitoring period. Further details of the sampling approach and sampling plan are provided below.

A. Approach:

The monitoring plan is designed to monitor the parameters listed in Section 4.2 “Data & parameters monitored” above, which are required for calculation of the actual GHG emission reduction achieved by the Instance using ex post sampling survey. The sampling approach is considered at group level, but sampling frame is designed separately for the two ICS types included under the instances to arrive at the sample number. Under each sampling frame, the share of operating stoves (i.e. for N_y) and the continued use of pre-project devices (i.e. for μ_y) will be determined based on sampling procedures as outlined below. The PP will be responsible for conducting the sampling surveys and maintaining a database with all operating stoves.

No monitoring for leakage through competitive uses of biomass is required, as the parameter $B_{old,i,j}$ is multiplied by 95% to account for leakage.

The detailed sampling plan is the following:

B. Sampling design:

The design of the sampling plan includes the following aspects:

- Total population of ICS under the grouped project (i.e. across 10 instances)
- Segregation of the ICS types (i.e. SoaRehitra Portable & Lamasinina fixed) under two sampling frames.
- Calculation of minimum required sample size for each frame with Simple Random Sampling approach and to arrive at the final required sample size at group level.

Thus, a representative sampling has been undertaken as part of the Sampling Plan at group level where beneficiaries from all instances of the group shall be considered in the population size. However, there are two types of ICS included under the group, viz. SoaRehitra & Lamasinina (ICS type respective to the instance can be referred from the previous section 1.1), therefore sampling plan has been simplified under two sampling frames (further describe in the section below) to categorize population for each ICS type in two separate frames. However, as all the beneficiaries of the instances are homogenous in terms of their baseline and current cooking practices, household type, etc. Hence, “Simple Random Sampling” has been considered in line with the registered monitoring plan and as per requirements of the “Sampling and surveys for CDM project activities and programme of activities”, version 04.

- (i) **Objective and Reliability Requirements:** The objective is to obtain an unbiased and reliable estimate of the proportion or mean value of the following key variables over the course of the monitoring period. As per Sampling Standard, parameter values shall be estimated by sampling in accordance with the requirements in the applied CDM methodologies separately and independently for each of the Instances included in the Group except when a single sampling plan covering a group of instances is undertaken applying 95/10 confidence/precision for the sample size calculation. Thus, sampling plan is designed as per 95/10 c/p consideration to determine sample size and reliability has been checked under the same c/p level. This is consistent with the approach in the approved methodology to aim at higher confidence/precision when the sampling/survey effort is undertaken less frequently.

In cases where survey results indicate that 95/10 precision are not achieved, the lower bound of the 95 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 95/10 precision). Thus the grouped project activity has been treated as single sampling plan with 95/10 confidence/precision has been considered for a biennial²⁴ sampling.

Monitored Parameter:

$N_{y,i,j}$	Number of project devices of type i and batch j operating during year y
$\mu_{y,i}$	Adjustment to account for any continued use of pre-pre-project devices during the year y

- ii) **Target Populations:**

The target population for the proportion of ICS still in operation ($N_{y,i,j}$) of this grouped project are all households which are included into the ICS database of each project instance which are using fuel wood for cooking in the project ICS.

The target population for pre-project appliances ($\mu_{y,i,j}$) is the set of old stoves or cooking method/practice which are found to be still in use under project instances.

- iii) **Sampling Frame (or Sampling units):**

As described under the sections above, the sampling plan is considered at group project level which includes 10 project instances. Though the population is homogenous in nature, but there are two ICS types deployed across the instances viz. SoaRehitra and Lamasinina. However, under each instance there is only single ICS type and implemented homogenously, thus a single sampling plan with two separate sampling frames are considered to achieve a simplified and well-defined sampling approach and to

²⁴ biennial sampling survey approach is followed and results from the both sampling survey (i.e. survey conducted during 03 May to 05 November 2024 and Nov/Dec 2025 as per 95/10 level) applied under the current MP. For further reference, footnote #6 of 'Sampling Standard' can be considered which refers to "General guidelines for SSC CDM methodologies" and its respective para 26, 27 & footnote #4 prescribes that the survey results may be used for the period 12 months after the survey date, on top of using the results for the period prior to the survey date, resulting in up to 24 months period to which the survey results may be applied to, irrespective of when the monitoring reports are uploaded.

understand the minimum required sample size etc., Each frame is applicable for both the parameters:

- (i) proportion of ICS in operation ($N_{y,i,j}$)
- (ii) Adjustment to account for any continued use of pre-project devices during the year ($\mu_{y,i,j}$)

The sample frames refer to all the information sources on the Database. There are two primary mechanisms for data collection viz: the Registration Process for newly distributed/installed ICS and the Monitoring Survey (which includes a household questionnaire and visual inspection of ICSs) that will be used throughout the lifetime of the programme. The detailed information collected from Registration Process is used to populate the stoves Database and the Monitoring Survey follows “Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 04.

All monitoring requirements of the applied methodology AMS-II.G. must be followed. Therefore, in line with methodology AMS-II.G version 09.0, as installing data logger is not practical and if any use of pre project devise can be monitored in a common survey with other monitoring parameters; therefore, a random sub- sample within the common survey can be taken to determine continued use of old cookstoves and its proportional usage by including suitable questionnaire.

There will be two situations:

- 1) project ICS are completely discarded
- 2) the old stoves (or baseline cooking practice) used along with project ICS.

Hence in first case it will be simple multiplication of fraction of total number of project ICS displaced by old cookstoves by total number of cookstoves in the instance, to achieve precise results based on survey result sample size calculation can be repeated.

However, for second case, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices. For example, if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75. Where a more precise data is available i.e. the thermal capacity of the project and pre-project devices and respective utilization hours, a weighted average adjustment factor may be used.

iv) **Sampling Method**

The sampling method for monitored parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ is Simple Random Sampling and samples will be randomly selected from the primary sampling frames as illustrated above. To

ensure a random selection of ICS, random number generators or online randomizer shall be applied. Each ICS in the target population is uniquely identifiable by its unique ID number. Each ICS can thus be allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of ICS in the Database for that pre-defined sampling frame. Applying the random number generators, the ICS can then be randomly chosen from the defined population up to the required sample size as calculated by the PP.

To determine the parameters, sampling will involve the following approaches (outcome in brackets):

$N_{y,i,j}$: Visual inspection of the premises to see if ICS is operational and in use. Interview with end user if required to verify that ICS is still in use (Yes/No)

$\mu_{y,i,j}$: Pre project device (i.e. old or baseline cooking practices) only is in use then fraction to be used to calculate total number, however if pre project device is used along with project ICS, proportion of usage of each will be determined by cooking habits (i.e. number of times the devices are being used in a given duration) evaluated by survey questionnaire during the monitoring period.

Using the formulas in the section “Sample Size” below, the PP will calculate minimum samples size using the two sampling frames and then randomly sample the required number of ICS from each sampling frame. It means that randomly selected samples in each frame are representative of their entire population, hence results are also applicable across the populations in each frame. Since there is only single sampling plan adopted at grouped level, hence total sample size at group level is the sum of the sample sizes calculated under each frame (more details given below).

For a homogenous and equitable distribution of the required samples from each instance, the total sample size at grouped level is equally distributed across the 10 instances (i.e. it means equal proportion of samples from each instance is considered for survey and this approach leads to equal chance for each beneficiary getting selected under the sampling).

v) **Sample size:**

For the estimation of the proportion or mean value of the parameters investigated, the minimum sample size for each sample frame has to achieve the 95/10 confidence/precision for biennial and 90/10 confidence/precision for annual sampling.

The procedure to determine the sample of households will ensure that they adequately represent the broader project population, minimizing sampling error. Using, a 95 percent confidence level, and a 10 percent margin of error, random samples will be selected from the Primary Sampling Unit. There are two parameters that will be estimated through sampling: the number of stoves still in operation during the monitoring period as determined by the monitoring survey ($N_{y,i,j}$), and the continued use of old stoves, ($\mu_{y,i,j}$).

In line with AMS-II.G version 09.0, both the parameters can be sampled in a single survey with a random sample of households using the above described confidence/precision levels depending on annual or biennial monitoring frequency. Since both the parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ requires results and application in proportion/percentage, therefore sample size consideration is prescribed as ‘proportion value parameter’ for sampling.

As per registered sampling plan, in line with Guidelines for Sampling and surveys for CDM project activities and programmes of activities, version 04.0 Appendix 1 paragraph 5, there are different ways available to obtain the estimates of the parameter of interest:

- (a) Refer to the result of previous studies and use these results;
- (b) In a situation where information from previous studies is not available, a preliminary sample as a pilot could be conducted and use that sample is used to provide the estimates;
- (c) Use best guesses based on the researcher's own experiences.

PP has access to previous studies of sampling as there were sampling surveys conducted at PoA level as well as surveys conducted as various project level. However, for the current grouped project, being the verification, PP has decided to conduct a primary sampling survey at Group level by adopting a minimum required sample number as described above.

For subsequent monitoring periods, the estimates are adjusted considering the results of the previous monitoring period(s) or recent sample surveys. Since the current monitoring period falls partly under the applicability period of the biennial sampling conducted previously (2024) and also partly under the recent survey (2025); hence here both the options (a) and (b) can be referred.

Thus, continuing with the new sampling survey for applying into the current monitoring period. both the sampling parameters considered based on 'proportion value', hence to estimate the sample size for parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ the following equation is used:

$$n \geq \frac{1.96^2 N \times p (1 - p)}{(N - 1) \times 0.1^2 \times p^2 + 1.96^2 \times p (1 - p)}$$

Where:

n = Sample size
N = Population size (Total number of households/ICS)
p = Expected proportion
1.96 = Represents the 95% confidence required
(In the case of 90% confidence, 1.645 shall be used)

0.1 = Represents the 10% relative precision

A specific number of ICS are distributed under each project instance and under each instance only a specific ICS type is distributed, as given below. Hence, population size, N in the above equation will be the total of households/ICS under each frame.

Sampling Frame	Instances	ICS Type	Total ICS in each instance	Total population in each frame
Frame 1	Instance 1	SaoRehitra portable	13,752	110,016

	Instance 2	SaoRehitra portable	13,752	
	Instance 3	SaoRehitra portable	13,752	
	Instance 4	SaoRehitra portable	13,752	
	Instance 5	SaoRehitra portable	13,752	
	Instance 6	SaoRehitra portable	13,752	
	Instance 8	SaoRehitra portable	13,752	
	Instance 10	SaoRehitra portable	13,752	
Frame 2	Instance 7	Lamasinina fixed	13,604	27,208
	Instance 9	Lamasinina fixed	13,604	

Thus, the required assumptions are made to exemplify the sample size calculation for parameters: $N_{y,i,j}$ and $\mu_{y,i,j}$. It is expected at least 90% of ICS will be operational, hence the expected proportion p for $N_{y,i,j}$ is taken as 0.9.

Sample size calculation:

The calculation of the required sample size for both the parameters in the second monitoring period is illustrated below considering a 95/10 level of confidence and precision (i.e. for biennial monitoring). In all cases a conservative approach is taken, however if for any parameter the required 95/10 confidence/precision is not met then the PP will randomly select an additional sample and collect further data from this sample to ensure the pooled data meet or exceed the required thresholds. Thus, oversampling can also be considered by PP while calculating the sample size.

Alternatively, as per the provision of Sampling Standard the lower bound or the upper bound (whichever is conservative) of the 90 per cent or 95 per cent confidence interval of the parameter value may be chosen.

For both the Parameter $N_{y,i,j}$ and $\mu_{y,i,j}$: based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated as:

For Sampling Frame 1 (i.e. instances with SoaRehitra ICS):

$$n \geq \frac{1.96^2 \times 110,016 \times 0.9 (1 - 0.9)}{(110,016 - 1) \times 0.1^2 \times 0.9^2 + 1.96^2 \times 0.9 (1 - 0.9)}$$

Which comes out to be $n \geq 42.67$

$$n = 43$$

[However, as per the sampling requirements, in case the resulting sample size to achieve the desired confidence/precision levels is smaller than 30 ICS, a minimum sample size of 30 shall

be chosen when the parameter of interest is a proportion and n=43 is higher than 30 ICS, which is appropriate]

Screenshot from the Sampling survey sheet, given below for reference:

Calculation of Sample Sizes in Simple Random Sampling for Parameter N_y and μ		
A. For sampling frame with SR-ICS:		
Definition	Value	Justification
The population size N is	1,10,016	Total number of population as per the stove distribution database, under each CPA
The expected proportion p for n_{y_i} is	0.9	Even if 100% of ICS installed still in operation as per a preliminary study, a conservative assumption of 90% is applied for sample size calculation.
Min. required Sample size	42.67	At 95% confidence level
Sample size (rounded up)	43	Min required sample

For Sampling Frame 2 (i.e. instances with Lamasinina ICS):

$$n \geq \frac{1.96^2 \times 27,208 \times 0.9 (1 - 0.9)}{(27,208 - 1) \times 0.1^2 \times 0.9^2 + 1.96^2 \times 0.9 (1 - 0.9)}$$

Which comes out to be $n \geq 42.62$

$n = 43$

Screenshot from the Sampling survey sheet, given below for reference:

B. For sampling frame with Lamasinina-ICS:		
Definition	Value	Justification
The population size N is	27,208	Total number of population as per the stove distribution database, under each CPA
The expected proportion p for n_{y_i} is	0.9	Even if 100% of ICS installed still in operation as per a preliminary study, a conservative assumption of 90% is applied for sample size calculation.
Min. required Sample size	42.62	At 95% confidence level
Sample size (rounded up)	43	Min required sample

Thus, PP has calculated this minimum required sample size number separately for the two sampling units: for instances with SaoRehitra ICS and Instances with Lamasinina ICS. As the sampling activity is applied at group level, therefore total sample size considered as 86 (43+43). Therefore, in this case a minimum sample size of 86 is to be sampled for both the parameters.

Other provisions:

PP may choose to use the same samples to monitor more than one parameter, this is because parameters have same units (i.e. proportion/fraction). Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter. Similarly, oversampling is strongly encouraged, not only to compensate for any attrition, outliers or nonresponse associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required.

Thus, the sample size shown above will be adjusted upwards to account for any situational non-responses (such as absence of respondent on the day of visit, medical urgency, climatic condition etc.). Here PP may determine the appropriate non-responses rate based on previous experience or based on the local conditions at the time of such sampling survey. In this regard, oversampling is considered as part of the registered monitoring plan. However, based on prior experience of sampling it has been realized by PP that responses from min. required samples are generally achievable. Hence, oversampling may not be a mandatory requirement; but as part of standard

sampling practice followed by PP additional samples are considered as over samples in the sample size under this project.

Final Sample size considered for the 2nd Monitoring Period (with consideration of oversampling):

n (final) = 120

Screenshot of the final samples at group level, as referred in the sampling survey sheet, given below for reference:

Calculation of Sample Sizes using above equations		
Note: As per applied value of these two parameters (N and μ) in the methodology, these two are proportion values, to be expressed in percentage. Therefore, for both the parameters sample size has been calculated using Proportion value equation, as defined under (a) above.		
Calculation of Sample Sizes in Simple Random Sampling for Parameter N_y and μ		
A. For sampling frame with SR-ICS:		
Definition	Value	Justification
The population size N is	1,10,016	Total number of population as per the stove distribution database, under each CPA
The expected proportion p for $n_{y,i}$ is	0.9	Even if 100% of ICS installed still in operation as per a preliminary study, a conservative assumption of 90% is applied for sample size calculation.
Min. required Sample size	42.67	At 95% confidence level
Sample size (rounded up)	43	Min required sample
THUS, SAMPLE SIZE After adjusting oversampling =		60 (*with 40% additional samples considered as oversampling to avoid any re-sampling)
B. For sampling frame with Lamasinina-ICS:		
Definition	Value	Justification
The population size N is	27,208	Total number of population as per the stove distribution database, under each CPA
The expected proportion p for $n_{y,i}$ is	0.9	Even if 100% of ICS installed still in operation as per a preliminary study, a conservative assumption of 90% is applied for sample size calculation.
Min. required Sample size	42.62	At 95% confidence level
Sample size (rounded up)	43	Min required sample
THUS, SAMPLE SIZE After adjusting oversampling =		60 (*with 40% additional samples considered as oversampling to avoid any re-sampling)
Since, sampling is considered at Group Level therefore PP has decided to go for total sample size across the two sampling frames as the sample size of the group level sampling survey:		
Min. required sample size =	86	(hence on equitable distribution basis 9 samples can be randomly selected from each Instance)
Final sample size with oversampling =	120	(hence on equitable distribution basis 12 samples shall be randomly selected from each Instance)

Outcome:

Both the parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ have been selected across the minimum required and randomly selected 120 samples, as stated above. Similarly, in order to pre-define the samples the online randomizer was used to randomly select samples. All these selected samples were recorded (screenshots of the online randomizer) at the time of sample selection and same are reported under the sampling result sheets for cross check.

Thus, the particular parameters were surveyed and tested based on the above sample size and selected randomly from the stove database, hence PP had interviewed all sampled households to check for the fraction of operational ICS ($N_{y,i,j}$) and the presence of baseline devices & their any probable usage (i.e. additional check for the parameter $\mu_{y,i,j}$ for backup reference purposes). Thus, for these two monitoring survey parameters ($N_{y,i,j}$ & $\mu_{y,i,j}$), data collection was done for total 120 randomly selected samples. Subsequently, results are calculated and presented for the parameters. The results are further treated via sampling equations to confirm Reliability Check and presented for each parameter in line with the sampling method and sample size estimated.

The detail calculation, sample equations, results, etc. are submitted in final Sampling Survey Data & Calculation sheets. The summary of the sampling results and formulae used calculation and reliability check etc. are also included in the Appendix 2 below, which can be further cross checked from the sample survey sheet, records of survey, sampling forms etc.

Other elements of monitoring plan:

The Monitoring Plan applied in this PoA involves a number of key elements that ensure that the PP have high-quality, unbiased and reliable information regarding the performance of the project in terms of implementation and outcomes, and for the purposes of calculating Emission Reductions following AMS-II.G. version 09.0 on the basis of the amount of non-renewable biomass saved by the ICS in the project activity. The key elements are the following:

- Project database management
- Spot Checks of ICS
- Sample Plan for the Monitoring Survey
- Data Quality, Consistency and Duplication Checks
- Monitoring Reporting

Project Database Management:

The information collected by the local representative team of PP will be stored both as primary record and in the electronic database which will be available with PP and it will be updated on ongoing basis by trained staff. The database will be sortable by the information collected as per Registration Process and will be made available to the VVB at verification. The PP will verify accuracy and completeness and confirm that there is no double entry of serial numbers in the database. The implementing team will identify any discrepancy and the correct information will be entered into the database.

There are two possible replacement cases:

- (a) replacement due to any damage,
- (b) replacement due to end of operational life of the ICS.

Explanation²⁵: In case a replacement stove is being issued to a customer already registered on the project database (this is the example: case (a)), a new registration will not be required. The replacement stove will be recorded in the project database in such a way that it is clear that the replaced stove ceases to be included in the CPA; and the replacement stove is associated with the customer's details as a replaced stove. It means new stove shall simply receive the status of old stove (i.e. the ICS replaced) and continue to operate as usual. In case of new stove which is given as replacement at the end of life of the current ICS (e.g. case (b)), the same is included in the CPA as a new stove with a new serial number (i.e. unique ID in line with the unique numbering pattern assigned) and will be treated as re-distribution.

Such practices shall conform with CPA implementation and monitoring systems designed by PP under services agreements signed with the local team which covers the above-mentioned role and responsibilities.

All technical staff responsible for installation and maintenance of the stoves will be trained in terms of the understanding the requirements of the carbon project on the monitoring system.

²⁵ Under the scenario (a) the efficiency of the new ICS is not upgraded into the ER estimation, rather efficiency of old ICS shall be applied in ER estimation with corresponding adjustments as per the vintage year as per batch definition. Whereas under the scenario (b) both efficiency & lifetime calculation of ICS shall be resumed from the vintage year 1.

The technical, operational and maintenance trainings provided for the personnel will be described in each monitoring report

Spot Checks of ICS Installed:

Trained field staff continually randomly select households included in the database and visit them to cross-check the information on the database with the factual evidence in the field. Any inconsistencies found (e.g., changes in the addresses of a user) are updated on the database, and in the case where ICSs are found to no longer be in use, they are clearly marked as such and excluded from emission reductions calculations. The spot check is performed yearly, wherein a random selection of households is done through the central database system. Afterwards, a team visits each selected household and confirms the information as per the registered database. In case of any changes in information, the same is updated, and an action is decided based on the observed changes. These spot checks are also used as part of the sample required for establishing the ICS in operation, and if any use of pre-project devices is detected along with ICS.

Sample Plan for the Monitoring Survey:

The entire monitoring survey will be based on sampling as stated above under this section. Thus all the sampling related information provided above surveys the purpose of fulfilling the monitoring survey.

Data Quality (QA/QC), Consistency and Duplication Checks:

There is a dedicated data management team who is responsible for quality check for all project specific data and ensure zero duplicacy and consistency as per requirement of the monitoring plan. The team also conducts periodic review and internal audits to ensure proper QA/QC practices at project level.

Additionally, the QA/QC procedure during sampling survey is considered by applying Reliability Check of the results with the help of sampling equation. If the results are within the permissible level of precision then accepted, otherwise additional sampling or conservative results based on lower bound value of the sampling shall be considered. This reliability check procedure is demonstrated part of the sampling survey calculation sheet, also summarized under the Appendix 2 of the MR.

Monitoring & Reporting:

The monitoring of specific parameters (i.e. the two parameters of interest) which are conducted via sampling survey is done annually or biennial by following the standard practice of 90/10 or 95/10 confidence precision in sampling, respectively. Here reporting is done at the end of such sampling survey. Whereas overall monitoring of the project operational aspects is a continuous process and reporting is also done continuously at team level. All such reports are kept at team level and PP may access at any point of time. All such practices are generally outlined under the Project Management Manual developed at Program level.

Others:

The other important aspects of the monitoring plan includes the following:

- (i) An organization structure with defined roles & responsibilities
- (ii) Trainings – regular or periodic trainings are conducted both at team level as well as for communities, which is in line with the information submitted under SDG table (SDG Ref. 4).

Internal audit & procedure for non-conformity –

internal audit is managed by Tandavanala at team level, which is need based. However, spot checking mechanism which is conducted on regular basis is one of the example of such internal audit, followed by sampling survey that is also a type of internal audit. In case of any non-conformity identified, the team will report the same and based on discussion with PP required action shall be conducted. All such practices are generally outlined under the Project Management Manual developed at Program level.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The methodology does not account for baseline emissions separately. It quantifies net emission reductions achieved by the project which has been described in Section 5.4 of this document. The emission reductions calculations have been provided in an excel spreadsheet.

5.2 Project Emissions

The methodology does not account for project emissions separately. It quantifies net emission reductions achieved by the project which has been described in Section 5.4 of this document. The emission reductions calculations have been provided in an excel spreadsheet.

5.3 Leakage Emissions

Leakage emission has been referred in line with the para 29 of the applied methodology.

To account for leakage a net to gross adjustment factor of 0.95 has been applied in line with the methodology which is also prescribed as the choice in the registered VCS Joint PD&MR and therefore the B_{old} has been multiplied by a net to gross adjustment factor to account for leakages

5.4 GHG Emission Reductions and Carbon Dioxide Removals

According to paragraph 17 of methodology AMS-IL.G., version 09.0, emission reductions would be calculated as

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y \quad \text{Equation (1)}$$

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices

j = Indices for the situation where there is more than one batch of project device

ER_y = Emission reductions during year y in t CO₂e

$ER_{y,i,j}$ = Emission reductions by project device of type i and batch j during year y in t CO₂e

LE_y = Leakage emissions in the year y

ER summary²⁶ (actual achieved) at the Group Project level:

²⁶ Since this is a grouped project activity, the ER values at group level presented. Also, instance wise segregated ER values are also reported with their respective start dates. This is to be noted that these vintages are based on yearly allocation of ERs for

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e) ²⁷	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-May-2024 to 31-December-2024	336,348	0	0	336,348	0	336,348
01-January-2025 to 31-December-2025	502,462	0	0	502,462	0	502,462
Total	838,810	0	0	838,810	0	838,810

Instance 1:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-May-2024 to 31-December-2024	32,535	0	0	32,535	0	32,535
01-January-2025 to December- 2025	48,604	0	0	48,604	0	48,604
Total	81,139	0	0	81,139	0	81,139

the purpose of issuance of VCUs at VERRA; whereas vintage representation of ICS operation is differently calculated as per commissioning date definition of ICS batches with conservative application of ICS efficiency.

²⁷ The leakage emission has been considered as the default adjustment factor (i.e.0.95) into the primary equation) in line with the para 29 of the applied VCS Methodology AMS II G The leakage consideration is presented under the section 5.4 of the VCS Joint PD&mr. Thus, there is no separate leakage emission estimation applied, hence the value in this reporting table is considered as nil; whereas leakage emission has already been factored into the ER calculation

Instance 2:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCU (tCO ₂ e)
01-May-2024 to 31-December-2024	32,794	0	0	32,794	0	32,794
01-January-2025 to December- 2025	48,991	0	0	48,991	0	48,991
Total	81,785	0	0	81,785	0	81,785

Instance 3:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCU (tCO ₂ e)
01-May-2024 to 31-December-2024	32,920	0	0	32,920	0	32,920
01-January-2025 to December- 2025	49,178	0	0	49,178	0	49,178
Total	82,098	0	0	82,098	0	82,098

Instance 4:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCU (tCO ₂ e)
01-May-2024 to 31-December-2024	33,216	0	0	33,216	0	33,216
01-January-2025 to December- 2025	49,620	0	0	49,620	0	49,620
Total	82,836	0	0	82,836	0	82,836

Instance 5:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCU (tCO ₂ e)
01-May-2024 to 31-December-2024	33,336	0	0	33,336	0	33,336

01-January-2025 to December- 2025	49,799	0	0	49,799	0	49,799
Total	83,135	0	0	83,135	0	83,135

Instance 6:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)	Removal VCU's (tCO ₂ e)	Total VCU's (tCO ₂ e)
01-May-2024 to 31-December-2024	33,644	0	0	33,644	0	33,644
01-January-2025 to December- 2025	50,260	0	0	50,260	0	50,260
Total	83,904	0	0	83,904	0	83,904

Instance 7:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)	Removal VCU's (tCO ₂ e)	Total VCU's (tCO ₂ e)
01-May-2024 to 31-December-2024	34,716	0	0	34,716	0	34,716
01-January-2025 to December- 2025	51,861	0	0	51,861	0	51,861
Total	86,577	0	0	86,577	0	86,577

Instance 8:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)	Removal VCU's (tCO ₂ e)	Total VCU's (tCO ₂ e)
01-May-2024 to 31-December-2024	33,936	0	0	33,936	0	33,936
01-January-2025 to December- 2025	50,695	0	0	50,695	0	50,695
Total	84,631	0	0	84,631	0	84,631

Instance 9:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-May-2024 to 31-December-2024	34,921	0	0	34,921	0	34,921
01-January-2025 to December- 2025	52,167	0	0	52,167	0	52,167
Total	87,088	0	0	87,088	0	87,088

Instance 10:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-May-2024 to 31-December-2024	34,331	0	0	34,331	0	34,331
01-January-2025 to 31-December- 2025	51,286	0	0	51,286	0	51,286
Total	85,617	0	0	85,617	0	85,617

For projects required to assess permanence risk:

State the non-permanence risk rating (%)	This section is not applicable.
Has the non-permanence risk report been attached as either an appendix or a separate document?	☐ Yes ☒ No
For ARR and IFM projects with harvesting, state, in tCO ₂ e, the Long-term Average (LTA).	This section is not applicable.
Has the LTA been updated based on monitored data, if applicable?	☐ Yes ☒ No If no, provide justification.
State, in tCO ₂ e, the expected total GHG benefit to date.	This section is not applicable.
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	This section is not applicable.

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer pool allocation (tCO ₂ e)	Reductions VCU (tCO ₂ e)	Removals VCU (tCO ₂ e)	Total VCU issuance (tCO ₂ e)
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01-Jan-YYYY to 31-Dec-YYYY	NA	NA	NA	NA	NA	NA	NA
01-Jan-YYYY to DD-MMM-YYYY	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA

Vintage period	Ex-ante estimated reduction s/	Achieved reductions /removals	Percent difference	Explanation for the difference
01-May-2024 to 31-December- 2025 Instance 1 (CPA 31)	77243	81139	5.04%	The actual emission reductions achieved during the current monitoring period is on higher side as compared to ex-ante estimate. Marginally higher due to higher value (i.e. 100%) of the survey parameters as compared to the ex-ante inputs value of the same parameters (i.e. 0.9 & 0.96).
01-May-2024 to 31-December- 2025 Instance 2 (CPA 33)	77243	81785	5.88%	
01-May-2024 to 31-December- 2025 Instance 3 (CPA 35)	77243	82098	6.29%	
01-May-2024 to 31-December- 2025 Instance 4 (CPA 37)	77243	82836	7.24%	
01-May-2024 to 31-December- 2025 Instance 5 (CPA 39)	77243	83135	7.63%	
01-May-2024 to 31-December- 2025 Instance 6 (CPA 41)	77243	83904	8.62%	

01-May-2024 to 31-December- 2025 Instance 7 (CPA 30)	77246	86577	12.08%	
01-May-2024 to 31-December- 2025 Instance 8 (CPA 43)	77243	84631	9.56%	
01-May-2024 to 31-December- 2025 Instance 9 (CPA 32)	77246	87088	12.74%	
01-May-2024 to 31-December- 2025 Instance 10 (CPA 45)	77243	85617	10.84%	
01-May-2024 to 31-December- 2025	772,434	838,810	8.59%	

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Not applicable

Section	Information	Justification
NA	NA	NA

APPENDIX 2: DETAILS RELATED TO SAMPLING SURVEY

Details of the Sampling Survey:

The applicable results of the survey for the monitoring parameters were based on the biennial sampling survey conducted (i) during November/December 2025, and (ii) earlier during May / November 2024 with biennial approach using 95/10 confidence/precision. Due to applicability duration of the biennial sampling results (i.e. reference to footnote #6 of 'Sampling Standard' which refers to "General guidelines for SSC CDM methodologies" and its respective para 26, 27 & footnote #4), PP had the option to apply sampling results from both these surveys as per the biennial provisions. However, the survey results obtained from both these surveys are the same. The details are summarized below:

For parameter $N_{y,i,j}$ & $\mu_{y,i,j}$:

Sampling Survey was conducted across the randomly selected samples at Grouped Project level, across the 10 Instances, The calculated sample size was considered with inclusive of oversamples as per the provision of the CDM registered sampling plan in line with the Sampling Guidelines. The total sample size (i.e. 120) is distributed across the Instances such that equitable number of samples are randomly selected from each Instance.

All sample households were interviewed with pre-designed questionnaires to check and record the presence of project ICS, usage pattern, fulfilment of cooking needs with project ICS, etc.

The detailed sampling size, sampling method, sample selection, survey data, results, reliability check etc. are included in a separate Excel file, which was submitted to audit team for validation & further references. As per calculated sampling size (i.e. based on 95/10 confidence/precision), a total of 120 samples were surveyed for both the parameters $N_{y,i,j}$ and $\mu_{y,i,j}$. All these samples were randomly selected across the Instances (but with an approach of equal weightage in each instance) from their ICS database to consider a representative and unbiased sample selection to derive the results. The project ICS were found to be operational without any issue. The regular cooking needs are fulfilled with using the project ICS. There was no parallel or any single use of old baseline devices during the entire monitoring period.

The input of the sampling survey, results derived from the sampling survey and reliability check are presented under the sampling sheet and also summarized below:

Ny: Usage Rate (120 Samples)	100.00%	%
Population Size	137,224 ²⁸	number
Sample Size	120	number
Proportion for Usage Rate	1.00	Fraction

²⁸ The values presented here under the results and reliability assessment tables are the total population at grouped level, where results were derived from the total samples taken across the 10 instances (i.e. at group level). Under the sampling survey sheet, all samples' data are presented, and assessment has been done.

Standard error of proportion for Usage Rate	0.00	
Precision for Usage Rate	0.00%	%
Result for Usage Rate (as per reliability check)	ok, acceptable	--

μ_y: (Adjustment fraction)	100.00%	%
Population Size	137,224	Number
Sample Size	120	Number
Proportion for Usage Rate of baseline device	1.00	Fraction
Standard error of proportion for Usage Rate	0.00	
Precision for Usage Rate	0.00%	%
Result for Usage Rate (as per reliability check)	ok, acceptable	--

Also, for the parameter μ_y : as per applicability of the methodology:

- If the pre-project devices are decommissioned and no longer used, as determined by the monitoring survey its value is 1.0.
- If both the project devices and pre-project devices are used together, measurement campaigns shall be undertaken.
- Surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire.
- Example - the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75. Where a more precise data is available i.e. the thermal capacity of the project and pre-project devices and respective utilization hours, a weighted average adjustment factor may be used.

The sampling survey was designed and conducted following the above reference and confirmed that (ref. sampling survey sheets) the Project ICS are being regularly used in all households to meet daily cooking requirements. Additionally, the survey also included SDG related inputs from the beneficiaries and the communities, hence this survey also to be referred for SDG related requirements. The detailed presentation of sampling frame, sample size calculation, sample selection, sampling data, calculation of results and precision check etc. are demonstrated in the sampling sheets.