Carbon CHECK	**Validation report form for renewal of crediting period for GS project activities** **(Version 03.0)**

BASIC INFORMATION	
Title and GS reference number of the project activity	Gyapa Improved Cook-Stoves in Ghana GS 407
Number and duration of the next crediting period	3rd crediting period. Duration: 17/06/2022 to 16/06/2029
Version number of the validation report	3.0
Completion date of the validation report	16/02/2024
Version number of PDD to which this report applies	Version 1.2, dated 19/01/2024
Project participants	Relief International (RI) and Sustainable Development & Relief Associates (SUDRA)
Host Party	The Republic of Ghana
Applied methodologies and standardized baselines	REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 4.0
Mandatory sectoral scopes	3 (TA 3.1)
Conditional sectoral scopes, if applicable	N/A
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	561,595 tCO_2e
Name of VVB	Carbon Check India (Private) Limited.
Name, position and signature of the approver of the validation report	Priya Suman Priya Suman, Compliance Officer

SECTION A. Executive summary

>> **Purpose and general description of the project:**

Carbon Check (India) Private Ltd. (CCIPL) is performing the validation of design certification renewal of the third crediting period of the GS project titled “Gyapa Cookstoves Project in Ghana” (GS project Id: GS 407). The proposed large–scale project activity involves the manufacture and sale of improved efficient charcoal stoves, known as the Gyapa, to replace inefficient baseline stoves popularly known as coal pots within Ghana.

This report summarises the findings of the validation of the project, performed on the basis of Gold standard for global goals (GS4GG), as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the Gold Standard. Validation of design certification renewal is required for all registered GS project activities intending to renew the crediting period. This report contains the findings and resolutions from the validation and a validation opinion on the estimated impacts for the renewed crediting period.

Scope of Validation

The validation scope is to review the updated GS-PDD/01/ against the GS principles and requirements/06/. Validation of the renewal of crediting period is a requirement and it is seen as necessary to provide assurance about:

(a) Changes in the Project as related to the GS General Eligibility Criteria
(b) Incorporation of any relevant updates to the Gold Standard Requirements
(c) Re-definition of Baseline Scenario and any impact of change on the Eligibility Principles, Criteria and Requirements
(d) Any Gold Standard activity, product, and methodology-specific Requirements
(e) Demonstration of Ongoing Financial Need
(f) the impact of new relevant national and/or sectoral policies and circumstances on the baseline;
(g) the correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

Validation process

Validation is conducted using CCIPL’s procedures in line with the GS requirements and principles and applying standard auditing techniques. The validation assessment involved a document review of relevant documentation, the on-site site assessment and reporting. Validation is not meant to provide any consultancy toward the project participants. However, stated request for clarifications and/or corrective actions may have provided input for improvement of the project activity.

Conclusion

Carbon Check India Pvt. Ltd. (CCIPL) appointed by Relief International (RI) has performed the validation of the renewal of crediting period of the GS project (GS470) ‘Gyapa Cookstoves Project in Ghana’, with regard to the relevant GS principles and requirements.

In conclusion, it is CCIPL’s opinion that the GS project (GS 470) ‘Gyapa Cookstoves Project in Ghana’ as described in the updated PDD version 1.2 dated 19/01/2024 meets all relevant GS requirements and principles, and correctly applied the baseline and monitoring methodology “Reduced emissions from cooking and heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption”(TPDDTEC), Version 4.0./08/

SECTION B. Validation team, technical reviewer, and approver.

B.1. Validation team member

No.	Role	Type	Last name	First name	Affiliation (e.g., name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader/ Technical expert	IR	Kadam	Campal	Carbon Check India (Private) Limited	√	√	√	√
2.	Team Member	IR	Gedam	Pallavi	Carbon Check India (Private) Limited	√	NA	NA	√
3.	Local Expert	IR	Bernard	Agyen Mensah	Carbon Check India (Private) Limited	NA	√	√	NA

B.2. Technical reviewer and approver of the validation report for RCP

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Seshan	Ranganathan	CCIPL
2.	Approver	IR	Suman	Priya	CCIPL

SECTION C. Means of validation

C.1. Desk/document review

>> Desk review of the updated GS PDD/01/ version 1.2 dated 19/01/2024, in particular the applicability of the methodology, the baseline determination, the emission reductions calculation, the sustainability indicators, proposed design change and impacts on additionality were assessed as part of the validation. All documents reviewed or referenced during the validation are listed in Appendix 4.

C.2. On-site inspection

Date of inspection				
No.	**Activity performed on-site**	**Location**	**Date**	**Team Member**
1.	Project activity, technical specifications, operational status	On-site	15/01/2024 and 16/01/2024	Campal Kadam and Agyen Mensah Bernard
2.	Baseline Scenario			
3.	Project Boundary, Applicability of methodology			
4.	Monitoring plan, monitoring, and measuring systems			
5.	Data management and reporting, QA/QC systems			
6.	Physical site visit to end-users from the baseline survey			

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	**First name**	**Affiliation**			
01.	Atsu	Titiati	SUDRA/ RI	15/01/2024 and 16/01/2024	PDD preparation, Baseline reassessment emission reduction calculation, GS requirements, monitoring procedures. sustainable development parameters, other benefits etc.	Campal Kadam and Agyen Mensah Bernard
02.	Koontz	Ann	RI	15/01/2024 and 16/01/2024	PDD preparation, Baseline reassessment emission reduction calculation, GS requirements, monitoring procedures. sustainable development parameters, other benefits etc.	

03.	Hernandez	Ivan	SAJOMA Climate	15/01/2024 and 16/01/2024	PDD preparation, Baseline reassessment emission reduction calculation, GS requirements, monitoring procedures. sustainable development parameters, other benefits etc.	
04.	Addo Aryitey	Gloria	SUDRA/ RI	15/01/2024 and 16/01/2024	PDD preparation, Baseline reassessment emission reduction calculation, GS requirements, monitoring procedures. sustainable development parameters, other benefits etc.	
05.	Kamous Divi	Mohammed	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
06.	Agoe Armah	Thomas	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
07.	Hagar	S. Twumasi	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
08.	Suwnomah	Rukaya	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
09.	Agyeman	Kingsley	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
10.	Prempeh	Jeff	SUDRA/ RI	15/01/2024 and 16/01/2024	Project design and monitoring plan.	
11.	Ibramhim	Felicia	Stove retailer	16/01/2024	Sales procedure	
12.	Justice	Adison	Cermaic liner producer	16/01/2024	Stove manufacturer process.	
13.	Usman	Ladi	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism	

					• SDG impacts	
14.	Lamptey	Diana	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
15.	Quaye	Patience	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
16.		Gracelyn	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
17.	Attah	Akkua	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
18.	Wilson	Harriette	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
19.	N	Leticia	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
20.	Mary	Sister	End User – Female	15/01/2024	• Baseline survey records	

					• Grievance mechanism • SDG impacts	
21.	O	Rita	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
22.	Kamadzro	Vivian	End User – Female	15/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	
23.	Ntow	Mary	End User – Female	16/01/2024	• Baseline survey records • Grievance mechanism • SDG impacts	

C.4. Sampling approach

>>**PP's sampling approach**:

PD has conducted a baseline study following a stratified random sampling approach as per the guidelines on "Sampling and surveys for CDM project activities and programme of activities Version 04"/06/. The target population comprised of new users who had acquired the project stove within the last three months and potential project stove users who currently use the traditional coal pot for cooking applications. The target population considered for sampling was 13,327.

PD has followed the guideline on "Sampling and surveys for CDM project activities and programme of activities Version 04" to determine the minimum required sample size as 115. After oversampling, PD has determined the final sample size as 197. This then was distributed among the most representative regions, use and sizes of the stove as per the strata.

The ex-ante parameter surveyed through this sampling plan is:

- Baseline scenario survey results

CCIPL's validation sampling approach:

As per §24 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /06/, the validation team has to validate the project participant's sampling plan to determine whether it will provide parameter value estimates in an unbiased and reliable manner. The validation includes determining:

a) Whether the proposed sample size and sampling method is adequate to achieve the minimum confidence/precision requirements;

b) Whether the proposed sampling plan will ensure that samples are randomly selected and are representative of the population.

In line with §26 of the Sampling Standard (version 09.0) /07/, the validation team has applied a sampling approach for on-site site survey as part of validation and cross-check of PP's baseline survey. Since PD had applied a sampling approach during its representative monitoring survey, the validation team has chosen acceptance sampling for the parameters of interest in accordance with §28 of the sampling standard (version 09.0) /07/.

CCIPL has considered para 39 (c) of "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0" /06/ which states that *"A DOE may select a different sample size than the one indicated in paragraph 32 above, either by choosing a different value for the consumer risk and producer risk (e.g. 20 per cent for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:*

(a) The estimated volume of annual GHG emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 t CO2 eq.;

(b) The security conditions in the project region prevents inspection of many samples (e.g. conflict zones); or

(c) The project activity or the PoA is located in a least developed country or a host Party with 10 or fewer registered CDM project activities at the end of the monitoring period being verified."

for determining the sampling size to be visited by VVB /09/. The validation team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' version 09.0 /06/. Since the project activity is being implemented in the host country 'Ghana' which has less than 10 registered project activities in both CDM and Gold standard, the validation team using it's professional judgement chose an acceptable Quality Level (AQL): 0.5% Unacceptable Quality Level (UQL): 20% and producer risk of 10% and consumer risk of 10%. Accordingly, a sample size of 11 was required as per Table 2 in the referred Standard /06/. Acceptance number (c) thus determined for the sample size is 0. CCIPL chose 11 samples to validate the project activity. The validation team selected random samples from PP's representative baseline survey. The project technology, commissioning date, operational status of project was checked during the on-site site assessment for the identified samples. No inconsistency was observed for any of the 11 samples with respect to the observations in the field, interviews & document review.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	--	--	--
Application and selection of methodologies and standardized baselines	03	--	--
Validity of original baseline or its update	01	--	--
Estimated emission reductions or net anthropogenic removals	05	01	--
Validity of monitoring plan	--	--	--
Crediting period	--	--	--
Project participants	01	--	--

Post-registration changes	--	--	--
Others- stakeholder consultation	--	--	--
Specific GS requirements	--	--	--
Total	10	01	--

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	Comparing the PDD /A.1/ with the PDD template provided by GS.
Findings	N/A
Conclusion	CCIPL confirms that the updated PDD version 1.2 dated 19/01/2024 has been prepared using GS PDD template version 1.5 of 29/06/2023 which is the latest available template and has been completed with relevant information as per the template requirements.

D.2. Application and selection of methodologies and standardized baselines

Means of validation

The project applied the approved methodology REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 4.0 /08/. The applicability conditions of the methodology are discussed below:

Methodology applicability criteria	Justification	Assessment
Project shall choose a technology design that has predictable performance in that it is proven to be efficient and durable under field conditions; for cookstoves, the rated thermal efficiency shall be at least 20%	The latest Gyapa™ stove test report show that the Gyapa™ stove has a fuel efficiency of 30.9% compared with 10-15% thermal efficiency of the traditional coal pots stoves which it replaces. This report only included the medium Gyapa™ stove model, however, the small and the medium Gyapa™ stoves are defined as similar technologies as it is explained in the paragraph 3.7.3 of the methodology. Both small and medium Gyapa™ stoves are based on the same fundamental technology (having a combustion chamber which is heavily insulated with a ceramic liner which helps in retaining the heat and increases its efficiency), their	The improved cookstove has a thermal efficiency of 30.9% which is higher than the required minimum thermal efficiency. PD has presented stove test report/16/ for medium stoves which is assessed by the VVB and deemed acceptable. Further PD has demonstrated that the efficiency of small and medium stoves is similar through comparison of latest KPT results for both the stoves/13/. For large stoves, PD has demonstrated that they represent only 0.3% of the total sales for which they shall claim credits only when the cost benefit is reasonable, in which case the thermal efficiency test results shall be submitted for the next verification.

			dimensions are similar (see section A.3, page 11 for details), and the specific fuel consumption differ in absolute terms 1.8% , therefore, it is expected that thermal efficiency will be similar. According the latest KPT, the average fuel saving (%) for both small and medium stoves were 41.15% and 40.94% which can serve a crosscheck that thermal efficiency is similar and above the 20% minimum efficiency required by the methodology. For large Gyapa™ stove model, despite the fact it is based on the same fundamental technology, the fuel consumption differs significantly from small and medium stoves. As explained in the updated PDD on section A.3 (page 11), the large size stoves represent around the 0.3% of the total sales. The monitoring cost for such low number of stoves may not be efficient, therefore, claiming of carbon credits from large stove will happen only when the cost-benefit is reasonable. If this is the case, a test result of thermal efficiency for large stove will be submitted on time the next verification.	Hence, the VVB confirms that the applicability criteria is met.
	The technology shall have continuous useful energy output of less than 150kW per unit, where "continuous	The stoves are sold in individual units. Each stove has useful energy output of less	The VVB has assessed the "Council for Scientific and Industrial Research Institute of Industrial Research

		useful energy output" is defined above.	than 150Kw (estimated at 1.29 Kw) . As explained in the criterion above, small and medium stoves are considered similar technologies, therefore the value of continuous useful energy output of 1.29 kW is relevant for both small and medium models. Regarding the large stove, although this size is based on the same fundamental technology, the fuel consumption is higher than small and medium models, hence, the value quoted above for continuous energy powers is not considered relevant for the large stove. However, the fulfilment of this criterion can be demonstrated by knowing the fuel consumption and the energy content of the fuel. On average, a large Gyapa stove consumes 10.43kg of charcoal per day. The energy content of this amount of fuel based on the NCV is 14.35kW. As can be seen, the energy content of the fuel consumed is, by far, lower than the threshold of 150kW. Physically, the large stove cannot overcome the threshold. Furthermore, if we assumed a similar thermal efficiency than medium stove e.g. 30%, the energy power would be 4.31kW, which is reasonable for the large stove having	Regional Testing And Knowledge Center (RTKC) 2021"/16/ report as provided by the PD. which shows and confirms that each unit of the technology will have a continuous useful energy output of less than 150kW. Thus, the applicability criterion is met.

		the medium stove as a reference.	
	The project activity is implemented by a project developer and can include additional project participants listed in Appendix 2 of the PDD template. The individual households and institutions may be represented collectively by community organizations, etc., but do not individually act as project participants.	The project activity is implemented by RI and SUDRA. The individual households do not act as project participants.	The VVB has assessed the Appendix 2 of the PDD template. Based on the interviews conducted with the representatives of the PD, the VVB confirms that the individual household and institution will not act as project participants. Hence, the applicability criteria is being met.
	The project developer must design incentive mechanism(s), which should be effective as fast as possible, for the elimination of inefficient baseline stoves that are replaced by the project cooking devices and describe the incentive mechanism(s) in the PDD/VPA-DD at the time of validation.	The project operates under a market-based approach, implying when the user buys a Gyapa™ stove it is because the user is already motivated to own the improved stove. This motivation comes from the continuous advertising and promotion done by the project to explain the stove features (fuel saving therefore saving money, cooking faster, same dishes can be cooked and no pot changes (no behavioural changes), etc.). This continuous awareness contributes to the adoption rate and the elimination of the baseline stove. The usage rates carried out over the years confirms the good adoption and continuous use. Once the users perceive the benefits of saving fuel and money. The project includes a warranty policy of one year to ensure any stove with manufacturing defects can be replaced with no charge. The project	The project operates under a market-based approach such that the user buys a Gyapa™ stove with the motivation to own an improved cookstove, established via continuous advertising and promotion done by the project to explain its benefits. The usage rates carried out over the years confirms the good adoption and continuous use. Hence, the VVB based on interviews with the PD, confirms that the mechanism is designed to eliminate the inefficient baseline stoves that are replaced by the project stove.

			honours the warranty and there have been cases when the warranty has made effective even passing more than a year. In summary, the incentive mechanism for the elimination of the coal pot includes: • The user pays for the stove, then, they start using it immediately. • Continuous promotion and awareness campaigns that explain the stove benefits. • The warranty is to ensure users won't go back to the coal pot because of manufacturing defects of the Gyapa stove.	
		To avoid double counting or double claiming, the project developer must: i. clearly communicate its ownership rights and intention of claiming the emission reductions resulting from the project activity to the following parties by contract or clear written assertions in the transaction paperwork: all other project participants; project technology manufacturers; and retailers of the project technology or the renewable fuel in use; and ii. inform and notify the end users that they cannot claim emission reductions from the project, and iii. exclude from the project activity, cooking	i. All producers sign a "Rules and Regulations" agreement which includes a statement that the stoves produced shall not be included in any other emissions reduction project and that credits generated from the production and/or use of the stove will accrue to only RI. ii. Each customer is provided with a warranty card which clearly alerts the end-users to the waiving of their carbon rights in exchange for pricing of the Gyapa™ stove which discounts its true cost. The warranty also serves as an agreement/waiver to transfer the carbon rights to Relief International.	Based on interviews with the representatives of the PD, the VVB confirms that the project doesn't include any devices that are a part of other voluntary markets or CDM project activity. It has also been confirmed that PD will notify the end users that the emission reductions from the project belong to the PD, in order to avoid double claiming of emission reduction. The PD will provide a warranty card and invoice stating the same. Every Gyapa stove will have a unique ID tagged to the stove to avoid double counting of the stove. The process of tagging a unique ID with a stove is assessed by

	devices included in any other voluntary market or CDM project activity/PoA and strive not to displace the cooking devices of another CDM or voluntary project/PoA. See data and parameters not monitored, Avoidance of double counting or double claiming with other mitigation actions, for details on this demonstration.	iii. The project does not strive to displace the cooking devices of another voluntary project as Gyapa™ stoves are sold and not given away for free. To avoid double counting, Gyapa™ stoves distributed from 2022 onwards are identified with a unique serial number and only those are counted for emission reductions under this project.	the VVB through a physical site visit to the Gyapa stove manufacturing plant. Further PD has provided a signed declaration to the VVB stating that the appropriate steps will be taken to avoid double counting as per scenarios described above/11//14/. Hence, the applicability criteria is being met.
	Project activities making use of solid fossil fuel in the project scenario or other improved fossil fuel cookstoves meeting certain conditions described in the footnote to Table 1 (e.g. switch from three-stone fire biomass stoves to LPG stoves) may only claim emission reductions for energy efficiency improvement aspect and shall assume the same baseline and project fuel for emission reduction calculations.	The project does not make use of solid fossil fuels.	Based on interviews with the PD and review of the PDD, the VVB confirms that the project activity does not use solid fossil fuels. Hence, the applicability criteria is being met.
	Project activities making use of a new solid biomass feedstock in the project situation (e.g. switch to green charcoal or renewable biomass briquettes) must comply with relevant specific requirements for biomass related project activities, as defined in the latest version of the Community Services Activity Requirements /04/. The specific requirements apply to both plantations	The project does not make use of new biomass feedstock in the project situation.	Based on interviews with the PD and review of the PDD, the VVB confirms that the project activity does not use biomass feedstock in the project situation. Hence, the applicability criteria is being met.

established for the project activity and/or existing plantations that will supply biomass feedstock.		
Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases emitted by the project fuel/stove combination are estimated with adequate precision. Furthermore, for projects where cooking will move from outdoor to indoor or where the project technology reduces ventilation (for example, changing from a stove with chimney to improved stove with no chimney), indoor air pollution (IAP) levels shall not worsen in the project compared to the baseline, including PM 2.5 and carbon monoxide (CO) emissions. This may be demonstrated before project Design Certification or during project operation using the certification resulting from of a manufacturer's test, report of field testing of the technology's PM 2.5 and carbon monoxide (CO) emissions, report of lab testing of the technology, or results of modelling of the technology's operation under field conditions. If none of these are available, reference from published literature or report by	Qualitative Surveys are conducted every year to investigate air quality with the project stove. The indoor air pollutions are compared to the baseline, where the users are asked to give their comparisons and pollutants emitted by the project Gyapa™/charcoal combination is estimated with adequate justifications. As per the Council for Scientific and Industrial Research Institute of Industrial Research Regional Testing And Knowledge Center (RTKC) 2021 report, the Gyapa™ cookstove attained Tier 3.0 to Tier 3.7 for PM2.5, a good ranking of indoor air quality, especially when compared to with open fires, 'coal pots' and other simple solid fuel cookstove technologies that have a Tier 0.	Based on interviews with the PD and review of the PDD, the VVB confirms that qualitative surveys will be conducted every year to investigate air quality with the project stove. Further, the VVB has reviewed the "Council for Scientific and Industrial Research Institute of Industrial Research Regional Testing And Knowledge Center (RTKC) 2021" report /16/, provided by the PD which shows that the Gyapa™ cookstove attained Tier 3.0 to Tier 3.7 for PM2.5, whereas coal pots and other simple solid fuel cookstoves attained Tier 0 for PM 2.5. This indicates that the levels may not worsen in the project compared to the baseline, Hence, criteria is being met.

independent agencies may be used as evidence, provided it is not more than 5 years old. To make claims on SDG 3.9.1 contributions, the project developer may apply the Gold Standard Methodology to Estimate and Verify ADALYS from Clean Household Air.		

Additionally, the project is eligible under Community Services Activity Requirements, Version 1.2 as outlined in section A.1.1 of the PDD

CSA applicability criteria	Justification	Assessment
Types of projects – Pre-identified CSA project types are noted below. Project Developers may submit new project types to Gold Standard for approval following the Principles & Requirements. (a) Renewable energy: Renewable energy types such as solar (photovoltaic and solar thermal electricity generation), tidal/wave, wind, hydropower, geothermal, waste to energy and renewable biomass that are connected to mini grid3 or off grid solutions for targeted users and/or applications. • Renewable projects supplying electricity to a national or a regional grid shall refer to Gold Standard Renewable Energy Activity Requirements. • Additional eligibility criteria for specific projects (e.g. Hydropower, biomass resources, etc.), are prescribed in Annex A of this document. (b) End-use energy efficiency: Project activities that reduce energy requirements as	The project activity consists of energy efficient cook stoves that seek to reduce the amount of fuel used in the households by displacing the traditional cookstoves that require a lot of fuel. The project stoves are efficient charcoal stoves that cut down the daily fuel consumed thus necessitating fewer trips to collect fuel and/or less money spent on charcoal per week. Efficient improved stoves are a more sustainable, economic, and healthier way to cook. The project activity therefore qualifies under section 3.1.1. (b) End-Use Energy efficiency.	Based on the review of the PDD and interviews with the representatives of the PD, the validation team confirms that the project activity consists of energy efficient cook stoves that seek to reduce the amount of fuel used in the households by displacing the traditional cookstoves that require a lot of fuel. Therefore, the project qualifies under section 3.1.1. (b) End-Use Energy efficiency. Hence, the CSA applicability criteria 3.1.1 is met.

	compared to baseline scenario without affecting the level and quality of services or products, where the end-user of the products and services are clearly identified and when the physical intervention is required at the user end. For example, efficient cooking, heating, lighting, etc. (c) Waste management and handling: All waste management activities that deliver energy or a usable product with sustainable development benefits such as composting, biogas etc. (d) Water, sanitation and hygiene (WASH): WASH activities contributing to climate change mitigation and/or adaptation benefits.		
	Legal ownership: (a) Projects involving the distribution of a large number of devices for services such as heating, cooking, lighting, electricity generation, water treatment technology such as water filter, etc. shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain. In line with the FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided. (b) The transfer of Product ownership shall be discussed during local stakeholder consultations for projects.	RI owns the legal trademark of Gyapa™ cook stoves. Due to the popularity of the Gyapa™ stove, the word Gyapa became a popular and general term to refer to similar stoves, nonetheless, all Gyapa™ stoves distributed from 2022 onwards are identified with a unique serial number and only those are counted for emission reductions under this project to avoid double counting. RI provides energy efficient cookstoves that transform lives, create employment, and save the forests. The stoves are produced by RI authorised ceramicists and metal workers. RI creates awareness of the benefits of the Gyapa™ stove, markets, and organizes the distribution and sales on a commercial basis through appropriate agents developed by RI in Ghana.	The validation team has assessed the agreement between RI and the other project participant (SUDRA) /14/ and confirms that the project participant is informed that RI is claiming ownership rights and selling the emission reductions resulting from the distribution of project technologies. Further, VVB has assessed the warranty card provided by PD to the end-users. Through the warranty cards the end-users are informed that the Carbon Credits accrued from using the stoves belong to RI. Accordingly, through review of sufficient evidence, the VVB confirms that CSA applicability criteria 3.1.4 is met.

		The project proponent will clearly communicate to all project participants that RI is claiming ownership rights and selling the emission reductions resulting from the distribution of project technologies. The transfer of carbon rights will be explained to end-user through the warranty cards containing a written explanation that the Carbon Credits accrued from using the stoves belong to RI.	
Findings	CL 01, CL 02, CL 03, CL 04, CL 05 have been raised and discussed in appendix 05 of this report.		
Conclusion	CCIPL hereby confirms that the selected baseline and monitoring methodology has been previously approved by the Gold Standard, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for renewal of crediting period. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology and there is no deviation from the selected methodology.		

D.3. Validity of original baseline or its update

Means of validation	As per para 5.1.47 of Gold Standard for global goals principles & requirement '***re-definition of Baseline Scenario***' is required at design renewal. The project developer has included the assessment of the validity of the original baseline as per the tool "Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of a crediting period", Version 3.0.1 /07/. The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case the current baseline is not valid anymore for the next crediting period. **Step 1**: Assess the validity of the current baseline for the next crediting period The validity of the current baseline is assessed using the following sub-steps: **Step 1.1**: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies There are no mandatory laws requiring households to switch to use of efficient stoves and the household makes the switch voluntarily based on the information they receive from the promotional and marketing initiatives regarding the benefits of the stove. The project therefore it's being implemented as a voluntary action. Thus, it can be concluded that the current baseline scenario is in compliance with relevant mandatory national and sectoral policies. **Step 1.2**: Assess the impact of circumstances Household practices in Ghana towards household energy have not changed over time. Charcoal use for cooking is the most dominant for most households. The PD has conducted a baseline survey to study the cooking

	habits of the population in Ghana. The VVB has assessed the baseline survey/09/ through accepting sampling during the on-site visit. The results reported by the PD are deemed acceptable to the validation team. Thus, it can be concluded that the circumstances existing at the time of requesting renewal of crediting period are the same as existing in the validation of the PA **Step 1.3**: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested. The households continue to buy and use the old stove technology due to availability and price. Therefore, this trend seems to continue for a long period of time. Although there are different efficient stoves in the market, there is still huge demand for Gyapa stoves since most of the households have not been reached/covered due to several reasons such as household budget to purchase a new stove, availability, awareness etc. Hence, PD require carbon credits to continue the operation of the Gyapa distribution chain. **Step 1.4**: Assessment of the validity of the data and parameter. The project activity was registered using the "Indicative Programme, Baseline, and Monitoring Methodology for Improved Cook-Stoves and Kitchen Regimes, Ver.01." methodology, a GS methodology which has now been replaced with "REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 4.0"/08/. The default values GWP values, net calorific value (NCV) for charcoal and CO_2 emission factor (EF) for fuel reduced as per the methodology have been adopted for emission reduction calculations. The VVB has assessed the need to update the data and parameters and is deemed acceptable. **Step 2:** Update the current baseline and the data and parameters The VVB has assessed the updated parameters and confirms that the updated parameters are as per their latest respective sources. **Step 2.1**: Update the current baseline. The current baseline scenario is still valid. **Step 2.2:** Update the data and parameters. As mentioned in step 1.4, the emission factors have been updated for emission reduction calculations. The quantity of fuel savings by the project device has been recalculated and fraction of woody biomass used in the absence of the project activity that is non-renewable (fNRB) has been recalculated. Some new data sets have been introduced based on the methodological requirement and new values are applied for the current baseline in the new crediting period. Finally, it is concluded that the original baseline scenario is valid, and assessment is complete as per "Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1 /07/.
Findings	CL 07 was raised in this regard as discussed in Appendix 05 of this report
Conclusion	CCIPL concludes that the original baseline is valid, and assessment is done as per methodological tool 'Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1'/07/. The assessment meets VVS Standard version 01 /18/ and GS principle and requirements paragraph 5.1.47. /03/

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation

As per the methodology, the emission reductions are verified and credited by comparing the emissions for a given project scenario to the emissions for the applicable baseline scenario. In the project case, the baseline fuel type and the project fuel type are the same (both uses charcoal) and the baseline fuel emission factor and project fuel emission factor are also considered to be the same. The overall GHG reductions achieved by the project activity in year y are calculated as follows:

The equation shown below is the one that corresponds to Method 1 chosen:

$$ER_y = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO} + EF_{b,f,nonCO2})) - \sum LE_{p,y}$$

Where:

$ERy\_$	=	Emission reduction for total project activity in ye
$\Sigma b,\_p\_$	=	Sum over all relevant baseline b/project p pairs
$Nb,\_p,\_y\_$	=	Number of project technology-days included in for baseline b/project p pair in year y (days)
$Up,\_y\_$	=	Cumulative Usage rate for technologies in proje (fraction)
$SFSp,\_b,\_y\_$	=	Specific fuel savings for an individual project t b/project p pair in year y (mass or volume units/
$NCVb,\_fuel\_$	=	Net calorific value of the fuel(s) that is subs baseline b (TJ/mass or volume units)
$fNRB,\_b,\_y\_$	=	Fractional non-renewability status of woody bio y (fraction). For biomass, it is the fraction of wo be established as non-renewable. This paramet a fossil fuel.
$EFb,\_f,\_CO_2\_\_$	=	CO_2 emission factor from use of fuel f (tCO_2/TJ)
$EFb,\_f,\_nonCO_2\_\_$	=	Non-CO_2 emission factor arising from use of fue fuel f is biomass or charcoal (tCO_2e/TJ). This when f is a fossil fuel.
$LEp,\_y\_$	=	Leakage for project scenario p in year y (tCO_2e

Data and Parameters fixed ex-ante

Data and Parameter	Value	Assessment
Baseline scenario survey results	-	The data has been obtained from baseline survey, conducted in line with GS TPDDTEC v4.0, Section 4.3 Baseline scenario survey.
Project Technology Description	-	The data has been obtained from manufacturer's specifications.

			VVB has cross checked the data from the "Council for Scientific and Industrial Research Institute of Industrial Research Regional Testing And Knowledge Center (RTKC) 2021" /16/ report as provided by the PD and has been found to be consistent.
	Expected technical life of project technology	3 years	The average life of the stove is conservatively taken as 3 years. Once the 3-year lifespan is over, the project technology is/will not be accounted anymore in the calculations
	Indoor air pollution (IAP) levels of the project technology	Tier 3.0 and Tier 3.7 for PM 2.5	This rating has been checked and found consistent with the the "Council for Scientific and Industrial Research Institute of Industrial Research Regional Testing And Knowledge Center (RTKC) 2021"/16/ report as provided by the PD.
	Avoidance of double counting or double claiming among project participants	-	The stoves are not included in any other emissions reduction project and the credits generated from the use of the stove will accrue only to PD. This has been cross checked by the VVB based on the evidence provided. Moreover, all the stoves distributed from 2022 onwards are identified with a unique serial number and only those are counted for emission reductions under the project to avoid double counting.
	Regulatory framework for provision of thermal energy services	-	Measurement methods and procedures are being done as per the labelling policy regulation of Ghana Energy Commission to ensure compliance /19/. The project was found to not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply/devices or fuel supply or use
	$EF_{b,f,CO2}$	112 tCO_2/TJ	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories;*

			Volume 2 Energy, Chapter 2 Stationary Combustion
	$EF_{b,f,nonCO2}$	5.865 tCO_2/TJ	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion*
	$EF_{p,f,CO2}$	112 tCO_2/TJ	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion*
	$EF_{p,f,nonCO2}$	5.865 tCO_2/TJ	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion*
	$NCV_{b,fuel}$	0.0295 TJ/ Ton	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction*
	$NCV_{p,fuel}$	0.0295 TJ/ Ton	The data has been obtained from IPCC default value and has been crosschecked with *2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction*
	$fNRB_{,i,y}$	78.94%	The value has been calculated in accordance with the CDM Methodological tool: Calculation of the fraction of non-renewable biomass Version 04.0 and has been reviewed by the VVB.
Findings	CL 08 and CL 10 are raised in this regard. Refer appendix 05 for details.		
Conclusion	CCIPL confirms that the PDD correctly lists assumption and data used by the PD for estimating emission reduction including their references and sources. Source of data and assumptions are correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable in the context of the proposed GS project activity. The baseline methodology and corresponding tools have been correctly applied to calculate project, baseline and leakage emissions, and emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.		

D.5. Validity of monitoring plan

Means of validation

The monitoring plan in the updated PDD is consistent with the latest methodology, TPDDTEC v 04./08/ Validation team confirmed from the document review that the list of parameters including the means of monitoring is described in accordance with the applied methodology.

During the course of monitoring project parameters, the project proponent will conduct project survey of target population characteristics and carry out project Kitchen performance test (KPT) of fuel consumption.

The project survey and KPT will be conducted with end users through sample representative of the project scenario target population and currently using the project technology. Samples will be drawn from the project database for the "active" stoves population. The project will employ cluster sampling in combination with random sampling to draw samples. Since the project database has thousands of stoves in operation, the minimum sample size shall be 100. Monitoring plan is described in section B.7.2 of the PDD. Following parameters will be monitored through sampling:

1. Pb,y (Quantity of fuel that is consumed in baseline scenario b during year).
2. Pp,y (Quantity of fuel that is consumed in project scenario p during year y).
3. Up,y (Usage rate in project scenario p during year y).

The monitoring plan is consistent with the latest methodology and hence valid for the next crediting period. CCIPL is of the opinion that monitoring plan is feasible within the project design.

Data and Parameters to be monitored:

Data and Parameter	Value	Assessment
Avoidance of double counting or double claiming among project technology end users	-	All of the stoves distributed from 2022 onwards are identified with a unique serial number and only those are counted for emission reductions under the project to avoid double counting.
Presence of stove stacking	-	This shall be monitored annually and data shall be obtained via Usage Survey to capture cooking habits and stove usage of the households. It has been addressed by the PD using the project stoves during the KPTs as the households would do during the normal course of action.

	$P_{b,y}$	Small	2.54 kg/household-day	The data has been taken from the last monitoring period which was verified and approved.
		Medium	2.64 kg/household-day	
		Large	17.74 kg/household-day	
	$P_{p,y}$	Small	1.479kg/household-day	The data has been taken from the last monitoring period which was verified and approved.
		Medium	1.538 kg/household-day	
		Large	10.43 kg/household-day	
	SFSb,p,y	Small	0.365 tonnes/hh/year (0.00100 tonnes/hh/day)	The data has been taken from the last monitoring period verified and approved.
		Medium	0.354 tonnes/hh/year (0.00097 tonnes/hh/day)	
		Large	2.71185 tonnes/hh/year (0.00742 tonnes/hh/day)	
	$U_{p,y}$	Small	83.33%	The data has been taken for the monitoring period of 2017-2019 which is more conservative compared to the current values as per the
		Medium	84.57%	

			approved deviation request of 06/11/22./10/
	$N_{b,p,y}$	43,889,681 technology-days	This data has been calculated from the Project database as the sum of the number of project technology units times the calendar days that they were present at the end user locations
	$LE_{p,y}$	2.096%	The data has been taken as per 2019/2020 surveys from monitoring period 01/02/2019 to 31/08/2020 (both days included) which is more conservative compared to the values obtained during 2020-2022, as per the approved deviation request of 06/11/22.
Findings	N/A		
Conclusion	CCIPL confirms that the monitoring plan included in the updated PDD is valid as per the applied methodology and conforms the registered PDD/A. 1/.		

D.6. Validity of the sustainability monitoring plan

Means of validation

Apart from monitoring relevant parameter under SDG 13, parameters pertaining to SDG 1, SDG 3, SDG 4, SDG 7, SDG 8 and SDG 15 are consistent with registered PDD /**A. 1**/. The monitoring plan of those parameters are discussed below:

SDG Indicator	Parameter	Validation
SDG 1 - No poverty	Average household savings, i.e., decrease in expenditure on basic services such cooking, lighting, drinking	For clients who purchase charcoal, PD will monitor how much money clients save due to the reduction in charcoal consumption and track how the saved funds are spent. The indicator is rightly chosen for the project activity and monitoring is in line with applied methodology and chosen indicator.
SDG 3 – Good health & well being	Improvement in health & well being	The improvement in health and reduction of incidence of disease caused by air pollutants to the beneficiaries will be recorded during surveys. The monitoring of this parameter will be done annually; the ICS will be randomly selected using the sampling plan. The indicator is rightly chosen for the project activity and monitoring is in line with applied

			methodology and chosen indicator.
	SDG 4 – Number of employees	Employment generated	The project will demonstrate the transfer of useful and marketable job skills to local direct and indirect employees through training records. The indicator is rightly chosen for the project activity and monitoring is in line with applied methodology and chosen indicator.
	SDG 7- Affordable and Clean Energy	Access to clean energy	Access to clean energy is ensured through monitoring the number of project devices commissioned and operating within the project activity annually. The operational rate will ensure the increase access to clean energy to users. The indicator is rightly chosen for the project activity and monitoring is in line with applied methodology and chosen indicator.
	SDG 8- Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	Improvement in livelihood	The project implementation and maintenance required manpower. The project generated employment which shall be monitored annually to ascertain the number of jobs the project created and income generation. The actual records from project developers shall be maintained. The indicator is rightly chosen for the project activity and monitoring is in line with applied methodology and chosen indicator.
	SDG 15- Total non-renewable charcoal fuel saved	Total amount of non-renewable fuel savings	The total amount of non-renewable fuel savings due to displacement or energy efficiency improvements of baseline technology has been measured through the KPTs conducted. The indicator is rightly chosen for the project activity and monitoring is in line with applied methodology and chosen indicator.
Findings	CAR 01 was raised in this regard as discussed in Appendix 05 of this report		

Conclusion	CCIPL confirms that the sustainable development monitoring plan included in the updated PDD is consistent with GS principles and requirements and feasible within the project design.

D.7. Crediting period

Means of validation	As per para 5.1.45 of GS4GG principles and requirement /06/, to maintain Gold Standard Certified Project status beyond five years, a Project must undergo Design Certification Renewal. The third crediting period for the project starts from 17/06/2022, after the end of the second crediting period (17/06/2015 to 16/06/2022). The project life is 21 years and completed fourteen years upto 16/06/2022. The VVB has reviewed the registered PDD for the first crediting period of the project activity, 'Gyapa Improved Cook-Stoves in Ghana'. Based on review of the project documents and with reference to section 5.1.45 of Gold Standard for the Global Goals Principles & Requirements version 1.2 which states that *"review of the Design Certification Renewal may complete after the last date of current crediting period. In this case, the renewal date shall be the first day after the end date of the current certification cycle"*, the project is eligible for third crediting period and the period is clearly defined. However, the VVB has noted that there has been a delay in submission for renewal of CP to GS. Hence, the credits would not be issued for the delay period.
Findings	N/A
Conclusion	CCIPL confirms that the third period was correctly and clearly defined as from 17/06/2022 to 16/06/2029 as per GS rule. However, since there has been a delay in submission for renewal of CP to GS, the credits would not be issued for the delay period.(be from 17/06/2022 until submission for Design Review to Gold Standard, estimated by 2024.)

D.8. Project participants

Means of validation	The project developer is Relief International (RI) and project participant is Sustainable Development & Relief Associates (SUDRA). This is as per GS registry details of the project. The same is found mentioned in the updated PDD. PD has provided.
Findings	N/A
Conclusion	CCIPL confirms that the project participants of the project activity is listed in the updated PDD, and this information is consistent with the information provided in the section that contains the contact information for project participants.

D.9. Specific GS scope on design certification renewal

Means of validation	As per paragraph 5.1.47 of GS4GG principle and requirement, the 'Design Certification Renewal scope is assessed as below: a) Changes in the Project as related to the General Eligibility Criteria -There is no change in the project which may impact the project eligibility. The project still falls under large-scale category and implemented within the same geographical boundary as the registered PDD/A. 1/. b) Incorporation of any relevant updates to the Gold Standard Requirements - There is no relevant update found to be incorporated for the project during the second crediting period. c) Re-definition of baseline scenario and any impact of change on the eligibility principles, criteria and requirements

	- The project falls under community services activity and as per para 4.1.7 of "Community Service Activity Requirement" /04/, re-assessment of baseline is not mandatory for CSA project for first renewal. However, PD has assessed the baseline following UNFCCC guideline and confirms the existing baseline is still valid. d) Any gold standard activity, product and methodology-specific requirement - The project meets community services activity requirements although there is no specific requirement to be met during the renewal of the project. The applied methodology for claiming emission reductions is updated to its latest version and conditions as per latest version is justified in the updated PDD. e) Demonstration of ongoing financial need, where relevant-see ongoing financial need - The carbon revenues are needed to track the production (monitoring) and to offer warranty. Furthermore, the proceeds from the carbon credits have been deployed to offer a reduced costs of the stoves to the users, provide maintenance and recoup associated costs for the dissemination of stoves, such as the development of the supply chain personnel and systems, marketing activities and building new manufacturing units. The explanation provided by PD is deemed acceptable to the VVB. Therefore, VVB confirms the OFN for the project during the third CP.
Findings	N/A
Conclusion	CCIPL confirms that the project activity is within the required scope of GS principle and requirements which are applicable at design renewal.

D.10. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1]	Not applicable		
Corrections	Not applicable		
Change to the start date of the crediting period	Not applicable		
Inclusion of a monitoring plan	Not applicable		
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	Not applicable		
Changes to the project design	Not applicable		
Changes specific to afforestation and reforestation project activities	Not applicable		

D.11. Grievance Mechanism

Means of validation	As per para 4.1.34 of GS4GG principles and requirement /06/,

[1] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

	The Project shall have a formal input, feedback and grievance mechanism in place and the grievance mechanism shall be discussed during the Stakeholder Consultations as per Stakeholder Consultation & Engagement Requirements. Based on review of the project documents and with reference to section 4.1.34 of Gold Standard for the Global Goals Principles & Requirements version 1.2, the project consists of a continuous input/ grievance mechanism by receiving grievances in the production sites, and RI website.
Findings	N/A
Conclusion	CCIPL confirms that the project has ongoing grievance mechanism via their website as well as warranty card system.

SECTION E. Internal quality control

>> The final validation report before being submitted to the client is subjected to an independent technical review to confirm that all validation activities have been completed according to the pertinent CCIPL's procedures. The technical review is performed by a technical reviewer(s) qualified in accordance with the CCIPL's qualification procedure.

SECTION F. Validation opinion

>> Carbon Check (India) Private Ltd. (CCIPL) is performing the validation of design certification renewal of the third crediting period of the GS project titled "Gyapa Cookstoves Project in Ghana" (GS project Id: GS 407). The proposed large–scale project activity involves the manufacture and sale of improved efficient charcoal stoves, known as the Gyapa, to replace inefficient baseline stoves popularly known as coal pots within Ghana.

The validation was performed in accordance with latest GS4GG rule and requirements and UNFCCC criteria for the Clean Development Mechanism, latest version of GS Validation and Verification Standard and related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change, as stated in the updated PDD. In the opinion of the validation team, the project meets all relevant GS4GG, UNFCCC, CDM criteria and all relevant host country criteria.

The review of the updated PDD and the subsequent follow-up interviews have provided validation team with sufficient evidence to determine the validity of the original baseline. The PDD correctly applies the latest version of the GS approved methodology A REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 4 /08/. The monitoring arrangements described in the monitoring plan are feasible within the project, and it is validation team's opinion that the project implementer is able to implement the monitoring plan and it is deemed likely that the forecasted emission reductions of 561,595 tCO_2e per year from the project during the third crediting period will be achieved, given that the underlying assumptions do not change.

During the course of validation (01) CARs, (10) CL and (00) FAR were identified on initially submitted PDD. All the CARs and CLs have been resolved by project proponent.

In summary, it is validation team's opinion that the project "Gyapa Improved Cook-Stoves in Ghana." (GS Reference number 407) meets all relevant GS4GG and UNFCCC requirements for the renewal of the crediting period. Hence CCIPL requests the renewal of the project activity for the third crediting period from 17/06/2022 to 16/06/2029.

Appendix 1. Design change assessment

No design changes identified.

Appendix 2. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CCIPL	Carbon Check India Pvt. Ltd.
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CH_4	Methane
CL	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
EPC	Environment Protection Center
ER	Emission Reductions
ER	External Resources
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS4GG	Gold Standard for Global Goals
GWP	Global Warming Potential
ICS	Improved Cooking Stoves
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Country
LoA	Letter of Approval
LSC	Local Stakeholder Consultation
MoV	Means of Validation
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
NRB	Non-renewable Biomass
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference

SD	Sustainability Development
SDG	Sustainable Development Goals
SMP	Sustainability Monitoring Plan
SS(s)	Sectoral Scope(s)
UNFCCC	United Nations Framework Convention on Climate Change
VER	Voluntary Emission Reduction
VVB	Validation and Verification Body
VVS	Validation and verification standard

Appendix 3. Competence of team members and technical reviewers

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Campal Deepak Kadam

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG+	☐ Social no-harm(S+)	☐ Environment no-harm(E+)	
☒ Local Expert for India			

in the following Technical Areas:

☐ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☒ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date
5th December 2023

Expiry Date
31st December 2024

Ms. Priya Suman
Compliance Officer

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
Dec 2023	Initial Adoption

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023
[1] Please refer to previous version of FM 7.9 for the revision history

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Pallavi Gedam

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local Expert for India			

in the following Technical Areas:

☐ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☐ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022[1]	Annual revision
Jan 2023	Annual revision
Dec 2023	Change in the template due to revision in TA and function

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon Check (India) Private Limited

Certificate of Competency

Mr. S Ranganathan

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☒ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local Expert for India			

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☒ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☒ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

5th December 2023

Expiry Date

31st December 2024

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Revision History of the document:

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2022	Initial Adoption
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Dec 2023	Change in the template due to revision in TA and function

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

[1] Please refer to previous version of FM 7.9 for the revision history

Appendix 4. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	RI and SUDRA	GS PDD for the project Gyapa Improved Cook-Stoves in Ghana	Version 1.1, dated 21/12/23	PD
		GS PDD for the project Gyapa Improved Cook-Stoves in Ghana	Version 1.2, dated 19/01/24	
2	RI and SUDRA	Emission reduction worksheet for the project Gyapa Improved Cook-Stoves in Ghana (GS 407 Ex-Ante Calculations 3rd Crediting period v2.1 21 Dec 2023)	Version 2.1, dated 21/12/23	PD
		Emission reduction worksheet for the project Gyapa Improved Cook-Stoves in Ghana (GS 407 Ex-Ante Calculations 3rd Crediting period v2.2 19 Jan 2024)	Version 2.2, dated 19/01/24	
		Emission reduction worksheet for the project Gyapa Improved Cook-Stoves in Ghana (GS 407 Ex-Ante Calculations 3rd Crediting period v2.3 15 Feb 2024)	Version 2.4, dated 15/02/2024	
3	Gold Standard	Gold Standard for the Global Goals Principles & Requirements	Version 1.2 of October 2019	Publicly available
4	Gold Standard	Gold Standard for the Global Goals CS Activity Requirements	Version 1.2 of October 2019	Publicly available
5	UNFCCC	Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities	Ver. 4.0 (EB86, Annex 4)	Publicly available
6	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 09	Publicly available
7	UNFCCC	Methodological tool 'Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period'	Version 03.0.1- EB 66 Annex 47	Publicly available
8.	Gold Standard	REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)	Version 4.0 of 07/10/2021	Publicly available
9	RI and SUDRA	Baseline survey records.	October and November 2023	PD
10	Gold Standard	Approved deviation request dated 06/11/2022 with request to parameters Pp,y and Up,y.		PD
11	RI and SUDRA	Evidence to demonstrate legal ownership of products generated by the project.		PD
12	RI and SUDRA	fNRB report and calculation spread sheet.		PD
13	RI and SUDRA	KPT results of 4th MP of the second crediting period.	2018/2019	PD
14	RI and SUDRA	Agreement of partnership between Relief International (RI) and local partner Sustainable Development & Relief Associates (SUDRA).		PD

15	RI and SUDRA	Monitoring Report for the time period 01/08/2017 to 31/01/2019 (both days included)	Version 4, dated 03/12//2019	PD
16	RTKC	Council for Scientific and Industrial Research Institute of Industrial Research Regional Testing And Knowledge Center (RTKC) 2021 report.	29/11/2021	PD
17	RI	Declaration of non-ODA.	26/11/2018	PD
18	Gold Standard	Gold Standard for Global Goals Validation and Verification Standard	Version 1.0 dated 06/03/2023	Publicly available
19	Ghana Energy Commissio n	Renewable Energy (Standards and Labelling) (Improved Biomass Cookstoves) Regulations, 2022	02/11/2022	PD

Appendix 5. Clarification requests, corrective action requests and forward action requests

Table 1: CLs from this validation

CL ID	01	**Section no.**	A.1	**Date:** 17-01-2024
Description of CL				
In section A.1 of the PDD, PD states that, *"Latest Gyapa stove test report show that the Gyapa stove has fuel efficiency of 30.9%..."* PD needs to submit the test report for review. Further PD has not clarified in PDD if the efficiency of small and medium stoves is the similar.				
PD response				**Date:** 19-01-2024
The test report has been summitted to the VVB and it is confirmed that test was done for the medium Gyapa™ stove model. The small and the medium Gyapa™ stoves are defined as similar technologies as it is explained in the paragraph 3.7.3 of the methodology: *Project technologies with similar design and performance characteristics may be included under a single project scenario. For example, different improved cook stoves can be considered similar if they are based on the same fundamental combustion technology and their respective thermal efficiencies or specific consumptions do not differ by more than +/-5% in absolute terms from that of the design to be implemented most frequently in the project activity.* Both small and medium Gyapa™ stoves are based on the same fundamental technology (having a combustion chamber which is heavily insulated with a ceramic liner which helps in retaining the heat and increases its efficiency), their dimensions are similar (see section A.3, page 11 for details), and the specific fuel consumption differ in absolute terms 1.8%[2], therefore, it is expected that thermal efficiency will be similar. According the latest KPT, the average fuel saving (%) for both small and medium stoves were 41.15% and 40.94% which can serve a crosscheck that thermal efficiency is similar and above the 20% minimum efficiency required by the methodology. For large Gyapa™ stove model, despite the fact it is based on the same fundamental technology, the fuel consumption differs significantly from small and medium stoves. At is explained in the updated PDD on section A.3 (page 11), the large size stoves represent around the 0.3% of the total sales. The monitoring cost for such low number of stoves may not be efficient, therefore, claiming of carbon credits from large stove will happen only when the cost-benefit is reasonable. If this is the case, a test result of thermal efficiency for large stove will be submitted on time the next verification.				
Documentation provided by PD				
PDD Version 1.2, Combined ER calculations and Survey Results				
VVB assessment				**Date:** 30-01-2024
VVB has reviewed the documents concerning the justification provided above by the PD. Details have been provided by the PD regarding similarity in dimensions of the two stove sizes, differences in specific fuel consumption and average fuel saving. Hence, finding is closed.				

[2] See file 'GS 407 Combined ER calculations and Survey results Summary 2. (10) - public Rev.xlsx', sheet 'Small KT', cells BY130:CA141, and sheet 'Medium KT', cells BV152:BW152.

CL ID	02	Section no.	A.3	Date: 17-01-2024
Description of CL				
In section A.3 of the PDD, PD has specified 'Large stove' as one of the technologies. However, the estimated impacts related to the same are not provided at other places in the PDD. It is not clear from the PDD how large stoves are included in the project. Further it is not clear how specific fuel savings from the large stoves will be monitored during the monitoring period.				
PD response				**Date:** 19-01-2024
As explained in CL01, the claiming of carbon credits from large stoves will depend on the cost-benefit for said group. In case, carbon credits are claimed, fresh KPTs result and Usage Survey results of large stoves will ready on time the next verification. The PDD has been updated to include the estimated impact related the large size stoves.				
Documentation provided by PD				
PDD Version 1.2				
VVB assessment				**Date:** 30-01-2024
VVB has reviewed the changes made in the latest version of the PDD. PD has made the changes as stated above in the sections A. 3 and B. 2, of the PDD. Hence, the finding is closed.				

CL ID	03	Section no.	B.2	Date: 17-01-2024
Description of CL				
As per methodology applicability condition (d), *"The project developer must design incentive mechanism(s), which should be effective as fast as possible, for the elimination of inefficient baseline stoves that are replaced by the project cooking devices and describe the incentive mechanism(s) in the PDD/VPA-DD at the time of validation."* In this section of the PDD, PD has justified the methodology applicability condition (d), by stating that, *"The Gyapa™ stove is preferred because it uses less fuel, displacing the use of the cold pot stove. Surveys will be carried out to determine the frequency of use of the old stove which has been retained by their owners."* However, the mechanism designed by the PD for elimination of inefficient baseline stoves is not clearly described.				
PD response				**Date:** 19-01-2024
The project operates under a market-based approach, implying when the user buys a Gyapa™ stove it is because the user is already motivated to own the improved stove. This motivation comes from the continuous advertising and promotion done by the project to explain the stove features (fuel saving therefore saving money, cooking faster, same dished can be cooked (no behavioural changes), etc.). This continuous awareness contributes to the adoption rate and the elimination of the baseline stove. The usage rates carried out over the years confirms the good adoption and continuous use. Once the users perceive the benefits of saving fuel and money, hardly the return to use the coal pot. The project includes a warranty policy of one year to ensure any stove with manufacturing defects can be replaced with no change. The project honours the warranty and there have been cases when the warranty has made effective even passing more than a year.				
Documentation provided by PD				
PDD Version 1.2				
VVB assessment				**Date:** 30-01-2024
VVB has reviewed the updated version of the PDD. PD has made the changes mentioned above in relation to the methodology applicability condition (d), in Section B. 2 Table 1. Hence, finding is closed.				

CL ID	04	Section no.	A.1	Date: 17-01-2024
Description of CL				

As per the § 2.3.2 of the methodology, *"If the expected technical life of project technology (parameter ICS 3) is shorter than the crediting period, the project developer shall describe measures to ensure that end users are provided replacement technology of comparable quality at the end of the technical life, by either replacing with comparable or better technology, or retrofitting essential parts with performance guarantee. If neither of the prior conditions can be demonstrated, no emission reductions can be claimed for the technology after its technical life has ended."*

In this section of the PDD, PD states that, *"The average life of the stove is conservatively taken as 3 years, although from experience and if well handled, the stove can last several years beyond the 3-year lifespan."*

However, PD has not demonstrated compliance with the safeguard above.

PD response	**Date:** 19-01-2024
The PDD on section A.3 and section B.6.2 under the parameter 'Expected technical life of project technology' explain that the average life of the stove is conservatively taken as 3 years, although from experience and if well handled, the stove can last several years beyond the 3-year lifespan used for this carbon project. Once the 3-year lifespan is over, the project technology is not accounted anymore in the calculations	
Documentation provided by PD	
PDD Version 1.2	
VVB assessment	**Date:** 30-01-2024
VVB has reviewed the updated version of the PDD. As mentioned by the PD above, the PDD states the project's compliance with the safeguard as required by the methodology. Hence, the finding is closed.	

CL ID	05	**Section no.**	A.1	**Date:** 17-01-2024
Description of CL				
As per the § 2.3.2 of the methodology, *"The technology shall have continuous useful energy output of less than 150kW per unit, where "continuous useful energy output" is defined above"* In this section of the PDD, PD justifies the above applicability criterion by stating that, *"The stoves are sold in individual units. Each stove has useful energy output of less than 150Kw (estimated at 3 Kw)."* However, PD has not demonstrated the calculation or provided supporting evidence for the same.				
PD response				**Date:** 19-01-2024
The stoves are sold in individual units. Each stove has useful energy output of less than 150Kw (estimated at 1.29 Kw)[3]. As explained in CL01, the small and medium stoves are considered similar technologies, therefore the value of continuous useful energy output of 1.29 kW is relevant for both small and medium models. Regarding the large stove, although this size is based on the same fundamental technology, the fuel consumption is higher than small and medium models, hence, the value quoted above for continuous energy powers is not considered relevant for the large stoves. However, the fulfilment of this criterion can be demonstrated by knowing the fuel consumption and the energy content of the fuel. On average, a large Gyapa stove consumes 10.43kg of charcoal per day. The energy content of this amount of fuel based on the NCV is 14.35kW. [4]				

[3] See file 2020 Energy Commission Original Gyapa™ Test report.pdf. The 1.29 KW corresponds to the cooking power and the highest value obtained from the energy efficiency test done that included three power levels according ISO Standard.

[4] Calculated using a NCV Charcoal = 0.0295 TJ/ton; conversion factor of 1 terajoule [TJ] = 0.28 GW hour [GWh]; and 6 hours of operation per day. See file ('KPT_Report 190517 2019 Gyapa.xlsx', sheet 'Large-KT', cells BU156:BY 162.

As can be seen, the energy content of the fuel consumed is, by far, lower than the threshold of 150kW. Physically, the large stove cannot overcome the threshold. Furthermore, if we assumed a similar thermal efficiency than medium stove e.g. 30%, the energy power would be 4.31kW, which is reasonable for the large stove having the medium stove as a reference.

Documentation provided by PD

PDD Version 1.2, 2020 Energy Commission Original Gyapa™ Test report, KPT report

VVB assessment **Date:** 30-01-2024

VVB has reviewed the documents concerning the justification provided above by the PD. Required evidence has been provided by the PD. Hence, finding is closed.

CL ID	06	**Section no.**	A.1	**Date:** 17-01-2024

Description of CL

In this section of the PDD, PD has not provided a clear distinction between domestic and commercial stove usage.

PD response **Date:** 19-01-2024

The vast majority of the stove sold corresponds to the medium size only used for domestic uses. For the medium stoves used for both commercial and domestic purposes, the primary use is domestic, but besides cooking for their families, they prepare food for selling e.g. snacks food prepared to be sold on streets. In some cases, a single dish may be prepared in a large pot, and user set aside a portion for the family, and the other portion for selling. Another case is when the food prepared for the family is different than the food prepared for selling. For this hybrid uses 'Commercial and domestic', the commercial cooking does not correspond to restaurant or large food vendors. As a conservative approach, the project only includes in the KPT for baseline and project scenarios, the users under the domestic cluster (family meal only), which is conservative for calculating the ERs.
The PDD, section A.3 has been updated to clearly explain the stove sizes distinctions.

Documentation provided by PD

PDD Version 1.2

VVB assessment **Date:** 30-01-2024

VVB has reviewed the updated version of the PDD. PD has made the changes requested in section A.3 of the PDD. Hence, finding is closed.

CL ID	07	**Section no.**	B.4	**Date:** 17-01-2024

Description of CL

In sub-step 2.1, PD has stated that *"This step requires to apply the latest approved version of the methodology applicable to the project activity: "Reduced Emissions from Cooking and Heating - Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 4.0"."*
However, the PD has not clearly described if the baseline scenario is updated.

PD response **Date:** 19-01-2024

The updated PDD indicate clearly that baseline scenario has not been updated, but after the reassessment, it is confirmed the baseline scenario set up since the beginning of the project is still relevant.

Documentation provided by PD

PDD Version 1.2

VVB assessment **Date:** 30-01-2024

VVB has reviewed the updated PDD. PD has made the necessary change with respect to the updating of baseline scenario, in section B.4 of the PDD. Hence, finding is closed.

CL ID	08	**Section no.**	B.7.3	**Date:** 17-01-2024

Description of CL				
In leakage assessment, PD has identified leakage source #1 as *"The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project."* Further PD has deemed the risk level for this source as *"Very Low".* However, during interviews with end-users who have recently received a project stove, the validation team noted that, the risk of leakage due to this source is not negligible. PD needs to clarify and provide further justification regarding the same in line with principle of conservativeness.				
PD response				**Date:** 19-01-2024
A purchaser of Gyapa may give away the coal pot to a relative who may use it. It is important to stress that a used coal pot consumes significantly more fuel, cooks lower, may cause burns. In terms of efficiency, a coal pot is only above the three stone stove. A used coal pot would be used only by someone with inferior technology. This is why it is not expected to displace lower emission technology and that is the reason why this source of leakage was assess as very below.				
Documentation provided by PD				
PDD Version 1.2				
VVB assessment				**Date:** 30-01-2024
VVB had reviewed the updated version of the PDD. The justification provided by PD regarding the leakage assessment is deemed adequate. Hence, finding is closed.				

CL ID	09	Section no.		Date: 17-01-2024
Description of CL				
During the on-site interviews with the end-user samples from baseline survey who recently received a project stove, the validation team noted that the few end-users are not aware about the replacement policies in case of damages to the stove. PD needs to describe the steps that will be taken to further sensitise the end-user and create awareness about the replacement and maintenance procedure. Further in the PDD, PD has not clearly described the replacement policy in case of damage within the warranty period.				
PD response				**Date:** 19-01-2024
The project works continually using promotion to explain the stove features (fuel saving therefore saving money, cooking faster, same dished can be cooked with the same pot (no behavioural changes), etc.). Also, the project works continually with retailers to ensure they can communicate the benefits of using the Gyapa stove. The project includes a warranty policy of one year to ensure any stove with manufacturing defects can be replaced with no change. The project honours the warranty and there have been cases when the warranty has made effective even passing more than a year. Every stove comes with a manual that includes six local phone contact numbers to make effective the warranty.				
Documentation provided by PD				
PDD Version 1.2				
VVB assessment				**Date:** 30-01-2024
VVB has reviewed the updated version of the PDD. PD has provided adequate clarification as requested regarding the replacement policy in section A.3 of the PDD. Hence, finding is closed.				

CL ID	10	Section no.	fNRB sheet	Date: 17-01-2024
Description of CL				

In the fNRB calculation spreadsheet, the source of values applied for 'wood consumption' and 'charcoal consumption' in calculation of the term 'HW Ghana' is not clear.	
PD response	**Date:** 19-01-2024
The source used for those values have been included. See file 'fNRB Ghana 2023 17 Jan 2024.xlsx'.	
Documentation provided by PD	
fNRB Calculation Spreadsheet	
VVB assessment	**Date:** 30-01-2024
VVB has reviewed the updated fNRB calculation spreadsheet provided by the PD. The sources as requested above, have been made clear by the PD. Hence, finding is closed.	

Table 02: CARs from this validation

CAR ID	01	**Section no.**	Table 1	**Date:** 17-01-2024
Description of CAR				
In Table 1 of the PDD, in the column 'Estimated annual average' for SDG 4 PD states that, *"Training sessions are one-on-one interactions to address specific needs of each producer"* However, PD has not quantified the estimated annual average for the impact related to the same.				
PD response				**Date:** 19-01-2024
The table 1 has been updated, the estimated annual average for the impact relate this SDG is: 100 employees. This value includes the training sessions, one-on-one interactions to address specific needs of each producer (manufactures and liner producers, and retailers). The training organized include the following: • Stakeholder meetings among manufactures and liner producers to exchange experiences and good practices. • Awareness raising events with the retailers to trained them who inviting and sensitizing people on the Gyapa stove benefits. Importance of fulfilling the sales receive and warranty. Those events may include providing Gyapa shirt and aprons.				
Documentation provided by PD				
PDD Version 1.2				
VVB assessment				**Date:** 30-01-2024
VVB had reviewed the updated PDD. The change regarding the estimated the annual average for SDG 4 has been made by the PD as per their response above. Hence, finding is closed.				

APPENDIX 7. Assessment of Safeguarding Principles

Safeguarding Principles	Assessment Questions/ Requirements	How Project will achieve Requirements through design, management, or risk mitigation.	Validation team assessment
Principle 1. Human Rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the	The PD respects human rights and are not complicit in violence or human rights abuses.	The PA involves dissemination of improved cookstove which users are free to choose. This project is a voluntary action by the project developer and no risk and issues to the internationally proclaimed human rights are expected from this project. The PD respect human rights and are not

	Universal Declaration of Human Rights		complicit in violence or human rights abuses. No mitigation measure required. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.1.1 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	2. The Project shall not discriminate with regards to participation and inclusion	The PA does not discriminate with regards to participation and inclusion	The PA involves dissemination of improved cookstove which users are free to choose. There is no discrimination against any person or group regarding the possibility to buy a stove. No mitigation measure required. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.1.2 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 2. Gender Equality	1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women (a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.	Not relevant	This is not relevant for the project activity.
	(b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	Not relevant	This is not relevant for the project activity.
	(c) Restriction of women's rights or access to resources (natural or economic).	Not relevant	This is not relevant for the project activity.
	(d) Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.	Not relevant	This is not relevant for the project activity.
	2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work: (a) Where appropriate for the implementation of a PoA/VPA, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and	Not relevant	This is not relevant for the project activity.

	women in the identified tasks/activities.		
	(b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	Not relevant	This is not relevant for the project activity.
	(c) Ensure that these conditions do not limit the access of women or men, as the case may be, to PoA/VPA participation and benefits.	Not relevant	This is not relevant for the project activity.
	3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	No gender risks are envisaged in the PA.	The PA involves dissemination of improved cookstove which users are free to choose. There are no gender risks envisaged during the dissemination of cookstoves. No mitigation measure required. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.2.3 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	Not relevant	This is not relevant for the project activity.
Principle 3. Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	The PA reduces exposure to indoor air pollutants and smoke levels, further reducing incidence of respiratory illness compared to cooking on traditional biomass stoves using solid biomass fuel.	The improved cookstove will help to improve the air quality by reducing air pollution and thus avoids community exposure to increased health risks. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.3.1 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional, or religious values or intangible forms of culture?	Not relevant	This is not relevant for the project activity.
Principle 4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full, or partial)?	Not relevant	This is not relevant for the project activity.
Principle 4.3 Land Tenure and Other Rights	Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	Not relevant	This is not relevant for the project activity.
Principle 4.4 Indigenous People	Are indigenous peoples present in or within the area of influence of	Since this is a cookstove distribution project, there is no risk to land/territory claimed by indigenous peoples. Cookstoves will be distributed to all willing	This is not relevant for the project activity.

	the Project and/or is the Project located on land/territory claimed by indigenous peoples?	customers within the project boundary.	
Principle 5. Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	The PD does not promote / or is complicit in direct or indirect corruption.	The PA does not in any way promote or complicity corruption. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.5.1 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 6.1 Labour Rights	1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions	The PA does not involve any forced labour and the PD ensures that all employment is in compliance with local labour regulations and laws.	The PA does not involve any kind of forced labour or compulsory labour. The validation team confirms that PA fulfils the GS certification requirement outlined in the para 3.6.1 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	2. Workers shall be able to establish and join labour organisations	The PD puts no constraints / limitation on employees to form a union.	The PD does not limit any of the employees to form unions or join labour organizations. The validation team confirms that PA fulfils the GS certification requirement outlined in the para 3.6.1 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	3. Working agreements with all individual workers shall be documented and implemented and include: a. Working hours (must not exceed 48 hours per week on a regular basis), AND b. Duties and tasks, AND c. Remuneration (must include provision for payment of overtime), AND d. Modalities on health insurance, AND e. Modalities on termination of the contract with provision for voluntary resignation by employee, AND f. Provision for annual leave of not less than 10 days per year, not including sick and casual leave.	The PD's policies and employment contracts are compliant with the requirement	The PA does not involve any kind of forced labour or compulsory labour. This has been checked and confirmed during the interview conducted during on-site visit. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.6.1 (b) of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion)	The PD does not promote / or is complicit in child labour	The PA does not involve any kind of child labour and the PD shall take adequate steps to ensure the age validation process is thoroughly carried out while recruitment. The validation team has checked and confirmed this based on a review of the supporting

			documents and onsite interviews. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.6.2 of the GS4GG safeguarding principles requirements version 1.2 /B01/.
	5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures	Not relevant	This is not relevant for the project activity.
Principle 6.2 Negative Economic Consequences	Does the project cause negative economic consequences during and after project implementation?	No negative economic consequences are deemed applicable	No negative economic consequences are deemed applicable. This is not relevant for the project activity.
Principle 7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	The PA reduces GHG emissions relative to baseline scenario	The project involves dissemination of improved cookstove which will reduce GHG emissions compared to the baseline scenario. This is not relevant for the project activity.
Principle 7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	The project will reduce fuel resource consumption instead	The improved cookstove does not use energy from local grid or power supply. The cook stove requires charcoal as an energy source. The project will reduce fuel resource consumption. The validation team confirms that PA fulfils the GS requirement outlined in the para 3.7.2 of the GS4GG safeguarding principles requirements version 1.2 /B01/
Principle 8.1 Impact on Natural Water Patterns/Flows	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	Not applicable	This is not relevant for the project activity.
Principle 8.2 Erosion and/or Water Body Instability	Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	The PA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling.	The project involves dissemination of improved cookstove and does not in any way cause additional erosion and/or water body instability or disrupt the natural pattern of erosion. The PA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling. The validation team confirms that PA fulfils the GS requirement outlined in the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 9.1 Landscape	Does the Project involve the use of land and soil for	Not applicable	This is not relevant for the project activity.

Modification and Soil	production of crops or other products?		
Principle 9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	Not applicable	This is not relevant for the project activity.
Principle 9.3 Genetic Resources	Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	Not applicable	This is not relevant for the project activity.
Principle 9.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	The PA reduces indoor air pollution relative to baseline scenario	The project involves dissemination of improved cookstove which will reduce indoor air pollution compared to the baseline scenario. This is not relevant for the project activity.
Principle 9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Not applicable	This is not relevant for the project activity.
Principle 9.6 Pesticides & Fertilisers	Will the Project involve the application of pesticides and/or fertilisers?	Not applicable	Not applicable
Principle 9.7 Harvesting of Forests	Will the Project involve the harvesting of forests?	The PA does not involve harvesting of forests. The PA shall result in reduction in demand of biomass fuel in the region putting less pressure of forests for deforestation and will hence indirectly avoid erosion associated with tree cutting/ felling.	The PA involves in the reduction of charcoal consumption therefore it will positively support the forest resources. The verification team confirms that PA fulfils the GS requirement outlined in the GS4GG safeguarding principles requirements version 1.2 /B01/.
Principle 9.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	Not applicable	This is not relevant for the project activity.
Principle 9.9 Animal husbandry	Will the Project involve animal husbandry?	Not applicable	This is not relevant for the project activity.
Principle 9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	Not applicable	This is not relevant for the project activity.

Principle 9.11 Endangered Species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	Not applicable	This is not relevant for the project activity.