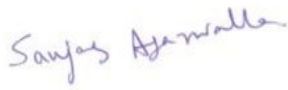
Verification and certification report form for Gold Standard project activities

BASIC INFORMATION	
Title and GS reference number of the project activity	Bundling of Household biogas plants for thermal energy applications (GS 11539)
Scale of the project activity	☐ Large-scale ☒ Small-scale
Version number of the verification and certification report	02
Completion date of the verification and certification report	29/08/2024
Monitoring period number and duration of this monitoring period	03 01/08/2023 – 31/07/2024 (inclusive of both days)
Version number of the monitoring report to which this report applies	03
Crediting period of the project activity corresponding to this monitoring period	01/03/2021 to 28/02/2026
Project representative(s)	Greneity Infocom Service Private Limited
Host Party	India
Applied methodologies and standardized baselines	AMS-I.E. Switch from non-renewable biomass for thermal applications by the user - Version 12
Mandatory sectoral scopes	01
Conditional sectoral scopes, if applicable	13
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	36,100 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	35,215 tCO_2e
SDG Impacts:	1. SDG 3: Good health and wellbeing 2. SDG 7: Affordable and Clean Energy 3. SDG 13: Climate Action
Name and UNFCCC reference number of the VVB	E-0052: Carbon Check (India) Private Ltd.

Name, position and signature of the approver of the verification and certification report	 Sanjay Kumar Agarwalla, Technical Director

SECTION A. Executive summary

Carbon Check (India) Private Ltd. (CCIPL) is performing the third periodic verification of the GS project “Bundling of Household biogas plants for thermal energy applications” (GS project Id: GS 11539) for the period 01/08/2023- 31/07/2024 (inclusive of both the dates). The project activity involves bundling of 9,237 household biogas plants in the states of Chhattisgarh and Bihar, India, with capacities ranging from $2m^3$ and $3m^3$. All 9,237 plants are commissioned in between March, 2021 and March, 2022.

According to the PDD /B03/ & MR /01/, the project activity " Bundling of Household biogas plants for thermal energy applications" aims to improve health and income of India by reducing time and money spent acquiring fuel for cooking and by providing local populations with improved access to clean water. The objective of this project activity is to replace the commonly used inefficient wood-fired mud stove technology with an efficient biogas-based cook stove that is both clean and sustainable.

This report summarises the findings of the verification of the project, performed on the basis of Gold standard for global goals (GS4GG), as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the Gold Standard. Verification is required for all registered GS project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

Verification is the periodic independent review and ex-post determination of both quantitative and qualitative information by a Validation & verification body (VVB), of the monitored reductions in GHG emissions that have occurred as a result of the project activity during a defined monitoring period.

Certification is the written assurance by a validation & verification body (VVB) that, during a specific period, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Bundling of Household biogas plants for thermal energy applications” in the host country “India” for the period 01/08/2023 to 31/07/2024 (including both the days).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner. CCIPL’s objective is to perform a thorough, independent assessment of the registered project activity.

In particular, the monitoring plan, monitoring report and the project’s compliance with relevant GS and Host Party criteria are verified in order to confirm that the component project/s has/have been implemented in accordance with the previously registered project design and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the registered PDD and the approved monitoring methodology.

Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PDD
- To verify the implemented monitoring plan with the registered PDD and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.

- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

Verification process:

The verification comprises a review of the monitoring report /01/ over the monitoring period from 01/08/2023 – 31/07/2024 (inclusive) and based on the registered VPA-DD as part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology, and all related evidence provided by Project Proponents.

On-site interviews and inspections are also performed as part of the verification process.

Conclusion:

The verification team assigned by the validation & verification body (VVB) concludes that the monitoring report /01/, meet all relevant requirements of the Gold Standard as per the requirements of GS4GG. The verification has been conducted in-line with the GS4GG requirements.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered PDD /B03/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. The following table provides the resulted emission reduction from the project as verified through the document review and on-site interviews by the verification team.

Vintage	**ER (tCO_2e)**
01/08/2023 – 31/12/2023	14,673 tCO_2e
01/01/2024 – 31/07/2024	20,542 tCO_2e
Total for the monitoring period	**35,215 tCO_2e**

CCIPL as a Validation & verification body (VVB) is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

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	IR	Suhail K	Muhammed	CCIPL	X	X	X	X
2.	Verifier / Technical Expert	IR	Dimri	Anubhav	CCIPL	X	X	X	X

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	CCIPL
2.	Approver	IR	Agarwalla	Sanjay Kumar	CCIPL

Muhammed Suhail K: He is qualified as Team Leader /Technical Expert in TA 1.2 and 3.1 and involved in various validations and verifications under VCS, GCC and Gold Standard (GS) projects. He has also attended Several Gold Standard DOE webinar training courses including training on GS4GG. He has completed ISO 14064-1, 14064-2 and 14064-3 training successfully. He holds a Bachelor of Science degree in Environment and water management from University of Calicut and Master of Science degree in Environmental Science and technology from the Central University of Punjab.

Anubhav Dimri: is an appointed Team Leader. He holds a Post Graduate Diploma in Industrial Safety and Environmental Management. He is a trained GHG Lead Auditor. He is participated and passed 5 days ISO 50001 Lead Auditor (UNIDO sponsored) training course. He has experience in the field of Carbon Offsets both in the regulatory and voluntary front, including project validation. He has participated in GS, VCS and CDM validations and verifications. He has been involved in verification/validation of GS projects with reference numbers: GS 411, GS 916, GS 1231, GS 1029, GS 1030, GS 1031, GS 1385, GS 2094, GS 1162, GS 1352, GS 1353, GS 2437, GS 2718, GS 2722. He has also been involved in more than 100 CDM projects/programme of activities submitted to UNFCCC for Request for Registration/Inclusion/Request for Issuance. He has also worked on a number of VCS projects. He has also attended several Gold Standard VVB webinar trainings and GS4GG trainings. He has also undergone training for ISO 9001, GHG verifier training, and technical area 1.2 training. He is qualified as technical expert for TA 1.1, 1.2, 3.1,8.1, 13.2, 14.1, 15.1, 16.1 and 13.1
under CDM SS/TA categorization.

Indumathi C: She is appointed Team Leader /Technical Expert for technical area TA 1.1, 1.2,3.1,13.1 & 13.2 and Technical Reviewer. She has actively been involved in the validation and verification or internal technical review of more than 200 GHG offset projects including projects with SDG components. She is having more than 13 years of experience, she is certified Energy Manager, Bureau of Energy Efficiency, Govt. of India. She carried out technical reviews for climate change mitigation projects under different carbon credit mechanisms (UNFCCC, Gold Standard and Voluntary Carbon Standard) for various sectors like renewable energy (solar, wind, hydro, biomass), energy efficiency (cook stoves) and waste to energy (biogas).

SECTION C. Means of verification

C.1. Desk/document review

The verification was performed primarily based on the review of the Monitoring report /01/ and the supporting documentation. The Gold standard project description, emission reduction calculation spread sheet and supporting documents related to the monitoring were reviewed as per The Gold standard Validation and Verification Standard V1.0 requirements. The desk review included:

•A review of the data and information presented to verify completeness and consistency in accordance with The Gold standard Validation and Verification Standard V1.0 requirements.

•A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and monitoring related requirements.

•A review of the monitoring plan and the project's compliance with relevant GS4GG criteria.

• A review of data and information presented by the PP to verify their completeness

• A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of data recording requirements, and the QA/QC procedures, and

•An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs. Furthermore, the verification team used additional documentation by third parties like host party legislation, survey reports referring to the monitoring report or to the basic conditions and technical data.

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 1 below.

C.2. On-site inspection

Physical on-site inspection has been performed and the Team leader (who is also the technical and host country expert) has conducted the on-site inspection.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
/01/	Garg	Shivani	Greneity Infocom Services	11/08/2024 & 12/08/2024	Project Design Organisation background Project Implementation plan Project start date and Project Location Project background information Baselinesurveys, KPT, FNRB calculation Baseline Scenario Baseline Identification and Additionality Monitoring and reporting documentation Qualification and Training Quality Assurance-Management and operating system Social and Environmental Impacts Local Stakeholders meeting process Compliance with relevant laws Roles and responsibility Observations of established practices	Muhammed Suhail K & Anubhav Dimri

/02/	Sharma	Kavita	Greneity Infocom Services	11/08/2024 & 12/08/2024	Project Implementation and operation. Grievance handling. Maintenance	Muhammed Suhail K & Anubhav Dimri
/03/	Sharma	Arjun	Greneity Infocom Services	11/08/2024 & 12/08/2024	Project Implementation and operation. Grievance handling. Maintenance Monitoring plan	Muhammed Suhail K & Anubhav Dimri
/04/	Kumar	Sanjay	SVM/CHT/110 Batanharra village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/05/	Lal	Ram	SVM/CHT/130 Ghudaavad village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/06/	Sahoo	Prafullah kumar	SVM/CHT/327 Mode village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/07/	Markam	Kirtan	SVM/CHT/562 Nagri	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/08/	Banwali	Vishanth	SVM/CHT/745 Talpara village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/09/	Chahuan	Urmila	SVM/CHT/6166 Aamidi village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/10/	Singh	Shanti	SVM/CHT/6177 Aamidi village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/11/	Sahu	Rohit	SVM/CHT/5252 Devari village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/12/	Verma	Arjun	SVM/CHT/5269 Devari village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri
/13/	Sahu	Yamuna	SVM/BHR/5269 Devari	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav

			Village			Dimri
/14/	Sahu	Indra	SVM/BHR/5413 Devari village	11/08/2024 & 12/08/2024	Monitoring Surveys	Muhammed Suhail K & Anubhav Dimri

C.4. Sampling approach

As the target population is homogeneous, PP has proposed simple random sampling plan using 95/10 as confidence/precision. This is in line with the applied methodology /B01/. 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) /B04/.

In line with paragraph 26 of the Sampling Standard, the verification team has applied acceptance sampling approach through on-site interviews on the monitoring survey as part of verification. The Project Proponent had applied sampling approach to the monitoring survey /09/, conducted by the representatives of Project Proponent. The verification team has chosen acceptance sampling in accordance with paragraph 28 of the sampling standard /B04/.

Applying paragraph 39 (c) of the sampling standard, version 09 /B04/, a sample size of 11 households was chosen (with no discrepant records). A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%; producer risk and consumer risk of 10 % each in determining the VVBs sample size Acceptance number (c) thus determined for the sample is 0. However, DOE interviewed 11 samples from the baseline survey done by Project Proponents.

The information provided in the monitoring survey /09/, has been cross checked during the Onsite visit. As a part of acceptance sampling, the Verification team could confirm the monitoring survey data /09/ with no discrepant records. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/.

Parameter	Verification approach	Population (for VVB's sample)	VVB's Sample Size
Usage and Monitoring Survey	ASP	Chhattisgarh -210 Bihar-90	11

The details of the sample interviewed are listed in section C.3 (under the list of interviewed persons). No discrepancy was found in any of the 11 samples and thus c=0, i.e., no discrepant records were observed. Thus, PP's set of records has been accepted in line with §33 of the sampling standard (version 09.0) /B04/. For the impact parameters, questionnaire was prepared and was used during the survey by the PP. During the on-site interviews, the verification team cross-checked these sample documents, and no discrepancies were found in the impact parameters as well. Furthermore, the training & competency of the personnel, who conducted such test were checked. They were also interviewed to ensure that the process, method used, and their competency to confirm such standardised test were appropriately applied. The sampling technique to draw such samples were found adequate and the sample collectors were found competent to perform such task.

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

The VVB had raised 01 clarifications (CLs) and 04 corrective action requests (CARs) and satisfactorily closed.

SECTION D. Verification findings

D.1. Remaining forward action requests from validation and/or previous verifications

Not applicable

D.2. Compliance of the project implementation and operation with the registered project design document

Means of verification	Document Review, Interview
Findings	CAR 01 and CAR 02 has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	Verification team confirms that the latest available version of the monitoring report template has been used and the MR is in compliance with the monitoring report form and related monitoring report template guide. As verified from on-site interview and third-party survey report /10/, the audit team confirm the project implementation and operation complies with the project design document/B03/. The starting date of operation is 01/03/2021 (commissioning of first biogas plant) which is confirmed from the registered PDD /B03/ and validation report /B03/. The Project activity involves bundling of 9,237 plants installed in rural areas of Chhattisgarh and Bihar installed between March 2021 and March 2022, constructed & maintained by Samagra Vikas Mission. The project boundary in the registered PDD /B03/ is in line with the actual project boundary. CCIPL confirms that the project biogas systems are operational through on-site visits and interviews with end users. Each biogas system has a unique identification number that was provided in the end user agreement and are correct according to the project database. Each biogas plant is also physically marked with its unique identification number. Along with the serial number, the biogas technology, end username, address, commissioning date etc. had also been noted which were found to be consistent on ground. It is noted that no changes have been observed or identified, that 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 12 /B01/. The operational status of all project bio-digesters, impact on identified SDGs from 01/08/2023 to 31/07/2024 has been taken into consideration. Verification team based on review of MR /01/ and Registered PDD, and corresponding Validation Report /B03/, confirms that the households/end users relinquish their right of carbon credits. Verification has confirmed that rights transfer in the lieu of free operation and maintenance of the plant from the registered PDD and validation report/B03/. Furthermore, the bio

	digester plants implemented under the project is uniquely identified, thus avoiding any potential double counting. PP has ensured each of the bio digesters have their UID on them, which will prevent any kind of double counting. Further, it has been observed that same districts with same size of bio digesters are not repeated in the different projects. This was confirmed during the validation and verification site visits undertaken by VVB. Further, PP has provided an undertaking that same project is not developed under any other carbon scheme /05/. Verification team has checked the information in the monitoring report /01/ and compared it against the registered PDD /B03/ and found to be consistent. Verification team during the on-site visit it has confirmed that the project activity is complying to the legal and regulatory requirements. As the project activity is household-based biogas project there is no mandatory legal approvals for the operation are required. Also, the project activity is a voluntary activity. Further, it has been confirmed that the project activity implementation is a per the registered PDD and other regulatory documents. The project activity claims SDG 7 and SDG 3 apart from SDG 13 for this project activity. Verification body has checked the survey report /10/ to confirm that the projects status towards the achievement of these SDGs. Further, there is no mandatory legal requirement in the host country which require the implementation of SDG 7 and SDG 3 related to the project activity. Therefore, it is confirmed that the SDG 7 and SDG 3 claimed by the project activity is fully voluntary. The same is also confirmed during the onsite interviews with stakeholders. Verification team confirms that: a) The project activity is implemented as per registered PDD/B03/. b) The actual operation of the proposed CDM project activity is in line with the registered/revised PDD /B03/. c) It has reviewed the registered PDD /B03/ including the monitoring plan, the applied monitoring methodology and found that the final MR/01/ for this monitoring period is in line with all the above-mentioned documents. Verification team of CCIPL based on review of records and on-site interviews confirms that a robust and effective grievance addressal mechanism is in place and however, the minor grievances reported during the monitoring period is successfully resolved, the same is confirmed from the on-site visit interviews and grievance register/12/. In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered/revised PDD /B03/.

D.3. Post-registration changes

D.3.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1]

Not applicable

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

D.3.2. Corrections

Not applicable

D.3.3. Changes to the start date of the crediting period

Not applicable

D.3.4. Inclusion of a monitoring plan

Not applicable

D.3.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Not applicable

D.3.6. Changes to the project design

Not applicable

D.3.7. Changes specific to afforestation and reforestation project activities

Not applicable

D.4. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	Document Review, Interview
Findings	--
Conclusion	The verification team has checked the actual monitoring plan against the registered monitoring plan and monitoring methodology and applicable tools. Furthermore, the verification team has checked monitoring system by means of comparison with the information given in the monitoring plan and monitoring methodology. The monitoring plan is completely in accordance with the approved methodology /B01/ applied by the registered PDD/B03/.

D.5. Compliance of monitoring activities with the registered monitoring plan

D.5.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Document Review, Interview
Findings	--
Conclusion	Verification team confirms that the data and parameters fixed ex ante are in compliance with the registered PDD /B03/ and monitoring plan.

Parameter	Value	Assessment
Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass (fNRB,y) in percentage.	Chhattisgarh - 92% Bihar-99%	fNRB is calculated as per tool to calculate the fraction of non-renewable biomass and fixed for the entire crediting period as per the registered PDD /B03/.
Average annual consumption of woody biomass per household before the	Chattisgarh-4.4 Bihar- 4.2	The baseline fire-wood consumption is as per third party survey report and

	start of the project activity (BCBL,HH,y) in tonne/household/year		fixed for the entire crediting period as per the registered PDD /B03/.
	Net calorific value of the non-renewable woody biomass that is substituted (NCVbiomass) in TJ/Tonne	0.0156	Net Calorific Value of the wood used as cooking fuel. Default value as per the applied methodology /B01/.
	Emission factor for the substitution of non-renewable woody biomass by similar Consumers (EFprojected_fossilfuel) in tCO2/TJ	64.4	Emission factor for the substitution of non-renewable biomass by similar consumers. Default value as per the applied methodology /B01/.
	Leakage adjustment factor (Ly) (fraction)	0.95	Net to gross Adjustment Factor. Default value as per the applied methodology /B01/.
	Number of households (biogas system) in the project activity (NHH)	9,237	The parameter is fixed for the project activity and the project database with commissioning dates are submitted to Sustain Cert during design certification. /B03/.

** The project activity includes 9,237 household biodigesters in the state of Chhattisgarh and Bihar. The project activity is a retroactive project, wherein all the biogas digesters are fully implemented and operational. Further, PP has fixed this parameter ex-ante. However, the operational rate will be monitored ex-post.

Verification team confirms that the data and parameters fixed ex ante are in compliance with the registered PDD /B03/ and monitoring plan /B03/. Please refer to the Annex 1 for assessment of each parameter.

D.5.2. Data and parameters monitored

Means of verification	Document Review, Interview
Findings	CL01 has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered PDD /B03 and the monitoring plan.

Parameter	Value	Assessment
Average annual consumption of woody biomass per household in the pre-	Chhattisgarh – 0.096 tonnes/household/year	A third-party survey was carried out to estimate the usage of firewood after the

	project devices during the project activity, if it is found that pre-project devices were not Completely displaced but continue to be used to some extent ($BC_{PJ,HH,y}$) tonne/household/year	Bihar – 0.08 tonnes/household/year	installation of the biogas plants. Survey was conducted to assess the above parameter in accordance to the Guidelines for sampling and surveys for CDM project activities and programmes of activities (Ver04.0, CDM-EB67-A06-GUID) issued by UNFCCC was used. Total 300 samples were surveyed (210 in Chhattisgarh & 90 in Bihar). As per the survey report /10/ it was found in Chhattisgarh 5% of sampled population (total 210 samples) and 4% of the sampled population in Bihar (total 90 samples) used firewood for 8 and 7 days respectively in a year. The average value among the reported users are taken conservatively for entire population. VVB during on-site visit the same has been confirmed. Therefore, the value as per survey report reported in ER sheet is considered correct.
	Number of households (biogas system) in the project activity in operational per year ($N_{HH,y}$)	9,237	The parameter is monitored through third party survey /10/. The survey identified sampled households as per UNFCCC guideline. During the

			onsite visit VVB has checked 11 sample households as a part of acceptance sampling. It was noted that all the 11 biogas plants checked during the onsite visit are found operational. Further, VVB has checked the 3rd party survey results. As per survey results, out of 300 samples surveyed, were found in operation on the time of survey /10/. Therefore, the effective number of biogas systems in operation during the monitoring period is 9,237 (100%). The technology employed is deenbandhu model, which is an MNRE approved technology, and the technical lifetime is more than 20 years. Hence, the results achieved during the survey is acceptable.
	SDG 3 – (Good health and well-being) Improvement in health and decrease in illness	9,237	Improvement in health and decrease in illness is assessed through interview with end users due to project implementation. Users opinion on indoor air quality due to biogas usage shall be collected during monitoring survey conducted. As per the survey all the 300 users responded (100%) during the

			survey gave a positive response on improvement in health. Hence, all the. 9,237 biogas plant users are expected to have an improvement in the health. The verification team during on-site audit has interviewed the biogas uses and the over results were confirmed. Apart from the survey documents, VVB has cross verified the training provided to the local technical staff related to the operation and maintenance/16/. VVB has also checked the training agenda and the topics covered/16/. The same is also confirmed during the onsite interviews with the local technical staff/16/.
	SDG 7 – (Affordable and clean energy) Access to affordable and clean energy services	9,237	The parameter is monitored through third party survey /10/. The survey identified sampled households as per UNFCCC guideline. As per survey results, out total 300 samples were surveyed (210 in Chhattisgarh & 90 in Bihar) all the biogas plants were found operation at the time of survey. The verification team during on- site audit all the samples were

			operational. Therefore, PP's monitoring result is accepted.

PP has maintained monitoring service records; grievance register and operations logbook/12/ /13/. No grievance has been raised during the monitoring period. However, only minor operational issues were raised by the users; however, all the issues were rectified with-in maximum 24 hours. There were no issues related to non- usage of biogas units.

PP has conducted regular maintenance checks of the biogas plants. The same is confirmed during the onsite interviews with the local technician and end users. Further, VVB has checked the biogas maintenance/service records/12/. It has been noted that all the issues were reported is registered in the logbook/12/. The service details of the same is also noted in the logbook. Since, the project is in its 3rd year of operation and the technical lifetime of the project is more than 20 years, only minor issues like burner blockage, water accumulated in the pipelines etc are being reported. These issues can be resolved very easily. VVB verified that all the services are performed within 24 hrs of its entry. The evidence found acceptable and appropriate.

VVB has confirmed that complete set of data for the monitoring period i.e. from 01/08/2023 – 31/07/2024 was available. Further, it is confirmed that the verification team has assessed the data / information flow from the point of monitoring to emission reduction calculation and found no gap in the same. Please refer to the Annex 2 for assessment of each parameter.

D.5.3. Implementation of sampling plan

Means of verification	Document Review, Interview
Findings	--
Conclusion	According to the standard for sampling and survey /B04/ and related guidelines /B04/ the sampling plan was determined at the time of project registration and applied during the monitoring. Sampling method: Simple random sampling method is adopted as the target population is homogeneous. The sample size is determined by the requirement to achieve 95/10 precision, in line with the methodology for bi-annual survey. Sampling approaches may follow the Guideline "Sampling and surveys for CDM project activities and programme of activities" for calculation of sample size. Data to be collected: Number of project devices of type i and operating in year y. Implementation plan: Annual or biennial. Actual implementation: - Sampling method: The sample size included all households and was randomly sampled from a list of all the project biogas system in the project for each state separately. The target population is the 9,237 during the monitoring period. The sampling frame is homogenous within itself, with respect to service level, established ex-ante baseline and user characteristics. PD has performed simple random sampling in the total population. Since, the population is homogenous as the targeted population belongs to the same economical section, same technology is used through out the project (i.e. Deenbandhu model), the same Feed is used in the

biodigesters (i.e. cow dung) and End use of the biogas is same i.e. cooking; the use of simple random sampling is acceptable. Further, PD has selected 300 samples following the guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0 (EB86, Annex 4). PD has adopted but to have equal representation from both the locations, samples were calculated proportionately and thereby 90 samples were surveyed in Bihar and 210 samples were surveyed in Chhattisgarh. Further, VVB has checked the sampling process and the found that the same is performed in line with the CDM sampling standard (version 9).

As the target population is homogeneous, PP has proposed simple random sampling plan using 95/10 as confidence/precision. This is in line with the applied methodology /B03/. 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) /B04/.
In line with paragraph 26 of the Sampling Standard, the verification team has applied acceptance sampling approach through on-site interviews on the monitoring survey as part of verification. The Project Proponent had applied sampling approach to the monitoring survey /10/, conducted by the representatives of Project Proponent. The verification team has chosen acceptance sampling in accordance with paragraph 28 of the sampling standard /B04/.

Applying paragraph 39 (c) of the sampling standard, version 09 /B04/, a sample size of 11 households was chosen (with no discrepant records). A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%; producer risk and consumer risk of 10 % each in determining the VVBs sample size Acceptance number (c) thus determined for the sample is 0. However, VVB interviewed 11 samples from the baseline survey done by Project Proponents.

The information provided in the monitoring survey /10/, has been cross checked during the Onsite visit. As a part of acceptance sampling, the Verification team could confirm the monitoring survey data /10/ with no discrepant records. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/.

Parameter	Verification approach	Population (for VVB's sample)	VVB's Sample Size
Usage and Monitoring Survey	ASP	Chhattisgarh - 210 Bihar-90	11

The details of the sample interviewed are listed in section C.3 (under the list of interviewed persons). No discrepancy was found in any of the 11 samples and thus c=0, i.e., no discrepant records were observed. Thus, PP's set of records has been accepted in line with §33 of the sampling standard (version 09.0) /B04/. For the impact parameters, questionnaire was prepared and was used during the survey by the PP. During the on-site interviews, the verification team cross-checked these sample documents, and no discrepancies were found in the impact parameters as well. Furthermore, the training & competency of the personnel, who

	conducted such test were checked. They were also interviewed to ensure that the process, method used, and their competency to confirm such standardised test were appropriately applied. The sampling technique to draw such samples were found adequate and the sample collectors were found competent to perform such task. PP has determined target sample number to be 300 as below: 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. /B04/. The expected parameter values (mean, standard deviation and proportion) have been taken as per para 12 of appendix 1, EB 86 Annex 4 /B04/. Total Population (N) is 9,237 expected proportion is taken 60% and accordingly, sample size (n) come out to be 250. However, on a conservative note PP has opted to perform survey in 300 sample households.

D.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Document Review, Interview
Findings	-
Conclusion	Not appliable, since there is no monitoring equipment which require calibration as per the monitoring plan. The equipment's used for the monitoring consists of reviewing the documents and on-site interviews.

D.7. Assessment of data and calculation of emission reductions or net removals

D.7.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	Document Review, Interview
Findings	CAR 04has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	As per the registered PDD /B03/ and the Methodology applied /B01/, Baseline emission reductions are calculated as per equation 1 of the methodology as below: $BE_y = B_y * f_{NRB, y} * NCV_{biomass} * EF_{projected\_fossilfuel}$ Where, **BE_y** = Baseline Emissions during the year y in tCO_2e **B_y** = Quantity of woody biomass that is substituted or displaced in tonnes **$f_{NRB, y}$** = 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 (fNRB) values available on the CDM website. In this case fNRB, y is fixed ex-ante to be Chhattisgarh and Bihar verified from registered PDD and validation report /B03/. **$NCV_{biomass}$** = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne) **$EF_{projected\_fossilfuel}$** = Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 64.4 tCO_2/TJ. By' By is determined by using option (a) paragraph 29 of the methodology as follows: "Calculated as the product of the number of households multiplied by the

	estimate of average annual consumption of woody biomass per household that is displaced by the project activity (tonnes/ household/year)"; $B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$ Where, N_{HH} = Number of households in the project activity, number $BC_{BL,y}$ = Average annual consumption of woody biomass per household before the start of the project activity, tonnes/household/year $BC_{PJ,HH,y}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, tonnes/household/year $BC_{BL,HH,y}$ = for the project have been considered based on previous survey and publicly available reports as discussed in above section. To estimate a third-party survey was carried out to estimate the usage of firewood after the installation of the biogas plants. Survey was conducted to assess the above parameter in accordance to the Guidelines for sampling and surveys for CDM project activities and programmes of activities (Ver04.0, CDM-EB67-A06-GUID) issued by UNFCCC was used. Total 300 samples were surveyed (210 in Chhattisgarh & 90 in Bihar). As per the survey report /10/ it was found in Chhattisgarh 5% of sampled population (total 210 samples) and 4% of the sampled population in Bihar (total 90 samples) used firewood for 10 and 8 days respectively in a year. The average value among the reported users are taken conservatively for entire population. VVB during on-site visit the same has been confirmed. Therefore, the value as per survey report reported in ER sheet is considered correct. The average annual consumption of woody biomass is estimated by survey methods to be 0.12 tonnes/household/year in case of Chhattisgarh and 0.09 tonnes/household/year in case of Bihar. Accordingly, the baseline emissions for project activity for the monitoring period from 01/08/2023 to 31/07/2024 is calculated to be 35,215 tCO_2e.

D.7.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	Document Review, Interview
Findings	CAR 04 has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	As per "AMS I.E- Switch from non-renewable biomass for thermal applications by the user, Version 12, the baseline emissions (BE_y) are calculated as: $BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\_fuel}$ Where, BE_y = Baseline emissions during the year y in t CO_2e B_y = Quantity of woody biomass that is substituted or displaced in tonnes $f_{NRB,y}$ = Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass (fNRB) $NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne)

	$EF_{projected\_fossil\ fuel}$ = Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 64.4 tCO_2/TJ. By is determined by using option (a) paragraph 27 of the methodology as follows: "Calculated as the product of the number of households multiplied by the estimate of average annual consumption of woody biomass per household that is displaced by the project activity (tonnes/ household/year)"; $By = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$ Where, N_{HH} = Number of households in the project activity, number $BC_{BL,y}$ = Average annual consumption of woody biomass per household before the start of the project activity, tonnes/household/year $BC_{PJ,HH,y}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, tonnes/household/year. $BC_{BL,HH,y}$ = for the project have been considered based on previous survey and publicly available reports as discussed in above section. Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass (fNRB,y) is determined as per methodological tool 'Calculation of the fraction of non-renewable biomass' version 02 as follows: The fraction of woody biomass that can be established as non-renewable, is: f_{NRB} and it is fixed ex-ante at the time of validation for the entire crediting period. Project Emissions (PEy): As per applied methodology AMS-I.E, version 12, project emissions are accounted for below activities: - CO_2 emissions from on-site consumption of fossil fuels due to the project activity - CO_2 emissions from electricity consumption by the project activity - Methane emission from solid waste disposal or wastewater - Project emissions related to cultivation of feedstock - Project emissions from transportation The project activity does not involve any of the above activity and hence, project emissions for the project activity is not applicable. However, while determining By as per equation 3 of the applied methodology, firewood consumed by pre-project devices during the project activity shall be monitored and applied ex-post. This is to be accounted. Leakage Emissions (LEy): Leakage emissions (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: 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. PP has opted default option, and B_y shall be adjusted with adjustment factor of 0.95 to account leakage. Emission reductions: Emission reductions are to be estimated based on the equation below: $ER_y = BE_y – PE_y – LE_y$ ERy= 35,215 tCO_2e

D.7.3. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Findings	-
Conclusion	According to the registered PDD /B03/, a leakage assessment is only required every two years; however, such a leakage and thus assessment is required for this monitoring period. Project Leakage Assessment Ex post surveys of users and the areas from which this woody biomass is sourced will be used to assess leakage emissions. The following potential leakage sources must be considered: non-project households/users who previously used renewable energy sources use/divert non-renewable woody biomass saved under the project activity. If the leakage assessment identifies an increase in the use of non- renewable woody biomass by non-project households/users that is attributable to project activity, By is adjusted to account for the quantified leakage. To account for leakages, By is multiplied by a net to gross adjustment factor of 0.95, in which case surveys are not required. PP has opted default option, and By is adjusted with adjustment factor of 0.95 to account leakage. Therefore, the net benefit is = 37,069* 0.95 = 35,215 tCO_2e As per the demonstration in the registered PDD /B03/ and MR /01/, the adjustment factor of 0.95 has been accounted for leakage for the monitoring period.

D.7.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	Document Review, Interview
Findings	CAR 04 has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	Emission Reductions: The emission reductions in this monitoring period are: $ER_y = BE_y - PE_y – LE_y$ Where, ER_y is the total emission reductions of the project activity during the year y in tCO_2e;

	BE_y is the baseline emissions for the project activity during the year y in tCO_2e; PE_y is the emissions for the project activity during the year y in tCO_2e; Le_y is the leakage emissions for the project activity during the year y in tCO_2e. As explained in section D.7.1 above, the resulted Baseline emissions (BE_y) for the monitoring period is 35,215 tCO_2e. Similarly, as explained in section D.7.2 and section D.7.3 project emission is zero for the monitoring period. Hence, resulted emission reduction for the monitoring period is 35,215 tCO_2e (round-down value).

D.7.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	Document Review, Interview
Findings	CL 02 has been raised and resolved successfully. Please refer Appendix 4 below.
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PDD /B03/ is 36,100 tCO_2e and the actual emission reductions achieved for the monitoring period is 35,215 tCO_2e.

SDG	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
13	36,100 tCO_2e	35,215 tCO_2e
3	Improvement in health and decrease in illness for 100% users	9,237 biogas plant users now have improved health conditions
7	100% users were using firewood which is not a Clean Source of energy	9,237 users are accessed to clean energy source.

The emission reduction calculations provided in the spreadsheet /02/ have been verified to be correct and in line with the registered PDD /B03/.

D.7.6. Remarks on difference from estimated value in registered PDD

Means of verification	Document Review, Interview
Findings	--
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PDD /B03/ is 36,100 tCO_2e and the actual emission reductions achieved for the monitoring period is 35,215 tCO_2e. For SDG 13, since actual emission reduction is lower than the estimated value and hence it is acceptable to the verification team. The monitoring report /01/ provides reason for decrease in the actual emission reduction and the same was confirmed by the verification team by interviewing the representatives of PP and by reviewing the actual implementation status of the project. For other SDG parameters, PP has provided justification in the Monitoring report and assessment of the same is provided below:

	• SDG 3: The actual value is same as the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 7: The actual value is same as the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 13: The actual value is lower than the estimated value, which is deemed appropriate and thus acceptable to the VVB.

SECTION E. Internal quality control

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The verification report has passed a technical review before being submitted to the Gold Standard. The technical review is performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for validation and verification.

SECTION F. Verification/Certification opinion

>>

Carbon Check (India) Private Ltd. (CCIPL) has performed the 3rd periodic verification of the registered GS Project Activity "Bundling of Household biogas plants for thermal energy applications (GS 11539)".

The verification team assigned by the VVB concludes that the project activity as described in the PDD /B03/ and the Monitoring report /01, meets all relevant requirements of the Gold Standard. The verification has been conducted in-line with the GS4GG requirements project activities.

Verification methodology and process

The Verification team confirms the contractual relationship signed /14/ between the VVB, Carbon Check (India) Private Ltd. and the Project Proponent. The team assigned to the verification meets the CCIPL's internal procedures including the UNFCCC/GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and CCIPL's procedures and requirements.

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

- Reviewing the PDD /B03, including the monitoring plan and the corresponding validation report /B03/;
- Desk review of the MR /01/ and other relevant documents including documents related to the project activities in emission reductions;
- Review of the applied monitoring methodology AMS-I.E. Switch from non-renewable biomass for thermal applications by the user - Version 12 /B01/;
- On-site inspection (11/08/2023- and 12/08/2023)
- Resolution of CARs and CLs raised during verification
- Issuance of Verification Report

The project activity was correctly implemented according to selected monitoring methodology, monitoring plan and the registered PDD. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and remote interviews, the verification team confirms that the project activity has resulted in the 35,215 tCO_2e emission reductions during the reported monitoring period.

This statement covers verification period from 01/08/2023 – 31/07/2024 (inclusive).

The VVB has raised 01 clarifications and 04 corrective action requests, all of which are satisfactorily closed.

VVB has confirmed that complete set of data for the monitoring period i.e. from 01/08/2023 – 31/07/2024 was available.

The VVB considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan contained in the registered PDD are fairly stated.

The VVB, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 35,215 tCO_2e equivalent and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

Vintage	ER (tCO_2e)
01/08/2023 – 31/12/2023	14,673 tCO_2e
01/01/2024 – 31/07/2024	20,542 tCO_2e
Total for the monitoring period	**35,215 tCO_2e**

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CL	Clarification Request
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
OSV	On Site Visit
PE	Project Emissions
PP(s)	Project Proponent(s)
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VVB	Validation & verification body

Appendix 2. Competence of team members and technical reviewers

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Muhammed Suhail K

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

for the following functions and requirements:

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

in the following Technical Areas:

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

Issue Date

30th January 2024

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
Dec 2023	Initial Adoption
Jan 2024	Amendment in Technical Area – 3.1

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Anubhav Dimri

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

for the following functions and requirements:

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

☒ Local Expert for India, RSA and Spanish speaking countries

in the following Technical Areas:

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

Issue Date

5th December 2023

Expiry Date

31st December 2024

Ms. Priya Suman
Compliance Officer

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

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

for the following functions and requirements:

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

in the following Technical Areas:

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

Issue Date

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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

Appendix 3. Documents reviewed or referenced

S. No.	Document
/01/	Monitoring Report (Version 01 dated 28/06/2024) Monitoring Report (Version 02 dated 16/08/2024) Monitoring Report Final Version (Version 03 dated 25/08/2024)
/02/	Emission reductions sheet (Corresponding to /01/ /02/& /03/)
/03/	Sustaincert's review report for the design certification and for 2nd performance certification
/04/	Monitoring report for Monitoring period 02 version 03 dated 15/09/2023
/05/	Evidence of Carbon Credits waiver
/06/	Evidence for the random sample generator for the parameters opted for sampling/survey.
/07/	SDG Impact tool
/08/	Sampling Calculator for sample size, and precision level
/09/	Records of monitoring Survey of the project and Biogas user survey
/10/	Third party survey report
/11/	Employment records: a) Permanent Employment records b) Contractual Employment records
/12/	The grievance register applicable for the monitoring period
/13/	Monitoring survey Questionnaire template
/14/	Verification contract between VVB & PP
/15/	Contract between PP and third party for monitoring survey
/16/	Training records from 21/07/2023 to 20/07/2024

Background Documents

Ref no.	Reference Document
/B01/	AMS-I.E. Switch from non-renewable biomass for thermal applications by the user - Version 12

/B02/	1. Gold Standard Principles and Requirements version 1.2 dated 24/10/2019 2. Gold Standard Programme of Activity Requirements version 1.2, dated 24/10/2019 3. GS Validation & Verification Body Requirements version 2.0, dated 14/01/2021 4. Community Services Activity Requirements (version 1.1) under GS4GG https://globalgoals.goldstandard.org/200-gs4gg-community-services-activity-requirements/
/B03/	Registered PDD, Version 3.0 and corresponding Validation Report
/B04/	Standards a) CDM Sampling Standard, version 09.0 b) Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0. c) CDM validation and verification standard for project activities, version 04.0
/B05/	IPCC 2006, volume 2, chapter 1
/B06/	Site Visit and Remote Audit Requirements and Procedures, version 1.0 dated 17/11/2021
/B07/	1. Validation and Verification Standard for PoAs, version 03.0 2. Project Standard for PoAs, version 03.0 3. Project Cycle Procedure for PoAs, version 03.0
/B08/	Verification report for 2ND Monitoring period (performance certification)version 03 15/09/2023

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

Table 1. FARs from this verification

FAR ID	XX	Section no.		Date:
Description of CAR				
NA				
PP response				**Date:**
Documentation provided by the CME				
DOE assessment				**Date:**

Table 2. CARs from this verification

CAR ID	01	Section no.	D.2	Date: 12/08/2024
Description of CAR				
Completion date of the monitoring report in the MR is not correct. PP is requested to correct the same. Further, PP is requested to clarify whether the monitoring period provided is inclusive of both the dates.				
PP response				**Date: 15/08/2024**
Completion date of monitoring report has been revised now in Version of MR. Monitoring period is inclusive of both dates.				
Documentation provided by PP				
Revised MR version 2				
VVB assessment				**Date: 16/08/2024**
Completion date of monitoring report has been corrected and PP has clarified the date of monitoring period in MR, the revisions found to be appropriate. Hence, CAR 01 is closed.				

CAR ID	02	Section no.	D.2	Date: 12/08/2024
Description of CAR				
CAR has been raised for the following: 1. The estimated ER values provided in the in various section (Table1, E.5 & E.2) of MR is not consistent and as per the registered PDD, PP is requested to rectify the same. 2. Baseline estimate, and project estimate provided in section E.4 of the MR is not consistent with the ER sheet, PP is requested to correct the same.				
PP response				**Date: 15/08/2024**
1, Table 1, Section E.2, E.5 has been revised in version of MR. 2.Section E.4 has been corrected in new version of MR.				
Documentation provided by PP				
Revised MR version 2				
VVB assessment				**Date: 16/08/2024**
PP has corrected the estimated ER values in the Table 1, Section E.2 and E.5. further PP has corrected the Baseline estimate, and project estimate in the section E.4 of the MR, the revis9ons found to be				

appropriate. Hence, CAR 02 is closed.

CAR ID	03	Section no.	D.5.2	Date: 12/08/2024
Description of CAR				
CAR has been raised for the following: 1. The value provided for the parameter $BC_{PJ,HH,y}$ in the section D.2 of the MR is not consistent with the value provided in the ER sheet, PP is requested to provide the correct value and make it consistent.				
PP response				**Date: 15/08/2024**
1. Section D.2 has been revised.				
Documentation provided by PP				
Revised MR version 2				
VVB assessment				**Date: 16/08/2024**
PP has revised the parameter $BC_{PJ,HH,y}$ in the section D.2 of the MR, the same found to be appropriate. Hence, CAR 03 is closed.				

CAR ID	04	Section no.	D.5.2	Date: 12/08/2024
Description of CAR				
CAR has been raised for the following: 1. In section D.3, the emission reduction value obtained in this monitoring period is not correct, PP is requested to correct the same. 2. Estimated annual average provided in the section E.2 is not as per the registered PDD, PP is requested to correct the same.				
PP response				**Date: 15/08/2024**
1.Section D.3 has been revised now in new version of MR. 2. Section E.2 has been revised.				
Documentation provided by PP				
Revised MR version 2				
VVB assessment				**Date: 16/08/2024**
1. PP has revised the emission reduction value obtained last monitoring in section D.3 of the MR. 2. PP has revised the estimated annual average in the section E.2 of the MR. The revisions made on MR is found to be appropriate, hence Car 04 is closed.				

Table 3. CL from this verification

CL ID	01	Section no.	MR	Date: 30/07/2024
Description of CL				

PP is requested to provide the following documents. 1.Monitoring survey report. 2.Griviance register and compliant records 3. Monitoring survey questionnaire and its results 4. training records. 5. Contract between PP and third party for monitoring survey 6. Third party survey report 7. Evidence of Carbon Credits waiver
PP response **Date: 15/08/2024**
All the above documents have been provided in Zip folder.
Documentation provided by PP
VVB assessment **Date: 16/08/2024**
PP has provided all the above-mentioned documents, the same found to be appropriate. Hence, CL 01 is closed.

Annex 1: Assessment of data and parameters fixed ex-ante at the time of validation

Relevant SDG Indicator	SDG 13, Climate action
Parameter	N_{HH}
Data unit	Number
Default values used	9,237
Purpose of data	Estimation of Baseline
Source of verification of the source	Project Proponent's project database

Relevant SDG Indicator	SDG 13, Climate action
Parameter	$BC_{BL,HH,y}$
Data unit	tonnes/household/year
Default values used	4.40 and 4.20
Purpose of data	Estimation of Baseline
Source of verification of the source	Baseline survey

Relevant SDG Indicator	SDG 13, Climate action
Parameter	$f_{NRB,y}$
Data unit	Percentage
Default values used	92% for Chhattisgarh and 99% for Bihar
Purpose of data	Estimation of Baseline
Source of verification of the source	Calculated

Relevant SDG Indicator	SDG 13, Climate action
Parameter	$NCV_{biomass}$
Data unit	TJ/tonne
Default values used	0.0156
Purpose of data	Calculation of Baseline emissions
Source of verification of the source	IPCC default value for wood/B05/

Relevant SDG Indicator	SDG 13, Climate action
Parameter	$EF_{projected\_fossilfuel}$
Data unit	tCO2/TJ
Default values used	64.4
Purpose of data	Estimation of Baseline
Source of verification of the source	Default value from the methodology, AMS-I.E

Annex 2: Assessment of data and parameters monitored

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 "Amount of CO2e emissions reduced by the project per year"
Data / Parameter: **(as in monitoring plan of PDD):**	Average annual consumption of woody biomass per household in the pre-project devices during the project activity, if it is found that pre-project devices were not

	completely displaced but continue to be used to some extent. ($BC_{PJ,HH,y}$)
Unit	tonnes/household/year
Measuring frequency/Time Interval:	At least once in every two years.
Reported value	0.096 for Chhattisgarh and 0.08 for Bihar
Verified Source of Data	Value obtained from monitoring survey of samples /09/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line with the registered PDD /B03/.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 “Amount of CO2e emissions reduced by the project per year”
Data / Parameter: **(as in monitoring plan of PDD):**	Number of households (biogas system) in the project activity in operational per year (N_{HH})
Unit	Number
Measuring frequency/Time Interval:	At least once in every two years.
Reported value	9,237
Verified Source of Data	Value obtained from Project Proponent’s project database.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line with the registered PDD /B03/.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.

and are necessary QA/QC processes in place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Relevant SDG Indicator	SDG 7
Data / Parameter: **(as in monitoring plan of PDD):**	Access to affordable and clean energy services (7.1.2)
Unit	Number
Measuring frequency/Time Interval:	At least once in two years
Reported value	9,237
Verified Source of Data	Value obtained from Biogas user survey /09/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? **(Yes / No)**	Yes, the frequency is in line with the registered PDD /B03/.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Relevant SDG Indicator	SDG 3
Data / Parameter: **(as in monitoring plan of PDD):**	Improvement in health and decrease in illness (3.9.1)
Unit	Number
Measuring frequency/Time Interval:	At least once in two years
Reported value	9,237
Verified Source of Data	Value obtained from Biogas user survey /09/.

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line with the registered PDD /B03/.
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA