

### **VALIDATION REPORT**

# TRANSFORMATIVE COOKSTOVE ACTIVITY IN RURAL GHANA

Title of the Mitigation Activity	Transformative Cookstove Activity in Rural Ghana
Version number of the validation report	2.0
Completion date of the validation report	3 <sup>rd</sup> February 2023
MADD date and version number	17/01/2023, 4.0
Transferring Country	Republic of Ghana
Managing entity in transferring country	ACT Commodities
Receiving country and its entity	Swiss Confederation, KliK Foundation
Applied Methodology	GS Methodology – REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 4.0
Sectoral scope	3: Energy demand
Sector	Improved Cookstoves (ICS)
Approved by	



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### 1 INTRODUCTION

### 1.1 Objective

ACT Commodities has commissioned the VVB, Carbon Check (India) Private Ltd. to perform a validation of the Paris Agreement – Article 6 Mitigation Activity "Transformative Cookstove Activity in Rural Ghana." This report summarizes the findings of the validation of the mitigation activity, performed on the basis of the following:

- Paris Agreement Articles 6(1)-(3)
- Glasgow Decisions on Article 6.2 -/CMA.3: Annex Paragraphs 3-5 (participation), 18 af (initial report), 18 g-h (Information on the mitigation activity)
- Cooperation Agreement Between the Republic of Switzerland and the Republic of Ghana Towards the Implementation of the Paris Agreement
- Swiss CO2 Act, Article 6
- Ordinance to the draft CO2 Law.: Art. 105 and Annex 20, Art 106, 108
- Communication by the Federal Office for the Environment in its capacity as enforcement authority of the CO2 Ordinance on "Emission Reduction and Carbon Storage Projects and Programmes
- Gold Standard's Technologies and Practices to Displace Decentralized Thermal Energy Consumption ver. 4

This report contains the findings and resolutions from the validation of the mitigation activity.

The purpose of a validation is to have a thorough and independent assessment of the proposed mitigation activity against the applicable requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant and host Party criteria. These are validated to confirm that the activity design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all mitigation activities and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, ITMOs.

### 1.2 Scope and Criteria of the Validation

The validation scope is defined as an independent and objective review of the Mitigation Activity Design Document (MADD), activity design, the activity's baseline study and monitoring plan and other relevant documents. The MADD is reviewed against the relevant criteria and decisions, including the approved baseline and monitoring methodology. Carbon Check has employed a



risk-based approach in the validation, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the mitigation activity proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the activity design.

The validation is carried out on the basis of the following requirements, applicable for this mitigation activity:

- Paris Agreement Articles 6(1)-(3)
- Glasgow Decisions on Article 6.2 -/CMA.3: Annex Paragraphs 3-5 (participation), 18 af (initial report), 18 g-h (Information on the mitigation activity)
- Cooperation Agreement Between the Republic of Switzerland and the Republic of Ghana
   Towards the Implementation of the Paris Agreement
- Swiss CO2 Act, Article 6
- Ordinance to the draft CO2 Law.: Art. 105 and Annex 20, Art 106, 108
- Communication by the Federal Office for the Environment in its capacity as enforcement authority of the CO2 Ordinance on "Emission Reduction and Carbon Storage Projects and Programmes
- Methodology: Gold Standard's Technologies and Practices to Displace Decentralized Thermal Energy Consumption ver. 4
- Other relevant rules, including participating parties' legislations.

#### 1.3 Level of Assurance

$\boxtimes$	Reasonable level of assurance
	Limited level of assurance

### 1.4 Summary Description of the Activity

The proposed mitigation activity employs a Gold Standard (GS) methodology; Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 4 /B01/. The mitigation activity involves distribution of energy efficient improved cook stoves (ICS) in the Republic of Ghana. The first phase of the activity is envisaged to be implemented by 2023-24 (Phase I – consisting of distribution of 60,000 ICS followed by distribution of 60,000 ICS each in phase II and phase III) and the crediting period of the Activity shall be 8 years. Upon successful



completion of Phase 1, the activity will be scaled up by another 60,000 ICS in Phases II and III each.

Mitigation activity proponent has considered distribution of Envirofit Super Saver Charcoal and the Envirofit Super Saver Firewood stoves in the first phase of the mitigation activity having thermal efficiency of 56.2% and 38.3% respectively. /03/

The managing entity and the legal owner of the activity is ACT Commodities /08/. Envirofit is ACT's exclusive counterparty and technology provider, where Envirofit International is the project co-developer and implementer, responsible for the overall operation of the mitigation activity and the technology provider. Envirofit Ghana is the local entity of Envirofit International in Ghana, who will oversee implementation and provide project management support to local partners, as needed.

The estimated GHG emission reductions over the crediting period, expected from the activity are 3,850,824 tCO<sub>2</sub>e and an average of 481,353 tCO<sub>2</sub>e per year. /02/

### 2 VALIDATION PROCESS

#### 2.1 Method and Criteria

ACT Commodities has commissioned Carbon Check (India) Private Ltd., to carry out the validation of the mitigation activity "Transformative Cookstove Activity in Rural Ghana", with regards to the relevant requirements.

The validation includes a thorough and independent assessment of the proposed activity against the applicable requirements stated in section 1.1 and 1.2 of the Validation report and the project's baseline, monitoring plan and the project's compliance with relevant host parties' criteria. The validation involves assessment of the activity and to confirm that it meets the applicability conditions of the selected methodology, TPDDTEC, version 4 /B01/ and assess the claims and assumptions made in the MADD without limitation on the information provided by the mitigation activity proponents. The overall validation was conducted using Carbon Check's internal procedures.

#### 2.2 Document Review

The MADD, emission reduction calculation spread sheet and supporting documents related to the activity design and baseline were reviewed as per Paris Agreement – Article 6 requirements. The desk review included:

A review of the data and information presented to verify completeness and consistency.



- A review of the activity description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project's compliance with relevant criteria stated in sections 1.1 and 1.2 of the Validation report.

Furthermore, the validation team used additional documentation by third parties like host-parties' legislation, technical reports referring to the activity design or to the basic conditions and technical data.

#### 2.3 Validation team

Carbon Check (India) Private Ltd. has appointed a competent team as per the UNFCCC Accreditation Standard and CCIPL's internal procedures. Further details regarding team competence can be found in Appendix 2. The team is outlined below:

No.	Role	Last Name	First Name	Affiliation
1.	Team Leader / Technical Expert	Anand	Amit	
2.	Team Member	Agarwalla	Sanjay Kumar	
3.	Trainee Assessor	Nadkarni	Tanvi	COLDI
4.	Local Expert	Sondo	Venan	CCIPL
5.	Technical Reviewer & Approver	Singh	Vikash Kumar	
6.	Quality Manager	Suman	Priya	

### 2.4 Internal quality control

Before the assessment begins, members of the team covering the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the mitigation activity are appointed. Following the completion of the assessment process by the validation team, all documentation underwent an internal quality control through a technical review before submission to the client. The technical reviewer is a qualified member of CCIPL, independent from the team that carried out the validation of the mitigation activity (MA) programme. The technical reviewer appointed for the technical review is qualified in the technical area and sectoral scope of the MA.

#### 2.5 Interviews



Interviews with the mitigation activity proponent representatives and stakeholders were undertaken from 22<sup>nd</sup> November 2022 till 24<sup>th</sup> November 2022 in Ghana to confirm the information presented to the validation team and to resolve issues identified in the document review.

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

8	8 7			S. Carlotte and Car
	Date	Name	Organisation	Topic
1.	22/11/2022 – 24/11/2022	Rohit Lohia	Envirofit International	Activity Design     Start date of the activity and location     Baseline Scenario
2.	22/11/2022 – 24/11/2022	Biodun Olaore	Envirofit International	Baseline     Identification and     Additionality
3.	22/11/2022 – 24/11/2022	Emmanuel Osae- Nyarko	Envirofit International	Monitoring and reporting documentation     Quality Assurance – Management and operating system     Social and Environmental Impacts     Local stakeholder consultation and grievance system     Compliance with relevant laws     Ownership     Implementation status
4.	22/11/2022	yo		Baseline scenario     Distribution of ICS
5.	22/11/2022	yo		<ul> <li>Data capture</li> <li>Monitoring and reporting</li> <li>Grievance system</li> </ul>
6.	24/11/2022	Daniela Lampry	Article 6 Office, EPA, Ghana	Ghana's NDC     Authorization of mitigation outcomes     Ghana's Framework for Article 6.2 Cooperate Approach     Social, Environmental and



				Governance safeguards  Sustainable development benefits  Suitability of project technology (ICS) and eligibility of project type  Enhanced Action, Attribution and Double counting  Baseline scenario
7.	06/12/2022	Raphael Eberle (Remote interview)	ACT Commodities	<ul> <li>Activity Design</li> <li>Activity start date and location</li> <li>Baseline Scenario</li> <li>Baseline Identification and Additionality</li> <li>Monitoring and reporting documentation</li> <li>Quality Assurance – Management and operating system</li> <li>Social and Environmental Impacts</li> <li>Local stakeholder consultation and grievance system</li> <li>Compliance with relevant laws</li> <li>Ownership</li> <li>Implementation status</li> </ul>

### 2.6 Site Inspections

Site Locations: Accra & Kumasi in Republic of Ghana

A site visit was undertaken by the validation team on 22<sup>nd</sup> November 2022 to 24<sup>th</sup> November 2022 to carry out the following:

- An assessment of the activity design, location, status of the mitigation activity as per the MADD.



- Interviews with relevant personnel to determine whether the existing scenario is in accordance with the baseline surveys conducted by the mitigation activity proponent.
- A cross check between information provided in the MADD and relevant data sources.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.

The assessment team has verified sufficient appropriate audit evidence, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance.

### 2.7 Resolution of Findings

This section summarizes the findings from the validation of the mitigation activity. In this section the findings from the document review, site visit, assessments and interviews are provided.

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

#### Corrective action requests (CAR) are issued, where:

- mistakes have been made with a direct influence on activity results requiring adjustments of the ITMOs monitoring report;
- ii. applicable methodological specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

#### A **forward action request (FAR)** should be issued, where:

- the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- ii. an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high quality emissions reductions in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions.

A total of 07 CARs and 09 CLs have been raised for the validation of the mitigation activity. Please refer to Appendix 4 below for the details of the raised findings are their closure.



### 3 VALIDATION FINDINGS

#### 3.1 Mitigation Activity Details

The mitigation activity "Transformative Cookstove Activity in Rural Ghana" employs baseline and monitoring gold standard (GS) methodology; Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) version 4 /B01/. The activity involves distribution of fuel-efficient improved cook stoves (ICS) in the Republic of Ghana. The crediting period of this activity is 8 years and results in reducing the amount of non-renewable biomass (firewood and charcoal) used for cooking. Through reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. The completeness and accuracy of the activity description was validated through desk review and on-site visit interviews.

The first phase of the activity i.e, distribution of 60,000 ICS will be implemented by 2023 and the crediting period of the mitigation activity is 8 years starting from 1<sup>st</sup> April of 2023 until 2030. The activity aims at distributing 60,000 ICS each in phase II and phase III. Mitigation activity proponent has considered distribution of Envirofit Super Saver Charcoal and the Envirofit Super Saver Firewood stoves in the first phase of the mitigation activity having thermal efficiency of 56.2% and 38.3% respectively with a life span of 7 years. This was confirmed by reviewing the technical specifications of the stoves /03/.

ACT is the managing entity and legal owner of the mitigation activity /08/. Envirofit is ACT's exclusive counterparty and technology (ICS) provider that will oversee local implementation as well as management support of local partners, as needed. Distribution of the ICS will be handled by local implementation partners that are active in Ghana's agricultural sector and are thus able to deliver large quantities of ICS to their networks. The Institutional setup has been appropriately determined and demonstrated in section 3 of the MADD /01-2/, which was confirmed by the means of on-site visit interviews.

The expected start date of the mitigation activity is 1<sup>st</sup> April 2023 which is the expected date of distribution of first ICS. The start date of the crediting period of the activity is 1<sup>st</sup> April 2023 and the end date is 31<sup>st</sup> December 2030.

The total estimated emission reductions over the crediting period are 3,850,824 tCO<sub>2</sub>e with an average of 481,353 tCO<sub>2</sub>e per year /02/.

The activity location, geographic and system boundary is that of the Republic of Ghana.

The scope of the activity is scope 3 i.e., Energy Demand. The mitigation activity aims at strengthening the demand side of the Ghanaian ICS sector by freeing up resources that were previously tied up in the collection or purchase of biomass for cooking purposes. On the supply



side, the activity aims at strengthening the Ghanaian ICS sector by providing skilled labour and generating employment in various sectors.

The mitigation activity also aims at positive transformation on the demand side by implementing a dedicated Transformative Technology Access (TTA) Fund that will provide micro-credits to the activity beneficiaries which has been adequately elaborated in section 1.2.6 of the MADD /01-2/.

### 3.2 Application of Methodology

The activity applies a Gold Standard (GS) methodology: "REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)", Version 4.0,

The associated tools and guideline documents in the activity include:

- CDM TOOL30 "Calculation of the fraction of non-renewable biomass" version 03.0 /B02/
- Article 6.2 of the Paris Agreement
- Cooperation Agreement between the Republic of Switzerland and the Republic of Ghana towards the implementation of the Paris agreement /12/
- Ghana's Framework for Article 6.2 Cooperate Approach /07/

The applicability criteria for the baseline methodology are assessed by the validation team by means of document reviews and site visit interviews. It is agreed in the validation team's opinion that the project activity fully met the criteria as described below:

S. No.	Applicability Criteria	Validation team assessment
20 1	The methodology is applicable under the followin	g conditions:
a.	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 methodology criterion is fulfilled by the mitigation activity as it aims to distribute Envirofit Super Saver Charcoal and the Envirofit Super Saver Firewood ICS in the first phase of the activity having thermal efficiency of 56.2% and 38.3% respectively. This was confirmed by the validation team by reviewing the technical specifications of the aforementioned ICS models.



b.	energy out	ology shall have continuous useful tput of less than 150kW per unit, ntinuous useful energy output" is ove.	This criterion of the methodology will be confirmed after the distribution of the activity stoves to the end-users which must be addressed by the mitigation activity proponent during verification.
C.	developer participants template. institutions community	t activity is implemented by a project and can include additional project is listed in Appendix 2 of the PDD. The individual households and may be represented collectively by a organizations, etc., but do not act as project participants.	The validation team by the means of on-site visit interviews confirms that the mitigation activity is implemented by a project developer and the end-users do not individually act as activity proponents.
d.	mechanism fast as p inefficient to the project	et developer must design incentive n(s), which should be effective as cossible, for the elimination of paseline stoves that are replaced by a cooking devices and describe the nechanism(s) in the PDD/VPA-DD at validation.	The validation team by the means of MADD review and on-site visit interviews confirms that an incentive mechanism has been developed and described satisfactorily in the MADD.
e.		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	The activity proponent has provided stove user agreement template /11/ with a provision which states that "THIS STOVE HAS BEEN SPONSORED AND PROVIDED BY ENVIROFIT UNDER THE ARTICLE 6.2 OF THE PARIS AGREEMENT. ENVIROFIT OWNS THE RIGHT TO ANY CARBON REDUCTIONS / MITIGATION OUTCOMES FROM THE USE OF THIS TECHNOLOGY".  The activity proponent has also provided a dealeration /10/ stating
	ii.	inform and notify the end users that they cannot claim emission reductions from the project, and	provided a declaration /10/ stating that the Activity will be registered solely at the Ghana Carbon Registry, and the emission
	iii.	exclude from the project activity, cooking devices included in any	reductions will not be claimed through any other international



	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.	carbon standard such as, but not limited to, the Clean Development Mechanism, Verified Carbon Standard, or Gold Standard.  These are deemed acceptable to the validation team and therefore, this methodology criterion has been met.
f.	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.	This criterion is not applicable to the mitigation activity as it will not include distribution of solid fossil fuel or other improved fossil fuel cookstoves. The mitigation activity includes distribution of Improved cookstoves using firewood and charcoal as fuel.
g.	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. The specific requirements apply to both plantations established for the project activity and/or existing plantations that will supply biomass feedstock.	This criterion is not applicable to the mitigation activity as it does not make use of a new solid biomass feedstock in the project scenario.
h.	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	This criterion of the methodology will be confirmed after the distribution of the activity stoves to the end-users which must be addressed by the mitigation activity proponent during verification.



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 certification resulting from 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 independent agencies may be used as evidence, provided it is not more than 5 years old.

In accordance with section 3.6.1.2 of "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement", the activity applies an approved methodology under the Gold Standard and the validation team concludes that the activity satisfies and complies with the applicability criteria of the employed methodology, TPDDTEC (version 4.0)

### 3.3 System Boundary

The activity system boundary is in accordance with section 3.1.1 of the applied methodology, TPDDTEC (version 4.0), which states that:

- (a) The project boundary is the physical, geographical sites of the project technologies/practices including the fuel collection and production area.
  - i. Where the baseline fuel is woody biomass (including charcoal), the project boundary also includes the area within which this woody biomass is grown and collected.
  - ii. For projects using processed fuels, this boundary also includes the baseline and project fuel production (e.g. charcoal, plant oil) and solid waste and effluents disposal or treatment facilities associated with fuel processing.
  - iii. In cases where the project activity introduces the use of a new biomass feedstock into the project situation, the fuel production and collection area is the area within which this new biomass is produced, collected and supplied.
- (b) The target area is the region(s) or town(s) where the considered baseline scenario(s) are deemed to be uniform across political borders. This area could be within a single country, or



across multiple adjacent countries. The target area provides an outer limit to the project boundary in which the project has a target population.

The sources of greenhouse gas identified in the MADD /01-2/ are deemed to be appropriate and assessed below:

Direct and Indirect Emissions Sources		Gas	Included ?	Justification/Explanation
	Emission from	CO <sub>2</sub>	Yes	Important Source of emissions
Baseline	use of non- renewable	CH₄	Yes	Important Source of emissions
Scenario		N <sub>2</sub> O	Yes	Important Source of emissions
	biomass/Fossil fuel	Other	No	No other source identified
	Emission from use of non-renewable biomass/Fossil fuel	CO <sub>2</sub>	Yes	Important Source of emissions
Project		CH <sub>4</sub>	Yes	Important Source of emissions
Scenario		N <sub>2</sub> O	Yes	Important Source of emissions
		Other	No	No other source identified

Thus, the project boundary for this activity includes all individual households, which receive an ICS as appropriately stated in section 2.3 of the MADD /01-2/. The target area consists of households residing in rural areas across the Republic of Ghana. The physical delineation of the mitigation activity and the description of the emission sources and GHGs that are included in the system boundary are appropriate for the purpose of calculating project and baseline emissions for the mitigation activity. The validation team finds it to be in conformance with the applied methodology TPDDTEC (version 4.0) and the requirements of section 5.1 of the FOEN publication "Emission Reduction and Carbon Storage Projects and Programmes".

#### 3.4 Baseline Scenario

The procedure to identify the most plausible baseline scenario derived from the applied methodology has been applied correctly and is transparently and sufficiently documented in the MADD.

As prescribed in section 3.4 of the applied methodology, TPDDTEC (version 4.0) /B01/, baseline scenario is defined by the typical baseline fuel consumption patterns in a population that is targeted for adopting the new project technology. Hence, this "target population" is a representative baseline for the project activity.

A preliminary baseline survey to determine the baseline fuel consumption and the proportion of the different fuels i.e., firewood and charcoal, was conducted by the mitigation activity proponent. The baseline surveys will be conducted in line with standardized KPT protocol as available at



Clean Cooking Alliance website. Further, ex-post, baseline, and project KPTs will be conducted once every two years to capture the prevailing practices in the baseline (non-project) households.

The approved baseline methodology has been correctly applied to identify a realistic and credible baseline scenario, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed activity.

Technologies implemented under phase I of this activity are the Envirofit Super Saver Charcoal and the Envirofit Super Saver Firewood, with thermal efficiency of 56.2% and 38.3% respectively /03/. The average life span of these stoves is 7 years as per the technical specification provided by manufacturer /03/.

In absence of the mitigation activity, the target population will continue to rely on traditional cooking stoves. Thus, the above baseline scenario is considered to be accurate and in conformance with the requirements of section 3.4 of the applied methodology /B01/

#### 3.5 Additionality

According to Schedule 4 of "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement", the activity (Improved biomass cooking stoves) falls under whitelist category which is deemed automatically additional. Therefore, demonstration of technical and financial additionality is not required.

However, as per the requirement of section 6 of "Emission Reduction and Carbon Storage Projects and Programmes - A communication of the FOEN in its capacity as enforcement authority of the CO<sub>2</sub> Ordinance. State 2022", the mitigation activity proponent has demonstrated financial additionality by the means of Economic feasibility analysis and Common Practice analysis in section 2.7 of the MADD /01-2/. The validation team evaluated this method of demonstrating additionality and determined it to be suitable.

### 3.6 Double Counting

According to section 2.3 of the MADD, there are no direct contributions to the activity from climate finance sources or through governmental support. The emission reductions generated are solely through ICS sales which will be monitored. Activity beneficiaries sign a carbon waiver upon receipt of the Activity ICS, transferring the claim over the mitigation outcomes to the managing entity. Each ICS will have a unique identifier which is entered into a comprehensive sales & distribution database to avoid any double counting or claiming.

The validation teams deems that this is aligned with the Cooperation Agreement between the Republic of Switzerland and the Republic of Ghana towards the Implementation of the Paris Agreement and did not find any evidence of potential double counting during validation process.

### 3.7 Sustainable Development



The mitigation activity is expected to contribute to the following UN's Sustainable Development Goals (SDGs):

- SDG 1 No Poverty
- · SDG 3 Good Health and Well-being
- SDG 5 Gender Equality
- SDG 7 Affordable and Clean Energy
- . SDG 8 Decent Work and Economic Growth
- SDG 12 Sustainable Consumption and Production
- SDG 13 Climate Action

The following parameters will be monitored to achieve the above stated SDGs

SDG	Target and Indicator	Monitoring parameter/(s)
Goal 1: No Poverty	1.4 - By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.  1.4.1 - Proportion of population living in households with access to basic services.	Number of project users using ICS as primary stove under the Activity.      Average Household Money saving (GHC) due to reduction in purchased fuel consumption in the Activity.
Goal 3: Good Health and Well-being	3.9 - By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.  3.9.1 - Mortality rate attributed to household and ambient air pollution	<ul> <li>Number of users reporting reduction in smoke/PM after shifting to ICS in Activity</li> <li>Number of households reporting reduction in visits to medical facilities/dispensary for treatment of respiratory issues etc. such as cough, shortness in breath, pneumonia and other respiratory issues</li> </ul>
Goal 5: Gender Equality	5.4 - Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	<ul> <li>Average Time saved per day (hrs) due to reduction in time spent in collecting fuel / cooking in Activity.</li> <li>Utilization of time saved from fuel collection / reduced</li> </ul>



	5.4.1 - Proportion of time spent on unpaid domestic and care work, by sex, age and location	cooking into paid / economic / revenue generating work (hrs).
Goal 7: Affordable and Clean	7.1 By 2030, ensure universal access to affordable, reliable, and modern energy services	% users reporting an operational ICS in the Activity
Energy	7.1.2 - Proportion of population with primary reliance on clean fuels and technology	
Goal 8: Decent Work and	8.5 - By 2030, achieve full and productive employment and decent work for all women and men, including for young people and	<ul> <li>Number of male / female employment created by project</li> </ul>
Economic Growth	persons with disabilities, and equal pay for work of equal value	Total number of employees earning above local minimum
	8.5.1 - Average hourly earnings of female and male employees, by occupation, age, and persons with disabilities	wage
Goal 12: Sustainable Consumption	12.2 - By 2030, achieve the sustainable management and efficient use of natural resources	<ul> <li>Average Fuel Consumption per household (tonnes/HH/year)</li> </ul>
and Production	12.2.2 - Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	
Goal 13: Climate Action	13.2 - Integrate climate change measures into national policies, strategies, and planning	<ul> <li>Amount of GHG emissions Avoided or sequestered by the project per year (tCO<sub>2</sub>eq).</li> </ul>
7.00011	13.2.2 - Total greenhouse gas emissions per year	

The validation team tracked the identification of the activity impacts on sustainable development and evaluated their justification considering the pre-activity conditions, the nature of the activity and its objectives, the available documented evidence, and their own judgement. The impacts have been clearly identified, and CCIPL could confirm that the projected contribution to SDGs has been properly ascribed.

#### 3.8 Stakeholder Consultation

Prior to the activity start, two types of stakeholders had been directly asked to comment on the activity which were the various ministries and authorities involved in Article 6 cooperation in Ghana, as well as the future Activity beneficiaries. The stakeholders were given a non-technical summary of the activity and were also given feedback forms.



The validation team determined that relevant ministries and authorities engaged in Ghana's Article 6 Cooperation were also consulted by reviewing over the approval letter from EPA dated April 21, 2022.

Additionally, a grievance mechanism for stakeholders to voice concerns, has been established under the Activity. Stakeholders will be able to voice their concerns via a Grievance Expression Book or via email. This was confirmed by the validation team during review of supporting document and on-site visit interviews.

The validation team confirms on the procedure and method for engagement, documentation, and account of all inputs to be received. The validation team confirms that the mitigation activity proponent will take due account of all inputs by stakeholders.

#### 3.9 Quantification of GHG Emission Reductions and Removals

# 3.9.1 Equations and parameters applied to calculate GHG emission reductions or net anthropogenic GHG removals

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the MADD/01/. The emission reductions of the mitigation activity would be calculated using the formulae mentioned in the applied GS methodology, TPDDTEC (version 4.0)

Validation team based on the review of the MADD, confirms that the formulae are correctly presented for the determination of emissions reductions. The parameters and equations presented in the MADD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology respectively. An equation comparison has also been made to ensure consistency between all the formulae presented in the MADD, ER spreadsheet and methodology TPDDTEC (version 4.0).

According to the applied methodology, TPDDTEC (version 4.0), the emissions are calculated following Method 1 where the baseline and project fuel(s) are identical and emission reductions are exclusively from improved efficiency. According to Equation 1 of the methodology, the ERs are calculated as follows:

$$\begin{split} ER_y &= \sum\nolimits_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO2} \\ &+ EF_{b,f,nonCO2})) - \sum LE_{p,y} \end{split}$$

Where:

$$ERy$$
 = Emission reduction for total project activity in year y (tCO<sub>2</sub>e/yr) 
$$\sum . = Sum over all relevant baseline b/project p pairs$$



Nb,p,y	=	Number of project technology-days included in the project database for baseline b/project p pair in year y (days)
Up,y	=	Cumulative Usage rate for technologies in project scenario p in year y (fraction)
SFSp,b,y	=	Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology*day)
NCVb, fuel	=	Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)
fNRB,b,y	=	Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
EFb,f,CO2	=	CO <sub>2</sub> emission factor from use of fuel f (tCO <sub>2</sub> /TJ)
EFb,f,nonCO2	=	Non-CO <sub>2</sub> emission factor arising from use of fuel f when the baseline fuel f is biomass or charcoal (tCO <sub>2</sub> e/TJ). This parameter is omitted when f is a fossil fuel.
LEp,y	=	Leakage for project scenario p in year y (tCO <sub>2</sub> e/yr)

This activity is assumed to achieve a total emission reduction of 3,850,824 tCO<sub>2</sub>e in the 8-year crediting period and an average of 481,353 tCO2e per year as indicated in the final MADD /01-2/ and in the ER spread sheet /02/.

In conclusion, all values used in the MADD to calculate emission reductions are considered reasonable in the context of the proposed activity and calculation approach is correct.

#### 3.9.2 Data and Parameters fixed ex ante

Ex-ante parameters provided under section 2.5.1 of the MADD /01-2/ are found to be appropriate and in line with the applied methodology TPDDTEC version 4.0.

Ex-ante parameters of the proposed MA are as follows:

	20.00		12 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	100
Parameter	Unit	Value	Verified Source	-0-



NCV <sub>b,fuel</sub> Net-calorific value of fuels used in the baseline	TJ/t	Wood: 0.0156 Charcoal: 0.0295	Methodology default value, which is obtained from table 2.5, volume 2, 2006 IPCC Guidelines for National Greenhouse Gas Inventories has been applied
f <sub>NRB,b,y</sub> Percentage of biomass that is considered non-renewable.	Fraction (%)	76.29	The value is calculated as per CDM Tool 30: Calculation of the fraction of non-renewable biomass (version 04.0). The values used for calculation are appropriate and deemed acceptable to the validation team.
EF <sub>b,f,CO2</sub> CO <sub>2</sub> emissions factor of fuels used in the baseline	tCO <sub>2</sub> e/TJ	Wood: 112 Charcoal: 165.22	Methodology default values has been applied
EF <sub>b,f,nonCO2</sub> Non-CO <sub>2</sub> emissions factor of fuels used in the baseline	tCO2e/TJ	Wood: 9.46 Charcoal: 44.83	Methodology default values has been applied
<i>LE<sub>p,y</sub></i> Leakage	Fraction (%)	95	Methodology default value has been applied
HHS Average household size in Ghana	Persons/household	TBD	This value will be determined after conduction of baseline surveys by the mitigation activity proponent

Based on the above assessment, it is confirmed that the data and parameters fixed ex-ante are considered to be accurate and in conformance with the requirements the applied methodology, TPDDTEC (version 4.0).

### 3.10 Monitoring Plan



The mitigation activity has correctly applied the approved baseline and monitoring gold standard (GS) methodology TPDDTEC, version 4.0 titled "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" /B01/. The monitoring plan provides detailed information related to the collection and archiving of all relevant data needed to:

- Estimate or measure emissions occurring from GHG sources, sinks and reservoirs
- Determine the emission reductions

The monitoring plan as per TPDDTEC, version 4.0 has been clearly described in the MADD. It covers all the monitoring parameters required to be monitored for determination of emission reductions due to the activity accurately.

The monitoring plan/procedure followed to measure the emission reduction is applied accurately and with a conservative approach.

#### 3.10.1 Data and Parameters to be monitored

Monitoring of the mitigation activity involves all the parameters necessary for calculation of GHG emission reduction by the proposed project activity. These parameters are mentioned in section 2.5.1 of the MADD. The parameters, which are to be monitored include:

Parameter	Unit	Value	Assessment
$SFS_{p,b,y}$ Fuel savings per stove per year	Tonnes/year	TBD	This value will be determined via ex-post Kitchen Performance Tests (KPTs) or Water Boiling Tests (WBTs) to comply with the requirements of the applied methodology, TPDDTEC (version 4.0)
N <sub>b,p,y</sub> Number of project technology-days	Stoves * days	TBD	This parameter will be monitored through ex-post sampling surveys. If during expost sampling surveys, sampled households are found to use more than one activity ICS, this value shall be discounted accordingly to ensure that only one ICS per household (having HHS size) is accounted in ER calculations. If the sampled household is sized larger than HHS, the applicable discount shall be adjusted accordingly.



U <sub>p,y</sub> Cumulative usage rate for Activity ICS in year y	Fraction (%)	90% is applied for ex-ante calculations only	This parameter will be monitored via ex-post sampling surveys.
U <sub>y</sub> Adjustment to account for any continued use of pre-project devices during the year y	Fraction	TBD	μy is Adjustment factor to account for the continued use of pre-project devices during the year y which will be obtained through monitoring survey.

Detailed responsibilities and authorities for project management, monitoring procedures, calibration procedures and QA/QC procedures have been presented and were verified during follow up interviews. The detailed monitoring practice is considered appropriate and the implementation of these will enable subsequent verification of the project's emission reductions.

All relevant data will be archived electronically and further maintained for the entire crediting period plus two years. Based on the above assessment the validation team concludes that the PP is capable to implement the monitoring plan and hence confirms compliance of VCS guidelines and the applied methodology /B01/.

### 4 VALIDATION CONCLUSION

The Mitigation Activity Proponent, ACT Commodities has commissioned Carbon Check (India) Private Ltd. (CCIPL) to validate the mitigation activity "Transformative Cookstove Activity in Rural Ghana", with regard to applicable requirements of Article 6.2 of the Paris Agreement and the information provided by the mitigation activity proponent related to the activity design, operation, monitoring and reporting.

CCIPL has reviewed the activity description presented in the MADD with supporting documents and subsequently carried out site visit interviews to confirm the fulfilment of stated criteria. The project intends to reduce GHG emissions by disseminating energy-efficient improved cookstoves (ICS) to replace existing traditional Cookstoves in domestic households and communities in the Republic of Ghana. A risk-based approach has been followed to perform this validation. During validation, 07 CARs and 09 CLs were raised which have been resolved by the activity proponent.

The mitigation activity has applied the baseline and monitoring methodology, TPDDTEC version 4.0: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption", which is an approved methodology under the Gold Standard (GS) programme. The baseline has been determined in accordance with the stated approved baseline methodology.

Analysis of the proposed activity reveals that the emission reductions resulting from the activity are real, measurable and give long term benefits and are additional to what would have occurred in the absence of the activity. The annual average emission reductions from the project activity



are estimated to be 481,353 tCO<sub>2</sub>e per annum. The emission reductions forecast has been checked and is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.

Based on the information provided by the managing entity, it is CCIPL's opinion that the project, "*Transformative Cookstove Activity in Rural Ghana*" in Ghana as described in the MADD, Version 4.0 dated 17<sup>th</sup> January 2023, meets all relevant requirements and correctly applied approved baseline and monitoring GS methodology TPDDTEC, version 4.0 /B01/.

CCIPL's validation opinion is purely based on the information made available to us by the project proponent during the course of validation and hence CCIPL cannot guarantee the accuracy or correctness of the information. Keeping this in mind, no party can hold CCIPL liable for any decisions made or not made in this report.

Vikash Kumar Singh
Technical Reviewer & Approver

Sanjay Kumar Agarwalla
Team Member

Amit Anand,
Team Leader / Technical Expert

Priya Suman
Quality Manager



## **APPENDIX 1: REFERENCE DOCUMENTS**

Ref No.	Document
/01/	Initial MADD version 3.3, dated 5/10/2022     Final revised MADD version 4.0, dated 17/01/2023
/02/	ITMO (ER) calculation spreadsheet v3.0
/03/	Technical specifications of the project stoves including their efficiency, percentage of fuel reduction, percentage of cooking time reduction and percentage of toxic emission reduction
/04/	Copies of all the relevant Statutory clearances like Environmental permit in accordance with schedule 3 of Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement
/05/	Agreement between the stove distribution agency i.e., and stove manufacturer i.e., Envirofit
/06/	Agreement between the managing entity i.e., ACT commodities and stove manufacturer i.e., Envirofit
/07/	Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement
/08/	Evidence for project ownership of the activity: Letter of Intent for Transformative Cookstove Activity in Rural Ghana, dated 5 <sup>th</sup> March 2021
/09/	Company registration certificate for the Participating Entities
/10/	Declarations from PP that the project is not claiming any other environmental credits other than ITMOs, dated 2 <sup>nd</sup> January 2023
/11/	Sample template agreements with technology supplier and owner of each individual ICS clearly indicating the transfer of right of carbon credits to activity proponent
/12/	Cooperation Agreement between the Republic of Switzerland and the Republic of Ghana towards the Implementation of the Paris Agreement
/13/	Calculation of fNRB along with all supporting evidence for the values used
/14/	Draft policy stating performance requirements for thermal efficiency of improved cookstoves and minimum safety requirements
/15/	Approved Ghanian Test Method for testing of Activity stoves
/16/	<ul> <li>National Energy Policy, 2010</li> <li>Ghana NREAP (National Renewable Energy Action Plan, 2015-2020)</li> <li>Ghana NEEAP (National Energy Efficiency Action Plan, 2015- 2020)</li> </ul>
/17/	<ul> <li>Ghana Malaria Indicator Survey</li> <li>Ghana Statistical Service's Population and Housing Census</li> </ul>
/18/	Evidence for addressing grievance mechanism



/19/	Evidence for local stakeholders consultation
/20/	Informal feedback provided by BAFU, received on 28 July 2022.
/21/	Emission Reduction and Carbon Storage Projects and Programmes - A communication of the FOEN in its capacity as enforcement authority of the CO <sub>2</sub> Ordinance. State 2022
/22/	Letter of Intent for Transformative Cookstove Activity in Rural Ghana, dated 5 <sup>th</sup> March 2021
/23/	Letter of Assurance for pre-authorisation and confirmation of automatic additionality if mitigation activity is published in the "Whitelist".
/24/	Letter of Authorization Request (LOAR) and Letter of Authorization (LOA)
/25/	Terms of Reference: Validation of the Transformative Cookstove Activity in Rural Ghana
/26/	Life Cycle Assessment of Cooking Fuel Systems in India, China, Kenya, and Ghana (Basis for the value of thermal efficiency of baseline device using charcoal used for ex-ante calculation)
/27/	ICS Ghana Monitoring Sheet template
/28/	Ghana ITMO Letter of Authorization - Clarification from FOEN
/B01/	Applied baseline and monitoring GS methodology, TPDDTEC (version 4.0)
/B02/	CDM Tool 30: Calculation of the fraction of non-renewable biomass, Version 3.0



### **APPENDIX 2: ABBREVIATIONS**

**CDM** Clean Development Mechanism

BE Baseline Emission

CAR Corrective Action Request

CCIPL Carbon Check (India) Private Ltd.
CDM Clean Development Mechanism

CL Clarification Request CO₂ Carbon Dioxide

CO<sub>2e</sub> Carbon Dioxide Equivalent

DOE Designated Operational Entity

DVR Draft Validation Report
EB CDM Executive Board
EF Emission Factor
ER Emission Reduction
FAR Forward Action Request

**fNRB** Fraction of non-renewable biomass

FVR Final validation Report
GHG Greenhouse gas(es)
ICS Improved Cookstoves

IPCC Intergovernmental Panel on Climate Change
ITMO Internationally Transferred Mitigation Outcomes

LE Leakage emission
Liquefied petroleum gas
MA Mitigation Activity

MADD Mitigation Activity Design Document

MFI Microfinance Institution
MO Mitigation Outcome

MOPA Mitigation Outcome Purchase Agreement

NA Not Applicable

NDC Nationally Determined Contributions

OSV On Site Visit
PE Project Emission

**QA/QC** Quality assurance/Quality control

QR Quality Review

**SDG** Sustainable Development Goals

TPDDTEC Technologies and Practices to Displace Decentralized Thermal Energy

Consumption

TR Technical Review

TTA Transformative Technology Access

**UNFCCC** United Nations Framework Convention on Climate Change

VSLA Village Savings and Loan Associations



### **APPENDIX 3: CERTIFICATES OF COMPETENCE**







### **Carbon Check (India) Private Limited**

# Certificate of Competency

### Mr. Sanjay Agarwalla

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 Reviewer □ Health Expert ☐ Gender Expert ☐ Plastic Waste Expert ⊠ SDG+ Social no-harm(S+) ☑ Environment no-harm(E+) ☐ CCB Expert □ 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 10.1 ☑ TA 9.2 ☑ TA 13.1 ☑ TA 13.2 ☐ TA 14.1 ☐ TA 15.1 **Issue Date Expiry Date** 31st December 2023 1st January 2023 Mr. Vikash Kumar Singh Mr. Amit Anand

CCIPL\_FM 7.9 Certificate of Competency\_V2.1\_012023

**Compliance Officer** 

CEO





### **Carbon Check (India) Private Limited**

# Certificate of Competency

### Mr. Vikash Kumar Singh

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 Reviewer □ Health Expert ☐ Gender Expert ☐ Plastic Waste Expert ⊠ SDG+ Social no-harm(S+) ☑ Environment no-harm(E+) ☑ CCB Expert ☑ Local Expert for India, South Africa, and Spanish speaking countries in the following Technical Areas: ☑ TA 1.1 ☑ TA 1.2 ☐ TA 2.1 ☑ TA 3.1 **⊠** TA 4.1 ☐ 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 15.1 **Issue Date Expiry Date** 

> Mr. Amit Anand CEO

31st December 2023

CCIPL\_FM 7.9 Certificate of Competency\_V2.1\_012023

1st January 2023

Date: 17/01/2023



### APPENDIX 4: FINDINGS

#### Table 1: CLs from this Validation

CL ID 01 Date: 06/12/2022

#### **Description of CL**

MADD section 1.2.5 states that "ACT is the managing entity and legal owner of the Activity. Envirofit is ACT's exclusive counterparty and technology provider that will oversee local implementation as well as management support of local partners, as needed". The MADD, however, refers to two organisations namely Enivrofit Ghana and Envirofit International in sections 2.3.3 and 3.1.1 respectively. Clarify which of the two is involved in the proposed activity.

#### **Activity Proponent's response**

Envirofit International is the project co-developer and implementer, responsible for the overall operation of the mitigation activity and the technology provider. Envirofit Ghana is the local entity of Envirofit International in Ghana, who will oversee implementation and provide project management support to local partners, as needed.

#### **Documentation provided by Activity Proponent**

VVB assessment Date: 03/02/2023

The project proponent has satisfactorily defined the roles of *Envirofit International* and *Envirofit Ghana* with respect to the proposed mitigation activity. Therefore, this CL is closed.

CL ID 02 Date: 06/12/2022

#### **Description of CL**

In section 2.1.1 of the MADD, it is stated that "Baseline surveys specific to the targeted communities in the context of this Activity will be carried out in accordance with international best practice". Project proponent is requested to further provide clarity on the methodology to be applied in carrying out the baseline survey in the MADD.

#### **Activity Proponent's response**

The baseline surveys will be conducted in line with standardized KPT protocol as available at Clean Cooking Alliance website. Further, ex-post, baseline and project KPTs will be conducted once every two years to capture the prevailing practices in the baseline (non-project) households.

#### **Documentation provided by Activity Proponent**

VVB assessment Date: 03/02/2023

The approach that will be used to conduct the baseline survey has been sufficiently explained by the project proponent. Therefore, this CL is closed.

CL ID 03 Date: 06/12/2022

#### **Description of CL**

In section 2.2 of the MADD, it is stated that the activity's crediting period is 8 years, from Q1 2023 to 2030. However, in the Excel spreadsheet titled "ITMO Ghana ER Sheet v 2.0" under tab "ER Projections" the stove distribution timeframe stretches from April 2022 to December 2030. This discrepancy between the MADD and the spreadsheet needs to be clarified.

#### **Activity Proponent's response**

The ER spreadsheet has been revised to ensure consistency with MADD. The crediting period now stretches from April 2023 to Dec 2030. The ICS distribution timeframe is from Apr 2023 to Dec 2025.

#### **Documentation provided by Activity Proponent**

Date: 17/01/2023



ITMO Ghana ER Sheet v 3.0 17012023

VVB assessment Date: 03/02/2023

In order to maintain consistency with the information provided in the MADD, the project proponent has updated the ER spreadsheet to include the stove distribution timeframe of April 2023 to December 2025 and the crediting period of April 2023 to December 2030. Therefore, this CL has been closed.

CL ID 04 Date: 06/12/2022

**Description of CL** 

In section 2.5.2 of the MADD, it is stated that a leakage factor of 5% has been considered while calculating the mitigation outcomes. However, the same has not been demonstrated in the ER Spreadsheet.

Activity Proponent's response Date: 17/01/2023

The ER sheet has been revised to incorporate the same.

Documentation provided by Activity Proponent

ITMO Ghana ER Sheet v 3.0 17012023

VVB assessment Date: 03/02/2023

The project proponent has revised the ER spreadsheet to incorporate a leakage factor of 5% while calculating the mitigation outcomes. Therefore, this CL is closed.

CL ID 05 Date: 06/12/2022

**Description of CL** 

Project proponent has not addressed the applicability conditions of the applied methodology, TPDDTEC version 4.0 in line with section 2.2 of the same, in the MADD.

Furthermore, according to section 2.2.1 (b) of the applied methodology, TPDDTEC (version 4), The technology shall have continuous useful energy output of less than 150kW per unit. The same has not been demonstrated in the MADD or the ER calculation sheet. As per the meth, FAR to be raised if this info is not available at this stage.

Activity Proponent's response Date: 17/01/2023

MADD template does not has any provision for justification of meth applicability. Furthermore, the capacity of each ICS distributed within the project is far less than 150 kW equivalent, and it can be verified by the technical specifications of the ICS models submitted.

**Documentation provided by Activity Proponent** 

Envirofit Product Catalog

VVB assessment Date: 03/02/2023

Since the MADD template does not include a clause for demonstrating the meth applicability, the validation team finds the MADD to be acceptable despite the lack of this rationale.

According to the technical specifications, the ICS that will be delivered during phase I of the mitigation activity has a continuous useful energy output of less than 150kW per unit. Therefore, this CL is closed.

CL ID 06 Date: 06/12/2022
Description of CL

Date: 17/01/2023

Date: 17/01/2023

Date: 17/01/2023



In the MADD, it is stated that the ICS to be distributed under this activity has a lifespan of 7 years and the crediting period for the mitigation activity is taken as 8 years.

Clarification is needed as to how the activity will comply with section 2.3.2 of the applied methodology, TPDDTEC (version 4), which states that, "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".

#### Activity Proponent's response

The PP confirms to either replace the ICS after the end of its life with an equivalent device or otherwise cease to claim credits after the end of rated lifespan of a project device. The same has been added as footnote on page 4 of the MADD.

#### **Documentation provided by Activity Proponent**

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

The MADD has been revised by the project proponent to include a clause that states that if the estimated lifespan of the project devices is shorter than the crediting period, either these devices will be replaced after they have reached the end of their expected lifespan, or else emission reductions will only be claimed up until the end of the projected lifespan of the project devices. Therefore, this CL is closed.

CL ID 07 Date: 06/12/2022

#### **Description of CL**

Excel spreadsheet titled "ITMO Ghana ER Sheet v 2.0" under tab "ER Projections" shows two different Bold values for wood. Relevance for the same needs to be clarified.

#### **Activity Proponent's response**

This was a typographically error, one value of  $B_{old}$  is for charcoal and the other is for wood. This has now been revised in the "ER profile" tab of the ER Spreadsheet.

#### **Documentation provided by Activity Proponent**

ITMO Ghana ER Sheet v 3.0 17012023

VVB assessment Date: 03/02/2023

The ER spreadsheet has been revised to indicate  $B_{\text{old}}$  values for wood and charcoal. Therefore, this CL is closed.

CL ID 08 Date: 06/12/2022

#### **Description of CL**

The MADD, at several places, does not follow universal numbering format i.e., using point instead of comma as a decimal separator.

#### Activity Proponent's response

MADD has been revised accordingly to consider universal numbering format.

#### Documentation provided by Activity Proponent

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

The project proponent has revised the MADD to appropriately apply the universal numbering format. Therefore, this CL is closed.

CL ID 09 Date: 06/12/2022



#### **Description of CL**

Number of operational ICS is determined using surveys (parameters Up,y and Nb,p,y). Clarification is requested on how the chosen method is accurate and conservative.

As per TPDDTEC v4.0, page 34 it is important to account for "stove-stacking". That is, household shall not only possess ICS but it has to be ensured that they indeed use them. Clarification is requested on how this issue will be complied with.

#### **Activity Proponent's response**

Date: 17/01/2023

Date: 17/01/2023

Managing entity confirms that the chosen method to determine  $U_{p,y}$  and  $N_{b,p,y}$  is accurate, credible and conservative. Statistical sampling will be done for sample size calculation and samples will be selected randomly though online random number generator. During monitoring survey, besides, seeking feeback from the primary user on ICS usage, visual inspection will also be made to determine ICS usage for eg:

- 1) Whether the ashes inside or nearby present of ICS
- 2) Whether the ICS is warm to touch

Note that the credibility of results established via monitoring will be cross-checked by an independent third party auditing agency during verification.

It is possible that baseline technologies are still used in the project activity along with the project devices. If such stacking takes place, this shall be captured in the final value of specific fuel savings determined by the KPTs. Given KPT is a virtue of the kitchen that is being monitored, any baseline stove usage, would get reflected in the higher fuel consumption of the household, and thus lower SFS value.

#### **Documentation provided by Activity Proponent**

VVB assessment Date: 03/02/2023

The project proponent has satisfactorily justified the conservativeness of the method used for determination of number of operational ICS and the method to account for stove stacking, which is acceptable to the validation team. Therefore, this CL is closed.

#### Table 2. CARs from this Validation

CAR ID 01 Date: 06/12/2022

#### **Description of CAR**

The MADD does not cover all general information criteria in section 1.1 when compared with the MADD template provided in "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement."

#### **Activity Proponent's response**

Section 1.1 of the MADD has been revised as per the MADD template provided in "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement."

#### **Documentation provided by Activity Proponent**

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

The project proponent has satisfactorily revised the MADD in accordance with the MADD template provided in "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement." Therefore, this CAR is closed.

CAR ID 02 Date: 06/12/2022

#### **Description of CAR**

The figure of total and average number of ITMOs for transfer reported in section 1.1 of the MADD does not match with the figures reported in the spreadsheet titled "ITMO Ghana ER Sheet v 2.0."

Activity Proponent's response Date: 17/01/2023



The figure of total and average number of ITMOs for transfer in section 1.1 of the MADD has been revised to ensure consistency with ER spreadsheet.

**Documentation provided by Activity Proponent** 

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

The figure of total and average number of ITMOs for transfer are now consistent between the MADD and the ER spreadsheet. Therefore, this CAR is closed.

CAR ID 03 Date: 06/12/2022

#### Description of CAR

The MADD does not cover all parameters fixed ex-ante and those to be monitored in accordance with sections 3.14 and 4.2 of the applied methodology, TPDDTEC (version 4.0).

Activity Proponent's response Date: 17/01/2023

The MADD uses the equation 1 of the TPDDTEC ver 4.0 for calculation of emission reductions and accordingly, all requisite ex-ante fixed and ex-post monitoring parameters have been listed in the MADD. The MADD does not lists non relevant ex-ante fixed / ex-post monitoring parameters applicable under other methodological choices not exercised by the project.

**Documentation provided by Activity Proponent** 

VVB assessment Date: 03/02/2023

The MADD covers all the relevant parameters in section 2.6.1 of the MADD in accordance with sections 3.14 and 4.2 of the applied methodology, TPDDTEC (version 4.0). Therefore, this CAR is closed.

CAR ID 04 Date: 06/12/2022

#### **Description of CAR**

MADD does not demonstrate compliance with section 2.3.1 of the applied methodology, TPDDTEC (version 4.0), which states that, "The project shall not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply or fuel supply or use. The project shall document the national, regional and local regulatory framework for provision of thermal energy services of the type the project provides in the project boundary."

#### Activity Proponent's response

Please refer section 2.7 of the MADD, where it is clearly mentioned that the Activity is not mandated by any enforced law, statute, or other regulatory framework.

As per the National Energy Policy, 2010 the Government of Ghana will promote the use of improved wood fuel burning equipment for cooking in households and other commercial activities and using an ICS for cooking is not a mandatory requirement in the host country.

Further as per the Ghana NREAP (National Renewable Energy Action Plan, 2015-2020) and NEEAP (National Energy Efficiency Action Plan, 2015- 2020) the Government has been promoting the use of improved cookstoves and other cleaner alternative cooking fuels. To that end, it is estimated that about 1 million cookstoves are being used currently (2015), and the goal is to ensure that by 2020, 2 million households will be using improved cookstoves. There is no law that binds the households to use only clean cookstoves or clean fuel for cooking.

#### **Documentation provided by Activity Proponent**

- 1. National Energy Policy, 2010
- 2. Ghana NREAP (National Renewable Energy Action Plan, 2015-2020)
- 3. Ghana NEEAP (National Energy Efficiency Action Plan, 2015- 2020)

VVB assessment Date: 03/02/2023

Date: 17/01/2023



The project proponent has satisfactorily explained that the mitigation activity does not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply or fuel supply or use as it is not mandated by any enforced law, statute, or other regulatory framework. Therefore, this CAR is closed.

CAR ID 05 Date: 06/12/2022

#### **Description of CAR**

ITMO mitigation activity start date is not specified in the MADD to comply with the requirements of section 2.8.1 of the FOEN publication "Emission Reduction and Carbon Storage Projects and Programmes."

#### **Activity Proponent's response**

Start date of ITMO mitigation activity is now specified in the section 2.2 of the MADD to comply with the requirements of section 2.8.1 of the FOEN publication "Emission Reduction and Carbon Storage Projects and Programmes."

#### **Documentation provided by Activity Proponent**

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

Project proponent has revised section 2.2 of the MADD to include the start date of the mitigation activity. Therefore, this CAR is closed.

CAR ID 06 Date: 06/12/2022

#### **Description of CAR**

Section 5.1 of the FOEN publication "Emission Reduction and Carbon Storage Projects and Programmes" states that the choice of system boundary must be justified and represented graphically in the project or programme description and must also list all the direct and indirect emission sources. However, the same is not covered in the MADD.

#### **Activity Proponent's response**

System boundary and Emission sources is now specified in the section 2.3 of the MADD to comply with the requirements of section 5.1 of the FOEN publication "Emission Reduction and Carbon Storage Projects and Programmes."

#### **Documentation provided by Activity Proponent**

MADD ICS Ghana v 4.0 17012023

VVB assessment Date: 03/02/2023

Project proponent has satisfactorily revised the MADD to specify the system boundary and emission sources in section 2.3 to comply with the requirements of section 5.1 of the FOEN publication *"Emission Reduction and Carbon Storage Projects and Programmes"*. Therefore, this CAR is closed.

CAR ID 07 Date: 06/12/2022

#### **Description of CAR**

Mitigation activity proponent has not demonstrated compliance with sections 3.3.3 and 3.3.5 under schedule 3 of "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement" referring to obtaining an Environmental Permit under the Environmental Impact Assessment Legislation (LI, 1652, 1999) and undertaking consultation with local and otherwise affected stakeholders regarding sustainable development respectively.

Activity Proponent's response Date: 17/01/2023



Please refer to the Environmental Impact Assessment Legislation (LI, 1652, 1999). Schedule 1 provides an overview of all activities that require an Environmental Permit. As per the same, none of the activities listed therein, cover the technology/measure involved in the mitigation activity. Thus, section 3.3.3 under schedule 3 is not applicable to the proposed mitigation activity.

Refer section 2.5.5 of the MADD for stakeholder engagement in line with section 3.3.5 under schedule 3 of "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement". Relevant ministries and authorities involved in Article 6 Cooperation in Ghana have been consulted as substantiated via the approval letter received from EPA dated 21 April 2022.

The PP has setup a grievance mechanism as per 3.3.5 of the schedule 3 of the Ghana's Article 6.2 Framework.

#### **Documentation provided by Activity Proponent**

Environmental Impact Assessment Legislation (LI, 1652, 1999)

Approval letter from EPA dated 21 April 2022

VVB assessment Date: 03/02/2023

Schedule 1 of Environmental Impact Assessment Legislation (LI, 1652, 1999) does not cover the technology covered under the mitigation activity that require an environmental permit. The validation team reviewed this and determined it to be appropriate.

Complying to the requirement of schedule 3.3.5 of "Ghana's Framework for Cooperative Approaches under Article 6.2 of the Paris Agreement", the project proponent has updated section 2.5.5 of the MADD to state that "Relevant ministries and authorities involved in Article 6 Cooperation in Ghana have been consulted as substantiated via the approval letter received from EPA dated 21 April 2022", for which credible supporting document has been provided. Also, a grievance mechanism has been set up which has been confirmed by the validation team by reviewing the supporting document. Therefore, this CAR is closed.

#### Table 3. FARs from this Validation

FAR ID	XX	Date: DD/MM/YYYY
Description	n of CAR	
Activity Pro	oponent's response	Date: DD/MM/YYYY
	Section (Control of Control of Co	
	ation provided by Activity Proponent	