



**Verified Carbon
Standard**

DELAGUA CLEAN COOKING GROUPED PROJECT IN THE GAMBIA



Document Prepared by DelAgua

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1 PROJECT DETAILS

1.1 Summary Description of the Project

A summary description of the technologies/measures to be implemented by the project

The Grouped Project activity “DelAgua Clean Cooking Grouped Project in The Gambia”, with VCS ID 4000, aims at distribution of Improved Cooking Stoves (ICS) in the Least Developed Country The Gambia¹. The project activity (interchangeably called “program” or GP for Grouped Project) is yet to be implemented and is currently under the development stage.

The project proponent “DelAgua Health Rwanda (Voluntary) Limited” (DelAgua) is planning to distribute 150,000 ICS in its first instance, and these are expected to be distributed to a total of 1,000,000 ICS throughout the program’s lifetime. The ICS will be high efficiency cooking devices, leading to a reduction in the indoor smoke levels, time spent on collection of firewood used for cooking a specified quantity of meal, and reduction in the usage of firewood compared with the pre-project scenario.

The location of the project

The project activity will be implemented in the host country of The Gambia. The Project Activity Instances (PAIs) will occur in geographically defined regions within The Gambia. Further details on the program locations may be accessed through Section 1.12 of this document.

An explanation of how the project is expected to generate GHG emission reductions or removals

The program is reducing the usage of firewood as fuel used for cooking at household level, thereby reducing the GHG emissions arising out of the burning of fossil fuels. This reduction in the firewood usage at the household level will be achieved by the usage of project ICS for cooking, as it has a higher thermal efficiency, therefore, consuming lesser amount of fuel and time in cooking a specific amount of meal.

A brief description of the scenario existing prior to the implementation of the project

The scenario existing prior to the implementation of the project activity is usage of traditional cooking devices (3 stone fire), which have very low thermal efficiency value. Because of the low thermal efficiency, the cooking devices used prior to the project implementation consume huge amount of firewood. Due to the continuous collection of firewood from an

¹ <https://unctad.org/topic/least-developed-countries/list>

area, the quantity of firewood that may be used as cooking fuel reduces. This reduction in firewood leads to deforestation, where the time taken to collect woody biomass increases.

The average annual and total GHG emission reduction expected from the grouped project is expected to be 5,297,382 and 37,081,675 tCO_{2e}, respectively, over the first 7-year crediting period.

1.2 Sectoral Scope and Project Type

The sectoral scope and project type is provided as below:

Sectoral Scope 03 – Energy demand

Type II – Energy efficiency improvement projects

Activity category – non AFOLU

The project activity is designed as a Grouped Project Activity and includes several Project Activity Instances (PAIs) of the same activity type into one Project Description. New instances shall be introduced to the grouped project activity at any monitoring period, with a PAI defined as:

“Distribution of efficient cookstoves to a local community within a specific geographic and climatic region in the project boundary.”

1.3 Project Eligibility

The Grouped Project Activity falls within the scope of the VCS Program. Also, none of the two activities within the GP are listed in the category of excluded projects in Table 1 of the VCS Standard ver. 4.3, and therefore, it is eligible under the scope of the VCS Program.

Table 1: VCS Program scope

Scope	Applicability
The six Kyoto Protocol greenhouse gases.	The program reduces GHG emissions associated with the combustion of cooking fuels. Gases included are CO ₂ , CH ₄ , N ₂ O.
Ozone-depleting substances (ODS).	The program does not involve any ODS.
Project activities supported by a methodology approved under the VCS	The ICS distributed (& to be distributed) in the program uses the methodology

Program through the methodology approval process.	“VMR0006 “ <i>Methodology for Installation of High Efficiency Firewood Cookstoves</i> ”, version 1.1.” which is a VCS approved methodology.
Project activities supported by a methodology approved under a VCS approved GHG program, unless explicitly excluded under the terms of Verra approval.	Not applicable.

Table 2: Excluded project activities under the VCS Program

Excluded Activity	Applicability
Activities that reduce hydrofluorocarbon-23 (HFC-23) emissions	N/A. The program will reduce GHG emissions associated with the combustion of cooking fuels.
Grid-connected electricity generation using hydro-power plants/units	N/A The program activities will be energy efficiency measures and will not generate electricity from hydro-power plants/units.
Grid-connected electricity generation using wind, geothermal, or solar power plants/units	N/A. The program activities will be energy efficiency measures and will not generate electricity from wind, geothermal, or solar power plants/units.
Utilization of recovered waste heat for, <i>inter alia</i> combined cycle electricity generation and the provision of heat for residential, commercial, or industrial use	N/A. The program will involve energy efficiency measures and will not utilize recovered waste heat for any purposes.
Generation of electricity and/or thermal energy using biomass. This does not include	N/A.

efficiency improvements in thermal applications (e.g., cookstoves)	The program activities will surround energy efficiency measures and will not generate electricity using biomass. The GP includes energy efficiency improvements in thermal applications, i.e. cookstoves.
Generation of electricity and/or thermal energy using fossil fuels, including activities that involve switching from a higher carbon content fuel to a lower carbon content fuel	N/A. The program activities will not include the generation of electricity and/or thermal energy using fossil fuels, including activities that involve switching from a higher carbon content fuel to a lower carbon content fuel.
Replacement of electric lighting with more energy efficient electric lighting such as the replacement of incandescent electrical bulbs with CFLs or LEDs	N/A. The program activities will not include the replacement of electric lighting.
Installation and/or replacement of electricity transmission lines and/or energy efficient transformers	N/A. The program activities will not include the installation and/or replacement of electricity transmission lines and/or energy efficient transformers.

1.4 Project Design

- ☐ The project includes a single location or installation only
- ☐ The project includes multiple locations or project activity instances, but is not being developed as a grouped project
- ☒ The project is a grouped project

Eligibility Criteria

Table 3: VCS Standard Eligibility Criteria

S No	Criterion	How the new project activity instances comply	Evidence
1	Project Activity Instances (PAIs) must meet the applicability conditions set out in the applied methodology.	<i>Please refer the subsections below.</i>	<i>Please refer the subsections below.</i>
1a	Project activities shall be implemented in domestic premises or in community-based kitchens.	Each PAI will distribute technology that is appropriate for domestic use to household end-users	a) Manufacturer's specifications. b) Project ICS distribution database containing unique household end user information.
1b	The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot; in case of project stove replacing fossil fuel baseline stove, it shall exclusively use renewable biomass.	ICS distributed in each PAI will have a thermal efficiency of at least 25%, and will be confirmed by the end user that they were using the firewood as the cooking fuel in the project's baseline. Each PAI will record the baseline and project fuel use to ensure that wood fuel is the sole source of energy.	1. Manufacturer's specifications. 2. Information recorded in the household visit survey will establish that the end user was exclusively using woody biomass as fuel for cooking purposes.
1c	Both 'Projects' and 'Large Projects' can use the methodology	PAIs will comply with the GP requirements	The GP is defined as a "Large Project" according to the guidelines set out in the VMR0006 methodology and can therefore apply the methodology.

1d	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	Each PAI will demonstrate that Non-renewable biomass has been used in the project region since 31 December 1989.	Publicly available reports ^{2,3} are being used to confirm the biomass usage in the host country since 1989.
1e	For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips), it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting) may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	Biomass residues are not processed as a fuel to be used in the GP. End users will be asked to state their source of energy and baseline appliance at the point of distribution and during the project monitoring. Above information will be stored in the monitoring database.	1. Monitoring surveys. 2. Project ICS distribution poster specific to the end-users (sample photographs)

² <https://docs.wfp.org/api/documents/WFP-0000019952/download/>

³ Page-17, Section III: Biomass & Household Energy
<https://documents1.worldbank.org/curated/en/156331468770400328/pdf/multi-page.pdf>

1f	The Project Design Document shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo)	To avoid double counting of emission reductions through the method of distribution, each cookstove has a unique identifier number and the distribution of each stove is logged onto a database which includes unique information for each recipient Each PAI will have system for avoiding double counting with data being collected via a smartphone app (where possible), or via paper forms, including: 1. Date of distribution 2. A unique serial number⁴ on each technology 3. Available end-user data: name, phone number, address/physical location, ID number	1. Project (GP) Distribution database can be checked to verify the distribution approach, alongwith the distribution system (includes both plan and execution steps) established by the PP. 2. The VCS GP ICS units will have unique engravings or text specifically mentioning the unit is strictly “not for sale” alongwith the DelAgua logo.
1g	The Project Design Document shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission	The End User Agreement confirms that the ownership rights of the ER/VCUs generated by the PAI reside with the PP. The signature of each end user confirming their understanding of this agreement will be collected at the point of distribution.	a) End users will be asked to sign the End User Agreement and this information will be stored in the monitoring database. b) Each PAI will include a

⁴ There are no similar programs running in the host country *The Gambia* where the same ICS models are distributed by another entity under different program(s). If this is found during the project ICS monitoring or verification, it shall be ensured that double counting is avoided by using distinct nomenclature for the unique ID code of the ICS compared with the different programs, and also making sure that it has a distinct color, label, or marking.

	reductions from the project devices.	The End User Agreement will be in English and translated into a local language where required. If necessary, it will be read out to the End User. All rights to distribute the delivered stoves and claim the resultant GHG emissions reductions belong to the PP. The GP will not include any PAI that has been rejected by another GP, or PA-DDs of any other GHG programs.	statement on the uniqueness of the Project and by listing other similar activities (from other GHG programme registries) that are taking place within the project boundary to demonstrate its uniqueness.
2	Use the technologies or measures specified in the project description.	Only ICS that conform with the GP description are to be distributed in the project. The ICS will be chosen to deliver a level of service at least equivalent to the baseline appliance.	Manufacturer's specifications.
3	Apply the technologies or measures in the same manner as specified in the project description.	The ICS distributed in the PAIs will adhere to the GP description and replace biomass burned in the baseline scenario.	Manufacturer's specifications.
4	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	All new PAIs will be implemented only in regions within the geographic borders of <i>The Gambia</i> subject to the same baseline scenario determined in Section 3.4 in this Project Description. The geographical location of the project ICS can be traced through the information provided in the distribution database, which includes the	ICS Distribution database

		latitude and longitude data of the ICS distributed.	
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All PAIs will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus There is no government mandated programme or policy in host country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with the positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Where the project activity installs or distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits, the project activity shall be deemed additional.	a) An analysis of <i>The Gambia</i> government programmes or policy for cookstoves will be conducted while describing the PAI specific eligibility conditions in the Monitoring Report. See Section 3.5 of this document. b) The End User Agreement will confirm that the PAI “installs or distributes stoves at discounted cost to the end-user and has no other source of revenue other than the sale of GHG credits.
6	Where a capacity limit applies to a project activity included in the project, no PAI shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows:	The GP does not have any specified capacity limits applicable, since there are no capacity limits defined within the applied methodology, VMR0006, ver. 1.1. Therefore, this eligibility criteria is not applicable.	N/A

	Each device that exceeds one percent of the capacity limit shall be identified. Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.		
Eligibility conditions specific to inclusion of New PAIs			
7	The new PAI must occur within one of the designated geographic areas specified in the project description	The distribution of the ICS will be within the jurisdictions of <i>The Gambia</i> , and therefore, the project activity will only distribute to the beneficiaries that are in agreement with the requirements of the program.	1. Sample list of the beneficiaries that are to be provided the project ICS will be shared.
8	The new PAI must comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial	The eligibility criteria set must be complied by the PAIs at all points in time throughout the crediting period. If at any point, it is found that the PAI is not	The MR will act as the documentary compliance summary. However, for each specific eligibility criteria

	compliance with multiple sets of eligibility criteria is insufficient.	complying with the set of eligibility criteria, then it may be excluded from the crediting for the duration of the monitoring period, until it is able to demonstrate the compliance of the eligibility criteria.	(as laid down above), the supporting evidence will be provided by the PP.
9	The new PAI must be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.	The PAIs will include all the technical, financial, geographic and other relevant information related to the compliance of the applicable set of eligibility criteria & also enable sampling by the VVB.	The MR for the specific monitoring period will act as the supporting evidence for the stated condition/requirement.
10	The new PAI must be validated at the time of verification against the applicable set of eligibility criteria.	The PAI(s) shall be part of the monitoring, and therefore, will be validated against the criteria specified, by an VCS accredited/approved VVB.	The Verification Report based on the VCS template, shall be issued by the approved VVB. This will act as the supporting evidence against this requirement.
11	The new PAI must have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	The PAI related evidence on the project ownership will be in the form of a distribution end user receipt poster. This will be signed by the end user, and a photograph of him/her holding the poster along with the ICS will be saved in the PAI database.	1. A photograph of the PAI distribution first end user holding the poster along with the ICS. 2. A scan of the poster, which will show the first distribution date. 3. The distribution database of the GP will provide the start date in

			the form of the first sales made by the PAI.
12	The new PAI must have a start date that is the same as or later than the grouped project start date.	The GP is under planning stage right now, and therefore, the PAIs will have a start date later than the GP start date.	This can be verified through the GP distribution database, wherein each PAI can be verified for its start date.
13	The new PAI must be eligible for crediting from the start date of the instance through to the end of the project crediting period (only). Note that where a new project activity instance starts in a previous verification period, no credit may be sought for GHG emission reductions or removals generated during a previous verification period (as set out in Section 3.4.4 of the VCS Standard, ver. 4.3 ⁵) and new instances are eligible for crediting from the start of the next verification period.	The PAI will be only eligible for the crediting from its start date through to the end of the project crediting period (only).	1. The start date of the PAI can be checked through the distribution database. 2. The end date of the GP crediting shall be referenced from the VCS Project Registry webpage. 3. The overlap of monitoring periods may be checked through the previous monitoring reports (available publicly on VCS project registry webpage for those periods).

1.5 Project Proponent

Organization name	DelAgua Health Rwanda (Voluntary) Limited
Contact person	Ajay Dixit

⁵ The monitoring period of the monitoring report shall be a distinct time period that does not overlap with previous monitoring periods. Projects shall not be eligible for crediting of GHG emission reductions generated in previous monitoring periods. In addition, monitoring periods shall be contiguous with no time gaps between monitoring periods.

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1.6 Other Entities Involved in the Project

Organization name	N/A
Role in the project	-
Contact person	-
Title	-
Address	-
Telephone	-
Email	-

1.7 Ownership

DelAgua Health Rwanda (Voluntary) Limited is the owner of the VCS grouped project activity.

1.8 Project Start Date

The project start date for VCS 4000 is the date from which the distribution of first ICS unit will take place. This is tentatively expected to be around 01/01/2023. So, the start date of the project activity will be the actual date from which the distribution activities will start taking place, which may be 01/01/2023 or later.

1.9 Project Crediting Period

The current estimate for the project crediting period is 01/01/2023 – 31/12/2029, which will be 7 years, and twice renewable, as per the VCS requirements. However, the actual crediting period will depend on the project start date (crediting period start date).

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the project are:

- ☐ <20,000 tCO₂e/year
- ☐ 20,000 – 100,000 tCO₂e/year
- ☐ 100,001 – 1,000,000 tCO₂e/year
- ☒ >1,000,000 tCO₂e/year

Project Scale	
Project	
Large project	☒

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
2023	2,018,482
2024	6,498,253
2025	6,206,060
2026	5,980,675
2027	5,697,747
2028	5,477,057
2029	5,203,401
Total estimated ERs	37,081,675
Total number of crediting years	7
Average annual ERs	5,297,382

1.11 Description of the Project Activity

The project involves distribution of high thermal efficiency fuel-efficient improved cookstoves (ICS) to replace the baseline cookstoves at household level in *The Gambia*.

The ICS units planned to be deployed under this project are Burn Kuniokoa Rocket Stove & the SSM S32-X Rocket stove, which will reduce the fuel consumption to a great extent and consequently reduce the GHG emissions from cooking activities. The project ICS will improve the efficiency of combustion and thermal transfer to the pot compared with a traditional pot support or three-stone fire. The reduction in the consumption of firewood from the usage of project ICS will result in the GHG emissions avoided compared with the pre-project scenario. This will be documented, monitored on periodic basis, and calculated for GHG emission reductions by applying a valid version of applicable methodology. The information on the methodology applied, and its applicable eligibility criteria are provided in Sections 3.1 & 3.2 of this PD respectively.

A representative model of the ICS technology that is planned to be distributed is provided below. The program will assure that the ICS technology being distributed to households shall have minimum performance level, design specifications, and lifetime equivalent to the model represented below.

ICS technologies planned under the GP for distribution:

1. Name of the stove model – Kuniokoa Generation 3 with Pot Skirt

Stove manufacturer – Burn

Stove Type – Natural Draft

Stove Body – Stainless Steel

Stove height – 32.1 cm

Stove diameter – 28.2 cm

Thermal efficiency – 51.3%

High Power Output – 2.9 KW

Stove lifetime – 10 years

Figure 1: Kuniokoa Stove Model reference picture



2. Name of the stove model – S32-X with Pot Skirt

Stove manufacturer – SSM

Stove Type – Natural Draft

Stove Body – Stainless Steel

Stove height – 27 cm

Stove diameter – 32 cm

Thermal efficiency – 50.1%

Stove lifetime – 10 years



Figure 2: S32-X Stove Model reference picture

With pot skirt, the level of retention of heat surrounding the pot will be higher, giving the ICS a higher thermal efficiency than using it without the pot skirt. Since the project ICS will be

distributed with the pot skirt, the stove units will have increased efficiency, thus reducing the firewood consumption to more than 50% than pre-project levels.

The project technology (ICS distributed under the GP) will achieve the equivalent or higher levels of performance by consuming firewood at a much lower rate than the existing cooking technologies in use, which include the 3 stone fire, rondereza, and conventional stoves without any air vent, draft or chimney. The level of performance will be ensured by educating the local population on the best usage practices for cooking daily meals. All this improved cooking will be taking place at a significantly lower smoke levels, and encouragement to the people on adopting the outdoor cooking option. This will lead to improved health of the people, in terms of their respiratory health and the health of their eyes.

Data collection of ICS end-user

PP will collect the necessary information to uniquely identify households and end users, thus creating a database of users (households) registered to be using project ICS within the GP crediting period. To allow a unique registration, each ICS will be assigned a unique serial number, which can be tracked through the barcode on the ICS package box, and QR code on the stove body. This QR code label of unique serial number shall be mapped with the id of the household to which it is distributed. The distribution database will be maintained on a continuous basis, and shall be revised for any updates. The unique ICS serial number will be recorded during the registration process together with the following information (wherever appropriate and available):

- Name of ICS user or head of the household
- Address / GPS of ICS household
- Phone number of ICS user or household, where available.
- Improved Cooking Stove model
- Date of distribution/installation
- ICS serial number

The distribution database will be maintained electronically, and will be utilised towards monitoring.

1.12 Project Location

For each PAI, the project boundary will be the geographic borders of The Gambia. The project boundary for each Project Activity Instance is the physical, geographical location of the ICS distributed within the geographical boundaries of The Gambia.

Also, each individual distribution under the project technology will record the geographical coordinates (i.e. lat/long data), which can be verified from the recorded data (monitoring surveys).

The KML file will indicate the geographical boundaries of the host country The Gambia.

1.13 Conditions Prior to Project Initiation

The baseline scenario for VCS 4000 is the same as the conditions existing prior to the Grouped Project implementation. Within the baseline scenario, majority of households use firewood⁶ as the cooking fuel, and traditional/conventional cooking technologies to meet their cooking needs. The traditional cooking technologies mainly include the 3 stone fire, rondereza, and the cooking structures made without chimney, grate or flue gas ventilation.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The Gambia government or laws do not have any regulations on the distribution of improved cookstoves to households within The Gambia.

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

The grouped project activity is not registered under any other GHG Programs.

1.15.2 Projects Rejected by Other GHG Programs

The grouped project activity has not been rejected by any other GHG Programs.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes

☒ No

1.16.2 Other Forms of Environmental Credit

⁶ Table 2.4: <https://dhsprogram.com/pubs/pdf/FR365/FR365.pdf>

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?

☐ Yes

☒ No

1.17 Sustainable Development Contributions

1.17.1 Sustainable Development Contributions Activity Description

Following sustainable contributions are expected to be associated with the distribution of ICS in *The Gambia*:

- The proposed project activity will reduce the indoor air pollution levels to a significant level, thereby reducing the risks people face with the 3 stone fires or the traditional cooking devices. The number of deaths among children per year accounted to the indoor household air pollution⁷ is high in *The Gambia*, and lack of quality health interventions at local level increase the risk further. The lower respiratory disease risk and improved indoor air quality will reduce the mortality rates caused due to it.
- Women in *The Gambia* spend a significant amount of time every day to collect firewood. While using ICS, the less amount of fuel used for cooking means that they must spend less time in the field collecting wood. This time saved by the women can now be used towards better management of household, or can be used towards any livelihood or income generating activity, e.g. farming, poultry, animal products, etc.
- The proposed project activity aims to distribute ICS to the *The Gambia* households at a discounted cost, and this will reduce their reliance on the firewood fuel usage. The project ICS models claim to reduce fuel usage by more than 50% than their baseline consumption. This will save a significant amount of firewood fuel usage per household on daily basis. The modern, improved cooking device will reduce the firewood usage of beneficiary households, which consequently will allow them to lead a healthy and less worried life.
- The proposed VCS project activity will be providing indirect employment to the distribution team and provides them with the per diem for their services. These contractual workers will support the distribution, and will act as the point of program's connectivity with the households. The project activity has a permanent staff working from the office in the capital city of Freetown, and the management has an office in Kigali (Rwanda), and the contractual staff as well as permanent staff will be increased, based on the program's success. The workforce will be trained from

⁷ Table 2.4: <https://dhsprogram.com/pubs/pdf/FR365/FR365.pdf>

time to time, in order to meet the requirements of the monitoring data recorded at the time of project ICS distribution.

- The GHG emissions caused by the burning of firewood will get reduced by the usage of project ICS. The reduction in the firewood consumption compared with the baseline levels provide the amount of GHGs avoided, by application of VCS methodology VMR0006, ver. 1.1.
- The Grouped Project will monitor the SDG impacts, and will register for SD VISta, so that the VCUs generated from the activity can be labelled with their monitored SDG impacts.

1.17.2 Sustainable Development Contributions Activity Monitoring

The SDG indicators for the GP will be provided at the time of Validation and Verification. The table containing the SDG indicators as well as the estimated impacts, alongwith the monitoring plan shall be provided in the final PD&MR submitted against the request for registration and monitoring of VCUs.

Table 1: Sustainable Development Contributions⁸

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
<i>Sequential row number</i>	<i>SDG Target number</i>	<i>Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator</i>	<i>Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)</i>	<i>Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.</i>	<i>Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.</i>
1)	1.4	1.4.1 Proportion of population living in households with access to basic services	Implemented activities to decrease	Cooking is considered a basic service, as food is considered a basic need of humans and other forms of life. Therefore, improved cooking access is a basic need as well.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.
2)	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	Implemented activities to decrease	Mortality rate attributed to HH and ambient pollution will decrease for those HHs using the DelAgua improved cookstove. The improved design specifications of the project ICS model(s) ensure there is no pollution in the households.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.

⁸ This table shall be updated at the time of Validation and Verification of the grouped project activity (GP). Since the GP is in the planning stage currently, the actual indicators and monitoring plan for quantifying SDG impacts during the monitoring period shall be provided later. Currently, this table is not altered from its joint PD&MR template form.

3)	4.7	4.7.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	Implemented activities to increase	The project activity educates and trains the team involved in the distribution of ICS, and also educates the end user HHs about the sustainable cooking practices. With this, it can be said that the local population is learning sustainable practices and healthy lifestyle without spending anything.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.
4)	5.4	5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location	Implemented activities to decrease	The % of HHs where time spent on collecting fuel and cooking meals has decreased will increase with the implementation of this project activity.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.
5)	7.1	7.1.2: Proportion of population with primary reliance on clean fuels and technology	Implemented activities to increase	The number of HHs with access to clean cooking will increase with the project activity implementation.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.

6)	8.3	8.3.1: Proportion of informal employment in total employment, by sector and sex	Implemented activities to increase	The project activity will generate employment in the host country at both formal as well as informal levels.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.
7)	13	13: Take urgent action to combat climate change and its impacts	Implemented activities to increase	The emission reductions units will be generated by this project activity, thus mitigating Climate Change.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.
8)	15	15.4.2: Mountain Green Cover Index	Implemented activities to increase	The implemented project activity will lead to a decrease in the deforestation in the mountainous forest ecosystem. This eventually will lead to an increase in the mountain green cover index compared with the baseline.	This is the first verification for this project activity, so the current contributions are equivalent to the contributions over the project lifetime.

1.18 Additional Information Relevant to the Project

Leakage Management

Every project activity instance to be added to this Grouped Project will demonstrate that it has applied the leakage management conditions required by the respective methodologies if these are relevant to the project activity instance. If leakage is not relevant to the project activity instance, then it shall be justified in the project description.

For further information on the application of the leakage factor, please refer Section 4.3 of this document.

Commercially Sensitive Information

All information in this Grouped Project Description is public.

Further Information

Not applicable.

2 SAFEGUARDS

2.1 No Net Harm

The program will only result in positive impacts, and therefore will not lead to any harm to the host country landscape or its population.

2.2 Local Stakeholder Consultation

Since the grouped project activity is going to be listed in the VCS pipeline, and the actual activity is slated to begin from 01/01/2023, the LSC meeting will be conducted as per the latest applicable version of VCS Standard, and will then be validated by a VVB at the time of its validation. Other relevant requirements such as continued communication and grievance mechanism redressal will also be established and get validated by approved third party VVB.

2.3 Environmental Impact

Environmental Impact Assessment is not required for the project activity as per the applicable The Gambia laws⁹ do not require this project activity to conduct an EIA or any other environmental study.

2.4 Public Comments

As the Grouped Project is not listed under Verra yet, no public comments are available at this point.

2.5 AFOLU-Specific Safeguards

This section is Not Applicable, since this a Non-AFOLU VCS Grouped Project Activity.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

The methodology applied to this GP is VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 version 1.1¹⁰.

Other relevant CDM tools, guidelines, and standards applicable to the grouped project are provide below.

- CDM TOOL01 “Tool for the demonstration and assessment of additionality” Version 07;
- CDM TOOL21 “Demonstration of additionality of small-scale project activities” Version 13.1;
- CDM TOOL30 “Calculation of the fraction of non-renewable biomass” Version 03;
- CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 04;
- CDM Standard “Sampling and surveys for CDM project activities and programmes of activities” version 09.

⁹ Please refer SCHEDULE B, Screening list Class A, “Project Requiring Full Environmental Impact Study” in the EIA Regulations 2014. URL: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC177743>

¹⁰ <https://verra.org/wp-content/uploads/2021/07/VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1.pdf>

3.2 Applicability of Methodology

Below is the methodological applicability criteria for the PAIs that are going to be included in the proposed VCS grouped Project Activity.

Table 4: Fulfilment of VMR0006, ver. 1.1 Applicability criteria for PAIs to be included

No.	Applicability Condition	Justification of applicability
1	Project activities shall be implemented in domestic premises or in community-based kitchens.	Each PAI will distribute technology that is appropriate for domestic use to household end users
2	The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot; in case of project stove replacing fossil fuel baseline stove, it shall exclusively use renewable biomass.	ICS distributed in each PAI will have a thermal efficiency of at least 25% Each PAI will record the baseline and project fuel use to ensure that wood fuel is the sole source of energy.
3	Both 'Projects' and 'Large Projects' can use the methodology	PAIs will comply with the GP requirements
4	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	Each PAI will demonstrate that Non-renewable biomass has been used in the project region since 31 December 1989.
5	For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips), it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting)	Biomass residues are not processed as a fuel to be used in the GP.

	may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	
6	The Project Design Document shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo)	In order to avoid double counting of emission reductions through the method of distribution, each cookstove has a unique identifier number and the distribution of each stove is logged onto a database which includes unique information for each recipient Each PAI will have system for avoiding double counting with data being collected via a smartphone app (where possible), or via paper forms, including: 4. Date of distribution 5. A unique serial number on each technology Available end-user data: name, phone number, address/physical location, ID number
7	The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	The End User Agreement confirms that the ownership rights of the ER/VCUs generated by the PAI reside with the PP. The signature of each end user confirming their understanding of this agreement will be collected at the point of distribution. The End User Agreement will be in English and translated into a local language where required. If necessary, it will be read out to the End User. All rights to distribute the delivered stoves and claim the resultant emissions reductions belong to the PP.

		The GP will not include any PAI that has been rejected by another GP, or CPA/VPA-DDs of any other GHG programs.
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3.3 Project Boundary

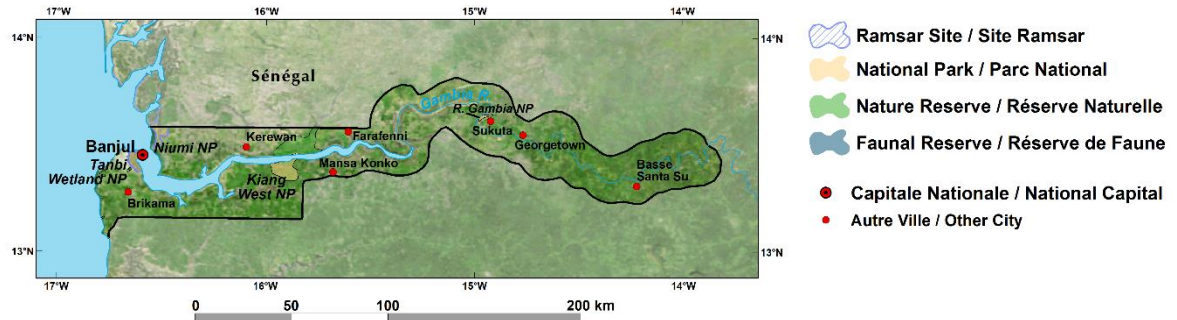
The Grouped Project boundary is defined as per the applied methodologies VMR-0006, ver. 1.1.

Table 5: The GHG sources & sinks within the project boundary

Source	Gas	Included?	Justification/Explanation
Baseline	CO ₂	Yes	Major source
	CH ₄	Yes	Major source
	N ₂ O	Yes	Major source
	Other	No	No other source identified
Project	CO ₂	Yes	Major source
	CH ₄	Yes	Major source
	N ₂ O	Yes	Major source
	Other	No	Not applicable

Figure 2: Project boundary map¹¹ showing physical locations of the Host country, where Grouped Project distribution is planned

¹¹ Source: USGS; URL: <https://eros.usgs.gov/westafrica/country/republic-gambia>

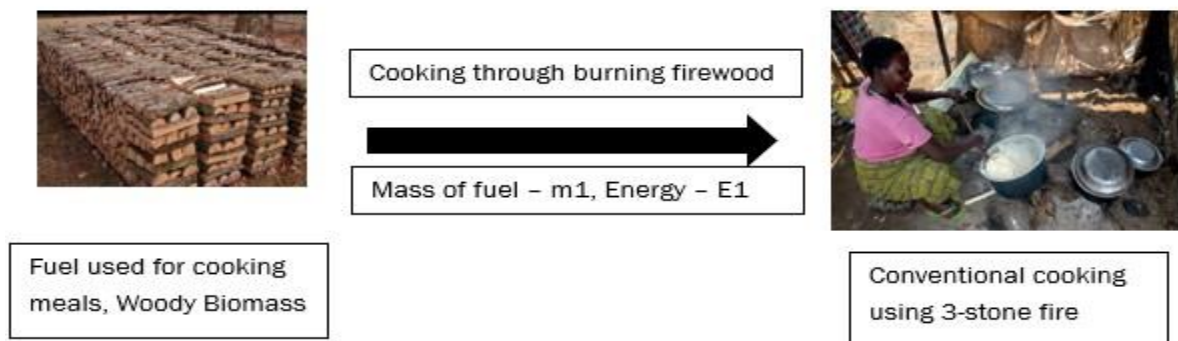


As per the VCS PD template requirements, the diagram of the equipments distributed under the grouped project is provided in Section 1.

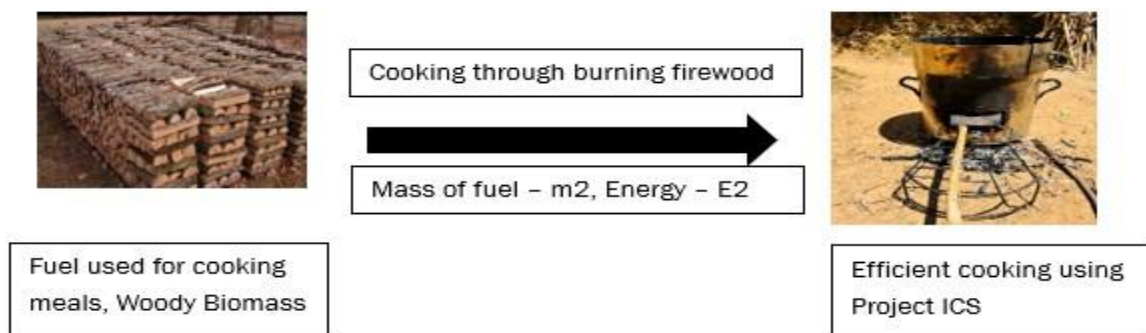
The systems that were applied for the distribution activity to take place, are described in the Section 5.3 of this document.

Flow of mass and energy in the project activity:

Baseline Scenario:



Project Scenario:



Here, the change in mass of firewood between baseline and project scenario is $m_1 > m_2$.

The change in energy consumed for cooking between baseline and project scenario is $E1 < E2$.

3.4 Baseline Scenario

The grouped project activity baseline is the usage of inefficient, conventional cooking devices by majority of the population of The Gambia.

3.5 Additionality

The applied methodology provides the two options to choose from, within the activity method, to demonstration additionality. This is elaborated below.

Activity Method

Step 1: Regulatory Surplus

There is no mandated government programme or policy in host country of this project ensuring the distribution of domestic fuel-efficient cookstoves. The project is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework.

Households may only participate voluntarily in this project. It is hereby confirmed that the proposed project is a voluntary coordinated action by DelAgua.

Step 2: Positive List

As per the justifications provided in the Section 3.2 above, the program meets the applicability conditions of the methodology which represent the positive list.

The project installs the ICS at no cost to the household and has no other source of revenue other than the distribution of GHG credits.

The project is neither implemented as part of a funded government scheme nor is supported by ODA funds.

Based on the above discussion, it is concluded that the program is fulfilling the additionality requirements stated under the activity method.

Therefore, the GP is considered an additional activity.

3.6 Methodology Deviations

The VCS GP is yet to be listed under Verra, and is not undergoing/planning any methodological deviations, from the applied methodology VMR0006 ver. 1.1.

4 ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Methodology VMR0006, ver. 1.1 does not account for baseline emissions separately, but instead quantifies emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves. Please refer section 4.4 below.

4.2 Project Emissions

Methodology VMR0006, ver. 1.1 does not account for project emissions separately, but instead quantifies emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves. Please refer section 4.4 below.

4.3 Leakage

Leakage shall be considered as default 0.95 in accordance with section 8.3 of VMR0006 ver. 1.1.

4.4 Estimated Net GHG Emission Reductions and Removals

Equation for Improved Cookstove as per VMR0006

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

Where:

i = Indices for the situation where more than one type/model of improved cook stove is introduced to replace three-stone fire

j = Indices for the situation where there is more than one batch of improved cook stove of type i

ER_y = Emission reductions during year y in t CO₂e

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

$$ER_{y,i,j} = B_{y,savings,i,j} \times f_{NRB,y} \times NCV_{woodfuel} \times (EF_{wf\ CO_2} + EF_{wf\ non-CO_2}) \times N_{y,i,j} \times 0.95 \quad \text{Equation (2)}$$

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per improved cook stove of type i and batch j during year y

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB)¹²

$N_{woodfuel}$ = Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)

$EF_{wf\ CO_2}$ = CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO₂/TJ)

$EF_{wf\ non-CO_2}$ = Non-CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO₂/TJ)

$N_{y,i,j}$ = Number of improved cook stoves of type i and batch j operating during year y

0.95 = Discount factor to account for leakage

The quantify of woody biomass saved $B_{y,savings,i,j}$ due to implementation of improved cook stoves will be estimated as follows:

$$B_{y,savings,i,j} = B_{old} \times \left(1 - \frac{\eta_{old}}{\eta_{new,i,j}} \right) \quad \text{Equation (3)}$$

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old}} - 1 \right) \quad \text{Equation (4)}$$

¹² Default values endorsed by designated national authorities and approved by the Board are available at <https://cdm.unfccc.int/DNA/fNRB/index.html>

Where:

B_{old} = Annual quantity of woody biomass that would have been used in the absence of the project activity (in tonnes per device) to generate useful thermal energy equivalent to that provided by the improved cook stove. The value of B_{old} has been sourced from baseline field surveys.

η_{old} = Efficiency of baseline cookstove

$\eta_{new,i,j}$ = Efficiency of the improved cook stove type i and batch j determined through water boiling test (WBT).

Efficiency of the improved cookstove will be updated as per equation below:

$$\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94 \quad \text{Equation (5)}$$

Where:

η_p = Efficiency of project stove (fraction) at the start of project activity

DF_n^{y-1} = Discount factor to account for efficiency loss of project cookstove per year of operation (fraction). This value may be based on actual monitoring or based on manufacturer's declaration on expected loss in efficiency or through publicly available literature on relevant industry standards. Alternatively default value of 0.99 efficiency loss per year can be considered.

0.94 = Adjustment factor to account for uncertainty related to project cookstove efficiency test.

If project households continue to use baseline cookstoves along with improved cookstoves, B_{old} shall be adjusted ex-post based on the percentage of project households found to continue such practice according to Equation 6 below. For such cases, the quantity of woody biomass saved $B_{y,savings,i,j}$ due to implementation of improved cook stoves shall be calculated using an adjusted value to account for ex-post use of baseline stoves in addition to improved cookstove.

$$B_{old,adjusted} = B_{old} \times (1 - \mu_y) \quad \text{Equation (6)}$$

Where:

$B_{old,adjusted}$ = Adjusted B_{old} to account the ex-post usage of firewood in baseline cookstove(s) by project households in addition to improved cookstove (in tonnes per device)

μ_y = Baseline stove usage factor to account for use of baseline cookstoves along with improved cookstoves.

Sample VCU estimates (based on the calculation for first year of ICS monitoring estimates):

If the baseline stove usage is 19% of the total cooking in the first year, then the factor μ_y will be 0.19.

And based on that,

$$B_{\text{old,adjusted}} = 9.66 - (1 - 0.35) \text{ tonnes/year}$$

$$\text{Or } B_{\text{old,adjusted}} = 6.279 \text{ tonnes/year}$$

$$B_{y,\text{savings},i,j}^{13} = 6.279 \times (1 - (0.1/0.4727)) \text{ ton firewood/household/annum}$$

$$\text{Or } B_{y,\text{savings},i,j} = 4.951 \text{ ton firewood/household/annum}$$

$$ER_{y,i,j} = B_{y,\text{savings},i,j} \times f_{\text{NRB},y} \times NCV_{\text{woodfuel}} \times (EF_{\text{wf CO}_2} + EF_{\text{wf non-CO}_2}) \times N_{y,i,j} \times 0.95$$

$$ER_{y,i,j} = 4.951 \times 0.85^{14} \times 0.0156 \times (112+26.23) \times 150,000 \times 0.95$$

$$ER_{y,i,j} = 1,011,706 \text{ ton CO}_2/\text{annum}^{15}.$$

Detailed calculations on the VERs, for both (i) estimates throughout the crediting period, and (ii) actual VERs obtained in the first monitoring period, are provided in the ER Sheet.

Emission Reduction Estimate for Improved Cookstove¹⁶

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
2023	2,018,482	-	-	2,018,482
2024	6,498,253	-	-	6,498,253
2025	6,206,060	-	-	6,206,060

¹³ Assuming here that all the ICS distributed were of Kuniokoa model (bearing 51% thermal efficiency), and there was no loss in efficiency due to the non-usage of pot skirt.

¹⁴ f_{NRB} value is estimated using the studies conducted by the PP. This is to be validated by VVB at the time of registration.

¹⁵ The sample calculations are for Kuniokoa ICS distribution plan, and ER estimates are made for its first year of operations.

¹⁶ For the crediting period estimates, due consideration was given to the discount factors, thus using realistic figures for the project scenario.

2026	5,980,675	-	-	5,980,675
2027	5,697,747	-	-	5,697,747
2028	5,477,057	-	-	5,477,057
2029	5,203,401	-	-	5,203,401
Total	37,081,675	-	-	37,081,675

The VCS methodology, VMR0006 is applicable to both 'Projects' and 'Large Projects'. Hence there are no limits on volume of credits from Improved Cookstove component that can be certified per annum.

5 MONITORING

5.1 Data and Parameters Available at Validation

Data/parameter fixed ex-ante for Improved Cookstove instances

Data / Parameter	<i>B_{old}</i>
Data unit	tons/annum
Description	Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices
Source of data	Baseline KPT
Value applied:	9.66
Justification of choice of data or description of measurement methods and procedures applied	The data applied is using the Baseline KPTs which are sampled as per CDM Sampling Standard and follow VCS methodological requirements.
Purpose of Data	Calculation of emission reductions
Comments	<i>B_{old}</i> will remain fixed for the entire crediting period.

Data / Parameter	η_p
Data unit	Fraction
Description	Efficiency of project stove at the start of project activity
Source of data	Manufacturer's Specifications
Value applied:	1) Kuniokoa¹⁷ Generation 3: 0.4387 for project stove without skirting 0.51 for project stove with pot skirting 2) S32-X¹⁸: 0.4300 for project stove without skirting 0.5010 for project stove with pot skirting
Justification of choice of data or description of measurement methods and procedures applied	This data is fixed ex-ante as per applied methodology VMR0006 ver. 1.1.
Purpose of Data	Calculation of emission reductions
Comments	A pot-skirt is distributed alongwith the project stove. If at the time of monitoring, the pot skirt is identified as not being used, then the parameter will be calculated as a weighted average of the efficiency of a skirted stove and a non-skirt stove for the number of ICS with (and without) skirt.

Data / Parameter	Life Span
Data unit	Years

¹⁷ CREEC lab Certification reports provided to the VVB.

¹⁸ CREEC lab Certification reports provided to the VVB.

Description	State the operating lifetime of project device for projects opting Equation 6 (above) for updating project stove efficiency during project crediting period.
Source of data	Manufacturer's specifications
Value applied:	10 years
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	$NCV_{biomass}$
Data unit	TJ/ton
Description	Net calorific value of the non-renewable woody biomass
Source of data	IPCC
Value applied:	0.0156 TJ/tonne
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	$EF_{wt\ CO_2}$
Data unit	ton CO ₂ /TJ
Description	CO ₂ emission factor for woody biomass

Source of data	IPCC
Value applied:	112 tCO ₂ /TJ
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	$EF_{wt\ non-CO_2}$
Data unit	ton CO ₂ /TJ
Description	Non-CO ₂ emission factor for woody biomass
Source of data	IPCC
Value applied:	26.23 tCO ₂ /TJ
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	Leakage Factor
Data unit	Fraction
Description	net to gross adjustment factor to account for the leakage
Source of data	Default as per VMR0006, ver. 1.1, Section 8.3

Value applied:	0.95
Justification of choice of data or description of measurement methods and procedures applied	In-line with the applied methodology VMR0006, ver. 1.1 Section 8.3.
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass that can be established as non-renewable biomass
Source of data	f_{NRB} studies conducted by PP.
Value applied	0.85
Justification of choice of data or description of measurement methods and procedures applied	The value is calculated using the data compiled and studies conducted by PP.
Purpose of Data	Calculation of emission reductions
Comments	-

5.2 Data and Parameters Monitored

Data/parameter monitored for Improved Cookstove instances

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	Monitoring surveys																																												
Description of measurement methods and procedures applied	Measured directly from Project database. A discount shall be applied based on the percentage of devices that are operational during the monitoring period, as determined by the sample survey. For instance, if survey results show that 10% of the devices are nonoperating, an adjustment factor of 0.9 shall be applied to number of project devices commissioned in a particular batch. Separate samples shall be taken for each batch. Simple random sampling approach will be used in sampling surveys. Minimum sample size will be determined as per the following guidelines: – Project target population < 300: Minimum sample size 30 – Project target population 300 – 1000: Minimum sample size 10% of group size Project target population > 1000: Minimum sample size 100																																												
Frequency of monitoring/recording	Atleast once every two years																																												
Value applied	<table><tr><th>S. No.</th><th>Year</th><th>Distribution estimates for Kuniokoa</th><th>Distribution estimates for S32-X</th><th>Total Distribution</th></tr><tr><td>1</td><td>2023</td><td>141,075</td><td>141,075</td><td>282,150</td></tr><tr><td>2</td><td>2024</td><td>470,250</td><td>470,250</td><td>940,500</td></tr><tr><td>3</td><td>2025</td><td>465,500</td><td>465,500</td><td>931,000</td></tr><tr><td>4</td><td>2026</td><td>465,500</td><td>465,500</td><td>931,000</td></tr><tr><td>5</td><td>2027</td><td>460,750</td><td>460,750</td><td>921,500</td></tr><tr><td>6</td><td>2028</td><td>460,750</td><td>460,750</td><td>921,500</td></tr><tr><td>7</td><td>2029</td><td>456,000</td><td>456,000</td><td>912,000</td></tr></table>					S. No.	Year	Distribution estimates for Kuniokoa	Distribution estimates for S32-X	Total Distribution	1	2023	141,075	141,075	282,150	2	2024	470,250	470,250	940,500	3	2025	465,500	465,500	931,000	4	2026	465,500	465,500	931,000	5	2027	460,750	460,750	921,500	6	2028	460,750	460,750	921,500	7	2029	456,000	456,000	912,000
S. No.	Year	Distribution estimates for Kuniokoa	Distribution estimates for S32-X	Total Distribution																																									
1	2023	141,075	141,075	282,150																																									
2	2024	470,250	470,250	940,500																																									
3	2025	465,500	465,500	931,000																																									
4	2026	465,500	465,500	931,000																																									
5	2027	460,750	460,750	921,500																																									
6	2028	460,750	460,750	921,500																																									
7	2029	456,000	456,000	912,000																																									
Monitoring equipment	Surveys																																												
QA/QC procedures applied	N/A																																												
Purpose of data	Calculation of emission reductions																																												
Calculation method	N/A																																												
Comments	1. This parameter only accounts for the number of project ICS that are identified as operating in the monitoring period.																																												

	2. The numbers provided for this parameter are only indications based on the distribution plan, and do not mean the exact numbers that will be obtained at the time of monitoring. 3. Here, the batch j is not segregated in a PAI. Every distribution under a PAI may be considered as a separate batch. 4. The current numbers provided for the parameter are meant for ex-ante ER calculation, and are based on the distribution plan, which may change at the time of actual implementation.
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Data / Parameter	η_{old}
Data unit	Fraction
Description	<i>Efficiency of baseline stove</i>
Source of data	Calculated using the Default value as specified in VMR0006 methodology and the data obtained through the distribution surveys
Description of measurement methods and procedures applied	If the 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, a default value of 0.1 is used as per the applied methodology; for other types of devices, a default value of 0.2 is used.
Frequency of monitoring/recording	Fixed for each individual household at first HH visit
Value applied:	0.1
Monitoring equipment	N/A
QA/QC procedures applied	N/A
Purpose of data	Calculation of emission reductions.
Calculation method	N/A
Comments	The value is recorded at the time of distribution, through the distribution survey. If the baseline cooking device is traditional device (e.g. Rondereza) or a 3 stone fire, without any grate or

	chimney, then as per VMR0006, ver. 1.1, the applied value will be 0.1. In case there is any other unimproved cooking device identified as baseline cooking device, then the applied value for the parameter will be 0.2. The average of the η_{old} recorded for total project ICS households (in the distribution surveys) will be calculated for VCU calculations. For ex-ante estimates, the applied value is 0.1 (assumption for the ex-ante calculations for crediting period-1), which will vary for each monitoring period, based on the actual data obtained at the time of distribution.
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Data / Parameter	$\eta_{new,i,j}$		
Data unit	Fraction		
Description	Efficiency of the device of each type i and batch j		
Source of data	Calculated as per the equation 5 of the applied methodology		
Description of measurement methods and procedures applied	Efficiency of the improved cookstoves will be estimated each year using equation (5) above where loss in efficiency per year is calculated, and therefore no direct measurement is involved.		
Frequency of monitoring/recording	Annually		
Value applied:	ICS efficiency value for instances where pot-skirt is being used:		
	Crediting Period Year	Project Technology Efficiency value	
		Kuniokoa	S32-X
	Year-1	0.4794	0.4709
	Year-2	0.4746	0.4662
	Year-3	0.4699	0.4616
	Year-4	0.4652	0.4570
	Year-5	0.4605	0.4524

	Year-6	0.4559	0.4479
	Year-7	0.4513	0.4434
	ICS efficiency value for instances where pot-skirt is not being used:		
	Crediting Period Year	Project Technology Efficiency value	
		Kuniokoa	S32-X
	Year-1	0.4124	0.4042
	Year-2	0.4082	0.4002
	Year-3	0.4042	0.3962
	Year-4	0.4001	0.3922
	Year-5	0.3961	0.3883
	Year-6	0.3922	0.3844
	Year-7	0.3882	0.3805
Monitoring equipment	N/A		
QA/QC procedures applied	N/A		
Purpose of data	Calculation of emission reductions		
Calculation method	As per equation (6) above		
Comments	The parameter will be calculated as a weighted average of the efficiency of a skirted stove and a non-skirted stove, taking into consideration the usage of pot skirt. Surveys shall be conducted to determine the number of cooking events that occur with and without a pot skirt. Here, the batch j is not segregated in a PAI. Every distribution under a PAI may be considered as a separate batch.		
Data / Parameter	μy		

Data unit	Fraction																								
Description	Adjustment to account for any continued use of pre-project devices during the year y																								
Source of data	Monitoring																								
Description of measurement methods and procedures applied	If both the improved cookstove and baseline cookstoves are used together then surveys shall be conducted to record the average continued operation of baseline cookstoves in a sample of households. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline cookstoves, by formulating questions and/or collecting evidences to determine the frequency of usage of both the improved cookstoves and baseline cookstoves. For example, if there were 3 baseline cookstoves in a 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 0.33 is applied to Bold. Another example would be the case where there was only one baseline cookstove per household and its use during the project period continues along with the improved cookstove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.25.																								
Frequency of monitoring/recording	At least once every two years																								
Value applied:	<table><tr><th>S. No.</th><th>Year</th><th>μy Value Applied</th></tr><tr><td>1</td><td>2023</td><td>0.65</td></tr><tr><td>2</td><td>2024</td><td>0.63</td></tr><tr><td>3</td><td>2025</td><td>0.61</td></tr><tr><td>4</td><td>2026</td><td>0.59</td></tr><tr><td>5</td><td>2027</td><td>0.57</td></tr><tr><td>6</td><td>2028</td><td>0.55</td></tr><tr><td>7</td><td>2029</td><td>0.53</td></tr></table>	S. No.	Year	μy Value Applied	1	2023	0.65	2	2024	0.63	3	2025	0.61	4	2026	0.59	5	2027	0.57	6	2028	0.55	7	2029	0.53
S. No.	Year	μy Value Applied																							
1	2023	0.65																							
2	2024	0.63																							
3	2025	0.61																							
4	2026	0.59																							
5	2027	0.57																							
6	2028	0.55																							
7	2029	0.53																							
Monitoring equipment	N/A																								
QA/QC procedures applied	N/A																								
Purpose of data	Calculation of emission reductions																								

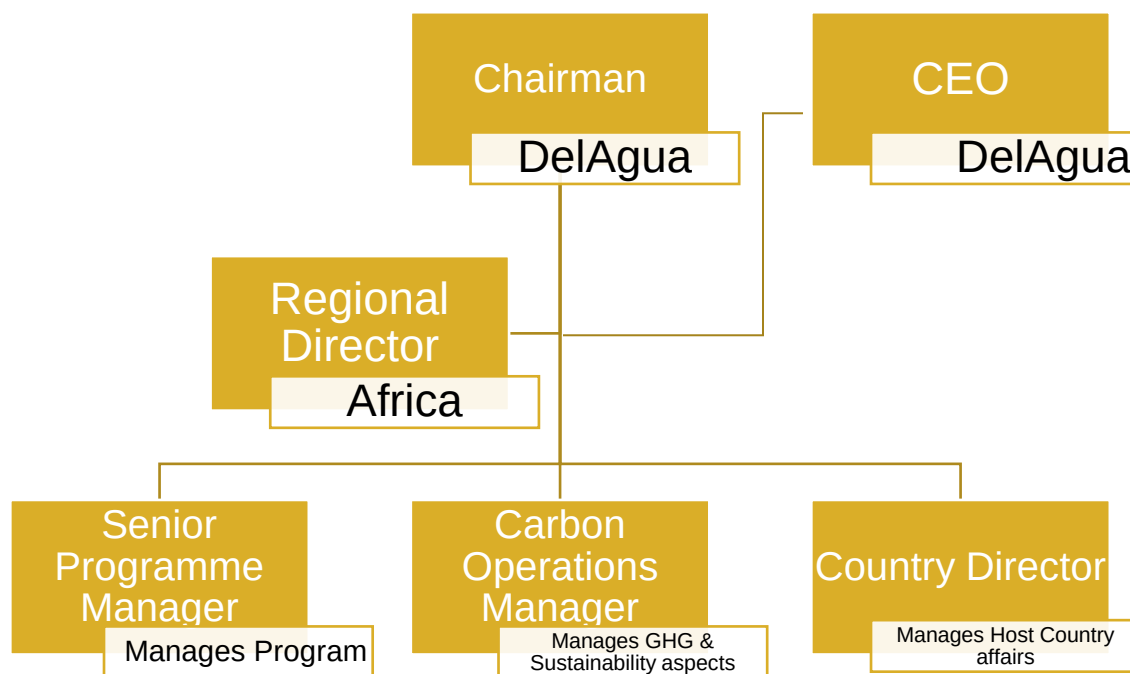
Calculation method	N/A
Comments	The applied values are assumptions (to calculate the VCU estimates for the first crediting period), and the actual value of pre-project device usage will be identified using the monitoring surveys, and shall be appropriately applied.

5.3 Monitoring Plan

The VCS Grouped Project in *The Gambia* will be following VCS standard requirements applicable, alongwith the methodological requirements on monitoring a grouped non-AFOLU large project activity. The Monitoring Plan is elaborated in multiple sub-sections for the sake of clarity.

- 1) Team Involved: The DelAgua team involved in the GHG operations management is the local staff based in *The Gambia* alongwith the senior management.

The key responsibilities are shared by the team as follows:



- 2) Roles and Responsibility:

Chairman – Supervises the overall programme at strategy and financial side.

CEO – Acts as central point of strategy, programme management, finance, and technical domains of the programme.

Regional Director – Responsible for the regional level programme implementation and expansion planning and implementation.

Senior Programme Manager – Manages the programme at implementation level, and acts as an internal technical reviewer for the programme documents and procedures.

Carbon Operations Manager – Manages the operations for GHG emission mitigation programme, from planning to implementation stage. Additionally manages the Sustainability aspects of the programme.

Country Director – Supports programme in the operations and management at the host country level, and acting as point of communication between DelAgua and government of *The Gambia*.

The collective responsibilities of DelAgua as the Project Participant will be the following:

- Acts as the project managing entity
- Development of PDD
- Registration of the project with VERRA
- Inclusion of new PAIs upon satisfaction of the eligibility criteria stipulated in the PDD
- Authorized entity for any official communication with the VERRA and VVB
- Manage and archive the database for all appliances
- QA/QC of database during distribution & data collection
- Maintain local repair/replacement facilities
- Education and public awareness raising during initial distribution as well as periodic education campaigns.
- Data collection during distribution & delivery of data to database
- QA/QC of data collection

3) Quality Assurance and Quality Control:

The quality assurance and quality control of the programme is managed by the quality management standard of DelAgua. The following points summarize the DelAgua view on quality:

- i) Wherever any instrument is used in the program for meeting any of the objectives, it is ensured that the team involved is competent and trained for the operation, handling, and maintenance of the same.
- ii) The teams involved in the programme operations are trained on a periodic basis, to cater for any of the improvements/updates introduced to the programme.
- iii) Refresher trainings are conducted whenever there is an activity resuming after a brief period of time.

- iv) The documents drafted for the programme are reviewed internally as well as in line with the requirements of the VCS ver. 4.2 (i.e. Validated and Verified by VCS approved third party auditors, VVB).
- v) The quality of programme is maintained throughout its operation period, and the feedback is recorded from the end-users on continuous basis.
- vi) There are safeguards defined to maintain the degree of reliability and conservativeness prior to stating any claims on the performance of the programme in its operations. These safeguards are defined in-line with the requirements of the VCS Standard.

4) Training and Maintenance Procedures:

- i) The training of teams involved in various procedures related to the project activity implementation and monitoring will be conducted through modules defined for those procedures.
- ii) The modules for training of resources will be revised on a periodic basis, accounting for the need-based improvements in the training programs or the procedural requirements.
- iii) The data that is recorded in the monitoring surveys is collected and stored electronically, and then uploaded to the central database management system, where it is maintained online on a subscription-based server host.
- iv) The data is also stored offline, within the hard disk drives. The data collection procedures do not involve any paper records, to reduce the environmental footprint of the programme.
- v) The project related data will be stored for two years after the implementation period is over for the project activity.

5) Calculation of Emission Reductions:

Emission reductions will be calculated using the results of the most recent survey data. The updated parameters adjust all emission reduction results for the year monitored.

6) Sampling Plan:

The sampling plan is intended to enable the discovery of unbiased and reliable estimates of monitored parameter values used in the GHG emission reduction calculations. The sampling plan design is based on the CDM Guideline: Sampling and surveys for CDM project activities and programmes of activities, version 4.

7) Sampling Design:

a) Objectives and Reliability Requirements –

The Sampling activities are defined at the Grouped Project-level and the sampling plan presented here will apply to assess parameter values in PAIs to be included in the GP, either individually or in groups.

Samples will be calculated on a 90/10 confidence/precision for individual PAIs on an annual basis, or 95/10 confidence/precision basis for groups of PAIs or sampling on a biennial basis. This is in accordance with the Para 11 of the CDM Sampling Standard, ver. 09.0.

In cases where the confidence/precision are not achieved, the lower bound of the confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts.

Parameter values may be estimated by applying a sampling in accordance with the latest version of the CDM Sampling Standard for a single PAI or a group of PAIs. A single sampling plan covering a group of PAIs is justified when either the homogeneity of included PAIs relative to the parameters of interest can be demonstrated or the differences among the included PAIs is taken into account in the sample size calculation.

b) Target Population –

The target population is the combined unique entries of ICS users by PAI in the monitoring database from which the sample is being drawn.

c) Sampling Method –

For each survey, the sampling method is determined by using a random sample of the total population of distributed ICS from records generated in the monitoring database and based on the precision requirements listed above, and as required by the methodology and guidance in the CDM Sampling Standard.

Cross-PAI sampling may be carried out. In such cases, 95/10 confidence/precision will be applied.

d) Sample Size –

The sample size for each monitoring activity will be the total number of ICS distributed and included in the monitoring database. A sample size calculation sheet will be used to calculate the number of samples.

Oversampling will be conducted to ensure that the required level of precision is met.

Since the project activity is following the VCS approved methodology VMR0006, ver. 1.1, it will be decided at the time of monitoring whether the option provided under the methodology (of using 100 samples if population is >1000¹⁹) will be applied or the equations provided in the CDM Standard for sampling (demonstrated below) will be used. This will depend on the parameter to be monitored, whether the option applies in-line with the methodological requirements or not.

The CDM Sampling Standard equations used for calculation of sample size are provided below –

¹⁹ Applied methodology VMR0006, ver. 1.1, Page 11: *Baseline Survey of Local Usage. Project proponent shall carry out a survey of usage prior to implementation of the project activity following the sampling approach described in the latest version of CDM document Sampling and surveys for CDM project activities and programme of activities. Alternatively, the project participant may follow the simple random sampling approach and the minimum sample size should be determined as per the following guidelines:*

- Project target population < 300: Minimum sample size 30
- Project target population 300 – 1000: Minimum sample size 10% of group size
- Project target population > 1000: Minimum sample size 100

For proportion-based parameters:

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)} \quad \text{Equation (1)}$$

Where:

n	=	Sample size
N	=	Total number of households (640,000)
p	=	Our expected proportion (0.50)
1.645	=	Represents the 90% confidence required
0.1	=	Represents the 10% relative precision ($0.1 \times 0.5 = 0.05 = 5\%$ points either side of p)

For mean-based parameters:

$$n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V} \quad \text{Equation (18)}$$

Where:

V	=	$\left(\frac{SD}{mean} \right)^2$
n	=	Sample size
N	=	Total number of households
$Mean$	=	Our expected mean (3.5 hours)
SD	=	Our expected standard deviation (2.5 hours)
1.645	=	Represents the 90% confidence required

e) Sampling Frame –

The Sampling Frame will be the monitoring database (distribution database) which may contain information from multiple PAIs and therefore allows for sampling to be applied per PAI or as a group of PAIs.

6 ACHIEVED GHG EMISSION REDUCTIONS AND REMOVALS

6.1 Data and Parameters Monitored

Currently, the GP VCS 4000 has not started its operations. Therefore, the actual achieved values for the monitoring parameters would've been provided here.

The parameters obtained during the first monitoring period, alongwith the actual VCUs obtained shall be provided in the PD&MR document at the time of validation.

Data / Parameter ²⁰	
Data unit	<i>Indicate the unit of measure</i>
Description	<i>Provide a brief description of the data/parameter</i>
Value applied:	<i>Provide the monitored value for the data/parameter</i>
Comments	<i>Provide any additional comments</i>

6.2 Baseline Emissions

There are no separate baseline emissions calculation provided in the applied methodology. Therefore, the ERs calculated as actuals shall be provided in Section 6.5 of this report.

6.3 Project Emissions

There are no separate project emissions calculation provided in the applied methodology. Therefore, the ERs calculated as actuals shall be provided in Section 6.5 of this report.

6.4 Leakage

Net to gross adjustment factor of 0.95 shall be multiplied with the ERs calculated, thus accounting for the leakage requirements provided in the methodology.

²⁰ The tables shall be added at the time of validation, based on the actually monitored parameters.

6.5 Net GHG Emission Reductions and Removals

The GP has not started yet, as it is under planning stage at this point. Once the activity is operational, the parameters shall be checked during the monitoring period, and actual ERs shall be calculated in-line with the methodological requirements and will be provided here.

The template version of the table for VCUs achieved is not altered. The actuals shall be provided in the table at the time of validation.

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year A				
Year...				
Total				