




**Verification and certification report form for  
GS project activities  
(Version 03.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and GS reference number of the project activity</b>	Title: Household Biogas plants installed in rural areas of Maharashtra GS reference no.: GS 2519
<b>Scale of the project activity</b>	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale <input type="checkbox"/> Micro-scale
<b>Version number of the verification and certification report</b>	1.2
<b>Completion date of the verification and certification report</b>	24/08/2022
<b>Monitoring period number and duration of this monitoring period</b>	9 <sup>th</sup> monitoring period. Duration: 09/05/2021 to 08/05/2022 (including both days)
<b>Version number of the monitoring report to which this report applies</b>	2.1 of 22/08/2022
<b>Crediting period of the project activity corresponding to this monitoring period</b>	09/05/2012 to 08/05/2022
<b>Project participants</b>	Value Network Ventures Advisory Services Pte. Ltd.
<b>Host Party</b>	India
<b>Applied methodologies and standardized baselines</b>	AMS-I.E: Switch from non-renewable biomass for thermal applications by the user -Version 5.0
<b>Mandatory sectoral scopes</b>	1
<b>Conditional sectoral scopes, if applicable</b>	N/A
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	48,551 tCO <sub>2</sub> e
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	40,668 tCO <sub>2</sub> e
<b>Name of the VVB</b>	Carbon Check (India) Private Limited
<b>Name, position and signature of the approver of the verification and certification report</b>	 Vikash Kumar Singh, Compliance Officer

## SECTION A. Executive summary

>>

Carbon Check (India) Private Ltd. (CC IPL) is performing the seventh periodic verification of the GS project "Household Biogas plants installed in rural areas of Maharashtra" (GS project id: GS 2519) for the period 09/05/2019 to 08/05/2020 (inclusive of both the dates). The project activity involves installation and use of household bio-digester units of various sized (2m<sup>3</sup>, 3m<sup>3</sup>, 4m<sup>3</sup> and 6m<sup>3</sup>) which replaces non-renewable firewood used in the absence of bio-digesters. The bio-digesters are based on cattle dung and produced bio-gas is used for cooking purposes. The project involves 12,474 bio-gas units installed in rural areas of Maharashtra commissioned in between January 2009- Dec 2011. However, 84 bio-digesters were removed from the project since 09/05/2016 onwards and the effective number of digesters in the project is 12,390.

### **Verification methodology and process**

The Verification team confirms the contractual relationship signed on the 13/05/2022 between the Carbon Check (India) Private Ltd. (hereafter the "VVB") and the project participant - Value Network Ventures Advisory Services Pte. Ltd. The team assigned to the verification meets the Carbon Check (India) Private Ltd's internal procedures including the UNFCCC requirements for the team composition and competence. CC IPL has conducted a thorough contract review as per UNFCCC and Carbon Check's procedures and requirements.

The verification has been performed as per the requirements described in the Gold Standard for the Global Goals Principles & Requirements (version 1.2) /5/; and CDM VVS for project activities (version 03.0) /9/ and constitutes the review and completion of the following steps:

- Review of the registered PDD (version 03; Dated: 19/05/2014) /2/, including the monitoring plan and the corresponding validation report /7/, the Sustainability Matrix and monitoring data;
- Desk review of the MR, emission reduction spreadsheet
- Review of the applied monitoring methodology "AMS-I.E 'Switch from non-renewable biomass for thermal applications by the user' (version 5.0) /4/;
- Review of any CMP and EB decisions, clarifications and guidance and the Gold Standard Secretariat;
- On-site assessment (11/06/2022 & 12/06/2022)
- Resolution of CARs and CLs raised during verification
- Issuance of Verification Report

In Carbon Check's opinion, the project activity was correctly implemented according to selected monitoring methodology monitoring plan and the registered PDD /02/. The monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through document review, on-site assessment and interview with project participant, the verification team confirms that the project has resulted 40,668 tCO<sub>2</sub>e emission reductions during this 9<sup>th</sup> monitoring period. The GHG emission reductions and non-GHG parameters were correctly calculated/monitored based on the approved monitoring methodology "AMS-I.E, "Switch from non-renewable biomass for thermal applications by the user", (version 5) /04/ and the monitoring plan contained in the registered PDD (version 03; Dated: 19/05/2014) /02/.

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader/ Technical Expert/ Verifier	IR	Anand	Amit	CC IPL	√	√	√	√

**B.2. Technical reviewer and approver of the verification and certification report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	C.	Indumathi	CC IPL
2.	Approver	IR	Singh	Vikash Kumar	CC IPL

**SECTION C. Application of materiality**

The threshold of materiality was evaluated based on “Guideline: Application of materiality in verifications” (version 02.0) /13/. It was concluded that the materiality threshold applicable to the project activity based on actual emission reductions achieved is 5% of 40,668 tCO<sub>2</sub>e which is equal to 2,033 tCO<sub>2</sub>e.

In planning the verification, verification team took cognizance of §11 and §12 of the “Guideline: Application of materiality in verifications” (version 02.0) /13/ and a materiality threshold of 2,033 tCO<sub>2</sub>e is determined for the current verification of the project activity.

**C.1. Consideration of materiality in planning the verification**

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording).	Low	Being 9 <sup>th</sup> verification, the project proponent is familiar with monitoring procedures and data reporting in line with the registered PDD and previous verification and certification reports. The monitoring period is only one year. Hence, the risk level is low.	During on-site audit, the VT will interview the staffs of the monitoring team and check all records to confirm whether the monitoring plan has been well implemented. The recording of monitoring parameters used for determining the project's baseline emissions are used from third party survey report, statistically approved sampling plan and project installation database. The verification
2.	Undue reliance on a poorly designed	Low	The project proponent has already established a well-	

	information system, which may have few effective quality controls.		organized monitoring team, monitoring plan, including data collection procedure and QA/QC procedure consistent with registered monitoring plan. The main data parameter to be monitored is operation status of biogas systems which is done through sampling by third party. In addition, PP manages, entire project database to locate and monitor as in when required. Therefore, less likelihood that poor flow of required data can be witnessed. Hence, the risk level is low.	team shall review the whole data set of records, and crosschecked against relevant options. The verification team shall interview the staffs of the monitoring team and check the relevant records to confirm whether the data collection procedure and QA/QC procedure have been well implemented.
3.	Manual adjustment of otherwise automatically recorded activity levels	N/A	<i>There is no data parameter which needs to adjust manually. Therefore, no risk identified.</i>	

## C.2. Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications /13/, a reasonable level of assurance is defined for the verification of the project by complete verification of all the monitoring records was done by the verification team and compared with the values indicated in the emission reduction spread-sheet.

Some inconsistencies were identified and subsequently finding was raised. These findings are detailed in Appendix 4 and they were successfully closed. Therefore, related identified mistakes as listed in findings in Appendix 4 to this report have been determined to be immaterial. And thus, it is confirmed that there are no material errors, omissions or misstatements and a reasonable level of assurance is established

## SECTION D. Means of verification

### D.1. Desk/document review

>>

The verification was performed primarily based on the review of the Monitoring report /01/, emission reduction worksheet /03/ and supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

**D.2. On-site inspection**

Duration of on-site inspection: 11/06/2022 to 12/06/2022				
No.	Activity performed on-site	Site location	Date	Team member
1.	Verify actual implementation of the project, management structure, project participant	Gondia & Bhandara	11/06/2022 to 12/06/2022	Amit Anand
2.	Physically checking the project technology, end user details, identification of project biogas systems, whether the pre-project fuel is in use, whether the project biogas systems are in operational			
3.	Management and operational system: Documentation, allocation of responsibilities, qualification and training, data recording & archiving, internal audit and management review and emergency procedures			
4.	Interviews with end user and other stakeholders			

**D.3. Interviews**

No.	Interviewee			Date	Subject	Auditor
	Last name	First name	Affiliation			
1.	Pardhi	Rameswaran	AKKPS	11/06/2022-12/06/2022	Project Design, ownership details, carbon credit sharing arrangements, monitoring and reporting arrangements, QA/QC procedures, baseline assessment, project technology	Amit Anand
2.	Garg	Shivani	Representative of VNV	11/06/2022-12/06/2022	PDD development, GS requirements, Emission reduction calculations, methodology applicability, start date justification etc.	
3.	Nandgauli	B.T.	Field co-ordinator-Maharashtra	11/06/2022-12/06/2022	Maintenance, grievance system, field visit etc.	
4.	Prasad	Sanjay	Gramodyog Sansthan	11/06/2022	Details of survey, methodology, survey results, QA/QC procedure etc.	
5.	End users			11/06/2022 & 12/06/2022	Commissioning details, Agreement with project developers,	

					Functioning of biogas systems, sustainability issues, baseline fuel. Post project benefits, Impact on health and livelihood.	
--	--	--	--	--	--	--

#### D.4. Sampling approach

>>

##### PP's sampling approach:

PP has proposed simple random sampling plan using 90/10 as confidence / precision. This is in line with the applied methodology /4/. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0 (EB86, Annex 4) /10/.

##### CC IPL's verification sampling approach:

CC IPL has considered para 39 (a) of "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0" for determining the sampling size for VVB /11/. In case of the current verification, the verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' version 09.0 /11/: Considering Acceptable Quality Level (AQL): 0.5%, Unacceptable Quality Level (UQL): 20% and producer risk of 5% and consumer risk of 20% a sample size of 8 was required as per Table 2 in the referred Standard /11/. Acceptance number (c) thus determined for the sample size is 0. CC IPL considered 12 samples from PP's sample record to verify the project activity. The verification team selected random samples from the list of PP's sample bio-digesters. The verification team visited random 12 biodigesters (user) to ascertain monitoring results provided by PP. The biogas system details (unique serial number, date of commissioning, type of biogas system, technology, name of user and address) were checked and found to be consistent with that reported in the installation database. No inconsistency was observed for any of the 12 samples with respect to the observations seen during on-site visit. This assessment of the selected samples was done to ascertain the implementation status of the project activity w.r.t. the biogas system types, serial number, location etc.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	--	01	--
Compliance of the project implementation and operation with the registered PDD	01	--	--
Post-registration changes	--	--	--
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	--	--	--
Compliance of monitoring activities with the registered monitoring plan	--	01	--
Compliance with the calibration frequency requirements for measuring instruments	--	--	--
Assessment of data and calculation of emission reductions or net removals	--	--	--
Assessment of reported sustainable development co-benefits	--	--	--
Global stakeholder consultation	--	--	--
Others (Supporting documents)	--	--	--
Other (Sustainability Monitoring)	--	--	--
<b>Total</b>	<b>01</b>	<b>02</b>	<b>0</b>

## SECTION E. Verification findings

### E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	Comparing the monitoring report /01/ with the monitoring report form provided by GS
<b>Findings</b>	N/A
<b>Conclusion</b>	CCIPL confirms that the monitoring report version 1.0 of 14/05/2022 and later versions are prepared using GS monitoring report template version 1.1 of 14/10/2020 which is the latest available template and completed with relevant information as per the template requirement.

### E.2. Remaining forward action requests from validation and/or previous verifications

&gt;&gt;

No FAR remaining to be addressed during this verification.

### E.3. Compliance of the project implementation and operation with the registered project design document

<b>Means of verification</b>	<p>As verified during on-site audit and third party survey report, the audit team confirm the project implementation and operation complies with the project design document and transition annex /02/. All the bio-digesters are commissioned between the year 2009 and 2011 which is confirmed from the validation and previous verification report /14/. The project activity involves 12,390 household bio-digesters of different sizes (2 m<sup>3</sup>, 3 m<sup>3</sup>, 4 m<sup>3</sup> and 6 m<sup>3</sup>) in the state of Maharashtra. The project is bundled and managed by AKKPS through its network of RETs. The project boundary in the registered PDD /02/ is in line with the actual project boundary.</p> <p>CCIPL has considered 12 bio-digesters more than the required 8 samples as explained in section D.4 above to ascertain accuracy of information. CCIPL confirms the project biogas systems are operating in all samples verified through telephonic interview and video call with end users, each biogas system has unique identification number which has been provided in the end user agreement and are correct as per project database. The unique identification is also marked at each biogas plant physically. Along with the serial number, the biogas technology, end user name, address, commissioning date etc. had also been noted which were</p>
------------------------------	---

	found to be consistent on ground.  It is noted that no changes have been observed or identified which may impact the additionality, no addition of component nor extension of technology, no addition nor removal of project sites, no change of values of the actual operational parameter relevant to determination of emission reductions which are within the control of the PP; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology AMS-I.E version 5 /04/. The operational status of all project bio-digesters, impact on identified SDGs from 09/05/2021 to 08/05/2022 has been taken into consideration.
<b>Findings</b>	N/A
<b>Conclusion</b>	It is Carbon Check's opinion that the project implementation and operation complies with the project design document.

**E.4. Post-registration changes****E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>1</sup>**

&gt;&gt;

Not Applicable

**E.4.2. Corrections**

&gt;&gt;

Not Applicable

**E.4.3. Changes to the start date of the crediting period**

&gt;&gt;

Not Applicable

**E.4.4. Inclusion of a monitoring plan**

&gt;&gt;

Not Applicable

**E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents**

&gt;&gt;

Not Applicable

**E.4.6. Changes to the project design**

&gt;&gt;

Not Applicable

**E.4.7. Changes specific to afforestation and reforestation project activities**

&gt;&gt;

Not Applicable

**E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents**

<b>Means of verification</b>	During this monitoring period, the validated and registered monitoring plan was found to be in accordance with the applied methodology /02/, /04/.
<b>Findings</b>	N/A
<b>Conclusion</b>	All monitoring parameters, monitoring procedures follow the methodology

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



requirements and registered monitoring plan.

**E.6. Compliance of monitoring activities with the registered monitoring plan****E.6.1. Data and parameters fixed ex ante or at renewal of crediting period**

<b>Means of verification</b>	The following ex-ante parameters are considered in the calculation of the emission reductions:			
	DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
	Total amount of biomass substituted ( $D_y$ )	Registered PDD /02/	2m <sup>3</sup> = 230 kg/month 3m <sup>3</sup> = 334 kg/month 4m <sup>3</sup> = 434 kg/month 6m <sup>3</sup> = 650 kg/month	Since this is the baseline wood consumption taken from baseline survey, this will remain fixed during the crediting period. /02/
	Fraction of Non-Renewable Biomass ( $f_{NRB, y}$ )	Registered PDD /02/	93%	This value is calculated based on the values provided in the forest survey report released by Government of India and fixed during the crediting period.
	Net Calorific Value of non-renewable biomass ( $NCV_i$ )	IPCC /02/	0.015 TJ/tonne	This value has been taken from the IPCC default value as mentioned in the applied methodology /02, /04/.
	Emission Factor ( $EF_{projected\_fossilfuel}$ )	IPCC /02/	81.6 tCO <sub>2</sub> /TJ	This value has been from the applied methodology /02/ /04/
<b>Findings</b>	N/A			
<b>Conclusion</b>	CC IPL is able to confirm that the Data and parameters fixed ex ante have been implemented in full compliance with the registered monitoring plan.			

**E.6.2. Data and parameters monitored**

Means of verification	Data/Parameter	Displacement or substitution of the non-renewable woody biomass									
	Data Unit	kg									
	Description	Monitoring should confirm the displacement or substitution of the non-renewable woody biomass at each location. The survey confirms displacement or substitution of the non-renewable woody biomass at each location. There has been no switch over to any other renewable biomass. This is also consistent with site visit findings, hence accepted.									
	Source of data to be used	Survey /12/									
	Value of monitored parameter for the monitoring period	<table><tr><th>Size</th><th>Before installation of Biogas plants (D<sub>y</sub>)-kgs/month</th><th>After installation of Biogas plants(P<sub>y</sub>) – kgs/month</th><th>Amount of firewood displaced (B<sub>y</sub>)</th></tr><tr><td>2</td><td>230</td><td>30</td><td>207</td></tr></table>			Size	Before installation of Biogas plants (D <sub>y</sub> )-kgs/month	After installation of Biogas plants(P <sub>y</sub> ) – kgs/month	Amount of firewood displaced (B <sub>y</sub> )	2	230	30
Size	Before installation of Biogas plants (D <sub>y</sub> )-kgs/month	After installation of Biogas plants(P <sub>y</sub> ) – kgs/month	Amount of firewood displaced (B <sub>y</sub> )								
2	230	30	207								

		3	334	30	298
		4	434	30	391
		6	650	30	606.5
		Verification team during on-site assessment noted rarely users use firewood, especially in winter season or temporarily when gas generation becomes low with a estimation given by users around 30 kgs maximum in a month. Therefore, conservatively the use of firewood has been considered to calculate net fuel save.			
	Monitoring equipment	Not applicable as it is based on survey method.			
	Accuracy of the monitoring equipment	Not applicable			
	Measuring/Reading/Recording frequency	Annual			
	Calculation method (if applicable)	Not applicable			

Data/Parameter	Checking of sampled biogas plants
Data Unit	%
Description	Monitoring consist of checking of representative sample, to ensure that biodigesters operating or are replaced by an equivalent in service appliance. The survey confirms functionality of biogas plants.
Source of data to be used	Survey /12/
Value of monitored parameter for the monitoring period	97% as per sample survey. Verification team visited 12 samples (more than the required sample as per sampling standard) and confirm that all 12 biogas plants were 100% functional. Therefore, the results of survey to confirm 97% plants are functional is correct as per sampling rule. Hence, results are accepted.
Monitoring equipment	Not applicable as it is based on survey method.
Accuracy of the monitoring equipment	Not applicable
Measuring/Reading/Recording frequency	Annual
Calcualtion method (if applicable)	Not applicable

Data/Parameter	Amount of firewood saved under the project activity that is used by non-project households/users
Data Unit	Tonne/year
Description	In order to assess the leakages specified under paragraph 10 of AMS IE, version 05, monitoring shall include data on the amount of woody biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources.
Source of data to be used	Survey. However, since PP adopted as default approach, survey did not capture this parameter.

	Value of monitored parameter for the monitoring period	During this monitoring period leakage is accounted considering default factor as per applied methodology. Hence, survey did not capture the parameter. This parameter is applicable for accounting leakage emissions which is accounted applying default leakage factor (0.95) during this monitoring parameter.
	Monitoring equipment	Not applicable
	Accuracy of the monitoring equipment	Not applicable
	Measuring/Reading/Recording frequency	Annual
	Calculation method (if applicable)	Not applicable
<b>Findings</b>	CL 1 was raised to provided third party survey report and sample maintenance records along with employment records applicable for the monitoring period which PP has provided and found to be consistent with the MR. Hence, CL is closed.	
<b>Conclusion</b>	Carbon Check is able to confirm that the monitoring has been implemented in full compliance with the registered monitoring plan and all the parameters listed in the registered monitoring plan have been completely monitored.	

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	<p>According to the standard for sampling and survey /11/ and related guidelines /10/ the sampling plan was determined at the time of project registration and applied during the monitoring.</p> <ul style="list-style-type: none"> <li>- Sampling method: Simple random sampling method is adopted as the target population are of homogeneous. The sample size is determined by the requirement to achieve 90/10 in line with the methodology for annual survey. Sampling approaches may follow the Guideline "Sampling and surveys for CDM project activities and programme of activities" for calculation of sample size.</li> <li>- Data to be collected: Number of project devices of type i and operating in year y.</li> <li>- Implementation plan: Annual.</li> </ul> <p>Actual implementation during the monitoring period:</p> <ul style="list-style-type: none"> <li>- Sampling method: The sample size included all households and was randomly sampled from a list of all the project biogas system in the project. The target population is the 12,390 biogas systems. The sampling frame is homogenous within itself, with respect to service level, established ex-ante baseline and user characteristics. PP has first determined target sample number of 67 biogas systems as below:</li> </ul> <p>The total sample size has been derived using equation para 12 of appendix 1, EB 86 Annex 4, Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0. /10/. The expected parameter values (mean, standard deviation and proportion) have been taken as per para 12 of appendix 1, EB 86 Annex 4 /10/.</p> $n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$ <p>Total Population (N) is 12,390, expected proportion is taken 80% and accordingly, sample size (n) come out to be 67.</p> <p>For the mean value parameter (average firewood consumption in continuation to biogas use), sample size was calculated as per equation given in para 51 of appendix 1, EB 86 Annex 4, Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0. The calculated sample size was 25.</p>
------------------------------	---

Therefore, PD considered 77 biogas systems for all sample parameters for the survey.

The 77 sample are divided as per below structure:

Sizes	No. of Biogas plants	Proportion	No. of samples	Actual Sample number
2 m3	5198	42%	28	30
3 m3	7026	57%	38	40
4 m3	143	1%	1	5
6 m3	23	0.19%	0.12	2

The list of project biogas plants are segregated respective to its size and a random number is assigned for each biogas plant. Then random sample number generator (<https://stattrek.com/statistics/random-number-generator.aspx>) is used to get the required samples for each of the biogas size as per above table. The selection of samples are random and representative of the entire population. It is also noted the survey result shows 97% operational status of biogas plants.

The achieved precision for proportional parameter is 0.8% and for mean value parameter it is 1% which is below the desired precision of 10%.

<b>Findings</b>	CAR 1 was raised and closed as discussed in Appendix 4 of this report.
<b>Conclusion</b>	Carbon Check confirms that the sampling size and the method of on-site assessment was in line with the requirements of the sampling standard.

#### E.7. Compliance with the calibration frequency requirements for measuring instruments

<b>Means of verification</b>	There is no monitoring equipment involved in monitoring of the required parameters. Hence, no calibration requirement applicable for the project activity.
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

#### E.8. Assessment of data and calculation of emission reductions or net removals

##### E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<b>Means of verification</b>	<p>As per the registered PDD /02/ and the Methodology applied /04/ emission reductions are calculated as per equation 1 of the methodology as below:</p> $ER_y = B_y * f_{NRB, y} * NCV_{biomass} * EF_{projected\_fossilfuel}$ <p>Where,</p> <p><b>B<sub>y</sub></b> = is the quantity of woody biomass that is substituted or displaced in tonnes</p> <p><b>f<sub>NRB, y</sub></b> = is the fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass (f<sub>NRB</sub>) values available on the CDM website. In this case f<sub>NRB, y</sub> is fixed ex-ante to be 93% as verified from registered PDD and validation report /02/,/07/.</p> <p><b>NCV<sub>biomass</sub></b> = is the Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)</p> <p><b>EF<sub>projected_fossilfuel</sub></b> = is the emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO<sub>2</sub>/TJ.</p> <p><b>'B<sub>y</sub>'</b> is calculated by multiplying the number of appliances with the estimated average annual consumption of woody biomass per appliance (tonnes/year). The average annual consumption of woody biomass is estimated by survey methods as explained in section E.6.2 above. This is found to be in-line with the applied methodology /04/ and registered PDD /02/.</p>
------------------------------	---

	Accordingly, the baseline emissions for project activity for the monitoring period from 09/05/2021 to 08/05/2022 is calculated to be 42,809 tCO <sub>2e</sub>
<b>Findings</b>	CAR 2 was raised and closed as discussed in Appendix 4 of this report.
<b>Conclusion</b>	CC IPL confirms that baseline emissions have been appropriately calculated and are consistent with site visit observations, the applied methodology, registered PDD and the previous verification reports /01/, /02/, /04/, /07/.

### E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

<b>Means of verification</b>	Project emissions are already discussed in above section E.8.1.
<b>Findings</b>	N/A
<b>Conclusion</b>	CC IPL confirms that project emissions have been appropriately calculated and are consistent with on-site assessment, the applied methodology and registered PDD /02/, /03/, /04/.

### E.8.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	<p>As per the methodology Leakage related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The following potential source of leakage shall be considered:</p> <p>'The use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass used by the non-project households/users, that is attributable to the project activity, then By is adjusted to account for the quantified leakage. Alternatively, By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.</p> <p>Accordingly, PP has multiplied By with 0.95 to account leakage which results leakage to be 2,141 tCO<sub>2e</sub>.</p>
<b>Findings</b>	N/A
<b>Conclusion</b>	CC IPL confirms that leakage emissions are accounted corrected in the estimation of emission reduction as per the applied methodology.

### E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p>Emission Reductions:</p> <p>The emission reductions in this monitoring period are:</p> $ER_y = BE_y - PE_y - Ly$ <p>Where,</p> <p>ER<sub>y</sub> is the total emission reductions of the project activity during the year y in tCO<sub>2e</sub>;</p> <p>BE<sub>y</sub> is the baseline emissions for the project activity during the year y in tCO<sub>2e</sub>;</p> <p>PE<sub>y</sub> is the emissions for the project activity during the year y in tCO<sub>2e</sub>;</p> <p>LE<sub>y</sub> is the leakage emissions for the project activity during the year y in tCO<sub>2e</sub>.</p> <p>As explained in section E.8.1 above, the resulted Baseline emissions (BE<sub>y</sub>) for the monitoring period is 42,809 tCO<sub>2</sub>. Similarly as explained in section E.8.2 and section E.8.3 project emission is zero for the monitoring period and leakage emissions are accounted to be 2,141 CO<sub>2</sub> for the monitoring period. Hence, resulted emission reduction for the monitoring period is 40,668 tCO<sub>2</sub> (rounddown value).</p>
<b>Findings</b>	N/A
<b>Conclusion</b>	The data presented in the monitoring report /01/ and emission reduction worksheet /03/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and

	assessment of the reliability of monitoring equipment. Sufficient evidences were presented and verified by CCIPL for the reported emission reductions as listed above.
--	--

#### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	The emission reductions from the project for the monitoring period as reported in the monitoring report revision 2.1 of 22/08/2022 /01/ is equivalent to 40,668 tCO <sub>2e</sub> . The reported emission reductions are 16.24% lower than the estimated emission reduction of 48,551 tCO <sub>2e</sub> for the period as per the registered PDD /03/.
<b>Findings</b>	N/A
<b>Conclusion</b>	The emission reduction calculations provided in the spreadsheet /03/ have been verified to be correct and in line with the registered PDD /02/.

#### E.8.6. Remarks on difference from estimated value in registered PDD

<b>Means of verification</b>	Cross checking calculation and monitored results and comparing the achieved emissions with estimated ex-ante.
<b>Findings</b>	N/A
<b>Conclusion</b>	Since, there are still some firewood consumption by project bio-digester users, the same is accounted as leakage emissions as per the applied methodology. Hence, achieved emission reduction is 16.24% less

#### E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

<b>Means of verification</b>	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	NA	40,668 tCO <sub>2e</sub>
	Year-wise break-up of emission reductions:	
	Year	Emission Reductions (tCO <sub>2e</sub> )
	09/05/2021 to 31/12/2021	26,406 tCO <sub>2e</sub>
<b>Findings</b>	01/01/2022 to 08/05/2022	14,262 tCO <sub>2e</sub>
	N/A	
<b>Conclusion</b>	The emission reduction calculations provided in the spreadsheet /03/ have been verified to be correct and in line with the registered PDD /02/, also the values are consistently reported in the MR for this monitoring period.	

#### E.9. Assessment of reported sustainable development co-benefits

<b>Means of verification</b>	<b>Data variable</b>	<b>Source of Data</b>	<b>Reported value for the project period</b>
	Air Quality	Results of ambient air quality measurements as detailed in the third party survey report /12/	96% positively responded for improved air quality. 94% positively responded for improved health from diseases related to smoke.
	<b>Assessment</b>		
	Third party survey was conducted by Gramodyog Sansthan /12/ to check whether biogas plants were working and proper functioning of biodigester will confirm the air quality is improved compared to baseline situation. Survey confirmed 97% sampled bidigesters were functioning during the monitoring period. Further, 96% end users confirmed positively benefited from air quality improvement and 94% positively responded for improved health from diseases related to smoke. In addition, VVB's sample record also showed all plants are functional which implies that all plants are functional during the monitoring		

	period. Hence, it is confirmed that air quality is improved compared to baseline situation.		
	<b>Data variable</b>	<b>Source of Data</b>	<b>Reported value for the project period</b>
	Livelihood of the poor	Third party survey report /12/	Effective utilization of cow dung by all 12,018 users of bio-digesters. 100% users positively responded for improved livelihood.
	<b>Assessment</b>		
	Cattle dung is primarily fed in biodigestors, hence reduction in open decay of cattle dung. Confirmed from third party survey report and consistent with site visit observations. In addition 100% end users positively confirmed improvement in livelihood due to implementation of the project activity.		
	<b>Data variable</b>	<b>Source of Data</b>	<b>Reported value for the project period</b>
	Access to clean and affordable energy	Third party survey report /12/	12,018 biogas plants are working
	<b>Assessment</b>		
	Biogas plant owners are not utilizing firewood to suffice their entire thermal needs. The minimum firewood as used has been accounted as project emissions in the emission reduction calculation. The third party survey confirms functioning of 97% surveyed biogas plants and also all sample plants considered during on-site assessment were found functioning. Hence the project activity is contributing to overall positive impact to the access of clean and affordable energy.		
	<b>Data variable</b>	<b>Source of Data</b>	<b>Reported value for the project period</b>
Quantitative employment and income generation	Salary vouchers /16/ issued to the project employees and AKKPS employee database /17/	20 persons have been employed and retained in different category (skilled/unskilled/temporary) by AKKPS for the project activity.	
<b>Assessment</b>			
Salary vouchers issued to the project employees /16/ and AKKPS employee list /17/ confirms employment generation by the project activity. Also, AKKPS has engaged site supervisors which is shown in the plant database list. Site supervisors along with supporting technicians are engaged for any operation and maintenance of bio-digesters under their jurisdiction. The records of employment by AKKPS, site supervisors, technicians and survey work order etc. reveals quantitative employment and income generation from the project activity. It is also noted that on an average employees are paid INR 10,000/- per month which is above the minimum wages determined for the state.			
<b>Continuous grievance/input mechanism:</b>			
As part of continuous grievance/input mechanism it is noted that PP has provided details of responsible person to contact at each site (site supervisors) and register to record any input. The same is confirmed during on-site assessment and interview with end users and they found aware of the mechanism. The verification team checked the records and found that only minor issues related to biogas performance recorded from users which were resolved proactively. Therefore, the continuous grievance/input mechanism found to be effective.			
<b>Findings</b>	N/A		
<b>Conclusion</b>	CCIPL confirms that monitoring of all the sustainable development monitoring		

	parameters during this monitoring period is in line with registered PDD and GS4GG transition annex and are consistent with off-site assessment and the previous verification report /01/, /07/, /14/.
--	---

**E.10. Global stakeholder consultation**

<b>Means of verification</b>	Not Applicable
<b>Findings</b>	Not Applicable.
<b>Conclusion</b>	Not Applicable.

**SECTION F. Internal quality control**

>> The final verification report passed a technical review before being submitted to the client for forward submission to GS. A technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification performed the technical review.

**SECTION G. Verification opinion**

>> Carbon Check (India) Private Ltd. (CCIPL) has performed the 9<sup>th</sup> verification of the GS Project Activity "Household Biogas plants installed in rural areas of Maharashtra" in India having GS reference number GS 2519.

The verification team assigned by the VVB concludes that the project activity as described in the registered PDD (version 03; dated 19/05/2014) /02/ and the monitoring report (version 2.1 dated 22/08/2022) /01/, meets all relevant GS4GG requirements for project activity and UNFCCC requirements. The verification has been conducted in-line with the GS4GG requirements and requirements of VVS for CDM project activities (version 03.0) /09/.

**Verification methodology and process:**

The verification team confirms the contractual relationship signed on 13/05/2022 between the VVB, Carbon Check (India) Private Ltd. and Project Participants (Value Network Venture Advisory Services Pte. Ltd.). The team assigned to the verification meets the CCIPL's internal procedures including the UNFCCC requirements for the team composition and competence. The verification team has conducted thorough review as per GS4GG, UNFCCC and CCIPL's procedures and requirements.

The verification has been performed as per the requirements described in the GS4GG requirements /05/ and constitutes the review and completion of the following steps:

- Reviewing the registered PDD (version 03; dated 19/05/2014) /02/;
- Receipt of the MR (version 2.1 dated 22/08/2022) /01/;
- Desk review of the MR /01/ and other relevant documents;
- Review of the applied monitoring methodology (AMS-I.E, version 05) /04/;
- Review of any CMP and EB decisions, clarifications and guidance;
- On-site assessment (11/06/2022 & 12/06/2022);
- Resolution of CARs and CLs raised during verification;
- Issuance of Verification Report

The project activity was correctly implemented according to the selected monitoring methodology and registered PDD /02/. Through document review and on-site visit assessment, the verification team confirms that the project activity has resulted in 40,668 tCO<sub>2</sub>e emission reductions during this ninth monitoring period.

The break-up of emission reduction up to 09/05/2021 and 08/05/2022 onwards as verified during the course of verification are as below:

Vintage	Emission reductions (tCO <sub>2</sub> e)
09/05/2021 to 31/12/2021	26,406
01/01/2022 to 08/05/2022	14,262

CCIPL therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.




**SECTION H. Certification statement**

>> It is CCIPL's opinion that the GHG emission reductions stated in the monitoring report, version 2.1 dated 22/08/2022 for project activity, "Household Biogas plants installed in rural areas of Maharashtra" for period 09/05/2021 to 08/05/2022 (Inclusive of both the dates) are fairly stated. The GHG emission reductions were calculated correctly based on the approved monitoring methodology, AMS-I.E, version 05. Hence, CCIPL able to certify that the emission reductions from the project during the monitoring period 09/05/2021 to 08/05/2022 (Inclusive of both the dates) amount to 40,668 tCO<sub>2</sub>e.

## Appendix 1. Abbreviations

Abbreviations	Full texts
<b>AKKPS</b>	Aadivasi Khadi Avom Krishi Parishchan Sansthan
<b>CDM</b>	Clean Development Mechanism
<b>CAR</b>	Corrective Action Request
<b>CC IPL</b>	Carbon Check (India) Private Ltd.
<b>CL</b>	Clarification Request
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>CO<sub>2</sub>e</b>	Carbon Dioxide Equivalent
<b>DR</b>	Document review
<b>DOE</b>	Designated Operational Entities
<b>DVR</b>	Draft Validation Report
<b>EB</b>	CDM Executive Board
<b>EF</b>	Emission Factor
<b>EI</b>	External individual
<b>ER</b>	Emission Reduction
<b>FA</b>	Final Approval
<b>FAR</b>	Forward Action Request
<b>FVR</b>	Final validation Report
<b>FSR</b>	Feasibility Study Report
<b>GHG</b>	Greenhouse gas(es)
<b>GSF</b>	Gold standard Foundation
<b>GS4GG</b>	Gold standard for Global Goals
<b>I</b>	Interview
<b>IPCC</b>	Intergovernmental Panel on ClimateChange
<b>IR</b>	Internal resource
<b>MH</b>	Maharashtra
<b>MW</b>	Mega Watt
<b>MWh</b>	Mega Watt hours
<b>PDD</b>	Project Design Document
<b>PP</b>	Project Participant
<b>OSV</b>	On Site Visit
<b>QC/QA</b>	Quality control /Quality assurance
<b>SS</b>	Sectoral Scope
<b>TA</b>	Technical Area
<b>TR</b>	Technical Review
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VER</b>	Verified Emission Reduction
<b>VVB</b>	Validation and Verification Body
<b>VVS</b>	Validation and Verification Standard
<b>VT</b>	Verification Team

## Appendix 2. Competence of team members and technical reviewers



**Carbon Check (India) Private Ltd.**

**Amit Anand**

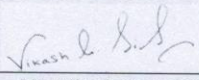
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Assessor <sup>1</sup>	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input checked="" type="checkbox"/>	TA 4.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input type="checkbox"/>
TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input checked="" type="checkbox"/>



**Mr. Vikash Kumar Singh**  
Compliance Officer

<b>Date of Approval</b> 24/12/2021	<b>Valid Till</b> 23/12/2022
---------------------------------------	---------------------------------

**Revision History of the Document**

01/03/2020 <sup>2</sup> 01/09/2020 24/12/2020 24/12/2021	Interim Revision for office address change Interim Revision for CCIPL logo change Annual Revision Annual Revision
---	--

<sup>1</sup> India and South Africa

<sup>2</sup> Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED  
CIN: U74930DL2012PTC232495

Regd. Off: 2071/38, 2<sup>nd</sup> Floor, Naiwala, Karol Bagh, New Delhi - 110005

Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh

Tel: +91 120 4373114 | URL: [www.carboncheck.co.in](http://www.carboncheck.co.in) | e-mail: [info@carboncheck.co.in](mailto:info@carboncheck.co.in)





## Carbon Check (India) Private Ltd.

### Ms. Indumathi. C

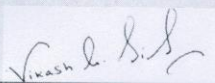
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

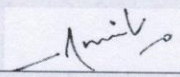
For following functions:

Validator	<input type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Assessor <sup>1</sup>	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input checked="" type="checkbox"/>	TA 4.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input checked="" type="checkbox"/>
TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input type="checkbox"/>

  
 Mr. Vikash Kumar Singh  
 Compliance Officer

  
 Mr. Amit Anand  
 CEO

Date of Approval  
 24/12/2021

Valid Till  
 23/12/2022

#### Revision History of the Document

01/03/2020 <sup>2</sup>	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

<sup>1</sup> India.

<sup>2</sup> Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED  
 CIN: U74930DL2012PTC232495

Regd. Off: 2071/38, 2<sup>nd</sup> Floor, Naiwala, Karol Bagh, New Delhi - 110005

Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh

Tel: +91 120 4373114 | URL: [www.carboncheck.co.in](http://www.carboncheck.co.in) | e-mail: [info@carboncheck.co.in](mailto:info@carboncheck.co.in)

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	VNV Advisory Services	Monitoring report for the project activity 'Household Biogas plants installed in rural areas of Maharashtra' covering period 09/05/2021 to 08/05/2022	Version 01 of 14/05/2022, version 2.0 of 20/07/2022, version 2.1 of 22/08/2022	PP
2	VNV Advisory Services	a) Registered PDD for the project activity 'Household Biogas plants installed in rural areas of Maharashtra' b) Transition review feedback	Version 03 of 19/05/2014  Feedback dated 01/08/2018	PP
3	VNV Advisory Services	Emission reduction worksheet 'GS VER_2519_v1_MP9'	Version 01 of 14/05/2022, version 2 of 20/07/2022	PP
4	UNFCCC	Small-scale Methodology AMS-I.E 'Switch from non-renewable biomass for thermal applications by the user'	Version 05	Publicly available
5	Gold Standard	Gold Standard for the Global Goals Principles & Requirements	Version 1.2 of 23/10/2019	Publicly available
6	Gold Standard	Gold Standard for the Global Goals CS Activity Requirements	Version 1.1 of March 2018	Publicly available
7	DNV	Validation report "Household Biogas plants installed in rural areas of Maharashtra" in India	Revision 02 of 22/05/2014	PP
8	GS	Performance review covering monitoring period 09/05/2020 to 08/05/2021 for the project GS 2519		PP
9	UNFCCC	CDM validation and verification standard	Version 03	Publicly available
10	UNFCCC	Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities	Ver. 4.0 (EB86, Annex 4)	Publicly available
11	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 09	Publicly available
12	Gramodyog Sansthan	Biogas Usage Survey Report in selected districts of Maharashtra	March 2022	PP
13	UNFCCC	Guideline: Application of materiality in verifications	Version 2 of 20/02/2015	Publicly available
14	Carbon Check	Verification report for the project 'Household Biogas plants installed in rural areas of Maharashtra' covering monitoring period from 09/05/2020 to 08/05/2021	Version 2.1 of 15/09/2021	PP
15	Gold Standard	COVID-19: Interim Measures		Publicly available
16	AKKPS	Salary vouchers issued to the project employees during the period May 2021 to April 2022	Salary receipts	PP
17	AKKPS	Employee list for the year 2021-2022	Employee list	PP

## Appendix 4. Clarification requests, corrective action requests and forward action requests

**Table 1. Remaining FAR from validation and/or previous verifications**

<b>FAR ID</b>	N/A	<b>Section no.</b>		<b>Date:</b>
<b>Description of FAR</b>				
N/A				
<b>Project participant response</b>				<b>Date:</b>
<b>Documentation provided by project participant</b>				
<b>VVB assessment</b>				<b>Date:</b>

**Table 2. CL from this verification**

<b>CL ID</b>	01	<b>Section no.</b>	E.5	<b>Date:</b> 29/06/2022
<b>Description of CL</b>				
<ol style="list-style-type: none"> <li>Kindly provide third party survey report and its supporting documents.</li> <li>Kindly provide sample maintenance records applicable for the monitoring period and grievance register copy.</li> <li>Kindly provide employment records applicable for the monitoring period.</li> </ol>				
<b>Project participant response</b>				<b>Date:</b> 20/07/2022
<ol style="list-style-type: none"> <li>Third party survey report and supporting documents are submitted now.</li> <li>Maintenance record/grievance register copy is submitted.</li> <li>Employment records with proof of payments are submitted now.</li> </ol>				
<b>Documentation provided by project participant</b>				
Evidences as stated above				
<b>VVB assessment</b>				<b>Date:</b> 31/07/2022
The survey report, periodic maintenance records and employment records confirm PP's claim for the monitoring period to be correct. Hence, CL is closed.				

**Table 3. CAR from this verification**

<b>CAR ID</b>	01	<b>Section no.</b>	E.6.3	<b>Date:</b> 29/06/2022
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>The sample parameter includes one mean value parameter in addition to proportional parameter for which sample size calculation is not provided.</li> <li>The sampling method and its justification is not provided.</li> <li>The survey method, QA/QC adopted for survey and achieved precision is not provided.</li> </ol>				
<b>Project participant response</b>				<b>Date:</b> 20/07/2022
<ol style="list-style-type: none"> <li>The sample size calculation for mean value parameter is provided in the MR and on conservative side a higher sample size which is resulted for the proportional parameter is considered for sample survey.</li> <li>The sample method and other details are included in the revised MR.</li> <li>The survey method, QA/QC adopted and achieved precision is now included in the updated MR.</li> </ol>				
<b>Documentation provided by project participant</b>				
Updated MR and ER sheet.				
<b>VVB assessment</b>				<b>Date:</b> 31/07/2022
The updated MR correctly provides the calculation of sample size for mean value parameter and appropriate justification has been provided for considering the sample size for annual survey. The survey method and QA/QC are appropriately explained and found consistent with the survey report. The achieved precision found to be within 10% and hence sampling meets the 90/10 confidence precision. Hence, CAR is closed.				

<b>CAR ID</b>	02	<b>Section no.</b>	E.8.1	<b>Date:</b> 29/05/2021
<b>Description of CAR</b>				
<ol style="list-style-type: none"> <li>1. The MR is not explicit on how the firewood consumption in parallel to biogas used is captured considering different size of biogas systems.</li> <li>2. Under section E.4 of the MR, SDG 3 mention numbers such as 4, 5, 6 etc. PP is requested to clarify the relevance of these numbers if any.</li> <li>3. SDG 7 impact in table1 and section E.4 of the MR is inconsistent. One place it is in percentage and in another place it is in absolute number.</li> </ol>				
<b>Project participant response</b>				<b>Date:</b> 20/07/2022
<ol style="list-style-type: none"> <li>1. <i>Although the survey took sample of each capacity of biogas system, the results of entire population is used as one value for the project. The results of firewood consumption as reported by users are averaged and used for entire population on conservative side.</i></li> <li>2. <i>It was a typical mistake which is now corrected.</i></li> <li>3. <i>SDG 7 impact during the monitoring period is corrected and made consistent throughout the MR.</i></li> </ol>				
<b>Documentation provided by project participant</b>				
Updated MR and ER sheet				
<b>VVB assessment</b>				<b>Date:</b> 31/07/2022
VVB reviewed the survey raw data and found if capacity wise average firewood consumption is taken, the resulted emission reductions would be higher and considering a overall average value for entire population results in lower emission reductions. Hence, PD's justification is accepted. Other corrections as per comment found correctly done. Hence, CAR is closed.				

Table 4. FAR from this verification

<b>FAR ID</b>		<b>Section No.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
No FAR raised				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>VVB assessment</b>				<b>Date:</b> DD/MM/YYYY

- - - - -

**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li><li>• Make structural and editorial improvements.</li></ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		