Verification and certification report form for Gold Standard project activities

BASIC INFORMATION	
Title and GS4GGreference number of the project activity	India Dairy Biogas Program GS 11394
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	03
Completion date of the verification and certification report	08/09/2023
Monitoring period number and duration of this monitoring period	MP 01 01/07/2022 to 31/05/2023 (including both days)
Version number of the monitoring report to which this report applies	2.4
Crediting period of the project activity corresponding to this monitoring period	01/07/2022 to 30/06/2027
Project representative(s)	Buen Manejo del Campo S.A de C.V (Sistema.bio)
Host Party	India
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1
Mandatory sectoral scopes	13.2, 1.2
Conditional sectoral scopes, if applicable	-
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	133,978 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	54,529 tCO_{2e}
SDG Impacts:	1. SDG 7: Affordable and Clean Energy (7.1) 2. SDG 8: Decent work and Economic Growth (8.5.2) 3. SDG 13: Climate Action (13.2) 4. SDG 3: Good health and wellbeing (3.9) 5. SDG 5: Gender equality (5.1, 5.4) 6. SDG 15: Life on land (15.3)
Name and UNFCCC reference number of the DOE	E-0052: Carbon Check (India) Private Ltd.

Name, position and signature of the approver of the verification and certification report	 Vikash Kumar Singh, Compliance Officer

SECTION A. Executive summary

Carbon Check (India) Private Ltd. (CCIPL) is performing the first verification of the GS project "Indian dairy biogas program" for the monitoring period 01/07/2022 to 31/05/2023 (inclusive of both days). The project aims to provide a wide range of social, economic, and environmental benefits for families and communities in India through the installation of Sistema.bio's digesters which will equally contribute toward sustainable development by replacing firewood with biogas generated from biodigesters according to the PDD /B03/ & MR /01/. These biogas digesters having a varying size between $6m^3$ to $200m^3$ are employed to treat waste and produce renewable energy and organic fertilizer. All biodigester units commissioned during the monitoring period have been considered.

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 due to the registered CDM 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 "India dairy biogas program" in the host country "India" for the period 01/07/2022 to 31/05/2023 (including both 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. It is also confirmed if the monitoring plan complies with the registered and revised PDD and the approved monitoring methodology. Equally, to confirm the reductions in anthropogenic emissions by sources are 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 to confirm that the component project/s has / have been implemented in accordance with the previously registered project activity and conservative assumptions, as documented in the PDD.

This report summarizes the findings of the verification of the project, performed based on the 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 a request for issuance of VERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

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 comply 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.
- To verify the SDG contribution by the project in line with the registered plan

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

Verification process:

The verification comprises a review of the monitoring report /01/ over the monitoring period from 01/07/2022 to 31/05/2023 and based on the registered PDD and revised PDD as part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology, and all related evidence provided by project participants.

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/ and revised PDD /20/. The monitoring system was installed, and 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 resulting emission reduction from the project as verified through the document review and on-site interviews by the verification team.

Vintage	**ER (tCO_2e)**
01/07/2022-31/12/2022	16,956tCO_2e
01/01/2023-31/05/2023	37,573 tCO_2e
Total for the monitoring period	**54,529tCO_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 DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader / Technical Expert	IR	Agarwalla	Sanjay Kumar	CCIPL	X	X	X	X
2.	Trainee Assessor	IR	Nadkarni	Tanvi	CCIPL	X	X	X	X
3.	Trainee Assessor	IR	Ghosh	Tarpan	CCIPL	X	X	X	X
4.	Trainee Assessor	IR	Tekapso	Leslie	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 DOE or outsourced entity)
1.	Technical Reviewer	IR	C	Indumathi	CCIPL
2.	Approver	IR	Singh	Vikash Kumar	CCIPL

Sanjay Kumar Agarwalla He is an appointed Team Leader and Technical Expert for technical area 1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 5.2, 8.1, 9.1, 9.2 and 13.1. He has more than 22 years of experience, which involves more than 10 years of industrial experience and almost twelve years in climate change. He worked in various capacities at Kesoram Rayon, Durgapur Chemicals Limited, Gensol Consultants, TUV Rheinland India Pvt Ltd and LRQA. He is involved in more than 70 GHG audits including validation/verification/post registration changes. He also has GS Audit Experience and attended the Gold Standard webinar. The GS projects on which he has worked are 1309, 850, 6191, 411, 1353 and 939.

Tanvi Nadkarni: Tanvi is qualified as Trainee Assessor and involved in various validations and verifications under CDM, VCS and GCC projects. She has also attended Several VERRA & Gold Standard DOE webinar trainings including training on GS4GG. She holds a Master of Science degree in Environmental Studies from S.K. Somaiya Vidyavihar University, Mumbai.

Tekapso Leslie : Leslie is qualified as Trainee Assessor and is involved in various validations and verifications under VCS,CDM and GS projects. She holds a Master in environmental engineering from National Advanced School of public works Yaoundé.

Tarpan Ghosh : Tarpan is qualified as Trainee Assessor in Carbon Check. He holds a Master of Business Administration degree in Energy Management from Indian Institute of Social Welfare and Business Management, Calcutta University, Kolkata.

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. This process included a review of data and information presented to verify their completeness and a review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

C.2. On-site inspection

An onsite physical audit has been performed. The Team leader has conducted the on-site inspection and the acceptance sampling. Furthermore, VVB has considered the Site Visit and Remote Audit Requirements and Procedures, version 1.0 /B06/ for conducting the onsite visit. In accordance with the requirements provided in the §3.1.1 of the Site Visit and Remote Audit Requirements and Procedures, version 1.0/B06/.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
/01/	Zayed	Stephanie	Sistema Bio	27/06/2023	• Project Design • Organisation background • Project Implementation Plan • Project start date and Project Location • Project background information • Baseline surveys • F_{NRB} calculation • Baseline Scenario • Baseline Identification • Monitoring and reporting documentation • Qualification and Training • Quality Assurance – Management and operating system • Social and	Sanjay Kumar Agarwalla, Tanvi Nadkarni, Tarpan Ghosh, Leslie Tekapso
/02/	Hernandez	Ivan	Sajoma Climate	27/06/2023		
/03/	Muriel	Paola	Sajoma Climate	27/06/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
					Environmental Impacts • Local Stakeholder's meeting process • Compliance with relevant laws • Roles and responsibility • Observations of established practices • Monitoring Report • Emission Reduction Calculations	
/04/	Kothimbire	Sachin	Sistema Bio	28/06/2023	Project Implementation & operation Conducting baseline and monitoring surveys	Sanjay Kumar Agarwalla, Tanvi Nadkarni, Tarpan Ghosh, Leslie Tekapso
/05/	Tikale	Ankush	Sistema Bio	27/06/2023 & 28/06/2023		
/06/	Shinde	Aniket	Sistema Bio	27/06/2023 & 28/06/2023		
/07/	Dogre	Chetan	Sistema Bio	27/06/2023 & 28/06/2023		
/08/	Khandole	Gaurav	Sistema Bio	27/06/2023 & 28/06/2023		
/09/	Mittal	Atul	Sistema Bio	30/06/2023		
/10/	B	Ankush	Sistema Bio	30/06/2023		
/11/	B	Mohit	Sistema Bio	30/06/2023		
/12/	Kant	Kamal	Sistema Bio	30/06/2023 & 03/07/2023		
/13/	Khanna	Prashant	Sistema Bio	03/07/2023		
/14/	Verma	Ajay	Sistema Bio	03/07/2023		
/15/	Verma	Youraj	Sistema Bio	03/07/2023		
/16/	Rajane	Vilas (owner's son)	Household	27/06/2023	Monitoring and baseline Surveys	Sanjay Kumar Agarwalla, Tanvi Nadkarni, Tarpan
/17/	Rasal	Pushpa	Household	27/06/2023	Monitoring and baseline Surveys	

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
						Ghosh, Leslie Tekapso
/18/	Rasal	Prakash	Household	27/06/2023	Monitoring and baseline Surveys	Sanjay Kumar Agarwalla, Tanvi Nadkarni, Tarpan Ghosh, Leslie Tekapso
/19/	Renuse	Savita (owner's wife)	Household	27/06/2023		
/20/	Dalavi	Laxman	Household	27/06/2023		
/21/	Kadu	Anita (owner's daughter in law)	Household	27/06/2023		
/22/	Uttekar	Bhagvan	Household	27/06/2023		
/23/	Kadu	Prakash (owner's son)	Household	27/06/2023		
/24/	Phanasee	Suvarna	Household	27/06/2023		
/25/	Harpude	Sarthak (owner's son)	Household	27/06/2023		
/26/	Rasal	Vernutai	Household	27/06/2023		
/27/	Rajane	Mangal	Household	27/06/2023		
/28/	Parmar	Kanakben	Household	30/06/2023		
/29/	Solanki	Shailesh (owner's husband)	Household	30/06/2023		
/30/	-	Bnarathb hai (owner's husband)	Household	30/06/2023		
/31/	Yadav	Ramchan dra	Household	03/07/2023		Sanjay Kumar Agarwalla, Tarpan Ghosh
/32/	Khan	Mahmud	Household	03/07/2023		
/33/	Devi	Nanki (owner's wife)	Household	03/07/2023		

C.4. Sampling approach

Since the target population is not homogenous but instead consists of several sub-populations (strata), PP has proposed stratified random sampling to align it with the 'Guideline Sampling and surveys for CDM project activities and programmes of activities', Version 04.0 /B04-b/ because it is most applicable to situations where there are obvious groupings of population elements whose characteristics are more

similar within groups than across groups, and because the grouping variable are known for all elements in the sampling frame.

In line with paragraph 26 of the Sampling Standard, the verification team has applied the acceptance sampling approach through on-site interviews on the monitoring survey as part of verification. The project participant applied a sampling approach to the monitoring survey /08/, conducted by the representatives of the project participant. 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 18 households was chosen (with no discrepant records). A sample size of 18 was determined, based on an AQL of 1% and UQL of 20%; producer risk 5%, and consumer risk of 10% each in determining the DOE's sample size Acceptance number (c) thus determined for the sample is 1. Thus, the DOE has chosen the sampling size in compliance with paragraph 30 of the CDM sampling standard using its own professional judgement. These 18 samples were also interviewed to confirm the baseline scenario and SDG survey results.

The information provided in the monitoring survey /08/, has been cross-checked during the Onsite visit. As a part of acceptance sampling, the Verification team could confirm the monitoring survey data /08/ 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 DOE's sample)	DOE's Sample Size
Usage & monitoring surveys	ASP	300	18
SDG surveys	ASP	400	

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 18 samples and thus c=1, 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, the questionnaire was prepared and 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 tests were checked. They were also interviewed to ensure that the process, the method used, and their competency to confirm such standardized tests were appropriately applied. The sampling technique to draw such samples was found adequate and the sample collectors were found competent to perform such a task.

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

The VVB has raised 04 clarification requests (CLs) and 11 corrective action requests (CARs) all of which are satisfactorily closed except for 01 forward action request (FAR) which needs to be resolved during next verification.

SECTION D. Verification findings

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

There are no remaining forward action requests from validation and/or previous verifications.

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

Means of verification	Document Review, Interview
Findings	CL 03 has been raised and closed successfully. Please refer to Appendix 3 for further details.
Conclusion	The verification team confirms that the latest available version of the monitoring report template has been used and the MR follows the monitoring report form and related monitoring report template guide. As verified from the on-site interview and survey report /08/, the audit team confirm the project implementation and operation complies with the project design document /B03/ /20/. The starting date of operation is 01/12/2021 (commissioning of the first batch of biogas digesters) which is confirmed from the registered PDD /B03/ and revised PDD /20/ and validation report /B03/. The Project activity aims at the installation 37,500 biodigesters over a period of 24 months in India. The project boundary in the registered and revised PDD /B03/ /20/ 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 /05/ and is correct according to the project database. Along with the serial number, the biogas technology, biodigester type, number of cattle, fuel consumption, end username, address, commissioning date etc. had also been noted which were found to be consistent on the 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 the 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 Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) version 3.1 /B01/. The operational status of all project bio-digesters and impact on identified SDGs from 01/07/2022 to 31/05/2023 have been taken into consideration. **Continuous grievance mechanism**: As verified during on-site audit, no grievance was recorded. PP does have an effective maintenance/service mechanism in place to resolve any issues by the stakeholders. As part of this a grievance register is maintained in Sistema.bio office headquarters. A phone number, 2 email contacts and website details are also provided to the stakeholders to maintain on-going communication.

	Verification team based on a review of MR /01/ and end user agreement /05/ confirms that the beneficiary end users relinquish their right of carbon credits and transferred to the project developer, verified by the beneficiary households through a signed covenant. Furthermore, biodigesters implemented under the project is uniquely identified, thus avoiding any potential double counting. As verified through document review and on-site interviews, the project implementation and operation, all physical features of the project comply with the project design document /B03/ /20/. Verification team has checked the information in the monitoring report /01/ and compared it against the registered /B03/and revised PDD /20/ and found it to be consistent. The verification team confirms that: a) The project activity is implemented as per registered and revised PDD/B03/ /20/. b) The actual operation of the proposed project activity is in line with the registered and revised PDD /B03/ /20/. c) It has reviewed the registered and revised PDD /B03/ /20/ including the monitoring plan, and the applied monitoring methodology, and found that the final MR/01/ for this monitoring period is in line with all the above-mentioned documents. The verification team of CCIPL based on a review of records and on-site interviews confirms that a robust and effective grievance addressal mechanism is in place however, no grievances were reported during the monitoring period. In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered and revised PDD /B03/ /20/.

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]

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1. During the first monitoring period, it was not possible to sample households from age group 1-2 that were 1.5 years on average or older at the time the usage survey was carried out. The stoves to be credited during the first monitoring period were built progressively following the project start date, 01/12/2021. The usage survey for age group 1-2 was conducted between 31/12/2022 and 10/04/2023. The time frame between the date the first system was installed and the last date the usage survey was undertaken for this age group is only 1 year and 130 days. The average age of the systems surveyed was 1.13 years. This approach was found to be conservative.

[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).

2. For SDG 3, the data regarding indicator “beneficiaries reporting better hygiene conditions” as stated in the PDD, was not collected due to an issue with the data collection system. This will be reported in the following monitoring periods.

In line with section 5.1.7 of GS Deviation Approval Requirements and Procedures (version 1.2, dated 03/05/2022), the deviation is submitted by PD as part of performance certification which is deemed acceptable to the verification team.

D.3.2. Corrections

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1. In PDD version 1.9, which was submitted for Design Review, there is a mistake in the value stated for monitoring parameter $P_{p,wood,y}$, stating “*3 tons/capita/year (0.00822 tons/capita/day) (ex-ante value, this value to be updated based on monitoring*).” However, per the ER sheet, the ex-ante value for this is as follows:

	PROJECT SCENARIO	
	$P_{p,wood,y.}$ Specific fuel consumption for an individual technology in project scenario p during year y tons/household/day	
Sistema Size	**Firewood**	**LPG**
6	0.00049	0.00001
8	0.00049	0.00001
12	0.00033	0.00003
16	0.00033	0.00003
20	0.00033	0.00003
30	0.00016	0.00004
40	0.00016	0.00004
80	0.00016	0.00004

There is no change in the value of overall ex-ante emissions reductions stated throughout the PDD or the ER sheet, as it was only a typo in the PDD. This has been corrected in PDD version 2.0 /20/, which has been submitted to the verification team.

2. PDD version 1.9 had another typo in parameters $P_{b,wood,y}$, $P_{b,LPG,y}$ and $P_{p,LPG,y}$ where units are stated as t/capita/year; the values are correct for t/household/year and this has been fixed in PDD version 2.0 /20/, which has been provided to the verification team. There is no change in the value of overall ex-ante emissions reductions stated throughout the PDD or the ER sheet, as it was only a typo in the PDD.

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

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Not applicable

D.3.4. Inclusion of a monitoring plan

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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

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Not applicable

D.3.6. Changes to the project design

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Not applicable

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

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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	CL 03 was raised and closed successfully. Please refer to Appendix 4 for further details.
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 the 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/ and revised PDD/20/.

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	The verification team confirms that the data and parameters fixed ex-ante are in compliance with the registered and revised PDD /B03/ /20/ and monitoring plan. Please refer to Annex 1 for an assessment of each parameter.

D.5.2. Data and parameters monitored

Means of verification	Document Review, Interview
Findings	CL 01 and CAR 06 were raised and closed successfully. Please refer to Appendix 4 for further details.
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered and revised PDD /B03/ /20/ and the monitoring plan.

	It is confirmed that the verification team assessed the data/information flow from the point of monitoring to emission reduction calculation and found no gap in the same. Please refer to Annex 4 for an assessment of each parameter.

D.5.3. Implementation of sampling plan

Means of verification	Document Review, Interview
Findings	CL 01 and CL 02 were raised and closed successfully. FAR 01 has been raised. Please refer to Appendix 4 for further details.
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: Stratified random sampling method is adopted as the target population is not homogeneous. Sub-populations called strata are identified and simple random samples from each of these sub-populations are taken, in line with the methodology for the annual survey. The sampling approach follows the Guideline "Sampling and surveys for CDM project activities and program 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 systems in the project for each state separately. The target population is 13,357 during the monitoring period. The sampling frame is non homogenous established ex-ante baseline, and user characteristics. The total sample size has been derived per equation 4 of appendix 1, Guidelines for Sampling and Surveys for CDM Project activities and Program 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 67 Annex 06 /B04/. Total Population (N) is 13,357 expected proportion is taken at 70% and accordingly, the sample size (n) comes out to be 115. This is then divided up according to the size of each state to get the number of systems that should be sampled in each state. An over sampling of 20% is assigned in order to ensure the minimum of 115 samples size calculated. The total sample size determined is 164, distributed by state and system size and is replicated for each age group. The methodology requires a minimum sample size of 100, and 30 samples minimum from each age group. For age 0-1, 164 samples are taken and for age 1-2, 136 samples are taken which is higher than the methodology requirement. Therefore, a total of 300 samples are determined combining both the age groups. As a part of on-going monitoring studies, the project developer carried out surveys from 22/04/2022 to 10/04/2023. The survey data /08/ has been reviewed by the VVB. The main parameters which are monitored through the survey are: • Quantity of fuel that is consumed in project scenario p during year y ($P_{p,wood,y}$) • Quantity of LPG that is consumed in project scenario p during year y ($P_{p,LPG,y}$) • Usage rate in project scenario p during year y ($U_{p,y}$)

	• The number of animals of livestock species per category T ($N_{(T)h}$) • Manure system • Hectares fertilized with bio-fertilizer • Final use of bio-fertilizer For SDG 3 and 5, PD randomly selected 400 records from the full database to survey project impact related to 'Observed improved air quality' and 'time spend collecting fuelwood' and was undertaken in April 2023. The following parameters were monitored through this survey: • Reported time saved due to use of biogas • % Beneficiaries reporting air inside the home is cleaner • Women with access to technology During verification, VVB used sampling to determine the operational status of the households. A sample size of 18 was determined, based on an AQL of 1% and UQL of 20%, producer risk 5% and consumer risk 10%. Acceptance number (c) thus determined for the sample is 1. These 18 samples were also interviewed to confirm the baseline scenario and SDG survey results. It was observed that out of the 18 samples, no discrepant records were observed in comparison with the MR /01/ and ER sheet /02/. Thus, PP set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/. Verification team has cross verified these sample documents. Verification team confirms that the sampling approach applied by PP is in accordance with the approved PDD including the Guidelines: Sampling and surveys for CDM project activities and programmes of activities (version 04.0) and Standard: Standard for sampling and surveys for CDM project activities and Programme of Activities (version 09.0) /B04/.

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

Means of verification	Document Review, Interview
Findings	-
Conclusion	N/A since there is no monitoring equipment that requires calibration as per the monitoring plan. The equipment 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 01, CAR 08, and CAR 09 were raised and closed successfully. Please refer to Appendix 4 for further details.
Conclusion	As per the registered PDD /B03/ and revised PDD/20/and the Methodology applied /B01/, Baseline emission reductions are calculated as per the equation given below: **(i) Methane emissions from Manure Management:**

Baseline emissions due to Manure management have been accounted for using IPCC TIER 2

approach as described in Annex 6 of the GS TPDDTEC methodology Version 3.1/B01/.

The following equation has been used :

$$BE_{awms,h} = GWP_{CH4} * \sum_{T} (EF_{awms(T)} * N_{(T),h})$$

Where :

$BE_{awms,h}$ = The baseline emission from handling of animal waste in premise h (Tco_2e per year)

GWP_{CH4} = 28 (value used for emission reduction achieved from 01/01/2021 onward. Aligned with IPCC AR5.)

$N_{(T)h}$ = The number of animals of livestock species per category T

$EF_{awms,T}$ = Emission factor for the defined livestock population category T, (tonnes CH_4 per head per year

The emissions factor $EF_{awms(T)}$ for tier 2 approach is calculated using the following equation:

$$EF_{awms(T)} = VS_{(T)} * 365 * \left[Bo_{(T)} * D_{CH4} * \sum_{k} \frac{MCF_{BL,k}}{100} * MS_{(T,k)} \right]$$

Where:

$EF_{awms,T}$ = CH4 emission factor for livestock category T (Tch4 per animal per year)

$VS_{(T)}$ = Daily volatile solid excreted for livestock category T, (kg dry matter per animal per day)

365 = Basis for calculating annual VS production, (days per year)

$B_{0(T)}$ = Maximum methane production capacity for manure produced by livestock category T, (m3CH4 per kg of VS excreted)

D_{CH4} = Conversion factor to convert to Tco2 (0.00067)

$MCF_{(BL,k)}$ = Methane conversion factors for the animal waste handling system in the baseline situation, by climate zone k, (%)

$MS_{(T,S,k)}$ = Fraction of livestock category T's manure treated in animal waste management system, in climate region k (dimensionless)

	(ii) Carbon dioxide emissions from the combustion of non-renewable energy sources (Fuelwood and LPG): Emission reduction due to the consumption of non-renewable energy sources has been accounted for in accordance with the "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" version 3.1 /B01/ methodology using the following equation. $BE_{b,y} = B_{b,y} * ((f_{NRB,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$ Where: $B_{b,y}$ = Quantity of fuel consumed in baseline scenario b during year y, in tons. F_{nrb} = Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass $NCV_{b,fuel}$ = Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton) $Ef_{b,fuel,CO2}$ = CO_2 emission factor of the fuel that is substituted or reduced. 112Tco2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel $Ef_{b,fuel,non-CO2}$ = Non-CO_2 emission factor of the fuel that is substituted or reduced Therefore, in accordance with the equations stated above, the total baseline emissions from fuelwood, LPG, and manure management amount to 66,590tCO_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 01, CAR 08, and CAR 09 were raised and closed successfully. Please refer to Appendix 4 for further details.
Conclusion	Project emissions: As per the PDD /B03/ /20/ and applied methodology the following project emissions are considered. **(i) Project emissions due to continued use of baseline technology:** These will be calculated using the following equation: $PE_{p,y} = B_{p,y} * ((f NRB, y * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCVp, fuel$ Where : $PE_{P,y}$ = Emissions for project scenario during year y $B_{P,y}$ = Quantity of fuel consumed in project scenario p during year y, in tons fNRB = Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass NCV_{fuel} = Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)

	$Ef_{p,\ fuel,\ CO2}$ = CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel $Ef_{p,fuel,non-CO2}$ = Non-CO_2 emission factor of the fuel that is substituted or reduced **(ii) Project emissions from biodigesters** These include physical leakage and incomplete combustion of biogas, as well as emissions from the animal waste not treated in the biodigester. The first two components are calculated as a percentage of the methane produced, as per the following equation: $$PE_{awms,h,y} = GWP_{CH4} * \sum (N_{(T),h,y} \cdot EF_{awms_T}) \cdot PL_y + \sum (N_{(T),h,y} \cdot EF_{awms_T}) \cdot (1 - \eta_{biogastove})(1 - PL_y)$$ Where, $N_{(T),h,y}$ = Number of animals of livestock category T in year y in premise h $EF_{awms,\ T}$ = CH_4 emission factor for livestock category T (tCH4 per animal per year) PL_y = Default value of 10% GWP_{CH4} = Global Warming Potential of Methane, 25/28 ηbiogastove = Combustion efficiency of the used type of biogas stove to account for incomplete combustion resulting in the emission of methane post-combustion. The methane emissions from untreated waste are estimated in accordance with equation 3 of the methodology /B01/ with the following changed parameters. $MCF_{(P,S,k)}$ = Methane conversion factors for the animal waste handling system used in addition to bio-digester in the project scenario by climate zone k, (%) $MS_{(P,s,k)}$ = Fraction of livestock category T's manure not treated in bio-digester, in climate region k, (dimensionless) Project emissions due to the continued use of baseline technology will be evaluated using the following equation: $$PE_{p,y} = B_{p,y} * ((f\,NRB, y * EF_{p,fuel,\ CO2}) + EF_{p,fuel,\ nonCO2}) * NCVp,\ _{fuel}$$ Where the total fuel consumption in the project scenario ($PE_{p,y}$) will be taken as in Cell ”I14” of Tab “ER’s summary” of the ER sheet. Therefore, in accordance with the equations stated above, the total project emissions from fuelwood, LPG, and manure management amount to 12,061 tCO_2e.

D.7.3. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Findings	-

Conclusion

Project Leakage Assessment

In line with the registered and revised PDD section B.6.2, Leakage emission with respect project boundary is zero. However, physical leakage of the bio-digester is considered using IPCC default value, i.e., 10% in the project emission which is consistent with section B.7.1 of the registered and revised PDD.

In line with the registered and revised PDD section B.7.3, the PP has outlined 06 possible sources of leakage out of which only one is applicable.

These sources include:

Potential source of leakage	Assessment
The potential use of the baseline stoves out of the project boundary or in a manner suggesting more usage than would have occurred in the absence of the project.	The baseline stoves are typically not used outside the project boundary, but in some cases, the stove continues being used by the project beneficiaries. The project accounts for leakage due to the continued presence of a baseline stove by recording the use of baseline fuels monitored via the annual monitoring surveys. This is present in the ER sheet. For biodigesters, there is no risk of leakage identified since the animals remain in the farm at the project scenario and operate with the biodigester technology.
Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity.	For the biodigesters all baseline scenarios identified mean higher emissions. For the biogas stove, there is no such distinction between a low emitting energy and non-renewable biomass from the firewood consumed in project area.
The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.	Not applicable as users are displacing use of firewood
The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.	No reported use of space heating at baseline.
By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.	The project technology High efficiency technology or renewable energy sources were not reported at baseline in the project boundary. Thus, this source of leakage was not considered relevant for the project.
Other potential sources of leakage.	Leakage due to Transportation.

		A standard online carbon calculator is used to calculate the total CO_2 produced from driving the total distance driven. Operations from 01/12/2021, to 31/05/2023 resulted in approximately 624,079 km travelled leading to 117.23 tCO_2e /18/. This represents 0.2% of the total emissions claimed and thus it is disregarded.

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

Means of verification	Document Review, Interview
Findings	CAR 02, CAR 08, and CAR 09 were raised and closed successfully. Please refer to Appendix 4 for further details.
Conclusion	Emission Reductions: The emission reductions in this monitoring period are: $ERy = \sum BEb,y - \sum PEp,y - \sum LEp,y$ Where: ER_y = Emission reduction for total project activity in year y (tCO_2e/yr) $BE_{p,y}$ = Baseline emissions for baseline scenario b in year y (tCO_2e/yr) $PE_{b,y}$ = Project emissions for project scenario p in year y (tCO_2e/yr) $LE_{p,y}$ = Leakage for project scenario p in year y (tCO_2e/yr) As explained in section D.7.1 above, the resulting Baseline emissions (BE_y) for the monitoring period is 66,590 tCO_2e. Similarly, as explained in section D.7.2 and section D.7.3 project emission is 12,061 tCO_2e for the monitoring period. Hence, resulted in emission reduction for the monitoring period is 54,529tCO_{2e}.

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 04 has been raised and closed successfully. Please refer to Appendix 4 for further details.
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PDD /B03/ and revised PDD/20// is 133,978 tCO_2e and the actual emission reductions achieved for the monitoring period is 54,529 tCO_{2e}.

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
13	133,978 tCO_2e	54,529 tCO_2e
8	Employment generated by the project = 50 Number of employees receiving training = 50	Employment generated by the project = 91 Number of employees receiving training = 222
7	Number of connections of clean and renewable energy source = 7,500 45,000 users have access to clean energy source	Number of connections of clean and renewable energy source = 13,351 72,158 users have access to clean energy source.
15	Hectares fertilized with bio-fertilizer – n/a	14,421 Hectares fertilized with bio-fertilizer
5	10 women employees participating in the project Women with access to technology – n/a hours per month time saved due to use of biogas – n/a	20 women employees participating in the project 36,255 Women with access to technology 9.9 hours per month time saved due to use of biogas
3	90% Beneficiaries reporting air inside their homes is cleaner	85.1% Beneficiaries reporting air inside their homes is cleaner

The emission reduction calculations provided in the ER sheet have been verified to be correct and in line with the registered PDD /B03/ and revised PDD/20/.

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/ and revised PDD/20// is 133,978 tCO_2e and the actual emission reductions achieved for the monitoring period is 54,529 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 a reason for the 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 an assessment of the same is provided below: • SDG 7: The actual value exceeds the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 15: The actual value exceeds the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 5: The actual value exceeds the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 3: The actual value does not exceed the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 8: The actual value exceeds 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 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 CDM validation and verification.

SECTION F. Verification/Certification opinion

>>

Carbon Check (India) Private Ltd. (CCIPL) has performed the 1st periodic verification of the registered GS Project Activity "India Dairy Biogas Program (GS11394)".

The verification team assigned by the VVB concludes that the project activity as described in the PDD /B03/ /20/ 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 between the VVB, Carbon Check (India) Private Ltd., and the Project Participant on 06/03/2023 /22/. The team assigned to the verification meets the CCIPL's internal procedures including the UNFCCC/GS requirements for 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/ /20/, 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 Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1/B01/;
- On-site inspection (27/07/2022, 28/07/2022, 30/07/2023 and 03/07/2023).
- Resolution of CARs and CLs raised during verification.
- Issuance of Verification Report.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan, and the registered and revised PDD. The monitoring system was installed, and 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 site interviews, the verification team confirms that the project activity has resulted in 54,529 tCO_{2e} emission reductions during the reported monitoring period.

This statement covers the verification period from 01/07/2022 to 31/05/2023 (including both the dates).

The VVB has raised 04 clarifications and 11 corrective action requests, all of which are satisfactorily closed. VVB has raised 01 forward action request which needs to be resolved during the next verification.

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

The VVB hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 54,529 tCO_2e and all monitoring requirements have been fulfilled and are substantiated by an audit trail that contains evidence and records.

Appendix 1. Abbreviations

Abbreviations	Full Texts
ASP	Acceptance Sampling
AQL	Acceptable Quality level
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CH_4	Methane
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
FNRB	Fractional Non-Renewable Biomass
FVR	Final Verification Report
GHG	Greenhouse gas(es)
GS4GG	Gold Standard For Global Goals
GWh	Giga Watt Hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On-Site Visit
PDD	Project Design Document
PE	Project Emissions
PP(s)	Project Participant(s)
PRC	Post-registration change
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UQL	Unacceptable Quality Level
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reductions
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. Sanjay Agarwalla

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

for the following functions and requirements:

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

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			

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023

Carbon CHECK

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
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	☐ CCB Expert
☒ Financial Expert	☒ 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			

Issue Date

1st January 2023

Expiry Date

31st December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.1_012023

Appendix 3. Documents reviewed or referenced

S. No.	Document
/01/	Monitoring report – version 01, dated 02/06/2023 Monitoring report – version 2.4, dated 18/09/2023
/02/	Emission reduction calculation spreadsheet - version 01, dated 02/06/2023 Emission reduction calculation spreadsheet - version 2.2, dated 06/09/2023
/03/	Distribution records maintained by Sistema Bio with the help of Taro Works smartphone App
/04/	Evidence for the biodigester and stove specifications distributed under the project including evidence for maximum capacity of each type of sistem
/05/	Evidence of Carbon Credits waiver / Copy of agreement between Sistemabio and end user
/06/	Initial Sample size calculation sheet along with evidence for random selection of samples, precision achieved calculation
/07/	Evidence for unique product identification number under the project
/08/	Records of monitoring surveys of the project stored and reported in salesforce database, for the duration 01/07/2022 to 31/05/2023
/09/	Screen Shots of survey done by sistemabio
/10/	Employment records including contracts applicable for the monitoring period
/11/	Evidence for Continuous Input and Grievance Mechanism and list of inputs/grievances received along with their responses/mitigations.
/12/	Project database and sales records
/13/	Service/Maintenance Records maintained by Sistemabio for the current monitoring period.
/14/	Training records including material (presentations, manuals), and list of participations (digital or paper), for the current monitoring period (01/07/2022 to 31/05/2023)
/15/	Monitoring Survey Forms for the current monitoring period 01/07/2022 to 31/05/2023
/16/	Design Review under Gold Standard for the Global Goals
/17/	Human resources records stored in BambooHR application for the monitoring period
/18/	Evidence for calculation of leakage due to transportation
/19/	ODA Declaration
/20/	PDD version 2.0
/21/	Evidence for each of the monitored parameter: • Quantity of firewood / LPG consumed in baseline scenario and project scenario • The number of animals of livestock species • Usage rate in project scenario • Number of project technologies-days credited • % Beneficiaries reporting air inside the home is cleaner • Women with access to technology • Reported time saved due to use of biogas • Number of women employees participating in the project • Number of staff trained • Permanent Jobs • Hectares fertilized with bio-fertilize
/22/	Contract between the PP (Buen Manejo del Campo S.A de C.V (Sistema.bio)) and VVB (Carbon Check (India) Private Ltd.), dated 06/03/2023

Background Documents

Ref no.	Reference Document
/B01/	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 3.1
/B02/	Community Services Activity Requirements (version 1.2) under GS4GG
/B03/	Registered PDD, Version 1.9 dated 31/10/2022 and corresponding Validation Report Version 2.1 dated 16/01/2023
/B04/	Standards a) Sampling and surveys for CDM project activities and programmes of activities, 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 3.0
/B05/	IPCC 2006, volume 2, chapters 1 and 2
/B06/	Site Visit and Remote Audit Requirements and Procedures, version 1.0

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

Table 1. CLs from this verification

CL ID	01	**Section no.**	D.5.2, D.5.3	**Date:** 17/07/2023
Description of CL				
According to the MR, the quantity of firewood and LPG consumed in the baseline is determined on a sampling basis from the results of baseline survey which is not in accordance with the approach followed in the sheet *"GS 11394_MP1 v1.3 Fuel Consumption, MS%, Usage Rate (Full baseline) 15062023",* where 100% of the data captured till 31/05/2023 is considered for calculations.				
PP response				**Date:** 25/07/2023
At the time of the first submission, the quantity of firewood and LPG consumed in the baseline was determined on a sampling basis from the results of baseline survey; however, this was updated. The update made includes the quantity of firewood and LPG consumed determined using the full baseline database (13,357 records from the start up to 31/05/2023, this is the 100% systems installed) where the statistical analysis was applied. The analysis is available at *GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23* The MR has been updated accordingly.				
Documentation provided by PP				
GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23 *GS 11394_Monitoring-Report I_2.1_11Aug23.docx*				
VVB assessment				**Date:** 28/08/2023
PP has updated the MR to indicate that the quantity of firewood and LPG consumed in the baseline is based on 100% of the data captured till 31/05/2023 which is deemed acceptable by the VVB. Therefore, this CL is closed.				

CL ID	02	**Section no.**	D.5.3	**Date:** 17/07/2023
Description of CL				
PP is requested to transparently state the population considered for applying sampling and the population considered for claiming emission reductions in section D.4 of the MR.				
PP response				**Date:** 25/07/2023
The MR has been updated. Under section D.4 of the MR, a footnote was included to transparently state the population considered for applying sampling and the population considered for claiming emission reductions. • The database from which the monitoring sample was derived included 10,097 records, these are the records available at the time the monitored information began to be processed). The sample plan can be found at the file '*GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23'*, in the tab 'Sample size all states'. • The population considered for claiming emission reductions is 13,357, which corresponds to the total biodigesters installed by the end of the monitoring period (31/05/2023). The sample size exceeds, by far, the minimum monitoring sample size required by the methodology.				
Documentation provided by PP				

GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23 *GS 11394_Monitoring-Report I_2.1_11Aug23.docx*
VVB assessment **Date:** 28/08/2023
PP has revised section D.4 of the MR to transparently state the population considered for applying sampling and the population considered for claiming emission reductions which is deemed acceptable by the VVB. Therefore, this CL is closed.

CL ID	03	**Section no.**	D.2, D.4	**Date:** 17/07/2023
Description of CL				
In section A.1.1 of the PDD, it is stated that the biodigesters and biogas stoves of the project will be uniquely identified with a unique serial number and contact ID. However, the same has not been reflected in the ER Sheet titled "*GS 11394_India ER MR I_v1.3*".				
PP response				**Date:** 21/07/2023
Each biodigester is identified with a unique serial number and Contact ID, and each stove is linked in the sales database to its biodigester, allowing for a uniquely identification of the biodigester and the stove. The ER sheet has been updated to include the serial number. This can be observed at *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*, tab 'Database-raw', columns C and D corresponding to 'Contact ID' and 'Serial Number' respectively.				
Documentation provided by PP				
GS 11394_India ER MR I_v2.1 11Aug23.xlsx				
VVB assessment				**Date:** 28/08/2023
PP has updated the ER sheet reflecting a unique identification with a unique serial number and a contact ID as per PDD section A.1.1 which is deemed acceptable by the VVB. Therefore, this CL is closed.				

CL ID	04	**Section no.**	D.7.5	**Date:** 17/07/2023
Description of CL				
In section E.5 of the MR, PP is requested to clarify if the value estimated in ex ante calculation of approved PDD for SDG 13 is for year 1 or the monitoring period.				
PP response				**Date:** 21/07/2023
Value estimated in the E.5 section of the MR for SDG 13 has been updated to reflect the monitoring period, which corresponds to 01/07/2022 to 31/05/2023 (eleven months). This value can be consulted in the file *ERs Spreadsheet Sistema.bio India v4.1 20Sep22-validated (EX-ANTE 01/07/2022-31/05/2023).xlsx* in the "Summary Ers DELAY half year" sheet, at C45 cell.				
Documentation provided by PP				
GS 11394_Monitoring-Report I_2.1_11Aug23.docx *ERs Spreadsheet Sistema.bio India v4.1 20Sep22-validated (EX-ANTE 01/07/2022-31/05/2023).xlsx*				
VVB assessment				**Date:** DD/MM/YYYY
PP has updated section E.5 of the MR to reflect that the value estimated in ex ante calculation of approved PDD for SDG 13 is for the monitoring period, which is deemed acceptable to the VVB. Therefore, this CL is closed.				

Table 2. CARs from this Verification

CAR ID	01	**Section no.**	D.7.1, D.7.2	**Date:** 17/07/2023
Description of CAR				

Following findings are raised with respect to ER sheet titled "*GS 11394_India ER MR I_v1.3*":

a. It is noted that the values of gross ERs by vintage mentioned in cells K3 and L3 under the tab "Introduction" are hardcoded values. PP is requested to provide the calculation reference for the values.
b. The value of ERs for the monitoring period is inconsistent between the tabs "Introduction" and "ERs Summary".
c. It is noted under tab *"Parameters"* that the formulas for $P_{b,wood,y}$, $P_{b,LPG,y}$, $P_{p,wood,y}$ and ,$P_{p,LPG,y}$ are applied incorrectly to reflect the values as 0. Therefore, PP is requested to rectify the same.
d. It is noted under tab *"Project Emissions AWMS"* of the ER sheet that the values mentioned in cells BV31:BX34 are hardcoded values. PP is requested to provide the calculation reference for the same.
e. PP is requested to clarify whether the parameters used for the calculation of the baseline and project emissions from AWMS, and fuel consumption are determined per year or for the monitoring period.

PP response | **Date:** 21/07/2023

a. Due to the complexity of the ER sheet, the values showed in cells K3 and L3 corresponding to Gross ERs by vintage are punched values but can be verified by adjusting the start and end date range in the "Parameters" tab, cells C2 and C3, and going to the tab "ERs Summary" at cell C3 to observe the ERs per vintage selected.

   To obtain the specific Emissions Reductions for 2022, you should turn the Start date to 01/07/2022 and the End Date to 31/12/2022.
   To obtain the specific Emissions Reductions for 2023, you should turn the Start date to 01/01/2023 and the End Date to 31/05/2023.

   The obtained result for each year in C3 cell of the ER summary, was captured in cells L3 and K3 of the Introduction tab. These references were included in the ER Sheet (*GS 11394_India ER MR I_v2.1 11Aug23.xlsx*) in the "Introduction" tab in I5 cell.

b. These values were revised and updated, now both values are consistent (54,529 ERs achieved)

c. These values were set at 0 as the actual values were present at the tabs "PE Wood and LPG". To avoid confusion, these parameters have been deleted from the parameters tab and are available in PE Wood and LPG tab in Z4:AB5 cells for wood and Z9:AB10 for LPG.

d. Hardcoded values were there due to a mistake; these cells were revised and all the formulas are now working correctly in cells BV31:BX34.

e. Parameters are determined for the monitoring period. The description in the ER sheet has been updated to ensure clarity of this.

Documentation provided by PP

GS 11394_India ER MR I_v2.1 11Aug23.xlsx

VVB assessment | **Date:** 28/08/2023

a. PP has clarified that due to the complexity of the ER sheet, the values shown in cells K3 and L3 corresponding to Gross ERs by vintage are punched values. However, PP has satisfactorily provided calculation reference for the values which can be verified by adjusting the start and end date range in the "Parameters" tab, cells C2 and C3, and going to the tab "ERs Summary" at cell C3 to observe the ERs per vintage selected. This is deemed acceptable to the VVB and therefore, this part of the CAR is closed.

b. The ER sheet has been updated by the PP to enable consistency between the values of total ER's in both the Introduction and the summary tabs of the *GS 11394_India ER MR I-v2.1 11Jul23.xlsx* which is deemed acceptable by the VVB. Hence, this part of the CAR is closed.

c. PP has revised the ER sheet to include the formulas for $P_{b,wood,y}$, $P_{b,LPG,y}$, $P_{p,wood,y}$ and ,$P_{p,LPG,y}$ under "*PE Wood and LPG"* tab in Z4:AB5 cells for wood and Z9:AB10 for LPG, which is deemed acceptable by the VVB. Hence, this part of the CAR is closed.

d. PP has revised the ER sheet and inserted appropriate formulae in cells BV31:BX34, under tab *"Project Emissions AWMS",* which is deemed acceptable by the VVB. Hence, this part of the CAR is closed.

e. PP has updated the ER sheet to indicate that the parameters used for the calculation of the baseline and project emissions from AWMS, and fuel consumption are determined for the monitoring period, which is deemed acceptable by the VVB. Therefore, this part of the CAR is closed.

CAR ID	02	**Section no.**	D.7.4	**Date:** 17/07/2023
Description of CAR				
The values of emission reductions achieved during the monitoring period are inconsistent between the MR and the ER spreadsheet. PP is requested to make the ER values consistent between the ER sheet and the MR.				
PP response				**Date:** 21/07/2023
The MR has been updated to be consistent with ER Spreadsheet. The final value of the emission reductions achieved during the monitoring period is 53,177.				
Documentation provided by PP				
GS 11394_Monitoring-Report I_2.1_11Aug23.docx *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*				
VVB assessment				**Date:** 28/08/2023
PP has revised the MR enabling consistency for the value of total ERs in both the MR and the ER sheet which is deemed acceptable by the VVB and hence, this CAR is closed.				

CAR ID	03	**Section no.**	-	**Date:** 17/07/2023
Description of CAR				
Table 2 of the MR does not contain any data as per the requirement of the MR template guide with respect to product vintages. PP is requested to demonstrate compliance to the same.				
PP response				**Date:** 21/07/2023
The Table 2 of the MR has been filled, values are consistent with cells K3 and L3 of the Introduction Tab of the ER sheet *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*.				
Documentation provided by PP				
GS 11394_Monitoring-Report I_2.1_11Aug23.docx *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*				
VVB assessment				**Date:** 28/08/2023
PP has revised Table 2 of the MR to indicate product vintages and is now in line with the MR template guideline. This is deemed acceptable by the VVB and therefore, this CAR is closed.				

CAR ID	04	**Section no.**	-	**Date:** 17/07/2023
Description of CAR				

PP is requested to indicate the length of the crediting period as per the approved PDD in section A.4 of the MR, to comply with the MR template guide requirement.	
PP response	**Date:** 21/07/2023
The crediting period runs from 01/07/2022 to 30/06/2027, (considering to be renew after 5 years) this can be observed in Section A.4 of the MR	
Documentation provided by PP	
GS 11394_Monitoring-Report I_2.1_11Aug23.docx	
VVB assessment	**Date:** 28/08/2023
PP has revised the MR in section A.4 indicating the length of crediting period as per MR template guideline requirement which is deemed acceptable by the VVB and therefore, this CAR is closed.	

CAR ID	05	**Section no.**	-	**Date:** 17/07/2023
Description of CAR				
PP is requested to describe the ongoing communication for the grievance mechanism along with evidence in section G.1 of the MR.				
PP response				**Date:** 21/07/2023
As we can see in the section G.1 of the MR no grievances were received during the monitoring period, even considering that there is communication between the PP and the Final User. All users have been provided with contact information for grievances or maintenance request. It is important to note that there have been users that request maintenance and service visits that PP has solved (Please refer to the file *GS 11394_India ER MR I_v2.1 11Aug23.xlsx,* 'Maintenance days' tab. This is the result of an efficient communication with the users.				
Documentation provided by PP				
GS 11394_Monitoring-Report I_2.1_11Aug23.docx				
VVB assessment				**Date:** 28/08/2023
By reviewing the MR and during on-site visit, VVB has confirmed that no grievances were received during the monitoring period and all users have been provided with contact information as a part of ongoing communication for the grievance mechanism. This is deemed acceptable and therefore, this CAR is closed.				

CAR ID	06	**Section no.**	D.5.2	**Date:** 17/07/2023
Description of CAR				
In section D.2 of the MR: 1. The values for $P_{b,wood,y}$ for medium and large Sistema size do not match with those in the excel sheet titled *"GS 11394_MP1 v1.3 Fuel Consumption, MS%, Usage Rate (Full baseline) 15062023".* 2. The values applied for Np,y do not match with those in the ER spreadsheet. 3. For parameter $EF_{awms,T,b,}$ the row "Measurement methods and procedures" is not filled. 4. The values applied for $EF_{awms,T,p}$, do not match with the values in page 45 of the PDD. 5. For parameter "Final use of bio-fertilizer", the rows titled "QA/QC procedure", "Purpose of data", and "Additional comment" are missing.				
PP response				**Date:** 21/07/2023

1. These values have been updated and now are consistent with the Excel file *GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23.xlsx*

2. These values have been updated and now are consistent with the ER file *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*

3. The MR has been updated and the requested information is now available.

4. The $EF_{awms,T,b}$ is a monitored parameter, hence, the MR includes the monitored data from users (Please refer to *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*). The values for $EF_{awms,t,p}$ applied in the PDD were the estimated values at the time of the submission of the PDD.

5. The MR has been updated and now these rows can be consulted.

Documentation provided by PP

GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23
GS 11394_Monitoring-Report I_2.1_11Aug23.docx
GS 11394_India ER MR I_v2.1 11Aug23.xlsx

VVB assessment | **Date:** 28/08/2023

1. PP has updated the values for $P_{b,wood,y}$ for medium and large Sistema which show consistency with those in the updated excel sheet titled *"GS 11394_MP1 v1.5 Fuel Consumption, MS%, Usage Rate (Full baseline) 15062023"* which is deemed acceptable by the VVB and hence, this part of the CAR is closed.

2. PP has revised the MR to update the values for $N_{p,y}$ enabling consistency with the ER file *GS 11394_India ER MR I_v2.1 11Jul23.xlsx* which is deemed acceptable by the VVB and hence, this part of the CAR is closed.

3. PP has updated section D.2 of the MR providing the required information for the parameter $EF_{awms,T,b}$ which is deemed acceptable by the VVB and hence, this part of the CAR is closed.

4. In accordance with the applied methodology $EF_{awms,T,b}$ is a monitored parameter and hence differs from the values reported in the PDD for ex-ante estimation. This is deemed acceptable to the VVB and hence this part of the CAR is closed.

5. PP has updated section D.2 of the MR including information on "QA/QC procedure", "Purpose of data", and "Additional comment" for the parameter *"Final use of bio-fertilizer"*, which is deemed acceptable by the VVB and hence, this part of the CAR is closed.

CAR ID	07	**Section no.**	-	**Date:** 17/07/2023

Description of CAR

During the site visit, VVB noted that the number of people in the household declared by the end users differ from the number reported in the survey data. PP clarified that the end users in some cases report the family members who stay away from home. However, this is not transparently reflected in PP's questionnaire.

PP response | **Date:** 21/03/2023

The monitoring survey asks for the number of people benefitted by biogas, ensuring to only register the number of members who directly benefit from the technology. In this case, it seems the discrepancies stem from the difference between household members and people in general that live and/or work in the farm.

Documentation provided by PP

GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23

VVB assessment	Date: 28/08/2023
PP has clarified that the discrepancies in the number of people stem from the difference between household members and people in general that live and/or work on the farm. Furthermore, this parameter is not used in calculations and does not have any effect on the emission reductions and therefore this CAR is closed.	

CAR ID	08	Section no.	D.7.1, D.7.2, D.7.4	Date: 17/07/2023
Description of CAR				
It is noted by the VVB that the number of cattle reported in the baseline survey data and monitoring survey data differ for some end users, and the number reported in the baseline data is used for both baseline and project emission calculations from AWMS. PP is requested to justify the suitability of this approach considering the number of cattle reported in the baseline is more and beyond the capacity of the assigned Sistema size for some end users. Additionally, VVB noted the type of cattle reported in the monitoring survey differs in some cases from the type declared by the end user during site visit. For example, the end user with customer ID 38406 reported 3 cows in the monitoring survey, however during the site visit, VVB found 3 buffaloes.				
PP response				Date: 25/03/2023
The number of cattle is a monitored parameter, hence the data used for the calculation of AWMS (statistical analysis) comes from the monitoring survey (*GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23;* tab 'Animal count') Please note that at the time of first submission to the VVB, the number of cattle used to calculate AWMS came from the baseline survey, this has been corrected. The ER sheet is formulated to cap each system to its maximum capacity for the number of cattle's manure each system can process. This ensures no overestimation occurs at calculation (*GS 11394_India ER MR I_v2.1 11Aug23.xlsx).* Digester sizes are sized according to waste availability and energy needs in a family. While not prescribed by the methodology, the PP has made a statistical analysis of the averages applied to define N(t) parameters to ensure that these are representative of the full database, and attain the acceptable precision values and confidence levels. The identification of outliers ensures that only statistical representative values are accounted, therefore, the mean value addresses variations. PP has added an additional sheet to the file *GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23,* called 'Animal count summary' that shows the precision level and confidence interval of the values used for the calculations. Please note ERs have slightly changed due to crosschecks while adding this new tab. The PP has been working on improving guidance on recording animals at baseline and monitoring, considering only animals in the project boundary and ensuring differentiation in animal types. The statistical analysis employed for the calculation of AWMS minimize the impact of discrepancies and outliers, allowing for the values to become representative.				
Documentation provided by PP				
GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23 *GS 11394_India ER MR I_v2.1 11Aug23.xlsx*				
VVB assessment				Date: 28/08/2023
PP has revised the ER sheet to use the number of animals reported in the monitored data for both baseline and project emission calculations from AWMS. PP has formulated the ER sheet which caps each Sistema type to its maximum capacity for the number of each cattle's manure each system can process and has made statistical analysis of the averages applied to define N(t) parameters to ensure that these are representative of the full database and attain the acceptable precision values and confidence levels. The identification of outliers ensures that only statistical representative values are accounted. This calculation approach is acceptable to the VVB. Therefore, this CAR is closed.				

CAR ID	09	Section no.	D.7.1, D.7.2, D.7.4	Date: 17/07/2023
Description of CAR				
During site visit, VVB noted that the usage of firewood and LPG in the baseline survey in some cases did not align with the number declared by the end user. For example, according to the baseline survey data, end user with customer ID 36723 reported usage of 21 kg LPG, however, during site visit it was declared that one cylinder (approx. 14 kg) lasted up to 2-3 months. The monitoring survey conducted by the PP captured data on the usage of firewood and LPG in the project scenario where some end users reported zero usage. However, during site visit, the VVB observed that firewood and/or LPG are either used for space heating or water heating. According to PP during on-site interviews, the survey question is based on the amount of wood and LPG used for cooking alone. However, this is not specifically reflected in the survey question. Please refer page 58 of the PDD in this regard wherein space heating issue is a part of monitoring survey. Additionally, in the SDG survey and during on-site visit, the end users reported some time spent on collection of firewood after the installation of the biodigester despite reporting 0 usage in the monitoring survey.				
PP response				**Date:** 25/07/2023
These can be explained by three things. (1) inappropriate data collected by the technicians, or (2) changes in the conditions of the household over time, (3) recall bias from the participant or different person in the household answering the questions. The PP has implemented a series of training and improvements in its data collection methods since April 2023. However, given the timing of this Monitoring Period, surveys included in the sample were undertaken before these improvements were made. The new data model does differentiate explicitly between energy for cooking, or other uses, including space heating. This will be reflected in the next monitoring period. While the PP has been working on improving training for data collection and introduced internal validators for further review, the statistical analysis employed for the calculation of fuel consumption / time collecting wood minimizes the impact of discrepancies and outliers, allowing for the values to become representative. Please note that, from the examples cited above, the values used for the statistical analysis for fuel consumption were conservative, as per the survey data reported more consumption in the project scenario (value used for the calculation, e.g., 21kg consumption after biodigester installed) than the value retrieved at the time of the VVB survey (e.g., 14kg). While the discrepancy could have been the other way around (where survey data reported fewer fuel consumption in the project scenario than what was observed during the site visit) the statistical approach followed excludes outliers and addresses variations in the values; this statistical analysis was applied to ensure fuel consumption values used in the ERs calculations meet the precisions level and confidence interval (90/30) as required by the methodology.				
Documentation provided by PP				
GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23				
VVB assessment				**Date:** 28/08/2023
PP has clarified the reasons for the aforementioned inconsistencies and has employed statistical analysis for the calculation of fuel consumption / time collecting wood minimizes the impact of discrepancies and outliers, allowing for the values to become representative. This approach for calculation is deemed acceptable to the VVB and this CAR is closed. However, FAR 01 has been raised in relation to the recording of fuel consumption data.				

CAR ID	10	Section no.	-	Date: 17/07/2023
Description of CAR				
According to the survey data, Sistema 6 is installed at end user's household with customer ID 36727. However, during site visit, VVB observed that Sistema 8 is installed.				

PP response	Date: 25/07/2023
This was an unusual error at the time of the project registration. This system belongs to a series of implementations where only Sistema 6 were considered to be installed, however this beneficiary received an exception and a Sistema 8 was installed, however this was not properly recorded in the database. This has been updated and corrected in the ER sheet. Given the exceptionality of this case, PP attests that the correct Sistema size has been recorded for all Sistemas installed. This can be crosschecked with the serial number recorded in the database. No overestimation of ERs took place since the registered system had a lower capacity (Sistema 6) than the one actually installed (Sistema 8).	
Documentation provided by PP	
GS 11394_India ER MR I_v2.1 11Aug23.xlsx	
VVB assessment	**Date:** 28/08/2023
PP has revised the ER sheet to reflect the correct Sistema type installed at end user's household with customer ID 36727, which can be crosschecked with the database provided to the VVB. Therefore, this CAR is closed.	

CAR ID	11	Section no.	-	Date: 17/07/2023
Description of CAR				
With respect to excel sheet titled "*"GS 11394_MP1 v1.3 Fuel Consumption, MS%, Usage Rate (Full baseline) 15062023*", PP is requested to justify why the input of values for number of hours spent for cooking on the biogas stove per day are greater than 24 hours in the monitoring survey data.				
PP response				**Date:** 25/07/2023
This was an error at the time of introducing the value during the survey. However, please note that this value is not used in the calculations and has been corrected in the document *GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23*				
Documentation provided by PP				
GS 11394_MP1 v1.5 Fuel Consumption, MS%, Animal count, Usage Rate (Full baseline) 15062023_SKA comments + Responses – 11Aug23				
VVB assessment				**Date:** 28/08/2023
PP has justified that some of the input of values for number of hours spent cooking on the biogas stove per day greater than 24 hours in the monitoring survey data is due to error in data entry and has revised the excel sheet. Furthermore, this parameter is not used in calculations and has no effect on the emission reductions. Therefore, this CAR is closed.				

Table 3. FARs from this verification

FAR ID	01	Section no.	D.5.3	Date: 28/08/2023
Description of FAR				
The monitoring survey conducted by the PP captured data on the usage of firewood and LPG in the project scenario where some end users reported zero usage. However, the verification team during site visit observed that firewood and/or LPG are either used for space heating or water heating. According to PP, the survey question is based on the amount of wood and LPG used for cooking alone. However, this is not specifically reflected in the survey question. Accordingly, PP needs to ensure that the questionnaire accurately captures the end use of the fuel in the project scenario, which the VVB must verify during next verification.				
PP response				**Date:** DD/MM/YYYY

Documentation provided by PP	
VVB assessment	**Date:** DD/MM/YYYY

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

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$VS_{(T)}$ - Daily volatile solid excreted for cattle
Data unit	kg dry matter per animal per day (kg/hd/day)
Default values used	<table><tr><td></td><td>Dairy cows</td><td>Buffalos</td><td>Other cattle[2]</td><td>Swine</td></tr><tr><td>VS(T) Indian Subcontinent</td><td>4.02</td><td>4.33*(Asia default value)</td><td>2.7572</td><td>0.45</td></tr></table>
Purpose of data	Calculation of baseline emissions and project emissions. Determination of CH_4 emissions.
Source of verification of the source	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 10.13A

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$MCF_{(BL,k)}$ - Methane conversion factors for each manure management system by climate region k
Data unit	Percentage (%)
Default values used	<table><tr><td></td><td></td><td colspan="5">MCFs by climate zone Warm</td></tr><tr><td></td><td></td><td>Warm temperate Moist</td><td>Tropical Montane</td><td>Tropical Wet</td><td>Tropical Moist</td><td>Tropical Dry</td></tr><tr><td rowspan="7">MCF(BL, k)</td><td>Uncovered anaerobic lagoon</td><td>73.00%</td><td>76.00%</td><td>80.00 %</td><td>80.00 %</td><td>80.00 %</td></tr><tr><td>Liquid/Slurry, and Pit storage below animal confinements, 3 Month</td><td>24.00%</td><td>43.00%</td><td>61.00 %</td><td>57.00 %</td><td>62.00 %</td></tr><tr><td>Liquid/Slurry, and Pit storage below animal confinements, 6 Month</td><td>37.00%</td><td>59.00%</td><td>76.00 %</td><td>73.00 %</td><td>74.00 %</td></tr><tr><td>Liquid/Slurry, and Pit storage below animal confinements, 12 Month</td><td>55.00%</td><td>73.00%</td><td>80.00 %</td><td>80.00 %</td><td>80.00 %</td></tr><tr><td>Solid storage[2]</td><td>4.00%</td><td>5.00%</td><td>5.00%</td><td>5.00%</td><td>5.00%</td></tr><tr><td>Burned for fuel</td><td>10.00%</td><td>10.00%</td><td>10.00 %</td><td>10.00 %</td><td>10.00 %</td></tr></table>
Purpose of data	Calculation of baseline and project emissions. Determination of CH_4 emissions. Determination of CH_4 emissions.
Source of verification of the source	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 10.17

[2] Includes the practice to store the dung in drums of ~200 ltr capacity to transport the manure and not as a long-term storage. Storage of the dung in drums is considered under Solid storage - covered/compacted, which has the same MCFs value as Solid storage in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 10.17

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$Bo_{(T),}$ Maximum methane production capacity for manure produced by cattle
Data unit	m^3CH_4/kg VS
Default values used	<table><tr><td></td><td>Dairy cows</td><td>Buffalos</td><td>Other cattle[2]</td><td>Swine</td></tr><tr><td>Bo(T)</td><td>0.185</td><td>0.185</td><td>0.155</td><td>0.37</td></tr></table>
Purpose of data	Calculation of baseline emissions and project emissions
Source of verification of the source	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 10.16.

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	D_{CH4}- Methane (CH4) density (0.00067 t per m3 at room temperature (20 ºC) and 1 atm pressure)
Data unit	kg per m^3
Default values used	0.67
Purpose of data	Calculation of baseline and project emissions. Determination of CH_4 emissions.
Source of verification of the source	GS VER Methodology

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	f_{NRB} - Fraction of biomass that can be established as non-renewable biomass in %
Data unit	Percentage (%)
Default values used	0.8908
Purpose of data	Calculation of Baseline and project emissions
Source of verification of the source	Value calculated according to the CDM Methodological tool Calculation of the fraction of non-renewable biomass Version 03.0.

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$Ef_{b,wood,CO2}$ - CO_2 emission arising from use of wood in baseline scenario

Data unit	tCO_2/TJ
Default values used	112
Purpose of data	Determination of CO_2 emission factor in baseline
Source of verification of the source	IPCC default value IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion Page 2.23/ Table 2.5

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$Ef_{b,wood,non\text{-}CO2}$ - Non-CO_2 emission factor arising from use of wood in baseline scenario
Data unit	tCO_2/TJ
Default values used	9.46
Purpose of data	Determination of CO_2 emission factor in baseline
Source of verification of the source	GWP: IPCC AR5 CH_4 and N_2O Emission Factors: Emission Factor value provided in Table 2.5 of Chapter 2: Stationary Emissions (2006 IPCC Guidelines for National Greenhouse Gas Inventories).

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$Ef_{b,LPG,CO2}$ - CO_2 emission arising from use of LPG in baseline scenario
Data unit	tCO_2/TJ
Default values used	63.10
Purpose of data	Determination of CO_2 emission factor in project
Source of verification of the source	IPCC default value IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion Page 2.23/ Table 2.5

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$Ef_{b,LPG,non\text{-}CO2}$ - Non-CO_2 emission factor arising from use of LPG in baseline scenario
Data unit	tCO_2/TJ
Default values used	0.17

Purpose of data	Determination of CO_2 emission factor in project
Source of verification of the source	GWP: IPCC AR5 CH_4 and N_2O Emission Factors: Emission Factor value provided in Table 2.5 of Chapter 2: Stationary Emissions (2006 IPCC Guidelines for National Greenhouse Gas Inventories).

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$NCV_{b,wood}$ - Net calorific value of wood that is substituted or reduced
Data unit	TJ/ton
Default values used	0.0156
Purpose of data	Determination of fuel's NCV in baseline
Source of verification of the source	IPCC default value IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	$NCV_{b,LPG}$ - Net calorific value of LPG that is substituted or reduced
Data unit	TJ/ton
Default values used	0.0473
Purpose of data	Determination of fuel's NCV in project
Source of verification of the source	IPCC default value IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19

Annex 2: Assessment of data and parameters monitored.

<table>
<tr><th>Monitoring Parameter Requirement</th><th>Assessment/ Observation by the VVB</th></tr>
<tr><td>Data / Parameter:

(as in monitoring plan of GS DD):</td><td>Quantity of firewood consumed in baseline scenario b during year y ($P_{b,wood,y}$)</td></tr>
<tr><td>Measuring frequency/Time Interval:</td><td>Annual</td></tr>
<tr><td>Reporting frequency:</td><td>Annual</td></tr>
<tr><td>Reported value:</td><td>
<table>
<tr><th>Sistema size</th><th>$P_{b,wood,y}$ (ton/hh/day)</th><th>$P_{b,wood,y}$ (kg/hh/month)</th></tr>
<tr><td>Small</td><td>0.0021</td><td>63.10</td></tr>
<tr><td>Medium</td><td>0.0013</td><td>39.80</td></tr>
<tr><td>Large</td><td>0.0004</td><td>12.85</td></tr>
</table>
</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes</td></tr>
<tr><td>Details of monitoring equipment:</td><td>This parameter is monitored based on proxy field test result</td></tr>
<tr><td>Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?</td><td>NA</td></tr>
<tr><td>Calibration frequency /interval:

Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification</td><td>NA</td></tr>
<tr><td>Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?</td><td>NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/</td></tr>
<tr><td>Company performing the calibration (internal or external calibration):</td><td>NA</td></tr>
<tr><td>Did calibration confirm the proper functioning of monitoring equipment? (Yes / No) :</td><td>NA</td></tr>
<tr><td>Is (are) calibration(s) valid for the whole reporting period?</td><td>NA</td></tr>
<tr><td>If applicable, has the reported data been cross-checked with other available data?</td><td>Yes, the reported data in MR has been compared with Monitoring survey records /08/ and the ER sheet /02/</td></tr>
</table>

	and also cross checked by the VVB by interviewing the house holds on sample basis during the onsite visit.
How were the values in the monitoring report verified?	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 reported data in MR has been compared with database /12/, survey records, and ER sheet /02/.
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**
Data / Parameter: (as in monitoring plan of GS DD):	Quantity of firewood consumed in baseline scenario b during year y ($P_{b,LPG,y}$)
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	<table><tr><th>**Sistema size**</th><th>**$P_{b,LPG,y}$ (ton/hh/day)**</th><th>**$P_{b,LPG,y}$ (kg/hh/month)**</th></tr><tr><td>Small</td><td>0.0005</td><td>14.42</td></tr><tr><td>Medium</td><td>0.0006</td><td>18.47</td></tr><tr><td>Large</td><td>0.0012</td><td>35.96</td></tr></table>
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	This parameter is monitored based on proxy field test result
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA

Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm the proper functioning of monitoring equipment? (Yes / No) :	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with Monitoring survey records /08/ and the ER sheet /02/ and also cross checked by the VVB by interviewing the house holds on sample basis during the onsite visit.
How were the values in the monitoring report verified?	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 reported data in MR has been compared with database /12/, survey records, and ER sheet /02/.
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**
Data / Parameter: (as in monitoring plan of GS DD):	Quantity of fuel that is consumed in project scenario p during year y ($P_{p,wood,y}$)
Measuring frequency/Time Interval:	Updated every two years, or more frequently
Reporting frequency:	Updated every two years, or more frequently
Reported value:	**Sistema size** / **Age** / **$P_{p,wood,y}$ (ton/hh/day)** / **$P_{p,wood,y}$ (kg/hh/month)** Small / 0-1 / 0.00 / 0.00

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
	<table><tr><td></td><td>1-2</td><td>0.00</td><td>0.00</td></tr><tr><td>Medium</td><td>0-1</td><td>0.00</td><td>0.00</td></tr><tr><td></td><td>1-2</td><td>n/a[3]</td><td>n/a</td></tr><tr><td>Large</td><td>0-1</td><td>0.00</td><td>0.00</td></tr><tr><td></td><td>1-2</td><td>n/a</td><td>n/a</td></tr></table>
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Monitored based on a monitoring survey conducted by the client every 2 years or frequently.
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with database /12/, survey records, and ER sheet /02/ and cross checked by the VVB by auditing randomly selected households during the onsite visits.
How were the values in the monitoring report verified?	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 the correct transfer of data and reporting of emission reductions, and all necessary QA/QC processes are in place.

[3] In order to calculate ERs, “n/a” values were taken as 0.00 in calculations of the ER’s File (GS 11394_India ER MR I_v2.1 11Jul23.xlsx).

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
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
Data / Parameter: (as in monitoring plan of GS DD):	Quantity of LPG that is consumed in project scenario p during year y ($P_{p,LPG,y}$)
Measuring frequency/Time Interval:	Updated every two years, or more frequently
Reporting frequency:	Updated every two years, or more frequently
Reported value:	<table><tr><th>Sistema size</th><th>Age</th><th>$P_{p,LPG,y}$ (ton/hh/day)</th><th>$P_{p,LPG,y}$ (kg/hh/month)</th></tr><tr><td>Small</td><td>0-1</td><td>0.0003</td><td>9.03</td></tr><tr><td></td><td>1-2</td><td>0.0004</td><td>12.46</td></tr><tr><td>Medium</td><td>0-1</td><td>0.0000</td><td>0.07</td></tr><tr><td></td><td>1-2</td><td>n/a</td><td>n/a</td></tr><tr><td>Large</td><td>0-1</td><td>0.0000</td><td>0.00</td></tr><tr><td></td><td>1-2</td><td>n/a</td><td>n/a</td></tr></table>
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Monitored based on a monitoring survey conducted by the client every 2 years or frequently.
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with database /12/, survey records, and ER sheet /02/ and cross checked by the VVB by auditing randomly selected households during the onsite visits.
How were the values in the monitoring report verified?	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 the 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
Data / Parameter: (as in monitoring plan of GS DD):	The number of animals of livestock species per category T ($N_{(T)h}$)
Measuring frequency/Time Interval:	Every two years
Reporting frequency:	Annual
Reported value:	

Sistema size	$N_{(T)h}$ Number of animals of livestock species per Biodigester			
	Dairy Cow	Buffalo	Other Cattle	Swine
6	5	4	4	16
8	7	5	5	22
12	9	7	7	28
16	13	10	10	41
20	18	15	15	56
30	26	22	22	81
40	35	30	30	109
80	70	62	62	218
120	105	90	90	327

	200 | 175 | 150 | 150 | 545
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The values obtained are based on field monitoring survey
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with database /12/, survey records, and ER sheet /02/. Moreover, the value has also been crosschecked by the VVB during the onsite visit by interviewing the households.
How were the values in the monitoring report verified?	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 the 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

<table>
<tr><th>Monitoring Parameter Requirement</th><th>Assessment/ Observation by the VVB</th></tr>
<tr><td>Data / Parameter:

(as in monitoring plan of GS DD):</td><td>Usage rate in project Scenario p during year y ($U_{p,y}$)</td></tr>
<tr><td>Measuring frequency/Time Interval:</td><td>Annual</td></tr>
<tr><td>Reporting frequency:</td><td>Annual</td></tr>
<tr><td>Reported value:</td><td><table><tr><td>Age group</td><td>Average</td><td>Usage rate</td><td>Cap</td></tr><tr><td>0-1</td><td>0.58</td><td>99.39%</td><td>90%</td></tr><tr><td>1-2</td><td>1.13</td><td>100.00%</td><td>90%</td></tr></table></td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</td><td>Yes</td></tr>
<tr><td>Details of monitoring equipment:</td><td>The values obtained are based on usage survey carried out annually.</td></tr>
<tr><td>Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?</td><td>NA</td></tr>
<tr><td>Calibration frequency /interval:

Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification</td><td>NA</td></tr>
<tr><td>Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?</td><td>NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/</td></tr>
<tr><td>Company performing the calibration (internal or external calibration):</td><td>NA</td></tr>
<tr><td>Did calibration confirm the proper functioning of monitoring equipment? (Yes / No):</td><td>NA</td></tr>
<tr><td>Is (are) calibration(s) valid for the whole reporting period?</td><td>NA</td></tr>
<tr><td>If applicable, has the reported data been cross-checked with other available data?</td><td>Yes, the reported data in MR has been compared with survey records, and ER sheet /02/.</td></tr>
<tr><td>How were the values in the monitoring report verified?</td><td>The values of usage rate provided in the monitoring report has been verified in line with the good practice requirement based as per table 1 of the REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING’ in context of determination of the operational biogas digesters.

As per survey 100% systems are installed but ER calculation is done considering good practice as per</td></tr>
</table>

	table 1 of REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING V.2.0. Moreover, in terms of conservativeness 90% usage rate is deemed acceptable.
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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Project technology-days in the project database for project scenario p through year y ($\mathbf{N_{p,y}}$)
Measuring frequency/Time Interval:	Continuous
Reporting frequency:	Continuous
Reported value:	Np,y Sistema 1,596,712 Np,y Stoves 0 – 1: 1,441,094 1 – 2: 155,618 Total: 1,596,712
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The number of biodigesters and biogas stoves is recorded in the selling database, as is the number of operational days of the system.
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration,	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/

does the selected frequency represent good monitoring practise?	
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with ER sheet.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (As in monitoring plan of GS PD):	CH_4 emission factor for livestock category T, baseline ($EF_{awms,T,b}$)
Measuring frequency/Time Interval:	Annually
Reporting frequency:	Annually
Reported value:	The values for $EF_{awms,T,b}$ range from 0.00 to 0.09 depending on factors such as operating days, MS and MCF For Dairy Cow: 0.00 – 0.08 tCH4 per animal per operational days For Buffalo: 0.00 – 0.09 tCH4 per animal per operational days For Other Cattle: 0.00 – 0.05 tCH4 per animal per operational days For Swine: 0.00 – 0.02 tCH4per animal per operational days

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The values are calculated using equation (2) of the PDD.
Is the accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practices?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records /08/ and the ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**

Data / Parameter: (as in monitoring plan of GS DD):	CH_4 emission factor for livestock category T, project ($EF_{awms,T,p}$)
Measuring frequency/Time Interval:	Annually
Reporting frequency:	Annually
Reported value:	The values for $EF_{awms,T,b}$ range from 0.00 to 0.144 depending on factors such as operating days, MS and MCF For Dairy Cow: 0.00 – 0.133 tCH4 per animal per operational days For Buffalo: 0.00 – 0.144 tCH4 per animal per operational days For Other Cattle: 0.00 – 0.077 tCH4 per animal per operational days For Swine: 0.00 – 0.030 tCH4per animal per operational days
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The values are calculated using equation (2) of the PDD.
Is the accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practices?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm the proper functioning of monitoring equipment? (Yes / No) :	NA
Is (are) calibration(s) valid for the whole reporting period?	NA

If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records /08/ and the ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Leakage in project scenario p during year y ($LE_{p,y}$)
Measuring frequency/Time Interval:	Every 2 years
Reporting frequency:	Every 2 years
Reported value:	117.23 tCO_2e
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value for leakage due to transportation is calculated using Greenhouse Gas Emissions Calculator, available here: https://unfccc.int/documents/271269
Is the accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA

Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practices?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm the proper functioning of monitoring equipment? (Yes / No) :	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records /08/ and the ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	% Beneficiaries reporting air inside the home is cleaner
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	85.1%
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	NA

Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the monitoring survey records /08/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Country or province/state where project is located
Measuring frequency/Time Interval:	Single monitoring campaign
Reporting frequency:	Single monitoring campaign

Reported value:	India
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the monitoring survey records /08/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**

Data / Parameter: (as in monitoring plan of GS DD):	Women with access to technology
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	36,255
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is obtained as a result of monitoring survey results
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the monitoring survey records /08/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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	NA

plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Data / Parameter: (as in monitoring plan of GS DD):	Reported time saved due to use of biogas
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	9.9 hours per month per household
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is obtained from monitoring survey results
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the monitoring survey records /08/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Number of women employees participating in the project
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	20
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Human Resources department uses the application BambooHR to store evidence and will ensure veracity and accuracy of the information.
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA

Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the employment records /10/, HR Records /21/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Number of connections of clean and renewable energy source
Measuring frequency/Time Interval:	Continuous
Reporting frequency:	Continuous
Reported value:	13,357
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is based on sales database /03/
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA

Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the sales database /03/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Number of persons getting access to a clean and renewable energy source
Measuring frequency/Time Interval:	Continuous
Reporting frequency:	Annual
Reported value:	72,158
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is based on sales database /03/
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring	NA

equipment represent good monitoring practise?	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the sales database /03/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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**
Data / Parameter: (as in monitoring plan of GS DD):	Number of staff trained
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	222

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	Human Resources department uses the application BambooHR to store evidence and will ensure veracity and accuracy of the information.
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the training records /14/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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
Data / Parameter: (as in monitoring plan of GS DD):	Permanent Jobs
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	91
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is based on Human Resource Records /21/
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the employment records /10/, HR records /21/ and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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	NA

accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	

Monitoring Parameter Requirement	**Assessment/ Observation by the VVB**
Data / Parameter: (as in monitoring plan of GS DD):	Hectares fertilized with bio-fertilizer
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	14,421
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is based on monitoring survey results
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with survey records, and ER sheet /02/.
How were the values in the monitoring report verified?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
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 the 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
Data / Parameter: (as in monitoring plan of GS DD):	Final use of bio-fertilizer
Measuring frequency/Time Interval:	Annual
Reporting frequency:	Annual
Reported value:	**Use of biofertilizer** / **%** Basic use / 71.7% Incorrect use / 2.1% Not used / 3.6% Proactive use / 22.6% Grand Total / 100.0%
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is based on monitoring survey results
Is accuracy of the monitoring equipment as stated in the GS DD? If the GS DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the GS DD? If the GS DD does not specify the frequency of calibration,	NA. QA/QC procedures stated in MR comply with registered and revised PDD /B03/ /20/

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
does the selected frequency represent good monitoring practise?	
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with survey records, and ER sheet /02/.
How were the values in the monitoring report verified?	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 the 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