



REDUCED EMISSIONS FROM IMPROVED AND EFFICIENT COOKING IN UGANDAN COMMUNITIES



Project title	Reduced Emissions from Improved and Efficient Cooking in Ugandan Communities
Project ID	3045
Monitoring period	01-January-2024 to 31-December-2024 (inclusive of both days)
Original date of issue	19-March-2025
Most recent date of issue	04-June-2026
Version	3.1
VCS Standard Version	4.7
Prepared by	PERSISTENTCLIMATE INDIA PRIVATE LIMITED

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The grouped Project entitled “Reduced Emissions from Improved and Efficient Cooking in Ugandan Communities” aims to reduce greenhouse gas emissions by distributing fuel-efficient Improved Cook Stoves (ICS) in various regions of Uganda.

PERSISTENTCLIMATE INDIA PRIVATE LIMITED, (hereinafter called “PersistentClimate”) is the project proponent (PP) for the grouped Project. PersistentClimate is a company registered in India and will facilitate the distribution of the ICS’ to households in Uganda (beneficiaries).

PERSISTENTCLIMATE INDIA PRIVATE LIMITED in Uganda has implemented measures in place to ensure that all requirements with respect to the applied VERRA monitoring methodology of the grouped projects are sufficiently met. Requirements including data, required for accurate and conservative quantification of emissions reductions and other Sustainable Development Impacts (SDIs), including but not limited to record-keeping and performing household surveys at a regular interval, are met.

The Project Implemented by PersistentClimate India Private Limited with local partners in Uganda increased access of households and communities to improved cookstoves by disseminating Improved Cook Stoves featuring high thermal efficiency and low greenhouse gas emissions. These ICS are distributed across the households and communities in Uganda, replacing previously used traditional devices, typically featuring low fuel efficiency and high rates of emissions among not only greenhouse gas emissions but also particulate matter and other emissions detrimental to health and posing risks of fire. The implementation of this Project resulted in the reduction of firewood/wood fuel (charcoal) consumption & associated greenhouse gas emissions in a sustainable manner. Project objectives include reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking.

Under this grouped project, in the first instance the following three models of stoves were installed:

1. Burn Kuniokoa Cookstove (Wood fired)
2. Burn Jikokoa (Charcoal Fired)
3. Masupa stoves (Charcoal Fired)

The end users were informed that carbon finance is being generated by the use of the ICS, and this finance is in turn used to facilitate the access to ICS and helps to cover project implementation costs.

Relevant implementation dates (e.g., dates of commissioning, and continued operation periods)

Milestone of the project	Timeline
Crediting period	02-January-2021 to 01-january-2031
1st monitoring period successfully verified	02-January-2021 to 31-july-2022
2 nd Monitoring period Successfully verified	01-August-2022 to 31-December-2023

Installation of ICS

Milestone of the project	Timeline
Date of first ICS installed	02-January-2021
Total no. of ICS distributed till end of date MP (31-December-2024)	2021: 14,088 2022: 31,891 2023: 12,814 Total: 58,793

First monitoring survey: survey dates	1-September-2022 to 4-September-2022
Second Monitoring Survey: Survey dates	19-December-2023 to 30-December-2023
Third monitoring survey : Survey dates	02-January-2025 to 08-January-2025

Stove Model	Fuel used	Total Number of Distributed ICS
Jikokoa	charcoal fired Stove	13,027
Masupa	Charcoal fired stove	45,217
Kuniokoa	wood fired stove	549

The total GHG emission reductions or removals generated in the current monitoring period:

Grouped VCS Project	VERs (tCO ₂ e)
Total VERs (tCO ₂ e)	107,641

The project results in a total emission reduction of 107,641tCO₂e over the monitoring period of 01-January-2024 to 31- December-2024 (inclusive of both days).

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation/verification	02-January-2021 to 31-july-2022	VCS	4K Earth Science Private Limited (4KES)	1 year 6 months 30 days
Verification	01-August-2022 to 31- December-2023	VCS	VKU certification private limited	1 year 5 months
Requantification	01-August-2022 to 31- December-2023	VCS	VKU certification private limited	1 year 5 months
Verification	01-January-2024 to 31- December-2024	VCS	VKU certification private limited	1 year

1.3 Sectoral Scope and Project Type

Sectoral scope ¹	Sectoral Scope:03- Energy Demand
Project activity type	Type II – Energy Efficiency Improvement Project

Complete the table below with information relevant for AFOLU projects:

Sectoral scope	N/A
AFOLU project category ²	N/A
Project activity type	N/A

1.4 Project Proponent

¹ 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>

² See Appendix 1 of the VCS Standard

Organization name	PERSISTENTCLIMATE INDIA PRIVATE LIMITED
Contact person	PRAKASH KUMAR MISHRA
Title	Mr.
Address	K- 255, Pocket K Sarita Vihar- New Delhi-110076 India
Telephone	+91- 9811905234
Email	prakashpure@gmail.com p.mishra@persistentclimate.com admin@persistentclimate.com

1.5 Other Entities Involved in the Project

Organization name	EZYLIFE HOLDINGS LTD
Role in the project	local distribution partner
Contact person	Lister Byamugisha
Title	Mr.
Address	Kapchorwa, Uganda
Telephone	+256 787818792
Email	lbyam@ugezylife.com

1.6 Project Start Date

Project start date	02-January-2021
Justification	The date on which the first ICS was distributed under the project

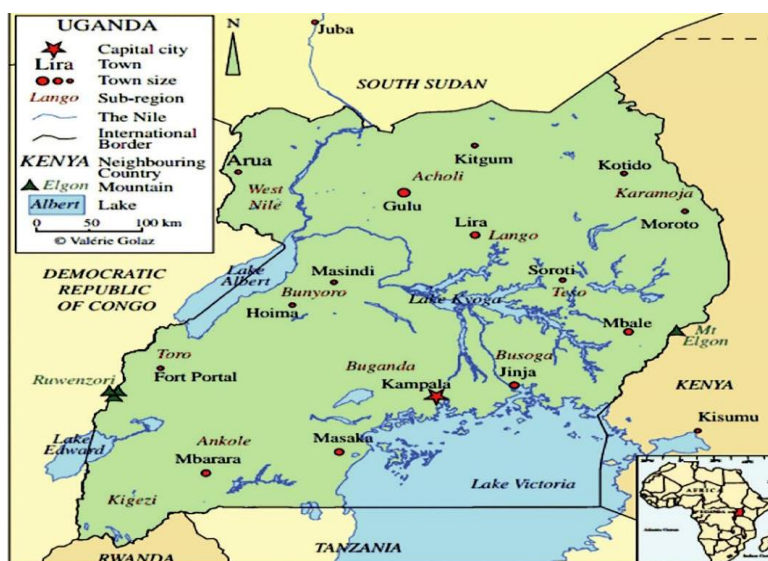
1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable
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	☒ 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	02-January-2021 to 01-january-2031

1.8 Project Location

The geographic boundaries, within which project technologies (ICS) is distributed are the political boundaries of the Host Country of Uganda. The physical location of each device/ICS distributed as a project activity instance under the implemented grouped Project is the actual project activity instance boundary. Program/group project put provision to capture each ICS location distributed under the Project are kept and maintained by the grouped project proponent.



Geo-coordinates for Uganda:

Latitude	Longitude
1.373333 N	32.290276 E
1° 22' 23.9988" N	32° 17' 24.9936" E

At the time of verification, the following districts cover the distribution:

1. Mbale:

Latitude	Longitude
1° 04' 55.52" N	34° 10' 30.11" E

2. Jinja:

Latitude	Longitude
0° 26' 20.47" N	33° 12' 11.41" E

3. Tororo:

Latitude	Longitude
0° 41' 34.76" N	34° 10' 51.06" E

4. Wakiso:

Latitude	Longitude
0° 24' 15.98" N	32° 27' 33.98" E

5. Sironko tc:

Latitude	Longitude
1° 13' 60.00" N	34° 14' 60.00" E

6. Kampala:

Latitude	Longitude
0° 18' 58.61" N	32° 34' 55.88" E

7. Manafwa:

Latitude	Longitude
0° 57' 4.3" N	34° 16' 27.6" E

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM0050 ³	Energy efficiency and fuel-switch measures in cookstoves	1.0
Tool	Tool 30 ⁴	Calculation of the fraction of non-renewable biomass	4.0

³ <https://verra.org/wp-content/uploads/2024/10/VM0050-EE-and-Fuel-Switch-Measures-in-Cookstoves-v1.0.pdf>

⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf>

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 has not sought or received another form of GHG-related environmental credit.

1.10.2 Registration in Other GHG Programs

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

☐ Yes ☒ No

If yes, provide the registration number and all relevant details including the date of project inactivity in the other GHG program.⁵

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

If yes, provide all required evidence of no double claiming as outlined by the VCS Standard.

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

If yes, provide all required evidence of no double claiming as outlined by the VCS Standard.

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?

⁵ The requirement to provide the date of project inactivity only applies to projects which request registration or crediting period renewal under the VCS Program on or after 1 January 2025.

☐ Yes☒ No

If yes:

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:

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:

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

1.12 Sustainable Development Contributions

Table 1: Sustainable Development Contributions

Monitoring Period: 01-January-2024 to 31-December-2024 (inclusive of both days)

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
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1)	3.9	Project Specific Indicator – % users reporting reduction in Smoke/PM emissions after shifting to ICS	The efficient cook stove leads to a reduction in fuel consumption and as a consequence to an improvement in indoor air quality. This has positive impacts on decreasing in health-related issues like respiratory problems, eye and throat irritations. The relevant indicator is: Mortality rate attributed to household and ambient air pollution.	The contribution to SDG 3 is calculated as the number of households confirming improvement in air quality. To collect information on the improvement of air quality, the Monitoring Kitchen Survey includes 2 questions related to that topic: Do you think there is any difference in how much smoke is produced by the improved stove compared to the 3-stone fire? Do you think the improved stove produces more or less smoke than the 3-stone? The share of households confirming less smoke by the improved stove in the Monitoring Kitchen Survey is multiplied with the number of stoves disseminated under the specific project activity instances and results in the number of households confirming improvement in air quality. $S_{\text{(less smoke)}} = S_{\text{install}} \times \left[\frac{HH_{\text{(less smoke,y)}}}{HH_{\text{(p,y)}}} \right]$ $S_{\text{less smoke}}$ No of households with improved in-air quality S_{install} Number of stoves installed $HH_{\text{less smoke,y}}$ Share of households confirming less smoke through improved stove	Mortality rate attributed to household and ambient air pollution. The project has achieved the reduction in smoke and thus prevented the mortality rate in the households. Reduction of 100% smoke as resulted in 100% reduction in incidence of itchy eyes.
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				Up,y Usage rate in year y 100% of the beneficiaries reported reduced exposure to smoke / PM emission after switching to project ICS							
2)	5.4	Proportion of time spent on unpaid domestic and care work, by sex, age and location	Women and girls perform the majority of unpaid domestic work⁶. This leaves them with less time to rest, study and realise their economic potential, leaving them in time poverty. In regards to time, women are poorer than men as unpaid domestic duties, such as collecting firewood, must be added to their market productive work, making time much scarcer. Women are widely recognized as being principally responsible for natural resource collection. These trends demonstrate that reducing the amount of firewood required by households has the potential to reduce the time poverty of women, because the time burden of collecting firewood, which falls disproportionately on women, will be reduced. The average % decrease per household in time spent gathering firewood will be taken as a proxy contribution towards the SDG target.	The overall reduction in time spent collecting firewood by the project activity are then calculated as follows: $TR_y = (Tb,y - Tp,y) / Tb,y$ Where: TR_y = Total reduction time spent collecting firewood for project activity in year y (%) Tb,y = Baseline time spent collecting firewood per household per day (hours) Tp,y = Project time spent collecting firewood per household per day (hours) The average 0.958 hrs/week time was saved during the monitoring period based on the survey undertaken with the project monitoring survey.	Reduction in time spent collecting fuelwood from the forests or charcoal from market. PP has undertaken a monitoring survey clubbed with the other survey as part of SDG#13, the survey was designed in such a manner to capture the per week hours' time before project stove implementation and after. The time saving is calculated as below: <table><tr><td>Time spent in fuel collection per week before ICS Purchase (Hrs)</td><td>Time spent in fuel collection per week after ICS Purchase (Hrs)</td><td>Time saved for collecting fuel after purchasing Project ICS</td></tr><tr><td>1.775</td><td>0.818</td><td>0.958</td></tr></table>	Time spent in fuel collection per week before ICS Purchase (Hrs)	Time spent in fuel collection per week after ICS Purchase (Hrs)	Time saved for collecting fuel after purchasing Project ICS	1.775	0.818	0.958
Time spent in fuel collection per week before ICS Purchase (Hrs)	Time spent in fuel collection per week after ICS Purchase (Hrs)	Time saved for collecting fuel after purchasing Project ICS									
1.775	0.818	0.958									

⁶ Gender role differentiation in household fuel transition decision-making: Implications for education and training in Uganda: <https://www.frontiersin.org/journals/sustainability/articles/10.3389/frsus.2023.1034589/full>

3)	7.3:	Project Specific Indicator – Number of project households predominantly using clean cooking devices such as project ICSs	For this project, the baseline scenario is the number of households using traditional cook stoves. This project increases the adoption rate of efficient cookstoves.	The outcome of SDG 7 will be measured by the number of efficient cookstoves distributed during the project. According to the ICS distribution database, 58,793 ICSs have been distributed till the end of this monitoring period. However, no ICS distributed during the current monitoring period.	Number of project households predominantly using clean cooking devices such as Improved Cook Stoves. The ICS distributed to Household is a cleaner cooking technology. The project will increase the proportion of population with primary reliance on clean fuels and technology in project area.
4)	8.1	Project Specific Indicator- Monetary saving after using the project ICS.	implemented activities to increase	According to the project survey, the money saved each month after using the ICS is UGX 21,550, and Average percentage Savings of Money is 36.88 % during the current monitoring period.	Monetary saving will be monitored through the project survey. PP has undertaken a monitoring survey clubbed with the survey undertaken as part of the project monitoring survey for SDG#13, the survey was designed in such a manner to capture the monetary saving as a result of ICS purchase.
5)	13.0	Tonnes of greenhouse gas emissions avoided.	Implemented activities to increase	The emission reductions will be quantified as per the methodology applied. The total emission reduction in the current monitoring period is 107,641 tCO₂ eq.	GHG Emissions measured in tons CO₂ The average annual GHG emission reduction from the project is expected to be 143,707 tCO₂e and a total of 1,437,074 tCO₂e due to less fuelwood combustion for cooking in the households

- Distributed more than 50,000 (58,793) ICS' in Uganda, benefitting more than 50,000 individuals from clean, efficient/improved and affordable energy (SDG 7.1.2) in phase manner.
- Reduced the total biomass usage in the project area to generate 107,641 tCO₂e of emission reductions. (SDG 13; and SDG 7).
- Significantly reduced Indoor/Household Air Pollution (HAP) in the households due to reduced exposure to PM and/other emissions (SDG 3.9.1)

- Reduction of respiratory disease, due to improved combustion efficiency and consequently less fumes, such as Chronic Obstructive Pulmonary Disease (COPD) among adult family members, particularly women and the elderly.
- Reduced the risk of mortality among infants and children under five years of age due to (1) acute lower respiratory illnesses (ALRI), such as pneumonia and bronchitis, the cause of mortality in 12% of children under five, and (2) burns resulting from children falling into open cooking fires. and risk of fire due to open and shoot production in inefficient cooking ways.
- Reduced the proportion of time generally women spend on unpaid domestic work related to collection of firewood, and cooking meals on inefficient traditional cookstoves which is generally slower in cooking meals and thus more time for cooking. (SDG 5.4.1)
- Fuel/money savings to the households and communities due to less fuel/biomass consumption. Table 2: Sustainable Development Contributions (SDG 8)

1.13 Commercially Sensitive Information

No commercially sensitive information has been included in the monitoring report to be excluded in the public version.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Not applicable since no change since validation is observed for the stakeholders. The Local Stakeholder meeting was conducted physically on the 06th of June 2022, which was validated by the validation agency. Stakeholders were identified as relevant NGOs, local authorities and representative of households that directly or indirectly impact on the project activities. The invitations were sent out on email and the newspaper advertisements were published on 09-May-2022. A continuous feedback mechanism system is in place which is correctly outlined in section 2.1.4 of the MR.

Stakeholder Identification	N/A The Stakeholder makeup has not changed since validation. Hence, this is not deemed applicable.
Legal or customary tenure/access rights	N/A, the project activity involves distribution of improved cookstoves to individual households, there are no legal or customary tenure/access rights to territories and resources, including collective and conflicting rights, held by stakeholders, indigenous people (IPs), local communities (LCs), or customary rights holders.
Stakeholder diversity and changes over time	N/A, Refer section 2 of registered PD. No expected change has happened to the stakeholders' makeup.
Expected changes in well-being	The project is positively transforming the local environment by lowering fuel consumption, reducing smoke and particulate matter (PM) emissions, and decreasing household fuel expenses. It is also enhancing the social and economic well-being of stakeholders by saving time spent on cooking and creating local employment opportunities in operations, management, manufacturing, distribution, and logistics.
Location of stakeholders	The geographical boundary of the project is the host country of Uganda. The project does not impact any areas outside this defined boundary.

Location of resources	The project involves distribution of improved cookstoves to individual households and communities and it does not interfere with rights to lands, territories and/ or resources. By reducing the demand for biomass fuel, the project helps ease pressure on local forests and supports the conservation of natural resources on the customary lands of stakeholders.
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2.1.2 Stakeholder Consultation and Ongoing Communication

During current monitoring period no complains raised by stakeholders, also no issues were identified in previous stakeholder meeting which requires change in process or mitigation measures.

The stakeholders are encouraged to provide ongoing feedback/grievance as part of continuous ongoing stakeholder communication. The stakeholders are communicated through the house visits. At the time of monitoring survey also, field staff recorded the feedback from the local stakeholders. And also, a register is placed at the office of distribution partners.

PP has a robust feedback and grievance redress policy and procedure in order to ensure that grievances of project-affected communities and individual stakeholders are properly handled and addressed. These procedures are implemented to enhance PP's accountability and transparency, as well as to promote project activities that can help communities in identifying adverse effects to them or their environment that PP had not previously identified and mitigated. No grievances were received during the current monitoring period.

Ongoing consultation	The stakeholders are encouraged to provide ongoing feedback/grievance as part of continuous ongoing stakeholder communication. The stakeholders communicate through the house visits. At the time of monitoring survey, field staff recorded the feedback from the local stakeholders. And also, a register is placed at the office of distribution partners.
Date(s) of stakeholder consultation	06 TH – June - 2022 No stakeholder consultation has been conducted during the monitoring period. Refer section 2.2 of the registered PD for details of consultation conducted prior to this monitoring period.
Communication of monitored results	The stakeholders were communicated through the house visits. The PP is in continuous contact with the field coordinators to get feedback from the stakeholders. The PP took the feedback during the monitoring survey. The project monitoring was conducted by trained local staff, and the results were communicated by them to ensure transparency and timeliness.
Consultation records	A register is placed at the office of distribution partners.
Stakeholder input	The minutes of the meeting were recorded by the project participants. There are no updates to the project design.

2.1.3 Free, Prior, and Informed Consent

Consent	A default distribution agreement for end users including the provision that emission reductions generated by the stove are owned by the project proponent is provided for the project instance. Waiver of carbon credits from the end users is submitted to the VVB for this instance (if applicable)
Outcome of FPIC	Waiver of carbon credits from the end users is submitted to the VVB for this instance. (if applicable)

2.1.4 Grievance Redress Procedure

The stakeholders are encouraged to provide ongoing feedback/grievance as part of continuous ongoing stakeholder communication. The stakeholders communicated during the house visits. At the time of monitoring survey also, field staff recorded the feedback from the local stakeholders. And also, a register is placed at the office of distribution partners.

PP has a robust feedback and grievance redress policy and procedure in order to ensure that grievances of project-affected communities and individual stakeholders are properly handled and addressed. These procedures are implemented to enhance PP's accountability and transparency, as well as to promote project activities that can help communities in identifying adverse effects to them or their environment that PP had not previously identified and mitigated.

The stakeholders and end users are well aware of where to contact in case their cookstoves do not work or they face difficulties operating them. They have the contact number and address of the responsible person for grievance redressal. However, as of the latest monitoring survey, no end user or stakeholder has made a call to register any grievances.

No grievances were received during the current monitoring period.

Grievances received	Resolution and outcome
No grievance raised during the monitoring period.	-Not applicable, as there has been no grievance received for the current monitoring period.

2.1.5 Public Comments

There were no comments received during the stakeholder consultation and the 30 days listing period. The VCS PD was open for the public comment for 30 days period (22 July 2022 – 21 August 2022) on VCS registry.

Summary of comments received	Actions taken
No comments received during the stakeholder consultation and the 30-day listing period.	-Not applicable as no comments received.

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

PersistentClimate India Private Limited is the project developer, bringing extensive expertise in project design, implementation, and monitoring. PersistentClimate have many year of experiences in implementing similar project activities and engaging communities. The management team at PersistentClimate has a strong track record in sustainability, decarbonization, and carbon project development. The team is proficient in developing project designs, assisting in data documentation as per the monitoring plan, overseeing project implementation, and assessing project progress and impact.

PersistentClimate has successfully developed and managed multiple carbon projects, demonstrating its capability in stakeholder engagement, data-driven decision-making, and regulatory compliance.

Ezylife Holdings Ltd is the implementation partner for the project, leveraging its extensive experience in on-ground execution, community engagement, and distribution of sustainable technologies. The organization has a proven track record in implementing clean energy and climate-focused projects, particularly in deploying improved cookstoves, renewable energy solutions, and community-driven sustainability initiatives.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	The project activity promotes improved cookstoves that improves the health of stakeholder, leading to a decrease in health risks from indoor air pollution
Risks to stakeholder participation	No risk identified	The project activity promotes improved cookstoves that result in reduced fuel consumption and emissions due to cooking and heating water in homes so no risk identified to the stakeholder
Working conditions	No risk identified	Due to project implementation, less time is required to collect fuelwood, which is now utilized for valuable activities such as education. working condition of the women and the girls.
Safety of women and girls	No risk identified	Less usage of fuelwood results in lower physical burden for women

		and girls, who often have to travel long distances and spend extended hours collecting it. Additionally, it minimizes conflicts between wildlife and humans. As a result, there is a decrease in the proportion of unpaid domestic and care work
Safety of minority and marginalized groups, including children	No risk identified	- The reduction of smoke in the kitchen improves the health of women and children, leading to a decrease in health risks from indoor air pollution. As a result, it contributes to the reduction of mortality rates attributed to household and ambient air pollution
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	- The amount of indoor pollutants from burning fuelwood in the kitchen is reduced. Less carbon-dioxide, carbon mono oxide, black carbon emitted due to the decrease in total fuelwood consumption.

No negative environmental impacts have been identified from the project and does not require any specific license/approval from host country. No potential negative environmental or socio-economic impacts have been identified for the project activity.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

No potential negative socio-economic impacts have been identified for the project activity.

	Risks identified ⁷	Mitigation or preventative measure(s) taken
Discrimination	No risks identified	The Project ensures inclusivity and equal and ensuring fair treatment and equal opportunities for all workers, regardless of race, gender, age, or other personal attributes. It actively fosters a respectful and inclusive work environment. PP follows national legal and policy framework of Uganda, particularly the

⁷ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

		Employment Act, 2006 , and the Uganda Constitution , both of which prohibit discrimination based on race, sex, religion, political opinion, ethnic origin, or social status. Also, there has been no reported grievances of discrimination registered during this monitoring period.
Sexual harassment	No risks identified	All workers are protected from any form of sexual harassment, with clear grievance reporting mechanisms, where through various channel like written complaints or via email or call and prompt action taken against any violations. There have been no reports of sexual harassment for this monitoring period.
Gender equity in labor and work	No risks identified	The project promotes gender equity by ensuring equal opportunities and treatment for all employees, regardless of gender. The workers are hired based on their potential, regardless of gender.
Forced labor	No risks identified	The project does not involve in any kind of forced labor/compulsory labor and the PP ensures that all employment is in compliance with local and national labor regulations and laws ⁸
Child labor	No risks identified	The project involves the distribution of Improved Cookstoves which are mainly manufactured/assembled locally in Uganda. The PP neither endorses nor is involved in child labor. The PP ensures that no child labor is involved by strictly following national labor laws ⁹ , which prohibit the employment of children. The process explicitly excludes the involvement of children.
Human trafficking	No risks identified	The project is committed to strictly follows the national labour laws ¹⁰ and ensures that it does not and will not engage in any form of

⁸ [https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20\(Acts\)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf](https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20(Acts)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf)

⁹ [https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20\(Acts\)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf](https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20(Acts)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf)

¹⁰ [https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20\(Acts\)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf](https://bills.parliament.ug/attachments/Laws%20of%20Uganda%20(Acts)%20-%20THE%20EMPLOYMENT%20ACT,%202006.pdf)

		human trafficking, Strict measures are in place to prevent any involvement in human trafficking and to protect the rights and dignity of all employees.
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2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risks identified	This project is a voluntary action by the PP and no risk and issues to the internationally proclaimed human right are expected from the implementation of this project. The PP respects human right and are not complicit in violence or human rights abuses, and found no specific risks related to the rights of Indigenous Peoples (IPs), Local Communities (LCs), or customary rights holders. Preventative measures include adhering to international human rights standards and implementing general policies to protect all stakeholders.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
Not Applicable.	The project activity implemented brought positive impact on the people helping them to reduce the time spent for fuel collection and reduced the time spend for cooking. Consequently, it enables them to redirect their focus towards other economically viable activities.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
Not Applicable.	The project involves the distribution of Improved Cookstoves in Uganda. No property rights are violated due to this project activity. The project does not currently affect lands or properties belonging to Indigenous Peoples, Local Communities, or customary rights holders.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	The implemented project is the distribution of improved Cookstoves (ICS) among households and communities in Uganda with the objective to displace traditional, unimproved cookstoves and open fires for cooking. The PP ensures that the implemented project does not encroach on private, stakeholder, or government property or relocate people off their lands without prior consent and appropriate compensation. The project does not lead to forced physical or economic displacement. Thus, as per clause 3.19.22 of VCS Standard version 4.7, this is not applicable since this project does not impact property rights, usage or resources.
Benefit sharing during the monitoring period	Not applicable since this project does not impact property rights, usage or resources.

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	No adverse impacts on biodiversity and ecosystems were identified
Soil degradation and soil erosion	No risk identified	No adverse impacts on soil degradation and soil erosion were identified
Water consumption and stress	No risk identified	No adverse impacts were identified

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	Not Applicable, the project activity implemented by PersistentClimate seeks to increase access to households and communities to improved cookstoves by disseminating ICSs featuring high thermal efficiency and low greenhouse gas emissions. This effort leads to the reduction of firewood/charcoal consumption, thereby reduces the dependency on forests. Consequently, the implementation of this project activity has a positive impact on the conservation of rare, threatened and 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 risk identified	Not applicable. The project involves the distribution of Improved Cookstoves which are mainly manufactured/assembled locally in Uganda.
Areas for habitat connectivity	No risk identified	Not applicable. The project involves the distribution of Improved Cookstoves which are mainly manufactured/assembled locally in Uganda.

2.4.2 Introduction of species

Not Applicable, since this table is not required for projects with no planting or species introduction.

Species introduced	Classification	Justification for use	Adverse effects and mitigation
None	Not Applicable, since this table is not required for projects with no planting or species introduction	Not Applicable, since this table is not required for projects with no planting or species introduction	Not Applicable, since this table is not required for projects with no planting or species introduction

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
Not Applicable, since this table is not required for projects with no planting or species introduction	Not Applicable, since this table is not required for projects with no planting or species introduction

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risk identified	Not applicable, the project activity does not involve introduction of any invasive species

2.4.3 Ecosystem conversion

Not Applicable, as this is not an ARR, ALM, WRC or ACoGS project. The project activity implemented by PersistentClimate seeks to increase access to households and communities to improved

cookstoves by disseminating ICSs featuring high thermal efficiency and low greenhouse gas emissions, reduces the dependency on forests and ensures prevention of ecosystem conversion.

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	N/A

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

No events occurred during this monitoring period that impacted the GHG emission reductions or carbon dioxide removals and monitoring.

The grouped Project entitled “Reduced Emissions from Improved and Efficient Cooking in Ugandan Communities” aims to reduce greenhouse gas emissions by distributing fuel-efficient Improved Cook Stoves (ICS) in various regions of Uganda.

PersistentClimate is the project proponent (“PP”) for the Project. The ongoing initiative remains dedicated to enhancing and optimizing manufacturing procedures and maintaining high quality. As the project advances and utilizes carbon revenues, project partners will expand the manufacturing and distribution of all project technologies.

The following three models of stoves were disseminated under this group project activity targeted rural households using traditional, unimproved cook stoves and open fires for cooking:

1. Burn Kuniokoa Cookstove (Wood fired)
2. Burn Jikokoa (Charcoal Fired)
3. Masupa stoves (Charcoal Fired).

The ICS distributed under this grouped project were tested for efficiency in third party lab - (CREEC-Centre for research in energy and energy conservation, KIRDI Stove Testing Centre) in the beginning of the crediting period.

The Implemented project activity by PersistentClimate India Private Limited with local partners in Uganda, increase access for households and communities to improved cookstoves by disseminating Improved Cook Stoves featuring high thermal efficiency and low greenhouse gas emissions. These ICS are distributed across the households and communities in Uganda, replacing previously used traditional devices, typically featuring low fuel efficiency and high rates of emissions among not only greenhouse gas emissions but also particulate matter and other emissions detrimental to health and posing risks of fire. The implementation of this Project resulted in the reduction of firewood/wood fuel (charcoal) consumption & associated greenhouse gas emissions in a sustainable manner. Project objectives include reduction of greenhouse

gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking.

Under this grouped project, 58,793 is the total Number of Distributed ICS under this project instance. 13,027 Jikokoa, 549 Kuniokoa and 45,217 Masupa are the total Number of Distributed ICS under this project instance. Monitoring Survey results for this monitoring period reported 100% usage rate of the project ICS, however, as per Clarification 2 of VM0050 v1.0 Correction and Clarifications, the usage rate has been capped at 90%. It was further observed during the monitoring survey that some households had purchased multiple stoves. In all such cases, the Project Participant (PP) has conservatively applied a discount, ensuring that each household with more than one stove is counted as owning only one stove. This discount was applied across the entire population on conservative grounds. Accordingly, after applying the discount factor, a total of 44,114 Masupa, 12,709 Jikokoa, and 536 Kuniokoa stoves are considered operational during the current monitoring period.

The total GHG emission reductions or removals generated in this monitoring period:

The project results in a total emission reduction of 107,641 tCO₂e over the monitoring period of 01-January-2024 to 31- December-2024 (both days included).

3.2 Deviations

3.2.1 Methodology Deviations

During the current monitoring period (from 01 January 2024 to 31 December 2024, inclusive of both dates), there is no methodology deviations or changes have been applied. The project continues to apply VM0050 “Energy Efficiency and Fuel-Switch Measures in Cookstoves,” Version 1.0, as the applicable methodology. It is noted that the transition from VMR0006 “Energy Efficiency and Fuel Switch Measures in Thermal Applications,” Version 1.1 to VM0050 was completed during the previous monitoring period (MP02) as part of a re-quantification process, in accordance with the VCS Methodology Change and Requantification Procedure, Version 4.0. The deviation has been approved by VERRA, and registered project documents can be found on project webpage. For the current monitoring period, all project implementation, monitoring, data collection, and emission reduction calculations have been carried out in full accordance with the requirements of VM0050, v1.0, with no deviations from the applied methodology.

3.2.2 Project Description Deviations

N/A. This project did not apply any deviations related to Project Description.

3.3 Grouped Projects

The project is a grouped project. No new instance of the project activity added in the current verification.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

No, the project did not undergo baseline reassessment during the monitoring period.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{b,i,CO2} EF _{p,j,CO2}
Data unit	t CO ₂ /TJ
Description	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario CO ₂ emission factor for fuel used by project device type j in the project scenario
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories (Volume 2, table 2.5, 2006 IPCC Guidelines for National Greenhouse Gas Inventories)
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	3) Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories .
Purpose of data	Calculation of baseline and project emissions
Comments	N/A

Data / Parameter	EF _{b,i,nonCO2} EF _{p,j,nonCO2}
Data unit	t CO ₂ e/TJ

Description	Non-CO2 emission factor for fuel used by baseline device type i in the baseline scenario Non-CO2 emission factor for fuel used by project device type j in the project scenario
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories (Volume 2, table 2.5, 2006 IPCC Guidelines for National Greenhouse Gas Inventories)
Value applied	9.46 t CO2e/TJ (AR5 GWP)
Justification of choice of data or description of measurement methods and procedures applied	3) Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories Wood: 9.46 t CO2e/TJ (AR5 GWP)
Purpose of data	Calculation of baseline emissions
Comments	Where the factor CF is applied (see parameter table for CF), the emissions factor for charcoal production must be derived using Option 1 or 2.

Data / Parameter	CF
Data unit	unitless
Description	Wood-to-charcoal conversion factor
Source of data	CDM TOOL33 default value
Value applied	4 tonnes of dry wood input per tonne of charcoal output
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of data	Calculation of baseline emissions
Comments	Only applicable where charcoal is used as the fuel by baseline and/or project devices and the project proponent chooses to apply the CF method instead of the charcoal emission factors method included in the equations. Where the CF method is used, the wood-to-charcoal conversion factor must be applied (in Equations (1 and (7), as applicable) in the following manner: 1) For CO2 emissions, the conversion factor is multiplied by the EFCO2 term, which is the CO2 emission factor for wood. 2) For non-CO2 emissions, the EFnonCO2 term is the non-CO2 emission factor for charcoal combustion. Where applying CF, the

	non-CO2 emission factor for the production of charcoal may only be included where Option 1 or 2 (in parameter table for EFnonCO2) is used.
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Data / Parameter	NCV _{b,i} NCV _{p,j}
Data unit	TJ/tonne
Description	Net calorific value of baseline fuel used by baseline device type i Net calorific value of project fuel used by project device type j
Source of data	Option 3: Default value from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories (Volume 2, table 2.5, 2006 IPCC Guidelines for National Greenhouse Gas Inventories) (IPCC volume 2, chapter 1, table 1.2) ¹¹
Value applied	0.0156 TJ/tonne
Justification of choice of data or description of measurement methods and procedures applied	3) Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories The values for wood and charcoal in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories are: • Wood: 0.0156 TJ/tonne
Purpose of data	Calculation of baseline emissions
Comments	Where the factor CF is applied (see parameter table for CF), the net calorific value for charcoal must be derived using Option 1 or 2, consistent with the option for determining the non-CO2 emission factor for production of charcoal.

Data / Parameter	$\eta_{old,avg}$
Data unit	Fraction
Description	Weighted average efficiency of baseline devices that are replaced by project devices
Source of data	Methodology default value

¹¹ https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

Value applied	1) For three-stone fire using firewood or a cookstove with no improved combustion air supply or flue gas ventilation, default value of 15% 2) For other baseline devices: 25% (For Others types- CDM TOOL 33). Weighted average= 17.90%
Justification of choice of data or description of measurement methods and procedures applied	These methods and sources are recognized by the VCS Program
Purpose of data	Calculation of baseline emissions
Comments	N/A

Data / Parameter	Hhi
Data unit	Equivalent standard male adults
Description	Average household size of the target population using device type i
Source of data	Baseline survey
Value applied	4.54
Justification of choice of data or description of measurement methods and procedures applied	Recognized survey methods based on the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities
Purpose of data	Calculation of baseline emissions
Comments	N/A

Data / Parameter	BC _{ex-ante,b,i}
Data unit	tonnes
Description	Ex-ante annual average quantity of fuel used per baseline device type i
Source of data	Option 1: Baseline KPT
Value applied	4.31
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of data	Calculation of baseline emissions
Comments	Energy consumption must be determined once prior to validation.

4.2 Data and Parameters Monitored

Data / Parameter	Nj,k,y																
Data unit	Number																
Description	Number of commissioned project devices of type j from batch k in year y																
Source of data	Monitoring																
Description of measurement methods and procedures to be applied	The following data must be recorded during project activity implementation: 1) Number of new devices distributed under the project activity, identified by the type of device and date of commissioning; and 2) Identification information of the recipient of the device distributed under the project activity (e.g., name, address, phone number). Data management and reporting of this information must adhere to both data privacy requirements and good practice.																
Frequency of monitoring/recording	Every time that new project devices are distributed																
Value monitored	<table><tr><th>Number of Stoves Models</th><th>Unit</th><th>Count Before Discount (Refer the Installation Summary in ER Sheet)</th><th>Count after discount (Refer the C16, C 17 & C18 cells in tab “ER Calculation”)</th></tr><tr><td>Ny,1Masupa</td><td>Number</td><td>45,217</td><td>44,114</td></tr><tr><td>Ny,2 Burn Jikokoa</td><td>Number</td><td>13,027</td><td>12,709</td></tr><tr><td>Ny,3Kuniokoa</td><td>Number</td><td>549</td><td>536</td></tr></table>	Number of Stoves Models	Unit	Count Before Discount (Refer the Installation Summary in ER Sheet)	Count after discount (Refer the C16, C 17 & C18 cells in tab “ER Calculation”)	Ny,1Masupa	Number	45,217	44,114	Ny,2 Burn Jikokoa	Number	13,027	12,709	Ny,3Kuniokoa	Number	549	536
Number of Stoves Models	Unit	Count Before Discount (Refer the Installation Summary in ER Sheet)	Count after discount (Refer the C16, C 17 & C18 cells in tab “ER Calculation”)														
Ny,1Masupa	Number	45,217	44,114														
Ny,2 Burn Jikokoa	Number	13,027	12,709														
Ny,3Kuniokoa	Number	549	536														
Monitoring equipment	Number of new devices distributed under the project activity, identified by the type of device and date of sale and commissioning																
QA/QC procedures to be applied	N/A.																

Purpose of the data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	The number of units is determined at the time of verification for households with complete and unique registration records. Each record represents one ICS. It was observed during the survey that the persons bought the multiple stoves and then resold to others. In all such cases PP has conservatively applied the discount so that each household with more than one stove is count as 1 stove only. The multiple stoves were discounted for the entire population on conservative grounds. Sampling Frame: Project Database (or combined group projects database in case of Group level sampling) as defined by distribution date, appliance type, serial number, and end-user information. The number of stoves still operating will be determined based on representative sampling. The total number of operational stoves is 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.

Data / Parameter	$n_{j,k,y}$
Data unit	Fraction
Description	Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y
Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	Option 2 (surveys): Based on an adoption rate determined by a survey according to the most recent version of the CDM Standard for Sampling and Surveys for Project Activities and Programmes of Activities and achieving 90/10 confidence precision for the proportion of devices in operation. The lower end of the 90% confidence interval must be used to ensure conservativeness. The adoption survey must include: a) Kitchen observation (which includes visual and physical checks of the stove and its components), including photographic evidence; and b) Interview with the primary cook.

	Assuming Option 2: Surveys is used; the usage rate will be capped at 90%. This is as per Clarification 2 of VM0050 v1.0 Correction and Clarifications¹². Monitoring Survey results for this monitoring period reported 100% usage rate, however, as per Clarification 2 of VM0050 v1.0 Correction and Clarifications, the usage rate has been capped at 90%. For projects employing surveys, the usage rate is capped at 90% where all of the following customer support actions are undertaken across the entire target population and demonstrated at verification: 1) Selection of technologies and fuels that fully meet the cooking needs of the target population, demonstrated by citing robust research or conducting an investigation of cooking practices and attitudes 2) Implementation of support activities to assist the target population in effectively operating and maintaining their cookstoves. These may include providing materials (print, in-person, or video) on how to operate the cookstove to prepare common local foods, how to troubleshoot common operational issues, and how to make minor repairs (including obtaining necessary replacement parts). All such communications and materials must be provided in local language(s) commonly used in the project area. 3) Provision of a commonly used, toll-free communications channel through which the target population can contact the project proponent to access support (e.g., maintenance and repair services) For projects employing surveys and that do not implement all of these customer support actions across the entire target population, the usage rate is capped at 75%.								
Frequency of monitoring/recording	Option 2 (surveys): annually								
Value monitored	<table border="1"> <tr> <td></td><td>n,j,k,y</td></tr> <tr> <td>n,j,k,y_Masupa</td><td>0.9</td></tr> <tr> <td>n,j,k,y_Burn Jikokoa</td><td>0.9</td></tr> <tr> <td>n,j,k,y_Kuniokoa</td><td>0.9</td></tr> </table>		n,j,k,y	n,j,k,y_Masupa	0.9	n,j,k,y_Burn Jikokoa	0.9	n,j,k,y_Kuniokoa	0.9
	n,j,k,y								
n,j,k,y_Masupa	0.9								
n,j,k,y_Burn Jikokoa	0.9								
n,j,k,y_Kuniokoa	0.9								

¹² https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf

Option 2: Surveys is used, the usage rate will be capped at 90%. This is as per Clarification 2 of VM0050 v1.0 Correction and Clarifications. As per clarification 2 in CORRECTION AND CLARIFICATIONS TO VM0050 ENERGY EFFICIENCY AND FUELSWITCH MEASURES IN COOKSTOVES, V1.0" dated 03 February 2025, since the following customer support actions are undertaken across the entire target population and demonstrated at verification, the usage rate is capped at 90%:

1) Selection of technologies and fuels that fully meet the cooking needs of the target population, demonstrated by citing robust research or conducting an investigation of cooking practices and attitudes: As per THIRD NATIONAL DEVELOPMENT PLAN (NDPIII) 2020/21 – 2024/25, majority of the population uses biomass, namely 85% and 13% of the household population using firewood and Charcoal, respectively, as a fuel source. The PP distributed three efficient and improved cookstove models, Jikokoa, Masupa, and Kuniokoa, within the project boundary to replace the traditional 3-stone fires or traditional wood stoves used by these households. This ensures that the distributed technology and fuel type fully meet the cooking needs of the target population.

2) Implementation of support activities to assist the target population in effectively operating and maintaining their cookstoves. These may include providing materials (print, in-person, or video) on how to operate the cookstove to prepare common local foods, how to troubleshoot common operational issues, and how to make minor repairs (including obtaining necessary replacement parts). All such communications and materials must be provided in local language(s) commonly used in the project area. At the time of ICS project distribution, the households receive the ICS user manual with pictorial representations showing how to properly use and maintain the stove, including clear do's and don'ts. These instructions are provided in the local language, ensuring accessibility and understanding. Practical demonstrations are also conducted during distribution events to reinforce correct usage practices.

3) Provision of a commonly used, toll-free communications channel through which the target population can contact the project proponent to access support (e.g., maintenance and repair services): A dedicated helpline number is in place, enabling end-users to easily contact the project team for feedback, maintenance requests, or grievance redressal. This number is included on the carbon waiver agreement. Additionally, a grievance register is maintained at the distribution partners' offices, where end-users can record feedback/complaints/ support requests.

	Considering all these points, the project fully complies with all three conditions set out under Clarification Number 2 of VM0050 v1.0 Corrections and Clarifications, thereby justifying the capping of the usage rate at 90%.
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	The date on which a sample project device stopped being used should be taken as follows: Option 2 (surveys): Where the project device is not working or not being used at the time of conducting the survey, it should be conservatively assumed that the project device has not been active since the date on which the last adoption survey was conducted.
Purpose of the data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of non-renewable biomass saved by the project activity
Source of data	Calculated based on CDM TOOL30, v4.0 and applying an uncertainty discount of 26%
Description of measurement methods and procedures to be applied	CDM TOOL 30 $f_{NRB} = NRB / (NRB + RB) = 0.8824$ The f_{NRB} applied to emission reduction calculations is $0.8824 \times (1 - 0.26) = 0.65$.
Frequency of monitoring/recording	Ex-ante for each crediting period
Value monitored	0.65
Monitoring equipment	N/A
QA/QC procedures to be applied	Where using the UNFCCC f_{NRB} value(s), the project proponent must report the related uncertainties along with the value in the project description.
Purpose of the data	Calculation of baseline and project emissions

Calculation method	N/A
Comments	N/A

Data / Parameter	Date of commissioning of batch j
Data unit	Date
Description	To establish the date of commissioning, the Project Participant may opt 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	Project database
Description of measurement methods and procedures to be applied	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
Frequency of monitoring/recording	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
Value monitored	02/01/2021 (<i>The first cookstove distributed under batch 1</i>)
Monitoring equipment	Not applicable
QA/QC procedures to be applied	Not applicable
Purpose of the data	Calculation of emission reduction
Calculation method	Not applicable
Comments	-

Data / Parameter	BC _{b,i,y}
Data unit	tonnes
Description	Fuel used per baseline device type i during year y
Source of data	Option 1: A measurement campaign following the Kitchen Performance Test Protocol in control households that do not participate in the project, established prior to validation as statistically equivalent to the pre-project conditions of project households regarding baseline fuel consumption
Description of measurement methods	The quantity of fuel that would be used in the baseline scenario was determined through Option 1: Follow-up baseline surveys must be conducted at most every five years from the date of last survey in

and procedures to be applied	control households that do not participate in the project, established prior to validation as statistically equivalent to the pre project conditions of project households regarding baseline fuel consumption. Kitchen Performance Test (KPT) was conducted in line with the Standard for sampling and surveys, version 9 for CDM project activities and programme of activities or guidelines provided in methodology. Kitchen Performance Test was conducted across 40 sample households to record the daily fuelwood consumption in kg/household/day. The measurement campaign designed, carried out, and analyzed in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The result scaled appropriately using the average household size to obtain the value of BCB_{i,y}.
Frequency of monitoring/recording	Every five years
Value monitored	4.31
Monitoring equipment	Baseline Survey and Baseline Kitchen Performance Test
QA/QC procedures to be applied	The campaign must achieve confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. Where the project does not achieve the target precision in a monitoring period, the project proponent must apply an appropriate conservative deduction as per Section 4 of the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities.
Purpose of the data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	$\eta_{\text{new,avg,y}}$
Data unit	Fraction
Description	Weighted average efficiency of project devices in year y
Source of data	Manufacturer specification or Certification by a national standards body or an appropriate certifying agent recognized by that body
Description of measurement methods	As per VM0050 v 1.0, Efficiency is established using Manufacturer-certified value that is determined via Water Boiling Test; and

and procedures to be applied	A linear decrease approach, applying a default schedule of linearly decreasing efficiency up to the terminal efficiency (assumed to be 25%) through the lifespan of the project device has been applied to calculate the weighted average efficiency of the ICS.
Frequency of monitoring/recording	Annually
Value monitored	0.3403
Monitoring equipment	Not applicable
QA/QC procedures to be applied	N/A
Purpose of the data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	BCp,j,k,y
Data unit	tonnes or m3
Description	Average quantity of fuel used by project device type j from batch k during year y
Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	Option 1: Kitchen Performance Test (KPT) A measurement campaign following the Kitchen Performance Test protocol must be designed, carried out, and analyzed in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The campaign must achieve confidence and precision of at least 90/10 for the target parameter of average daily fuel consumption per adult equivalent. The result must be scaled appropriately using the average household size to obtain the value of BCp,j,k,y. Kitchen Performance Test (KPT) was conducted in line with the Standard for sampling and surveys, version 9 for CDM project activities and programme of activities or guidelines provided in methodology. Kitchen Performance Test was conducted across 40 sample households to record the daily fuelwood consumption in kg/household/day.

	Kitchen Performance Test was conducted across 40 sample households which were selected using method as outlined in the guideline – Sampling and surveys for CDM project activities and programmes of activities, v9.0 to record the daily fuelwood consumption in kg/household/day
Frequency of monitoring/recording	Biennial
Value monitored	1.89
Monitoring equipment	Project KPT
QA/QC procedures to be applied	As a crosscheck, compare results to government publications, peer reviewed literature, third party assessments, and/or official data or statistics.
Purpose of the data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	N/A

4.3 Monitoring Plan

Sample Plan:

The monitoring plan is designed to monitor the parameters listed in Section above, which are required for calculation of the actual GHG emission reduction achieved by the project activity using ex post sampling survey. The share of operating stoves and the continued use of pre-project devices was determined based on sampling procedures as outlined below. The PP is 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 wood usage is multiplied by 95% to account for leakage.

As per the Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, version 04, the sampling plan is the following:

(a) Sampling Design

Due to the large number of ICS envisioned to be distributed as part of the project activity, it is not economically feasible to monitor each individual ICS unit distributed. Therefore, a representative sampling survey was undertaken as part of a project instance-wide Sampling Plan (by grouping

and sampling across project activities) that is designed in line with the requirements of the “Sampling and surveys for CDM project activities and programme of activities”, version 04.

The sampling methodology is in accordance with the representative sampling methods provided by the sampling guidelines and standards as indicated in this section.

Sampling Methodology:

Sampling Objective – The sampling objective for each parameter is to determine, via sampling survey, a statistically significant parameter value for the emission reduction calculations.

(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 crediting period and with 90/10 confidence/precision (as per applied methodology VM0050: version 1.0):

Monitored Parameter:

Sl.no.	Monitoring Parameters	Parameter Type	Monitoring Frequency
1	N _{j,k,y} Number of commissioned project devices of type j from batch k in year y	Mean	Every time that new project devices are distributed
2	n _{j,k,y} Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)	Proportion	Annually
3	BC _{b,i,y} Fuel used per baseline device type i during year y	Mean	Every Five years
4	BC _{p,j,k,y} Average quantity of fuel used by project device type j from batch k during year y	Mean	Biennial

The fuel used per baseline device will be monitored every five years, based on the Baseline Kitchen Performance Test (KPT) protocol and VCS requirements. The quantity of fuel used by the project device is monitored biennially, based on Project KPT.

Target population and sampling frame

The target population is the total population served under this grouped project, and the sampling frame consists of aggregated data of end-users of the ICS as recorded in the project Database.

Sample method

Sampling was conducted using random sampling techniques over the sampling frame, and detailed calculations are provided below as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”. The ICS in the sampling frame shall be stratified as per parameters requirements. Stratified Random Sampling was used to select samples from the project database for monitoring parameters. Optionally, other sampling approaches may be used in accordance with applied methodology when sampling techniques or statistical analysis necessitates it. Stratified Random Sampling was used to select samples from the Project Database for monitoring parameters. The sample size shall be determined using the following formula:

Total sample size determination for proportion parameter

$$n \geq \frac{1.645^2 \times NV}{(N - 1) \times 0.1^2 + 1.645^2 \times V}$$

$$V = \frac{SD^2}{\bar{p}^2}$$

Where:

n	=	Sample size for households
N	=	Total number of households
V	=	Overall variance
1.645	=	Represents the 90% confidence required
0.1	=	Represents the 10% relative precision
SD	=	Standard deviation
$\bar{p}$	=	Overall proportion

Then, standard deviation is based on g_d and proportion p_d .

$$SD = \sqrt{\sum_d \frac{g_d \times p_d(1 - p_d)}{N}}$$

Where:

SD	=	Standard deviation
g_d	=	Number of households with cookstoves in district d
$p_d(1 - p_d)$	=	Variance of a proportion
N	=	Total number of households

The overall proportion is based on the number of households in a district and the proportion with cookstoves.

$$\bar{p} = \sum_d \frac{(g_d + p_d)}{N}$$

Where:

$\bar{p}$	=	Overall proportion
g_d	=	Number of households with cookstoves in district d
p_d	=	Proportion of households with cookstoves in district d
N	=	Total number of households

To decide on the number of households in the sample that comes from each district, proportional allocation can be used, where the proportion from different districts is the same as the proportion of that district in the population.

$$n_d = \frac{g_d}{N} \times n$$

Where:

n_d	=	Sample size for district d
g_d	=	Number of households with cookstoves in district d
N	=	Total number of households
n	=	Total sample size

Sample size determination for mean parameter

$$n \geq \frac{1.645^2 \times NV}{(N - 1) \times 0.1^2 + 1.645^2 \times V}$$

$$V = \left(\frac{SD_{overall}}{mean} \right)^2$$

Where:

$SD_{overall}$	=	Weighted overall standard deviation
$mean$	=	Weighted overall mean

The overall standard deviation is:

$$SD_{overall} = \sqrt{\frac{\sum_{d=1}^D g_d \times SD_d^2}{N}}$$

Where:

$SD_{overall}$	=	Weighted overall standard deviation
SD_d	=	Standard deviation for district d

g_d = Number of households with cookstoves in district d
 N = Total number of households

The overall mean is:

$$mean = \sum_{d=1}^D \frac{(g_d + m_d)}{N}$$

Where:

$mean$ = Weighted overall mean
 g_d = Number of households with cookstoves in district d
 m_d = Mean cookstoves in district d
 N = Total number of households

Sampling Frame

To ensure the homogeneity of the project instances included for a single sampling plan, two sampling frames was defined. The project is implemented in rural/urban areas; thus, geographical locations do not have influence on the parameter of interest. Therefore, all above mentioned parameters are assumed to be highly homogeneous for each ICS model regardless of how the end user group and distribution/installation location is defined.

Sampling frame for proportion of commissioned project devices of type j from batch k that are still being used regularly in year y ($n_{j,k,y}$)

There are two primary mechanisms for data collection: 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 ICS. 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.

As explained above (on section “Sampling Method”), to take the different characteristics of different project instances Implemented and ICS models into consideration, Project instances were grouped together to create a Primary Sampling Unit, which is homogenous.

The first step is to identify the Primary Sampling Units. Primary sampling units are project instances, which have the same ICS models.

That is project with the same ICS models and vintage were grouped together and formed a Primary Sampling Unit. In this case, project has three different ICS models being implemented – this will form three Primary Sampling Units. This is justified by the fact that projects might vary in

terms of performance and it is important for the PP to collect and monitor accurate data for each stove model.

Similarly, for fuel measurement campaigns, sample sizes may be alternatively determined as per the available KPT protocols.

The value of Parameter BC_{p,j,k,y}, will vary depending on the ICS model and vintage. Hence for this parameter, the Primary Sampling Unit were defined as the group of ICSs of the same model and vintage. Under this project three ICS Stove models, such as Jikokoa, Masupa, and Kuniokoa were distributed to households, during the current monitoring period. Therefore, fuelwood and charcoal consumed by each project stove model and baseline stove in household can be distinguished clearly.

Sampling Constants	Values
Monitoring period start	01-01-2024
Monitoring period end	31-12-2024
Level of Sampling	Across Group Project
Confidence (%) (90 or 95)	90%
Margin of Error (%)	10%
Z value	1.645

Monitoring parameter(s)		Number of commissioned project devices N _{j,k,y}			
Sampling frame(s)		Given stove model and vintage population			
Sampling approach		Stratified random sampling across stove model and vintage			
Sampling Population (i)	Model	Sampling frame size	Expected operational proportion (SoF)	Calculated Sample Size (n)	
Charcoal Stove	Burn Jikokoa	13027	0.95	7	
	Masupa	45217	0.95	24	
Wood Stove	Kuniokoa	549	0.95	1	
Sample size determination					
Estimated SOF (p)			0.95		
Estimated Standard Deviation of SOF (SD)			0.218		
V _{SOF} = (SD/p) ²			0.053		
Sample Size required (SOF)			30		
Monitoring results					
Sampling Population (Batch)	Model	Sampling frame size	Monitored Sample Size (n _{i,l,j,total})	Operational Sample (n _{i,l,j,operational})	Monitored Operating Fraction (n _{i,l,j,operational} /n _{i,l,j,total})
Charcoal Stove	Burn Jikokoa	13027	9	9	1.00
	Masupa	45217	28	28	1.00

Wood Stove	Kuniokoa	549	3	3	1.00
Reliability Check					
Samples Monitored			40		
SoF Measured			1.00		
Standard Error of SoF			0.0%		
Relative precision (Margin of error)			0.0%		
Result			Ok, reliability level met		
Lower Bound confidence value			Not applicable		

Monitoring parameter(s)		Proportion of commissioned project devices - n,j,k,y		
Sampling frame(s)		Given stove model population		
Sampling approach		Stratified random sampling across stove models		
Sampling Population (i)		Stove population	Expected value	Calculated Sample Size (n)
Charcol Stove	Burn Jikokoa	13027	0.98	3
	Masupa	45217	0.95	10
Wood Stove	Kuniokoa	549	0.95	1
Estimated results based sample size determination				
Estimated utilization (p)				0.96
$V_{Utilization} = p(1-p)/p^2$				0.05
Minimum Sample Size required				13
Monitoring results				
Sampling Population		Sampling frame size	Monitored Sample Size	Monitored Utilization
Charcol Stove	Burn Jikokoa	13027	9	1.00
	Masupa	45217	28	1.00
Wood Stove	Kuniokoa	549	3	1.00
Reliability Check				
Samples Monitored				40
Utilization Measured				1.00
Standard Error of Utilization				0.00%
Relative precision (Margin of error)				0.00%
Result				Ok, reliability level met
Lower Bound confidence value				Not applicable

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Baseline Emission

Baseline emissions as per the applied methodology “VM0050” are calculated as follows:

$$BE_y = \sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO2} \times f_{NRB,y} + EF_{b,i,nonCO2}) \quad (1)$$

Where,

BE_y	Baseline emissions during year y (t CO ₂ e)
$EC_{i,y}$	Average energy consumption of baseline device type i in year y (TJ)
$N_{j,k,y}$	Number of commissioned project devices of type j from batch k in year y
$n_{j,k,y}$	Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)
$EF_{b,i,CO2}$	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ /TJ)
$f_{NRB,y}$	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels (fraction)
$EF_{b,i,nonCO2}$	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ e/TJ)
i	Baseline device type and its respective fuel type
j	Project device type and its respective fuel type

The average energy consumption of baseline device type i is calculated as follows:

$$EC_{i,y} = BC_{b,i,y} \times NCV_{b,i} \quad (2)$$

Where,

BCb,i,y Fuel used per baseline device type i during year y (tonnes)¹³

NCVb,i Net calorific value of baseline fuel for baseline device type i (TJ/tonne)

Cross-check of ECI,y to address stove stacking as per section 8.1.1 of the VM0050 V1.0:
Baseline consumption from the back calculation is calculated as follows:

$$EC_{est,y} = EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}} \quad (3)$$

Where:

ECest,y Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)

ECp,y Energy used in project scenario by project devices during year y (TJ)

ηnew,avg,y Weighted average efficiency of project devices in year y (fraction)

ηold,avg Weighted average efficiency of baseline devices that are replaced by project devices (fraction)

Note: Where the results indicate that baseline consumption (ECi,y) is higher than that indicated by back-calculation from the project scenario (ECest,y) then the back-calculation results (ECest,y) will be applied in Equation (1) as a conservative cap.

ECp,y determined as follows:

$$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j} \quad (4)$$

Where:

BCp,j,k,y Average quantity of fuel used by project device type j from batch k during year y (tonnes or m3)

NCVp,j Net calorific value of project fuel used in project device type j (TJ/tonne or TJ/m3)

Determination of Baseline Emissions (BEy) is as follows:

Parameter	Value	Unit	Description	Source
BEy	239,135	t CO2e	Baseline emissions during year y	Calculated

¹³ This parameter corresponds to BCex-ante,b,i for the first two years and where the follow-up baseline survey campaign shows that there are no significant changes in baseline fuel consumption. Otherwise, it corresponds to BCb,i,y

EF _{b,i,CO2}	112	t CO ₂ /TJ	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario	Meth Default
f _{NRB,y}	0.65	fraction	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels	CDM TOOL 30, V4.0
EF _{b,i,nonCO2}	9.46	t CO ₂ e/TJ	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario	Meth Default
N _{y,1Masupa}	44,114	Number	Number of commissioned project devices of type j from batch k in year y	Database, Monitoring survey
N _{y,2 Burn Jikokoa}	12,709	Number	Number of commissioned project devices of type j from batch k in year y	Database, Monitoring survey
N _{y,3Kuniokoa}	536	Number	Number of commissioned project devices of type j from batch k in year y	Database, Monitoring survey
N _{y,Total ICS}	57,359	Number	Number of commissioned project devices of type j from batch k in year y	Database, Monitoring survey
n _{j,k,y}	0.90	Proportion	Proportion of commissioned project devices of type j from batch k that remain operating in year y	Monitoring Survey
EC _{i,y}	0.056	TJ	Average energy consumption of baseline device type i in year y	Calculated
Stove _{year} (Weighted Average)	1.00	year		Calculated

5.2 Project Emissions

Project Emission

Project emissions are calculated as per the applied methodology “VM0050” as follows:

$$PE_y = PE_{energy,y} + PE_{others,y} \quad (6)$$

Where,

PE _y	Project emissions during year y (t CO ₂ e)
PE _{energy,y}	Project emissions from energy consumption of project devices in year y (t CO ₂ e)
PE _{others,y}	Project emissions from other sources in year y (t CO ₂ e)

PE_{energy,y} from Biomass, Fossil Fuels, or Bioethanol

$$PE_{energy,y} = \sum_j \sum_k BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO2} \times f_{NRB,y} + EF_{p,j,nonCO2}) \quad (7)$$

Where,

EF_{p,j,CO2} CO2 emission factor for fuel used by project device type j in the project scenario (t CO2/TJ)

EF_{p,j,nonCO2} Non-CO2 emission factor for fuel used by project device type j (t CO2e/TJ)

Given that the grouped project involves the distribution of biomass-based improved cookstoves exclusively to the target end-users, equations (8), (9), and (10) of the applied methodology are not applicable. The beneficiaries procure the biomass fuelwood either from nearby fields or the market. Therefore, equation (9) is not applicable. Therefore, PE_{others} is equal to zero.

Determination of Project emission (PE energy y) as per equation (7) of VM0050 V1.0 is as follows:

Parameter	Value	Unit	Description	Source
BC _{p,j,k,y}	1.89	tonnes/hh/y	Average quantity of fuel used by project device type j from batch k during year y	Project KPT
EF _{p,j,CO2}	112	t CO2/TJ	CO2 emission factor for fuel used by project device type j in the project scenario	Meth Default
EF _{p,j,nonCO2}	9.46	t CO2e/TJ	Non-CO2 emission factor for fuel used by project device type j	Meth Default
PE _{energy,y}	125,829	tCO2e	Project emissions from energy consumption of project devices in year y	Calculated
PE _y	125,829	tCO2e	Project emissions	Calculated

5.3 Leakage Emissions

Leakage Emission

An adjustment factor of 0.95 is applied to the GHG emission reductions in Equation (11) (i.e., 0.95 × (BE_y – PE_y)).

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Baseline Emission

Baseline emissions are calculated as follows:

$$BE_y = \sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO2} \times f_{NRB,y} + EF_{b,i,nonCO2}) \quad (1)$$

Where,

BE _y	Baseline emissions during year y (t CO ₂ e)
EC _{i,y}	Average energy consumption of baseline device type i in year y (TJ)
N _{j,k,y}	Number of commissioned project devices of type j from batch k in year y
n _{j,k,y}	Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)
EF _{b,i,CO2}	CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ /TJ)
f _{NRB,y}	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels (fraction)
EF _{b,i,nonCO2}	Non-CO ₂ emission factor for fuel used by baseline device type i in the baseline scenario (t CO ₂ e/TJ)
i	Baseline device type and its respective fuel type
j	Project device type and its respective fuel type

The average energy consumption of baseline device type i is calculated as follows:

$$EC_{i,y} = BC_{b,i,y} \times NCV_{b,i} \quad (2)$$

Where,

BC _{b,i,y}	Fuel used per baseline device type i during year y (tonnes) ¹⁴
NCV _{b,i}	Net calorific value of baseline fuel for baseline device type i (TJ/tonne)

Cross-check of EC_{i,y} to address stove stacking as per section 8.1.1 of the VM0050 V1.0:
Baseline consumption from the back calculation is calculated as follows:

$$EC_{est,y} = EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}} \quad (3)$$

¹⁴ This parameter corresponds to BC_{ex-ante,b,i} for the first two years and where the follow-up baseline survey campaign shows that there are no significant changes in baseline fuel consumption. Otherwise, it corresponds to BC_{b,i,y}

Where:

$EC_{est,y}$	Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)
$EC_{p,y}$	Energy used in project scenario by project devices during year y (TJ)
$\eta_{new,avg,y}$	Weighted average efficiency of project devices in year y (fraction)
$\eta_{old,avg}$	Weighted average efficiency of baseline devices that are replaced by project devices (fraction)

Note: Where the results indicate that baseline consumption ($EC_{i,y}$) is higher than that indicated by back-calculation from the project scenario ($EC_{est,y}$) then the back-calculation results ($EC_{est,y}$) will be applied in Equation (1) as a conservative cap.

$EC_{p,y}$ determined as follows:

$$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j} \quad (4)$$

Where:

$BC_{p,j,k,y}$	Average quantity of fuel used by project device type j from batch k during year y (tonnes or m3)
$NCV_{p,j}$	Net calorific value of project fuel used in project device type j (TJ/tonne or TJ/m3)

Project Emission

Project emissions are calculated as follows:

$$PE_y = PE_{energy,y} + PE_{others,y} \quad (6)$$

Where,

PE_y	Project emissions during year y (t CO2e)
$PE_{energy,y}$	Project emissions from energy consumption of project devices in year y (t CO2e)
$PE_{others,y}$	Project emissions from other sources in year y (t CO2e)

$PE_{energy,y}$ from Biomass, Fossil Fuels, or Bioethanol

$$PE_{energy,y} = \sum_j \sum_k BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO2} \times f_{NRB,y} + EF_{p,j,nonCO2}) \quad (7)$$

Where,

EF_{p,j,CO2} CO2 emission factor for fuel used by project device type j in the project scenario (t CO2/TJ)

EF_{p,j,nonCO2} Non-CO2 emission factor for fuel used by project device type j (t CO2e/TJ)

Leakage Emission

An adjustment factor of 0.95 is applied to the GHG emission reductions in Equation (11) (i.e., 0.95 × (BE_y – PE_y)).

Net GHG emission reductions are calculated as follows:

$$ER_y = (BE_y - PE_y) \times 0.95 - LE_{RB,y} \quad (11)$$

ER_y Emission reductions during year y (t CO2e)

LE_{RB,y} Leakage emissions associated with use of renewable biomass during year y (t CO2e)

Vintage period	Baseline emissions (tCO _{2e})	Project emissions (tCO _{2e})	Leakage emissions (tCO _{2e})	Reduction VCU (tCO _{2e})	Removal VCU (tCO _{2e})	Total VCUs (tCO _{2e})
2024 (01-January-2024 to 31-December-2024)	239,135	125,829	0	107,641	-	107,641
Total	239,135	125,829	0	107,641	-	107,641

For projects required to assess permanence risk:

i) Provide the requested information using the table below:

Not applicable since this grouped project is not an AFOLU project.

State the non-permanence risk rating (%)	Not applicable
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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).		
Has the LTA been updated based on monitored data, if applicable?	☐ Yes	☐ No
State, in tCO ₂ e, the expected total GHG benefit to date.	If no, provide justification.	
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:		

ii) Complete the table below for the project crediting period. Note that the buffer pool allocation is split proportionally between the reductions and removals. (For example, if a project achieves 20,000 tCO₂e removals and 80,000 tCO₂e reductions and has a buffer contribution of 20%, or 20,000, the removal VCU's would be 16,000 and reduction VCU's would be 64,000).

Not Applicable since this grouped project is not an AFOLU project

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
2024 (01-January-2024 to 31-December-2024)	159,291	107,641	32%	Due to difference in the number of stoves distributed during the monitoring period.
Total	159,291	107,641	32%	Due to difference in the number of stoves distributed during the monitoring period.

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

No commercially sensitive information has been included in the monitoring report to be excluded in the public version.