GS VERIFICATION AND CERTIFICATION REPORT

- 2ND PERIODIC VERIFICATION

-

IMPROVED COOKING STOVES IN BANGLADESH

POA GS REF. NO.: 10833

REPORT NO: 8003041244-22/004

DATE: 16/03/2023

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Verification Report:	***Report No.***		***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8003041244-22/004		1.0	27/11/2022	16/03/2023
Programme of Activities:	***PoA Title:***			***project design certification***	***GS No.:***
	Improved Cooking Stoves in Bangladesh			23/08/2021	GS10833
	PoA Scale			***Verification No.:***	
	☐ Large Scale	☒ Small Scale		2nd periodic verification	
	Duration of the PoA:			***From:***	***To:***
	15 years (5-yr renewable cycle)			13/01/2016	12/01/2031
	Crediting period:				
	☒ *Renewable (5y)* ☐ *Fixed (10y)*			13/01/2016	12/01/2021
	VPA title:			***Inclusion date***	***GS No.:***
	VPA 01	Improved Cooking Stoves in Bangladesh – CPA No.12 "SZ Consultancy Services Ltd."		23/08/2021	GS10974
	VPA 02	Improved Cooking Stoves in Bangladesh – CPA No.13 "SZ Consultancy Services Ltd."		23/08/2021	GS10976
	VPA 03	Improved Cooking Stoves in Bangladesh – CPA No.14 "SZ Consultancy Services Ltd."		23/08/2021	GS10977
	VPA 04	Improved Cooking Stoves in Bangladesh – CPA No.15 "SZ Consultancy Services Ltd."		23/08/2021	GS10978
	VPA 05	Improved Cooking Stoves in Bangladesh – CPA No.16 "SZ Consultancy Services Ltd."		23/08/2021	GS10979
	VPA 06	Improved Cooking Stoves in Bangladesh – CPA No.17 "SZ Consultancy Services Ltd."		23/08/2021	GS10980
	VPA 07	Improved Cooking Stoves in Bangladesh – CPA No.18 "SZ Consultancy Services Ltd."		23/08/2021	GS10981
	VPA 08	Improved Cooking Stoves in Bangladesh – CPA No.19 "SZ Consultancy Services Ltd."		23/08/2021	GS10982
Project Participant(s):	***Non Annex 1 country:***			***Annex 1 country:***	
	People's Republic of Bangladesh			-	
	PP from non-Annex 1 country:			***PP from Annex 1 country:***	
	SZ Consultancy Services Ltd. (SZCSL)			-	
Applied methodology/ies:	***Title:***			***No.:***	***Scope(s) / TA(s)***
	AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass			version 3.0	3 / 3.1
Monitoring period and monitoring report	***Monitoring period (MP):***			***Monitoring Report (final):***	
	13/01/2020 to 12/01/2021			09/03/2023, v4.0	
Verification team:	***Verification Team:***		***Technical review:***		***Final approval:***
	Prakash Kumar Mishra – TL/T		David Lubanga		Christina Stöhr
Key dates of verification:	***Publication of the workplan:***		***Onsite audit***		
	2022-09-12		From 2022-09-14		To 2022-09-17
Summary of Verification opinion	SZ Consultancy Services Ltd. (SZCSL) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the PoA titled: "Improved Cooking Stoves in Bangladesh, with regard to the relevant GS requirements for project activities. The VPAs (VPA 01, VPA 02, VPA 03, VPA 04, VPA 05, VPA 06, VPA 07 and VPA 08) have already been registered under CDM and are transitioned under Gold Standard. The crediting period duration for GS4GG is 15 years therefore, the crediting period from CDM has been adjusted and the final CP under GS4GG is 13/01/2016 to 12/01/2021. TRFs for the PoA and associated VPAs were reviewed. During the last periodic verification, the VVB has already assessed that, the CME has selected				

	Transition Pathway, Option 1.2, which refers to direct conversion of CDM CERs to GS VERs for the period 01/07/2018 to 12/01/2020 (inclusive of both days). The applied periodic verification (13/01/2020 to 12/01/2021 both days inclusive) follows immediately the last periodic verification (01/07/2018 to 12/01/2020 both days inclusive). As a result of this verification, the verifier confirms that: ☒ all operations of the project are implemented and installed as planned and described in the validated project design document, ☒ the monitoring plan is in accordance with the applied approved GS methodology, ☒ the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately, ☒ the monitoring system is in place and functional. The project has generated GHG emission reductions, and ☒ the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. ☒ the project has contributed to sustainable development. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above-mentioned reporting period as listed below (verified amount).		
Emission reductions: [tCO_2e]	***Total verified amount***	***As per VPA-DD:***	
	341,030	394,116	
Document information:	*Filename:*		*No. of pages:*
	2023-03-16_GS 10833 VPA01-08 MP-FVR-RR1PKM (1)		85

Abbreviations:

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO_2	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
VPA-DD	Component Project Activity Design Document
DVerR	Draft Verification Report
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MP	Monitoring Plan
MR	Monitoring Report
PA	Project Activity
PoA-DD	Programme of Activities Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

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1. INTRODUCTION

SZ Consultancy Services Ltd. (SZCSL) has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 2nd periodic verification of the POA titled:

"Improved Cooking Stoves in Bangladesh"

under corresponding Programme of Activities ID GS10833 with regard to the relevant requirements for GS project activities. The verifiers have reviewed the implementation of the monitoring plan(s) (MP) as described in the registered PoA-DD and VPA-DD and GS PoA / VPA Transition Request Documents.

GHG data for this monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the GS regulations and the applied methodology.

Sustainable Development Indicators for this monitoring period were verified in detailed manner as required under the GS transition requirements/documents/GST/, GS requirements/GSR/, relevant GS Annexes, and GS4GG Requirements/GS4GG TA/.

This report summarizes the findings and conclusions of this 2nd periodic verification of the above-mentioned UNFCCC registered and GS transitioned project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the CDM-PDD, respective GS Transition Request Forms,
- compliance of the actual monitoring system and procedures with the provisions of the monitoring plan as a part of registered PDD, respective GS Transition Request Forms the GS SDG monitoring matrix and the applied approved monitoring methodology,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this GS transitioned program of activities is based on the validated Programme of Activities design document/GSPoA-DD/, the validated GS PoA / VPA Transition Request Documents, the monitoring report(s)/MR/, emission reduction calculation spreadsheet/XLS/, GS4GG Requirements/GS4GG TA/, supporting documents made available to the verifier and information collected through performing interviews and during the onsite assessments. Furthermore, publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this Programme of Activities:

- Article 12 of the Kyoto Protocol /KP/,
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 /MA/, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard /VVS/,
- GS Transition Request Documents /GST/GSR/
- Monitoring plan as given in the registered PoA-DD and VPA-DD(s) respective GS Transition Request Forms/GSPoA-DD/
- Approved CDM Methodology/GSM/
- GS4GG Requirements/GS4GG TA/

2. GHG PROJECT DESCRIPTION

2.1. Technical Project Description of the Programme of Activities

The purpose of PoA is dissemination of efficient, improved cooking stoves (ICS) in Bangladesh. The PoA is already registered under CDM and renewed under GS against the GS4GG and UNFCCC criteria, GS4GG Principles and requirements, applied methodology and other relevant rules and requirements established for GS4GG PoA.

The VPAs under the PoA promote installation of two categories of ICS (based on service levels):

- Domestic ICS
- Non – Domestic (Commercial) ICS

The replacement of traditional stoves by ICS improves heat transfer, hence reducing the total amount of wood-fuel required for cooking and reducing amount of GHG emitted into the atmosphere. This VPAs included in this report use the same technology / measure.

The improvement in efficiency is achieved by properly adjusting the dimensions of the combustion chamber and ensuring effective air flow during cooking. In comparison to traditional stoves, the ICS provide a fuel savings of ~50% to cook the same amount of food.

2.2. Technical Description of the Voluntary Project Activities (VPAs)

The Programme of Activities consists of VPA briefly as below:

Improved Cooking Stoves in Bangladesh – VPA No.01 to 08 “SZ Consultancy Services Ltd.”

The technology implemented under this project is improved cookstoves.

The key parameters of the project are given in Table 2-1.1:

Table 2-1.1: Technical data of the VPA

Description (Technical specification)	Domestic	Non-Domestic
Portable/Fixed	Fixed	Fixed
Fuel grate present (yes/No)	Yes	Yes
Chimney present (Yes/No)	Yes	Yes
Fuel Type	Wood-fuel	Wood-fuel
Fabrication Material	Cement concrete	Cement concrete
Design Operational Lifetime	9-10 years	9-10 years
Design rated efficiency	28.85%	24.30%

2.3. Project Location

The details of the VPA locations are given in Table 2-2:

Table 2-2: VPA(s) Location

VPA No.: 1	Project Location
Host Country	Bangladesh
Region:	All across Bangladesh
Project location address:	All cities and towns in Bangladesh
Latitude / longitude of program provinces:	23.6850° N, 90.3563° E

2.4. Project Verification History

Essential events since the registration of the PoA are presented in the following Table 2-3.

Table 2-3: Status of previous Monitoring Periods

#	Item	Time	Status
1.	PoA validation (GS) based on Design Certification Review	08/09/2021	Registered
2.	Start date of Crediting period based on deviation was approved by Gold Standard on 09/11/2020 (Deviation reference number: COVID_DEV 160)	01/07/2018	Deviation approved
3.	1st Monitoring period	01/07/2018 to 12/01/2020	Issued
4.	2nd Monitoring period	13/01/2020 to 12/01/2021	Issuance Requested

An overview of all Post Registration Changes is given in the following table.

Table 2-4: Overview Post Registration Changes

#	Changes on PoA-DD/VPA-DD	Applicable from – to / as of	MP	Type of post registration change [1)]	Description	Status[2)] / Date
	n.a.					

[1)] IVPAiPoA : Inclusion of component project activities in programme of activities
TDfrMP : Temporary deviation from registered monitoring plan
TDfMM : Temporary deviation from the monitoring methodology
CrVPADD : Corrections to the registered VPA-DD
PCfrMP : Permanent changes from registered Monitoring Plan
PCfMM : Permanent changes from Monitoring Methodology

#	Changes on PoA-DD/VPA-DD	Applicable from – to / as of	MP	Type of post registration change [1)]	Description	Status[2)] / Date

CoPD : Changes to the project design of a registered PoA, or generic or specific VPA

[2)] Approval (by Accreditation Body) or Acceptance (by DOE)

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the carbon and SD Monitoring Reports /MR/ submitted by the client and additional supporting documents with the use of customized verification protocol /CPM/ according to the Validation and Verification Standards /VVS/
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consisting of one team leader was appointed.

The list of involved personnel, the tasks assigned, and the qualification status are summarized in the Table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence [3]	Technical competence [4]	Verification competence [5]	Host country Competence	On-site visit	Remote audit
☒ Mr. ☐ Ms.	Prakash Kumar Mishra	-	TL	SA	☒	3.1	☒	☒	☐	☒
☒ Mr. ☐ Ms.	Aninda Roy	IIDFC Ltd.	TM	TE[A]	☐		☐	☒	☒	☐
☒ Mr. ☐ Ms.	Lubanga, David	TN CERT GmbH	TR	SA	☒	3.1	☒	☐	☐	☐
☐ Mr. ☒ Ms.	Stöhr, Christina	TN CERT GmbH	TR/FA[B]	SA	☒		☒	☐	☐	☐

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval
2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert
3) GHG auditor status (at least Assessor)
4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)
5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE
B) No team member

All team members contributed to the review of documents, the assessment of the component project activities and to the preparation of this report under the leadership of the team leader.

Technical experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

Statements of competence for the above-mentioned team members are enclosed in annex 2 of this report.

All above stated auditors are Gold Standard approved auditors as per https://www.goldstandard.org/resources/approved-auditors.

3.4. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in Table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurrence.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks.* *The following measures are implemented:*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations* - *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

The completed table A-1 is enclosed in Annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM/GS project is expected to meet for verification

- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in Table 3-3.

Table 3-3: Table A-2; Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	***Reference***	***Verification Team Comments***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-2 are linked to the various require-ments the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.	*Gives reference to the information source on which the assessment is based on.*	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verifi-cation stage.*	*In case of a corrective action or a clarification the final assessment at the final verification stage is given.*

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in Annex 1 (table A-2) to this report.

3.5. Desk review

During the desk review all documents initially provided by the client and documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PoA-DD and VPA-DD, Transition Request Forms including the monitoring plan[/GSPoA-DD//VPA/],
- the last revision of the validation report[/VAL/],
- documentation of previous verifications[/VER/]
- the monitoring report(s), including the claimed emission reductions for the project[/MR/],
- the emission reduction calculation spreadsheet[/XLS/].
- The SD monitoring report
- Usage Survey Records[/S1/,/S2/]
- GS4GG Requirements[/GS4GG TA/]

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.6. On-site assessment

As most essential part of the verification exercise, it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria and applied methodology and registered POA-DD and VPA-DD. Furthermore, the on-site assessment is necessary to check the monitoring data with respect to accuracy of the calculation of emission reductions. Changes to the key SDG Impact indicators and the achievement and implementation of mitigation / compensation measures are other integral parts of the on-site assessment. For this verification, onsite audit include, but are not limited to:

- an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data and monitoring/usage survey data were checked.
- The data aggregation trails were checked via spot sample down to the level of the data generation.
- Competency check of the ground personnel who conducts the monitoring survey.
- Appropriateness of the data collection, sampling and reliability test for the monitored sampling parameter.
- Possibility of leakage emissions were also checked.

During the onsite audit scheduled on dates 14/09/2022 to 17/09/2022 the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of SZ Consultancy Services Ltd. (SZCSL) including the operational staff of the plant were interviewed. The main topics of the interviews are summarized in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel SZ Consultancy Services Ltd. (SZCSL)	- General aspects of the project - Technical equipment and operation - Changes since validation / previous verification - Monitoring and measurement equipment

Interviewed Persons / Entities	Interview topics
	- Remaining issues from validation / previous verification - Calibrations - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Implementation of SD indicators - Contribution to Sustainable Development - Procedural aspects of the verification - Maintenance - Environmental aspects - SD Indicators monitoring/S1/,/S2/,/SD1/ - Sampling approach - Usage survey/S1/,/S2/ - ER calculations
2. Monitoring Agency	- Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GS monitoring parameters - GS Usage rate Guidelines - Monitoring team competency and skills - Training records of monitoring team/T1/
3. ICS users	- Warranty extensions - Transfer of ownership of credits VERs to PP

The list of interviewees is included in chapter 7.4.

Furthermore, the data collected during the site visit are further utilized for assessments which is described in relevant parts of the Verification Report

The sampling approach conducted is in accordance with “Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities” version 04.0 and the “Standard for Sampling and Surveys for CDM Project Activities and Programme Activities version 09.0”. As the population is relatively homogeneous (for a given stove type) with respect to the object of the sampling effort, simple random sampling method is adopted for verification of the parameters.

3.7. Draft verification reporting

On the basis of the desk review, the On-site assessment, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.8. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is be issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.9. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.10. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the

verification team and thus not involved in the decision-making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore, reporting improvements might be achieved.

3.11. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report(s)[/MR/], the calculation spreadsheet[/ER/], PoA-DD[/PoA-DD/], VPA-DD[/VPA-DD/], the Validation Report[/VAL/], PoA and VPA Transition Request Documents and other supporting documents, as well as from the Onsite assessment and the interviews are summarized.

The summary of CAR, CL and FAR issued are shown in Table 4.1:

Table 4.1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Description of project activity	1	1	0
B – Implementation of project activity	0	0	0
C – Description of Monitoring System	1	0	0
D – Carbon Data and Parameters	1	0	0
E - Calculation of Emission Reductions	0	0	0
F – Sustainability Monitoring Parameters	0	0	0
SUM	**3**	**1**	**0**

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in-depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Table 4.2: Remaining FAR from validation and/or previous verification

FAR ID		**Section no.**		**Date:**
Description of FAR				
Project participant response				**Date:**
Documentation provided by project participant				
☐	Changes in the PoA-DD		Section(s):	New version No.:
☐	Changes in the CPA-DD		Section(s):	New version No.:
☐	Changes in MR		Section(s):	New version No.:
☐	Changes in XLS		Worksheet(s):	New version No.:
☐	Other:			
DOE assessment				**Date:**
Conclusion *Tick the appropriate checkbox*	☒ To be checked during next verification ☐ The finding is closed			

Table 4.3: CL from this verification

CL ID	**01**	**Section no.**	Different sections	**Date: 22/08/2022**
Description of CL				
It is observed that the total number of domestic ICS (433,052) and Nondomestic ICS (4,164) is the same as the last verification. Clarification is requested.				
CME response (1st round)				**Date: 14/09/2022**
No ICS installations took place in the concerned monitoring period. Therefore, the total number of ICS in the current monitoring period remains same as that in the last monitoring period.				
Documentation provided by CME (1st round)				
☐ Changes in the PDD		Section(s):		New version No.:
☐ Changes in MR		Section(s):		New version No.:
☐ Changes in XLS		Section(s):		New version No.:
☐ Other:				
DOE assessment (1st round)				**Date: 24/09/2022**
The VVB reviewed the "VPA 12-19 Installation Summary" tab in the revised ER worksheet and confirms that no new ICS is added. CL is CLOSED.				
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed			

Table 4.4: CAR from this verification

CAR ID	01	**Section no.**	Survey forms	**Date: 22/08/2022**
Description of CAR				
Following information is missing while carrying out consistency check of survey forms for Domestic and Non – Domestic with submitted ER worksheet: 1. Date of Survey missing in ER Sheet tab "Monitoring Survey Data". 2. Name of Surveyor missing in ER Sheet tab "Monitoring Survey Data". 3. Question 1.11 in Survey Form "Respondents Phone Number" is blank in all Survey Forms and missing in ER Sheet.				
CME response (1st round)				**Date: 14/09/2022**
1. CME has captured the date of survey as part of monitoring survey questionnaire. All the survey forms have been shared already with the VVB team. The monitoring report also mentions the time window within which the monitoring surveys were conducted. It is not deemed necessary to provide this information in the ER sheet again. 2. The name of monitoring survey staff has been kept confidential due to privacy concerns. The name of surveyors can be crossed checked with the original monitoring survey forms submitted to the VVB team. 3. PP has conducted all monitoring surveys physically. The project ICS are of fixed type i.e., neither it can move, nor change the location once installed. Thus, the address of ICS captured at the time of installation can be easily used to trace it in the field, for ex-post monitoring. The phone number of end user is not imperative to trace the ICS in the field ex-post. Also, the ICS beneficiaries often do not possess a phone or are unwilling to share their phone numbers due to privacy concerns. Lastly the monitoring plan does not mandate capturing ICS users' phone numbers.				
Documentation provided by CME				
☐ Changes in the PDD		Section(s):		New version No.:
☐ Changes in MR		Section(s):		New version No.:
☐ Changes in XLS		Worksheet(s):		New version No.:
☐ Other:				
DOE assessment				**Date: 24/09/2022**

1. The VVB confirms that the CME has captured the date of survey under the monitoring survey questionnaire. The VVB has reviewed all the submitted survey forms which has dates consistent with the timeline as mentioned under the MR and monitoring surveys. Thus, the argument of not including the same information under the ER sheet is accepted.
2. The name of monitoring survey staff was verified from the forms and the monitoring staff was interviewed during the Audit. The VVB has accepted the concern pertaining to confidentiality of staff information. The finding has been CLOSED.
3. During the audit, the VVB has interviewed the end users and confirmed that a physical survey was conducted. Based on the Sectoral Expertise, the VVB is well aware and also accepts that the project ICS are of fixed type and could not be moved after installation. The finding was basically raised as none of the forms registered the designated field. On the other hand the argument that
    a. the phone number of end user is not imperative to trace the ICS in the field ex-post,
    b. ICS beneficiaries often do not possess a phone or are unwilling to share their phone numbers due to privacy concerns,
    c. Last but not the least the monitoring plan does not mandate capturing ICS users' phone numbers

    In light of above substantiation, the VVB is closing out the pending issue.

Above explanations are accepted. CAR is CLOSED.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	02	**Section no.**	Different sections	**Date: 22/08/2022**

Description of CAR

The following points are raised with reference to conformance with the GS MR filling guidelines:

1. Monitoring period number under the table "Key Project Information" is not in line with the guideline.
2. End dates mentioned under Table 2 is not dividing the monitoring period into calendar years
3. Crediting period start date mentioned under section A.4 of MR are not reported as per the GS MR filling guideline
4. Spreadsheets references (including sheet names as necessary) are missing under section E.1, E.2 and E.4 of MR.

   Further, the reference provided under the footnote 3 (section A.1 of MR) is incomplete.

CME response (1st round) **Date:** 24/08/2022

1. Monitoring period number under the table "Key Project Information" has now been revised to be in line with the guideline.
2. The monitoring period in Table 2 of the VPA-DD has now been divided for each calendar year.
3. Crediting period start date has now been reported under section A.4 of MR as per the GS MR filling guideline
4. Reference of the relevant Spreadsheets (including sheet names as necessary) has now been provided under section E.1, E.2 and E.4 of MR.

Documentation provided by CME

☐	Changes in the PDD	Section(s):	New version No.:
☐	Changes in MR	Section(s):	New version No.:
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date: 24/09/2022**
1. The VVB cross checked the updated MR and confirms that monitoring period number under the table "Key Project Information" is updated as per GS MR filling guideline. 2. The dates of monitoring period are updated for each calendar year in Table 2 of the VPA-DD. 3. Under section A.4 of MR, crediting period dates has now been stated as per the GS MR filling guideline 4. Spreadsheets references has now been provided under section E.1, E.2 and E.4 of MR. CAR is CLOSED.	
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	03	**Section no.**	Different sections	**Date: 22/08/2022**

Description of CAR

Below documentary evidence are requested:

- The contractual agreement between the CME and the DO (Agreement between CME and SZCSL)
- Customer terms & conditions document provided as Proof of Carbon Credits waiver by the End user
- Sample customer agreement document provided as proof of ICS distribution receipt
- Sample End User Agreement
- Partner Training Manual
- Partner Training sample Photographs
- Monitoring survey training photographs/evidence
- Attendance of Monitoring survey training/s
- WBT team training records
- BBF Experience - Field monitoring and performance testing
- Employment Records by SZ Consultancy Services Ltd. (SZCSL)
- Technical Specification of Bondhu Chulha (Domestic/Non-Domestic)
- Performance Specifications of Domestic and Non-Domestic Bondhu Chula issued by SZ Consultancy Services Limited

CME response (1st round)	**Date:** 24/08/2022
All documents are being submitted.	

Documentation provided by CME

☐ Changes in the PDD	Section(s):	New version No.:
☐ Changes in MR	Section(s):	New version No.:
☐ Changes in XLS	Worksheet(s):	New version No.:
☐ Other:		

DOE assessment **Date:** 24/09/2022

- The contractual agreement between the CME and the DO (Agreement between CME and SZCSL) - Provided
- Customer terms & conditions document provided as Proof of Carbon Credits waiver by the End user - Provided
- Sample customer agreement document provided as proof of ICS distribution receipt - Provided
- Sample End User Agreement - Provided
- Partner Training Manual Provided
- Partner Training sample Photographs- Provided
- Monitoring survey training photographs/evidence- Provided
- Attendance of Monitoring survey training/s - Provided
- WBT team training records - Provided
- BBF Experience - Field monitoring and performance testing
- Employment Records by SZ Consultancy Services Ltd. (SZCSL) - Provided

• Technical Specification of Bondhu Chulha (Domestic/Non-Domestic) – Provided document lacks information pertaining to information provided in section B.1 (point B) of MR • Performance Specifications of Domestic and Non-Domestic Bondhu Chula issued by SZ Consultancy Services Limited - Provided Th above highlighted documents are provided in local language which is not readable at our end.	
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Table 4.5: FAR from this verification

FAR ID		**Section no.**		**Date:**	
Description of FAR					
Project participant response				**Date:** DD/MM/YYYY	
Documentation provided by project participant					
☐	Changes in the PoA-DD		Section(s):	New version No.:	
☐	Changes in the CPA-DD		Section(s):	New version No.:	
☐	Changes in MR		Section(s):	New version No.:	
☐	Changes in XLS		Worksheet(s):	New version No.:	
☐	Other:				
DOE assessment				**Date:** DD/MM/YYYY	
Conclusion *Tick the appropriate checkbox*		☐ To be checked during next verification ☐ The finding is closed			

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CLs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity.

Table 5-1: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1	Bangladesh	SZ Consultancy Services Ltd. (SZCSL)
Annex 1	NA	NA

5.2. Implementation of the project

During the GS verification, an Onsite visit was carried out from 14/09/2022 to 17/09/2022 covering the monitoring period 13/01/2020 to 12/01/2021. Based on this site visit and the reviewed project documentation, it can be confirmed that w.r.t. the realized technology, the project has been implemented and operated as described in the registered PoA-DD, VPA-DD and GS / VPA Transition Request Documents. As per the provisions of the retroactive crediting period, the PP has transitioned the CDM CER into GS VER for applied monitoring period.

This 2nd monitoring period is from 13/01/2020 to 12/01/2021 (both dates inclusive).

The VPA has two categories of service level, domestic and non-domestic (commercial). Till the end of the applied monitoring period **433,052** domestic units and **4,164** non-domestic (commercial) units are installed/DB1,DB2/. Details of both the units as stated in section B.1 of MR/MR/ are verified and cross checked with spreadsheet data (tab: "VPA 12-19 Installation Summary")/ER/ and found as deemed appropriate.

Avoidance of Double Accounting

The VVB has checked and confirms that each ICS is allocated a unique serial number under the programme which avoids double counting risks. The VVB confirms that

1. Each stove is assigned an unique ID which ensures that it gets counted only once under the PoA and the assigned VPA, of the programme or even with other programs. The VVB also verified if any ICS is repeated within the installation and concluded that no ICS serial number was repeated.
2. The other aspect is the size and fixed position of the stove. The ICS is a fixed, cement concrete stove and cannot physically transfer from one place to another. Further during the interviews, it is confirmed that each ICS, has a dedicated end username, address for unique identification under the PoA.

During the audit, the VVB checked the unique ICS serial numbers and verified it to be matching exactly with the database. Also corresponding end username, address and location of the sampled ICS was also verified to be consistent with that reported in the database.

Lastly, the double counting wrt to claim of credits under multiple mechanisms was also verified by VVB via review of the CDM website. It was confirmed by the VVB that no issuance has been requested under CDM for these transitioned VPAs for the concerned monitoring period. Hence, the VVB assessed and eliminated the possibility of double counting risks.

The verification team was able to confirm that the project is implemented in accordance with the project descrdiption contained in the registered GS PDD/GSPPoA/. The verified sales breakdown is tabulated below:

VPA	Total number of domestic ICS	Total number of non-domestic ICS
VPA 01 - GS10974	44,457	971
VPA 02 - GS10976	49,842	713
VPA 03 - GS10977	53,837	554
VPA 04 - GS10978	57,433	391
VPA 05 - GS10979	55,934	495
VPA 06 - GS10980	60,068	305
VPA 07 - GS10981	58,448	379
VPA 08 - GS10982	53,033	356
Total	**433,052**	**4,164**

The verification team can thus confirm the accuracy of the stated values in the emission reduction calculations.

As per the ex-ante calculation by VPA-DD, estimated emission reduction equivalent to the monitoring period 394,116 tCO_2e (for applied monitoring period). However, the actual accured emission reduction as per the MR/MR/ submitted for verification are 341,030 tCO_2e. Refer CL 01 and CAR 01 were raised and closed out.

5.3. Project history

During the validation, the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose, FARs might have been raised. All FARs raised during the validation (under GS)/VAL/ have been addressed by the verifying DOE during the 3rd verification under CDM.

FAR status during last Periodic Verification (GS):

Based on the review of the Final Verification Report/VER/, the VVB confirms that there is no pending FAR from last periodic verification.

GS transition review:
Based on the review of the validation report and GS Design review report/GSPPoA/, the VVB confirms that there is no pending FAR applicable to this verification.

5.4. Post registration changes

No post registration changes applicable for this monitoring period have been observed.

5.5. Compliance with the monitoring plan

The monitoring system and all applied procedures are in compliance to monitoring plan of the registered CDM-PoA-DD[/VPA/], CDM-CPA-DD[/GSPPoA/], corresponding GS Transition Request Forms. Evidence was available to the verification team to check the compliance of the monitoring plan.

The reporting procedures reflect the requirements of the monitoring plan for the carbon monitoring and sustainability development criteria. All relevant data stored is for the whole monitoring period and traceable to the computer server at the PP office and database records.

5.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology "AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass, Version 03.0"[/GSM/].

5.7. Carbon Monitoring parameters

During the verification all relevant monitoring parameters (as listed in Transition Request Form) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

Data and parameters monitored:

<table>
<tr><th>Parameter</th><th>Monitored Value</th><th>Verification Opinion</th></tr>
<tr><td>η_{new} (Efficiency of the system being deployed as part of the project activity)</td><td><table><tr><th>Domestic</th><th>Non-domestic</th></tr><tr><td>25.32 %</td><td>21.67 %</td></tr></table></td><td>The efficiency of ICS for each category (domestic / non-domestic) was determined by conducting water boiling tests (WBT), in line with applied version of AMS II.G and the registered monitoring plan. The PP employed newly purchased instruments (which are factory calibrated at the time of purchase) for the tests. The instruments include Digital Thermometer, Digital Weighing Scale and Digital Moisture Meter. The technical specification of the equipment was duly verified by the Verification Team and deemed accurate and acceptable.
Values applied in ER calculator and WBT calculator are comparable to the values available in the WBT records. The WBT was carried out by SZCSL using Global Alliance for clean cooking, Water Boiling Test' protocol version 4.2.3. SZCSL has followed annual monitoring frequency consistent to the frequency specified in monitoring plan. The sample size</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Monitored Value</th><th>Verification Opinion</th></tr>
<tr><td></td><td></td><td>included all ICS divided under two categories (domestic and non-domestic ICS) and were randomly sampled from the randomly selected ICS for monitoring SOF for a given category separately.
The key personnel of WBTs were interviewed on procedures, recording calculation and analysis of result and associated training. The WBT records have been analyzed.
The calculations of sample sizes and measurement procedures have largely followed the GACC (Global Alliance for Clean Cooking) WBT protocol and followed the excel calculation sheet.</td></tr>
<tr><td>N_{all} (Total number of stoves installed)</td><td>
<table>
<tr><th>CPA</th><th>Total number of domestic ICS</th><th>Total number of non-domestic ICS</th></tr>
<tr><td>VPA 01 - GS10974</td><td>44,457</td><td>971</td></tr>
<tr><td>VPA 02 - GS10976</td><td>49,842</td><td>713</td></tr>
<tr><td>VPA 03 - GS10977</td><td>53,837</td><td>554</td></tr>
<tr><td>VPA 04 - GS10978</td><td>57,433</td><td>391</td></tr>
<tr><td>VPA 05 - GS10979</td><td>55,934</td><td>495</td></tr>
<tr><td>VPA 06 - GS10980</td><td>60,068</td><td>305</td></tr>
<tr><td>VPA 07 - GS10981</td><td>58,448</td><td>379</td></tr>
<tr><td>VPA 08 - GS10982</td><td>53,033</td><td>356</td></tr>
<tr><td>Total</td><td>433,052</td><td>4164</td></tr>
</table>
</td><td>The parameter is monitored to determine the baseline emissions. The number of ICS installed is tracked through ICS Installation Database and recorded appropriately by SZCSL. The monitoring (at time of installation) involves the recording ICS type, ICS unique serial number, Date of installation, End user details, address, location etc. The CPA implementer excludes the subsequent ICS from the ER calculations, in case an existing Bondhu Chulha is found at the household, thus ensuring that only one project device is credited per household. For the applied monitoring period no ICS were eliminated from the ER calculation on account of this. This is verified by the Assessment Team. The verification team pulled random end user agreement records and compared the details with the information in the provided ICS installation database. Furthermore, the team randomly selected households from the database to compare the information in the database with the actual stoves being used. The way of recording all stoves data (including end user detail) complies with the registered monitoring plan.</td></tr>
<tr><td>SOF (ICS Operation Fraction - To determine only ICS that are still operating,measured ex-post through survey/ user feedback)</td><td>
<table>
<tr><th>Domestic</th><th>Non-domestic</th></tr>
<tr><td>85.53 %</td><td>90.48 %</td></tr>
</table>
</td><td>The parameter is applied to determine stoves that are still operating. The parameter is measured ex- post through survey user feedback. The determination is based on survey of samples for each ICS category (domestic and nondomestic). The sampling frame for the surveys included all ICS installed under</td></tr>
</table>

Parameter	Monitored Value	Verification Opinion
		two categories i.e., domestic and non-domestic ICS. Simple random sampling was applied to each category separately. The ICS were randomly sampled from a list of all the participating ICS for each category. Data was collected using survey questionnaire forms to enable surveyors to collect applicable and necessary information during monitoring visit to the sampled user. Procedures for sampling have been duly articulated in the monitoring report, and a sample of survey questionnaires furnished to DOE. The survey forms were verified by the Verification Team and deemed as complete and relevant with respect to the monitoring requirements.

After appropriate corrections were made by the project participant, it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

Refer CL 01, CAR 01 and CAR 02 were raised and closed out.

Data and parameters not monitored:

The ex-ante parameters stated in under section D.1 of MR/MR/ are derived from the registered CDM-PDD and Transition Request Forms. The ex-ante data will be applicable for the current monitoring period from 13/01/2020 to 12/01/2021 (both days included). The ex-ante fixed parameters have been correctly applied in the emission reductions calculation for this monitoring period.

5.8. Monitoring report(s)

A GS Monitoring Report/MR/ along with relevant supporting documents was submitted to the verification team by the project participants. These documents form the basis for the verification opinion of TÜV NORD.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and accordance with the registered VPA-DD/VPA/, the GS PoA / VPA Transition Request Documents/GSPPoA/ and relevant GS requirements.

5.9. Sampling

5.10. Implementation of the sampling plan

The verification team checked whether the PP applied a sampling approach to determine the monitored values. Further it has been checked whether the PP correctly applied the implemented sampling plan including

(i) description of the implemented sampling design

(ii) collected data

(iii) analysis of collected

(iv) data demonstration on whether the required confidence/precision has been met. The following sources of information have been used in this context:

- /MR/
- /XLS/
- /WBT/
- /PoA-DD/
- /VPA-DD/

The PPs have applied sampling approaches for the following parameters monitored:

1. N_{all} - Total number of stoves installed

   The VPA implementer is maintaining a database of all the ICSs installed under the VPAs. At the point of ICS installation, the presence of existing ICS, if any, is also checked in the ICS installation database during the onsite assessment. Subsequent (secondary) *ICS*, if any, is not included in the VPAs. A review of the total installation database and review of end user details (name, address, location) confirms that absence of other project ICS is ensured at the time of installation and only one ICS is installed per household.

   Monitoring surveys and WBTs were conducted (Surveys and Water Boiling Tests) during 13/01/2021 to 18/02/2021.

   The Verification Team ascertained the implementation and the appropriateness of the total stove installation database and found that the monitored samples could be traced to the ICS installation database as well as were reachable in the field, during the onsite audit.

2. SOF - ICS Operation Fraction - To determine only ICS that are still operating

   The SOF was determined separately for each category type (Domestic and Non-Domestic). A monitoring survey was conducted from 13/01/2021 to 18/02/2021.

The required sample sizes for proportion-based parameter (SOF) have been derived using equation (1) & (2) of Appendix 2 of the Guideline: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0 as follows:

$$n \geq \frac{z^2 * N * V}{(N-1) * precision^2 + z^2 * V}$$

Where,
n = number of ICS to be sampled
N = Total number of ICS in the population / sampling frame
z = Constant referring to level of confidence (e.g., 1.645 for 90 %; 1.96 for 95 % confidence)
Precision = Required precision (e.g., 10% = 0.1)

$$V = \frac{p(1-p)}{p^2}$$

Where,
p = expected proportion of the population / sampling frame.

The sample size was calculated based on estimated proportion values based on project developer's knowledge and experience in line with para 13(b) and 13(c) of the Sampling and surveys for CDM project activities and programmes of activities. The total number of samples are in line with Standard: Sampling and surveys for CDM project activities and programme of activities, were identified by PP. Subsequently, all ICS users' samples identified were surveyed /SUR/ as illustrated below:

Parameter	Sampling approach	Sampling Type	Population	Sample Size	
SOF	SiRS	PS	**Domestic**	Sample required	Samples covered
			433,052	68	76
SOF	SiRS	PS	**Non-Domestic**		
			4,164	55	63

Procedures for sampling have been duly articulated in the field monitoring survey spreadsheet and corresponding survey forms containing survey records were furnished to VVB for assessment.

However, findings were raised on this during the verification process and CME has sufficiently taken the appropriate action and hence all findings could be resolved.

3. η_{new} - Efficiency of the system being deployed as part of the project activity

The efficiency was determined for each category type (Domestic and Non-Domestic)

The sample size has been calculated according to the following equations:

- The required sample size for mean based parameter (η_{new}) has been derived using equation (4), (5) & (6) of Appendix 2 of the Guideline: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0 as follows:

$$n \geq \frac{z^2 * N * V}{(N-1) * precision^2 + z^2 * V}$$

Where,
n = number of ICS to be sampled
N = Total number of ICS in the population/sampling frame
z = Constant referring to level of confidence (e.g. 1.645 for 90 %; 1.96 for 95 % confidence)
Precision = Required precision (e.g. 10% = 0.1)

$$V = \left(\frac{SD}{Mean}\right)^2$$

Where

SD = expected standard deviation of the population / sampling frame
Mean = expected mean of the population / sampling frame

A sample size was calculated based on estimated proportion values based on project developer's knowledge and experience in line with para 13(b) and 13(c) of the Sampling and surveys for CDM project activities and programmes of activities.

Parameter	Sampling approach	Sampling Type	Population	Sample Size	
η_{new}	SiRS	PS	**Domestic**	Sample required	Samples covered
			433,052	7	8
η_{new}	SiRS	PS	**Non-Domestic**		
			4,164	7	9

Procedures for sampling have been duly articulated in the field monitoring survey spreadsheet and corresponding survey forms containing survey questionnaires furnished to DOE for assessment.

Monitoring WBTs were conducted by trained personnel using simple random sampling following the standard and guideline for Sampling and surveys for CDM project activities and programme of activities version 08. As described above, it can be said that sampling was accurate. However, CL 01, & CAR 01 were raised on during the verification process and CME has sufficiently taken the appropriate action and hence all findings could be resolved.

Based on the assessment of survey and sampling records including WBT and their analysis sheets for the related parameters, it is concluded that all the parameters have been monitored correctly in accordance with registered monitoring plan and the applied methodology.

The verification team concludes that all sampled parameters have been calculated correctly in line with the registered corresponding CPA-DDs and the sampling standard. For all the parameters, the achieved relative precision of 10% and 95% confidence level is demonstrated to be met.

5.11. Sampling approaches during verification

A sampling approach has been taken for the following monitored parameter(s). The verification team followed the "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities" version 09, para 29 to 32 and 39, esp. for taking sample out of the CME's sample. Verification team has adopted the acceptance sampling approach (AS) in accordance with § 29, 30, 31 to 32 and 39 of the Sampling Standard. The verification Team checked provisions of the para 39 of the applied standard to apply the producer risk and consumer risk following the provision of para 39 as assessed below:

Statement of para 39: *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*		
Sr. No.	**Requirement of para**	**DOE Assessment**
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 CO_2 eq.;	The verified ER are higher than 100,000 t CO_2 eq.
b)	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	The PoA is located in the LDC i.e. Host Country Bangladesh as per https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/ldc-country-information

Following the provisions stipulated under of § 39 of "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities" version 09, the VT is considering AQL 0.5 % and UQL 20%, Producer risk of 10% and consumer risk of 20% for determination of the sample size to be verified for remote audit assessment. Considering the above § under applied sampling standard, the VVB should have verified 8 samples under the acceptance sampling approach with acceptance) number 0. Moreover, for project usage survey samples Producer risk of 10% and consumer risk of 10%, which yielded sample size of 11, which were verified for domestic and non-domestic users separately. Project usage survey samples were randomly selected (from PP samples) by Verification Team. The sampled end users and other documentary evidences demonstrating implementation of the project ICS and other sampled parameters were reconfirmed during interviews with the end user. The list of the end users verified is presented under FVR, Table 7-4.

Particular	Sample size for WBT	Sample size for Usage Survey
AQL	0.5%	0.5%
UQL	20%	20%
Producer risk	10%	10%
Consumer risk	20%	10%
Required Minimum Sample size	08	11
Acceptance Number	0	0
Total samples covered	See below table	See below table

Parameter	Sampling approach [1)]	Sampling Type [2)]	Population	VVB Sample Size
η_{new}	SiRS	*AS*	17 (8 Domestic, 9 non-Domestic)	08 (04 Domestic, 04 non-Domestic)
SOF	SiRS	*AS*	139 (76 Domestic, 63 non-Domestic)	22 (11 Domestic, 11 non-Domestic)

[1)] *Sampling Approaches:*

SiRS: *Simple Random Sampling*
StRS: *Stratified Random Sampling*
SS: *Systematic Sampling*
CS: *Cluster Sampling*
MSS: *Multi-stage Sampling*

[2)] *Sampling Types:*

AS: *Acceptance Sampling*
PS: *Parameter Sampling*
COM: *Full data check at higher data aggregation levels and sampling at original data levels*

Note: The VVB verified and confirms that the CME adopted simple random sampling. During the interviews and the document review, it was noted that the installations in each category (domestic / non-domestic) were arranged chronologically in their respective sampling frames. The random numbers were generated online for the installation range covering 80 random numbers for the1 - 433,052 domestic ICS, and 65 random numbers for the range of 1 – 4,164 non-domestic ICS, making the total selected 145 samples. The CME also explained that this process does not allow any control on samples' allocation under the VPAs as random numbers were generated online over the entire population range. Subsequently CME identified 76 out of 80 samples for domestic ICS and 63 out of 65 samples for non-domestic ICS (remaining samples being non-response, refer below table with the 145 identified samples along with the corresponding VPA numbers). The VVB has verified the "Monitoring Survey Data" and confirms that the survey was conducted for 139 samples.

For acceptance sampling, the VVB selected samples randomly out of samples monitored by PP. The acceptance sampling approach shall be representative of the PP's samples and need not cover all VPAs. In many cases, the acceptance sampling based VVB sample size, may be less than the total number of VPAs covered in the audit and hence cannot cover all VPAs. Nevertheless, in this specific case verification, 22 samples checked audited by the VVB team, spontaneously cover all the VPAs.

VPA Number	Total # of samples (domestic + non-domestic) selected	Total # of samples (domestic + non-domestic) audited
GS10974	25	2
GS10976	13	2
GS10977	17	4
GS10978	17	4
GS10979	21	2
GS10980	21	4
GS10981	12	1
GS10982	19	3
Total	145	22

Since the VPA included in the PoA implements technologies/measures with high degree of standardization and the stove capacities in terms of energy savings per year in the CPAs are smaller than 1% of small scale CDM thresholds, the verification team decided to draw samples from the project samples monitored by PP. i.e., the acceptance sampling approach has been applied.

5.12. ER Calculation

During the verification mistakes in the ER calculation were identified. Corresponding CARs were raised. A revised ER calculation was prepared by the PP and presented to the verification team. All raised issues were addressed appropriately so that all corresponding CARs could be closed out. Thus, it is confirmed that the ER calculation is overall correct.

Baseline Emissions:

The emission reduction is given by below equation of applied methodology stated:

$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected\_fossilfuel}$

Where:

ER_y	Emission reductions during the year y in tCO2e
$B_{y,savings}$	Quantity of biomass that is saved in tonnes
$f_{NRB,y}$	Fraction of biomass saved by the project activity in year y that can be established as non-renewable biomass using survey methods
$NCV_{biomass}$	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)
$EF_{projected\_fossilfuel}$	Emission factor for the substitution of non-renewable biomass by similar consumers. Use a value of 81.6 tCO2 / TJ

$B_{y,savings}$ is estimated using option 2 of the methodology AMS-II.G version 3.

$B_{y,savings} = B_{old} * (1-\eta_{old}/ \eta_{new})$

Following option (a) of the methodology, B_{old} is calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of biomass per appliance
(tonnes/year) derived from historical data/ survey of local usage.

$B_{old} = N * Q_{biomass}$

B_{old}	Quantity of woody biomass used in the absence of project activity (tonnes)
N	Total number of systems (number)
$Q_{biomass}$	Average annual biomass consumption per appliance (tonnes/ year)

$N = N_{all} * SOF$

Where,

N_{all} Total number of ICS installed
SOF ICS Operation Fraction (% of ICS operating or replaced by equivalent in service appliance) – measured ex post using survey/ user feedback

In compliance with the monitoring requirements of the methodology B_{old} is adjusted for Leakage and average ICS operation period during monitoring period.

Thus,
$B_{old} = LAF * N_{all} * SOF * Q_{biomass} * Stove_{year}$

Where,
$Stove_{year}$ Calculated average ICS operation years in the monitoring period (years)
LAF Net to gross Adjustment factor (0.95) applied in accordance with paragraph 13 and 23 of AMS-II. G version 03

The below ERs are summation for the monitoring period.

Period	ER (tCO_2e)
13/01/2020 to 12/01/2021	341,030
Total ER claimable for this monitoring period	**341,030**

To be conservative, the total baseline emissions are rounded down as integer. Project emissions are found to be rounded-up to the next integer.

To conclude, from the reviewed and replication of data input to the ER calculation, it can be confirmed the data stated in the MR is correct and free from any material misstatement.

However, during course of verification, CL 01, CAR 01 and CAR 02 were raised and closed out successfully.

5.13. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this GS PoA-DD have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

5.14. Actual emission reductions during the first commitment period and the period from 1 January 2013 onwards

The MR(s) include(s) actual ER values achieved from 1 January 2013 onwards as follows:

Table 5-2: Emission reductions before and after the end of 2012

	from 13/01/2020 to 12/01/2021
Emission reductions [tCO_2e]	**341,030**

1) Both days included

5.15. Comparison with ex-ante estimated emission reductions

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered VPA-DD.

GS ID	Amount estimated ex ante for this monitoring period (tCO_2)	Actual values achieved during this monitoring period (tCO2e)
GS10974	49,554	43,469
GS10976	49,272	42,889
GS10977	49,604	42,962
GS10978	49,571	42,719
GS10979	50,188	43,382
GS10980	50,107	43,061
GS10981	50,131	43,180
GS10982	45,689	39,368
Total	**394,116**	**341,030**

Ex-Ante ERs: **394,116** tCO_2e

Ex-Post ERs: **341,030** tCO_2e

Difference: **53,086** tCO_2e

The ex-post value is found to be lower than the ex-ante determined value.

5.16. Contribution to Sustainable Development

The SD indicators as outlined in the sustainability monitoring plan of the GS PoA / VPA Transition Request Documents are monitored and reported appropriately and cross-verified by means of desk review of survey reports, interviews with the CME operation personnel and selected households. The monitoring system and all applied procedures are in compliance to the sustainability monitoring plan in the registered GS VPA-DD and the Gold Standard principles.

Table 5-1: Assessment of monitored SD Indicators

<table>
<tr><th>Indicator</th><th>Chosen Parameter</th><th>Situation as at 2020-01-12</th><th>Verification Opinion</th></tr>
<tr><td>SDG 1: No Poverty</td><td>1. $BSA_{Project}$ (Access to Basic Services (Cumulative Number of ICS distributed under the project))

2. $HHS_{Project}$ (% Users reporting money saving due to reduced fuel consumption in project)</td><td>Cumulative Number of ICS distributed under the project

Domestic<table><tr><td>2020</td><td>433,052</td></tr><tr><td>2021</td><td>433,052</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>4,164</td></tr><tr><td>2021</td><td>4,164</td></tr></table>% Users reporting money saving

Domestic<table><tr><td>2020</td><td>100 %</td></tr><tr><td>2021</td><td>100 %</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>100 %</td></tr><tr><td>2021</td><td>100 %</td></tr></table></td><td>The parameter “Number of ICS distributed under the project” indicates the access to the basic services, in this case clean and efficient cooking device (ICS). The program is developed with the objective to make efficient, economic (fuel economy), healthy devices to all the strata of community including the poor people. The end users were also surveyed to confirm if the ICS saved fuel. Based on survey results, it was confirmed that ICS reduced the fuel consumption and hence led to savings which was utilize for other expenses.

The parameter is therefore represented based on number of ICS disseminated. The VVB has verified the dissemination record of ICS during the GS verification and also during the applied verification. The VVB confirms that the applied values are accurate and best represent the monitored parameter under the perspective of meeting the SDG goal for the PoA.</td></tr>
<tr><td>SDG 3: Good Health and Well Being</td><td>$SPM_{HHProject}$ (% Users reporting reduction in smoke/PM emissions while cooking on improved stove in Project)</td><td>% Users reporting reduction in smoke/PM

Domestic<table><tr><td>2020</td><td>85.53%</td></tr><tr><td>2021</td><td>85.53%</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>90.48%</td></tr><tr><td>2021</td><td>90.48%</td></tr></table></td><td>During the survey, the PP has enquired about reduction in smoke/PM emissions while cooking on improved stove. The majority of the end users have confirmed that there was certain decrease in the indoor emissions. The VVB has verified the parameter by comparing the requirements of monitoring under GS transition request.

The data was based on the Project survey results conducted. The data is derived from the monitoring survey. The monitoring survey results confirmed reduction in the smoke levels which in turn</td></tr>
</table>

<table>
<tr><th>Indicator</th><th>Chosen Parameter</th><th>Situation as at 2020-01-12</th><th>Verification Opinion</th></tr>
<tr><td></td><td></td><td></td><td>confirms good health and wellbeing.

The VVB confirms that the applied values are accurate and best represent the monitored parameter under the perspective of meeting the SDG goal for the PoA.</td></tr>
<tr><td>SDG 5: Gender Equality</td><td>$HHT_{Project}$ (% Users reporting time saving due to reduced collected fuel consumption / cooking time in project)</td><td>% Users reporting time saving

Domestic<table><tr><td>2020</td><td>85.53%</td></tr><tr><td>2021</td><td>85.53%</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>90.48%</td></tr><tr><td>2021</td><td>90.48%</td></tr></table></td><td>During the survey, the PP has enquired about reduction in time saving due to reduced collected fuel consumption / cooking time in project while cooking on improved stove. The majority of the end users have confirmed that there was certain decrease in the fuel consumption, and hence corresponding decrease in the time required to collect the fuel. The VVB has verified the parameter by comparing the requirements of monitoring under GS transition request.

The data was based on the Project survey results conducted. The data is derived from the monitoring survey. The monitoring survey results confirmed reduction in the fuel requirement to cook food which in turn saves the time for women for the collection fuel.</td></tr>
<tr><td>SDG 7: Affordable and Clean Energy</td><td>$ACS_{Project}$ (Access to affordable and clean energy (% of operating ICS units under Project)</td><td>% Users reporting an operational ICS in project
Domestic<table><tr><td>2020</td><td>85.53%</td></tr><tr><td>2021</td><td>85.53%</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>90.48%</td></tr><tr><td>2021</td><td>90.48%</td></tr></table></td><td>This parameter is already assessed. Please refer the assessment for “$SOF_{domestic}$”, “$SOF_{non\text{-}domestic}$”.</td></tr>
<tr><td>SDG 8: Decent Work and Economic Growth</td><td>QE $IG_{Project}$ (Quantitative Employment and income generation (Number of person (male and female) hired under Project))</td><td>Number<table><tr><td>2020</td><td>30</td></tr><tr><td>2021</td><td>30</td></tr></table></td><td>The employment database was reviewed to cross-checked on the number of direct jobs created by the project activity.

Based on the review of “Statement of Employees at SZ Consultancy Services Limited”, 08</td></tr>
</table>

<table>
<tr><th>Indicator</th><th>Chosen Parameter</th><th>Situation as at 2020-01-12</th><th>Verification Opinion</th></tr>
<tr><td></td><td></td><td></td><td>female employee and 22 male employees were employed. The VVB confirm that the wages were at par with the industrial standard and meeting the requirements of minimum wages (applicable to the host country Bangladesh) /SD1/.

The reported parameter is deemed accurate.</td></tr>
<tr><td>SDG 12: Responsible consumption and production

And

SDG 15: Life on Land</td><td>$FC_{Project}$ (Average fuel consumption per HH in Project)</td><td>% Fuel Saving

Domestic<table><tr><td>2020</td><td>60.51%</td></tr><tr><td>2021</td><td>60.51%</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>53.86%</td></tr><tr><td>2021</td><td>53.86%</td></tr></table>Average fuel consumption

Domestic<table><tr><td>2020</td><td>0.42</td></tr><tr><td>2021</td><td>0.42</td></tr></table>Non-Domestic<table><tr><td>2020</td><td>12.68</td></tr><tr><td>2021</td><td>12.68</td></tr></table></td><td>The parameter is monitored based on the monitoring survey. The VVB has verified the submitted survey records and confirms the reported value as accurate.</td></tr>
<tr><td>SDG 13:</td><td>Amount of CO_2e emissions reduced by the project</td><td>Please refer above section 5.15.</td><td>The VERs are calculated appropriately based on the ex-ante fixed and the monitored parameters. Please refer to the detailed assessment of the ER calculation, monitored parameters and ex-ante parameters.</td></tr>
</table>

The verification team confirmed that no changes to the registered SD parameters have occurred that may have an impact on Gold Standard qualification of this project activity.

5.17. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installed domestic and non-domestic which are relevant for the project performance and the monitoring activities.

The verification team has checked on the agreement between the manufacturer and users (domestic and non-domestic) which is basically the part of the purchase receipt where users of ICS surrender the carbon credits generated due to their use.

Users agreed to give up the right to the use the carbon emission reductions to SZ Consultancy Services Ltd. (SZCSL).

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are compliant with the GS requirements.

5.18. Grievances

The verification team has interviewed the operational personnel, reviewed the survey report and there are no complaints and grievances raised by the householders.

The verification team has interviewed the domestic and non-domestic during the onsite inspection and observed that there were no complaints as regards to the CME personnel and the other involved parties.

5.19. Hints for next periodic Verification

No new FAR were raised during applied Verification.

6. VERIFICATION AND CERTIFICATION STATEMENT

SZ Consultancy Services Ltd. (SZCSL) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the PoA:

"**Improved Cooking Stoves in Bangladesh"**

with regard to the relevant requirements for GS project activities. The PoA reduces GHG emissions by reducing the use of non-renewable biomass or fossil fuel for cooking. Technologies disseminated under the PoA are more efficient than the baseline. This verification covers the emission reductions achieved by VPAs in its corresponding monitoring periods:

VPA No.	*Monitoring period (MP):*	
01 to 08	***From:***	***To:***
	13/01/2020	12/01/2021

VPA ID	Vintage-wise breakup		
	2020	**2021**	**Values achieved**
GS10974	42,044	1,425	43,469
GS10976	41,483	1,406	42,889
GS10977	41,554	1,408	42,962
GS10978	41,319	1,400	42,719
GS10979	41,960	1,422	43,382
GS10980	41,650	1,411	43,061
GS10981	41,765	1,415	43,180
GS10982	38,078	1,290	39,368
Total	329,853	11,177	341,030

In the course of the verification, 03 Corrective Action Requests (CAR), and 01 Clarification Request (CL) were raised and successfully closed. Besides, no Forward Action Request (FAR) has been raised to be considered during the next subsequent verification. The verification is based on the draft monitoring report(s), revised monitoring report(s), the monitoring plan as set out in the registered VPA-DD(s), the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved GS methodology.
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.
- the project contributes to sustainability development

As the result of the 2nd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the PoA has achieved emission reductions in the above-mentioned reporting period as follows:

Emission reductions: **341,030 tCO_2e**

New Delhi, 16/03/2023

Prakash

Prakash Kumar Mishra
TÜV NORD JI/CDM Certification Program
Verification Team Leader

Essen, 16/03/2023

Christina Stöhr
TÜV NORD JI/CDM Certification Program
Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
Monitoring Report	
/MR/	Monitoring Report dated 2022-07-27 v 1.0 Monitoring Report dated 2022-08-24 v 2.0 Monitoring Report dated 29/11/2022 v 3.0 Monitoring Report dated 09/03/2023 v 4.0
ER Spreadsheet	
/ER1/	Emission reduction worksheet for Monitoring Report dated 2022-07-27 v 1.0 Emission reduction worksheet for Monitoring Report dated 2022-08-24 v 2.0 Emission reduction worksheet for Monitoring Report dated 29/11/2022 v 3.0 Emission reduction worksheet for Monitoring Report dated 09/03/2023 v 4.0
/CAL/ /INV/	Thermometers, digital balance, sensor, moisture meters photos and purchase invoice dated 06/01/2021.
Database	
/DB1/	• Domestic Sales Database (GS 10833 VPA 01-08 MP2 Sampling and Installation database v1.0 27072022.xlsx) • Usage survey records-Domestic.pdf
/DB2/	• Non-domestic Sales Database (GS 10833 VPA 01-08 MP2 Sampling and Installation database v1.0 27072022.xlsx) • Usage Survey Records- Non_Domestic.pdf
/DB3/	• Customer terms & conditions document provided as Proof of Carbon Credits waiver by End user • Sample customer agreement document provided as proof of ICS distribution receipt • Evidence for random number generator for sampling (domestic and non-domestic) • Contractual agreement in between the CME and the SZCSL (SZ Consultancy Services) dated 08/08/2016 clearly covering scope of engagement (as per requirement of the PoA-DD) • Sample End User Agreement (in local language Bengali)
/DB4/ /RC/	• Sample Monitoring Survey Forms in form of questionnaire • Sample size and Reliability check for WBT integrated into the ER worksheet • GS 10833 VPA 01-08 MP2 WBT Calculator 27072022.xlsx • GS 10833 VPA 01-08 MP2 WBT Data Record.pdf

Reference	Document
/TRG/	Training records of imparted for below fields: • Partner Training Manual.pdf • Partner Training sample Photographs • Monitoring survey training photographs • Attendance of Monitoring survey training dated 07/01/2018, 10/01/2019, and 09/01/2020 • WBT team training records • BBF Experience - Field monitoring and performance testing
Survey and monitoring records (conducted during 13/01/2021 to 18/02/2021)	
/S1/	Domestic – Usage Survey • Monitoring Survey Records • Monitoring Survey Data worksheets integrated as part of Emission reduction worksheet • Reliability check spreadsheet as part of Emission reduction worksheet
/S2/	Non-domestic (commercial) - Usage Survey • Monitoring Survey Records • Monitoring Survey Data worksheets integrated as part of Emission reduction worksheet • Reliability check spreadsheet as part of Emission reduction worksheet
WBT Records	
/WBT/	WBT test records conducted during 13/01/2021 to 18/02/2021.
Sustainability Development Indicator	
/SD1/	Employment Records by SZ Consultancy Services Ltd. (SZCSL)
/S1/, /S2/	Refer description above
Training	
/T1/	Monitoring WBT Team Training Records
/TECH/	• Technical Specification of Bondhu Chulha (Domestic/Non-Domestic) • Performance Specifications of Domestic and Non-Domestic Bondhu Chula issued by SZ Consultancy Services Limited dated 10.09.2012
QA/QC	
/QA1/	Operation and Maintenance Manual
Deviation	

Reference	Document
/DEV/	T-V3.0-Deviation-Request-form_CDM PoA 4791_GSdecision.pdf

Table 7-2: Background investigation and assessment documents

Reference	Document
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GS4GG TA/	GS4GG Requirements
/GSGWP/	The Application of Global Warming Potentials for Gold Standard Project Activities
/GSM/	AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass, Version 03.0
/GSPPoA/	PoA-DD- Version 03 dated 01/09/2021 PoA / VPA Transition Request Documents- Version 3.0, 01/09/2021
/GSS/ **/SSP/**	Guidelines for Sampling and Surveys for CDM Project Activities and Programme Of Activities, EB 67, Annex 6
/GST/	Gold Standard transition requirements for VPA/PoA
/IPCC/	Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories: 1. Non-CO_2 Stationery Combustion 2. Emissions from Livestock and Manure Management (Chapter 10) 3. IPCC Second Assessment Report – Climate Change 1995: A Report of the Intergovernmental Panel on Climate Change
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/GSPoA-DD/	PoA GS10833 - GS Transition and PoA KPID.pdf
/PS/	CDM Project Standard (Version 3.0)
/SSS/	Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, version 08
/VAL/	Validation and transition assessment report for GS4GG Program of Activities “Improved Cooking Stoves in Bangladesh” version 03 dated 06/09/2021

Reference	Document
/VER/	Documents of previous verification (Monitoring report, verification report, ER calculation sheet available on the project page)
/VPA/	1. VPA 12 GS10974 - GS Transition and VPA KPID.pdf 2. VPA 13 GS10976 - GS Transition and VPA KPID.pdf 3. VPA 14 GS10977 - GS Transition and VPA KPID.pdf 4. VPA 15 GS10978 - GS Transition and VPA KPID.pdf 5. VPA 16 GS10979 - GS Transition and VPA KPID.pdf 6. VPA 17 GS10980 - GS Transition and VPA KPID.pdf 7. VPA 18 GS10981 - GS Transition and VPA KPID.pdf 8. VPA 19 GS10982 - GS Transition and VPA KPID.pdf
/VVS/	CDM Validation and Verification Standard (Version 03.0)

Table 7-3: Websites used

Reference	Link	Organisation
/gs/	http://www.goldstandard.org/	CDM Gold Standard
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/ss/	http://www.raosoft.com/samplesize.html	Sampling Size

Table 7-4: List of interviewed persons

/IM01/	V	Khalequzzaman Md.	Programme Manager (BBF)
	V	Ruman Mridha	Communication Officer (BBF)
	V	Atanu Kumar Saha	DGM (BBF)
	V	Kamal Hossain	DGM (BBF)
/IM02/	V	Rohit Lohia	Director (CSIPL)
	V	Ritesh Kumar	Sr. Consultant (CSIPL)
	V	Saket Shubham	Consultant (CSIPL)
/IM03/	V	Polash (Owner of Bobin Mill)	Non- Domestic Stove User (Survey +WBT Sample)

/IM03/	V	Morium (Wife of Nasir)	Domestic Stove User (Survey Sample)
/IM03/	V	Sunita Rani sana	Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Mohar Ali	Non- Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Abdul Hossain	Non- Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Aklima (Wife of Jaker)	Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Mahabub	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Sumi Akhter (wife of Haider ali)	Domestic Stove User (Survey Sample)
/IM03/	V	Halima Begum (Wife of Idris Master)	Domestic Stove User (Survey Sample)
/IM03/	V	Likhi Begum	Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Pyari Begum	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Monoyara Begum (Owner of the Restaurant)	Non- Domestic Stove User (Survey Sample + WBT Sample)
/IM03/	V	Renu Begum	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Shaibani Begum	Domestic Stove User (Survey Sample)
/IM03/	V	Jhorna Begum	Domestic Stove User (Survey Sample)
/IM03/	V	Farzana Akhter (Wife of Rasidul)	Domestic Stove User (Survey Sample)
/IM03/	V	Hazara	Domestic Stove User (Survey Sample)
/IM03/	V	Nur Islam (Brother Of Sukur Ali)	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Anowara Begum	Domestic Stove User (Survey +WBT Sample)
/IM03/	V	Shofiqual Islam	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Sirajul Islam (Brother Of Asta Mia)	Non- Domestic Stove User (Survey Sample)
/IM03/	V	Md Badsha	Non- Domestic Stove User (Survey Sample)

List of households visited: /LHH/

List of households interviewed by telephone calls:/LHH/

1) Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Verification Protocol

A2: Statements of Competence of involved Personnel