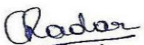


**Verification and certification report form for
GS CDM project activities**

(Version 04.0)

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

BASIC INFORMATION

Title and GS reference number of the project activity	Kolar Biogas Project (GS670)
Scale of the project activity	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
Version number of the verification and certification report	5.0
Completion date of the verification and certification report	22/01/2023
Monitoring period number and duration of this monitoring period	Monitoring period no: 6 Duration: (01/01/2021) to (31/03/2022) (Inclusive of both days)
Version number of the monitoring report to which this report applies	2.2
Crediting period of the project activity corresponding to this monitoring period	01/04/2012 to 31/03/2022 (Fixed)
Project participants	SKG Sangha Foundation myclimate – The Climate Protection Partnership
Host Party	India
Applied methodologies and standardized baselines	AMS.I.C – “Thermal energy production with or without electricity” ver. 18 AMS.I.E – “Switch from Non-Renewable Biomass for Thermal Applications by the User” ver.3 AMS.III.R – “Methane recovery in agricultural activities at household/small farm level” ver.1
Mandatory sectoral scopes	Sectoral Scope 1 and 13
Conditional sectoral scopes, if applicable	NA
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	70,284 tCO ₂ e (This is the ex-ante emissions for the period of 15 months which is the monitoring period).
Certified amount of GHG emission reductions or GHG removals for this monitoring period	59,453 tCO ₂ e
Name of the VVB	4K Earth Science Private Limited
Name, position and signature of the approver of the verification and certification report	 Chandrakala R

	Director
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SECTION A. Executive summary

4K Earth Science Private Limited (4KES) has been commissioned by “Foundation myclimate – The Climate Protection Partnership” to perform an independent verification of its registered GS VER project “Kolar biogas project”, GS Ref # GS670 for the reported GHG emission reductions for the given monitoring period 01/01/2021 – 31/03/2022 (both dates included). The GS VER projects must undergo independent third-party verification and certification of emission reductions as the basis for issuance of Verified Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

- (a) The registered CDM PDD & GS PDD
- (b) The approved methodology mentioned in the GS PDD
- (c) The registered monitoring plan
- (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board
- (e) Applicable Gold Standard tool kit
- (f) CDM Validation and Verification Standard (VVS)
- (g) All information and references relevant to the project activity's resulting in emission reductions
- (h) Information related to monitoring of SD parameters

The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

4KES has based on the recommendations in the latest version of CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Description of project:

The project activity is the installation of biogas plants (digesters) of 2 m³ or 3 m³ capacity each for single households in five Taluks – Srinivasapur, Kolar, Mulbagal, Malur, and Bangarapet in Kolar District, Karnataka India. The biogas units will be fed by cattle dung generated from the households. The biogas stoves will replace the traditional fire wood stoves and kerosene used for cooking and heating purposes.

In baseline situation, households used traditional fire wood stove and kerosene which is inefficient. In the project situation the biogas stoves are used for cooking and hence completely avoiding the usage of traditional stoves which results in savings in non-renewable biomass and kerosene. Thereby, it avoids the related CO₂ emission from the avoidance of non-renewable biomass and kerosene used in cooking. The PP planned to install 9,380 biogas units out of which 7,888 units were commissioned at the end of 6th monitoring period i.e, 31/03/2022.

Methodology:

4KES follows a rule-based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of GS/CDM Accreditation Standard. Subsequently, after the contract is signed, the Gold Standard Verification work plan of the project activity is made available at Gold Standard registry in accordance with Gold Standard rules.

A desk review of the project documentation is undertaken, which is followed by an onsite visit and interviews by the members of verification team in accordance with the latest version of GS/CDM AS. The verification

protocol is filled by the verification team that is based on standard auditing practices and latest version of CDM VVS, to capture the assessment of applicable CDM & GS requirements viz., latest version of CDM Project Standard, applicable GS toolkit, registered CDM PDD & GS-PDD applied methodology/ies and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities (CARs/CLs), if any. The verification protocol is an internal document, and is available on request. After successful closure of findings (CARs/CLs), the draft verification report is prepared which went through Independent technical review as per 4KES internal procedures and the TR comments were given for any gaps in audit findings. After closure of the TR comments, final verification report is prepared then followed by final approval for the decision made. The approved verification report is given to PP which shall be submitted for request for issuance.

Following are the major milestones for the verification under consideration.

Verification contract	12/08/2022
On site verification	07/03/2023-09/03/2023
Draft Verification Report	22/03/2023
Final Verification Report	21/11/2023

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader/ Verifier	IR	S R	Anand	Central Office	X	X	X	X
2.	Team Member	IR	Jithamanyu D V	Ganesh	Central Office	X	X	X	X
3.	Technical Expert TA (15.1)	EI	Rao	Koteswar	Central Office	X	X	X	X

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Ma Paa	Puratchikkanal	Central
2	Approver	IR	R	Chandrakala	Central

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Wrong data collection/misinterpretation of household situation	Low	It's not complicated monitoring process. Appropriate trainings are	By means of site visit check of actual situation to sample number of households.

			conducted for the monitoring personnel.	
2	Transfer of data from sampling survey sheet to ER sheet	Low	Possible human error during transfer of data to ER sheet	Thorough cross-check required on the transfer of data from survey sheets to the ER sheet
3	Error in ER calculations	High	The sample size was large, hence increasing the chances of error in ER calculation	The ER calculations were checked for accuracy.

C.2. Consideration of materiality in conducting the verification

The prescribed thresholds for materiality, as per §326 of CDM VVS for PA,

Prescribed range of Ers/annum	>500,000	300,000-500,000	300,000	SSC Pas	MSC Pas
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the project activity under current monitoring period is 2% as project activity is large scale project activity with the emission reduction less than 2%.

	MR Version (Draft)	MR Version (Final)
Emission reductions/annum	59,466 tCO ₂ e	59,453 tCO ₂ e
Identified Threshold	5.0%	5.0%

The impact of errors observed during verification for each monitoring parameter on the emission reduction calculation is provided below:

Parameter	Verification approach	Error identified	Corrected	Extrapolated error for population size (Qty and %)	Within Threshold
N _{operating}	Complete data check	No error identified	NA	No Impact	Yes
H _{stove}	Complete data check	No error identified	NA	No Impact	Yes
F _{kerosene, project}	Acceptance sampling	No error identified	NA	No Impact	Yes
B _{biomass, project}	Complete data check	No error identified	NA	No Impact	Yes
B _{biomass, non-project}	Checking survey results	No error identified	NA	No Impact	Yes
N _(T)	Complete data check	No error identified	NA	No Impact	Yes
B _{manure, generated}	Complete data check	No error identified	NA	No Impact	Yes
B _{manure, fed}	Complete data check	No error identified	NA	No Impact	Yes
Application of sludge	Complete data check	No error identified	NA	No Impact	Yes

No error on the values of the monitoring parameters is found. The change in the emission reduction between draft and final MR is due to the correction in the ER calculation. Please refer the CARs & CLs raised in the Appendix 4.

SECTION D. Means of verification

D.1. Desk/document review

The verification is performed primarily as a desk review of the documents submitted at various stages of assessments. The review is performed by assessment team using verification protocols (checklists). The assessment team cross-checked the information provided in the MR and information from sources other than those used, if available, and also conducts independent background investigations. 4KES conducted a desk review, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'Appendix 3' of this report.

D.2. On-site inspection

Duration of on-site inspection: 07/03/2023 to 09/03/2023				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening Meeting, Office Inspection, Verification of monitoring records, interviews and database inspection	SKG SANGHA Office	07/03/2023	Anand S R Ganesh Jithamanyu D V Koteswar Rao
2	Visit to sampled of households	SKG SANGHA Office	07/03/2023 to 09/03/3023	Anand S R Ganesh Jithamanyu D V Koteswar Rao
3	Closing meeting	Beneficiary households,	09/03/2023	Anand S R Ganesh Jithamanyu D V Koteswar Rao

D.3. Interviews

No.	Interviewee			Date	Subject
	Last name	First name	Affiliation		
1.	A.V	Rajanna	SKG Sangha	07/03/2023 to 09/03/3023	- General aspects of the project - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the Monitoring Maintenance
2	N.V.	Jagadeesh	SKG Sangha	07/03/2023 to 09/03/3023	
3	S.K	Umesh	SKG Sangha	07/03/2023 to 09/03/3023	
End Users					
4	M	Manjula	B269	07/03/2023 to 09/03/3023	
5		Shankamma	B263	07/03/2023 to 09/03/3023	
6		Savithamma	B266	07/03/2023 to 09/03/3023	
7		Saraswathamma	B268	07/03/2023 to 09/03/3023	
8	K	Hemavathi	B627	07/03/2023 to 09/03/3023	
9	A.V.	Yashodamma	B682	07/03/2023 to 09/03/3023	
10		Yashodamma	B61	07/03/2023 to 09/03/3023	
11		Lakshmidamma	B468	07/03/2023 to 09/03/3023	

12		Sunitha	B64	07/03/2023 to 09/03/3023	<ul style="list-style-type: none"> - Data analysis - ER Calculations - MR editorial issues - Verification of monitored data - Awareness about ownership of VERs - Working condition of digester unit - SD parameter verification
13	N	Jothi	C215	07/03/2023 to 09/03/3023	
14		Amaravathi	C216	07/03/2023 to 09/03/3023	
15		Kamala Bai	C219	07/03/2023 to 09/03/3023	
16		Naveen	C611	07/03/2023 to 09/03/3023	
17		Lakshmammm a	C262	07/03/2023 to 09/03/3023	
18		Nagamma	C243	07/03/2023 to 09/03/3023	
19		Manjulamma	C535	07/03/2023 to 09/03/3023	
20		Thimakka	C537	07/03/2023 to 09/03/3023	
21		Sharadamma	C630	07/03/2023 to 09/03/3023	
22		Parvathamma	A271	07/03/2023 to 09/03/3023	
23		Sumithamma	A269	07/03/2023 to 09/03/3023	
24		Shubhalakshmi	A274	07/03/2023 to 09/03/3023	
25	B.K.	Prema	A273	07/03/2023 to 09/03/3023	

During the site visit, the verification team interviewed the biogas users randomly. Apart from acceptance sample survey explained below section, the other questions asked by the verification team and the summary of reply received from the stakeholders are given below:

Questions asked by verification team	Summary of Response by Stakeholders/end users
Is the biogas system in operating conduction?	All end users confirmed the biogas system in operating condition now.
How many cattle you have?	Verification team received varied responses from each household based on the actual data
Are you aware that the project claims emission reduction and the ownership of the Ers are with SKG Sangha?	All the end users aware that the all the rights of emission reduction are with SKG Sangha as the bio digester was constructed by SKG Sangha at free of cost. They also confirmed about the agreement signed with SKG Sangha for giving away the emission reduction rights to SKG Sangha.
Is there any repairs done to your digester or stove?	Few households confirmed that some minor repairs are done during monitoring period.
If you have any issue with the device/project, you contact whom?	All households confirmed that they have the contact number of the respective Area supervisor of SKG Sangha and for any requirement they can contact the Area Supervisor
Is indoor smoke reduced due to the use of biogas unit?	All the households confirmed reduction in the indoor smoke and thereby reduction in health issues ie, eye related issues, respiratory issues.
Is cooking time reduced due to use of biogas unit?	All the households confirmed reduction in cooking time.
Are you trained by the SKG team?	All households confirmed they have been received training from SKG Sangha
What are the other benefits of biogas unit?	The summary of the other benefits mentioned by households are:

	<ul style="list-style-type: none"> • Easy cooking • Reduction in fuelwood collection time & cooking time • Clean home • Clean vessel • Better lifestyle
Do you have any issue with the project?	No households mentioned any issues with the project.

D.4. Sampling approach

During the on-site verification a sampling approach has been used by the verification team to verify the reported values for the monitored parameters as listed in section D.2 of the MR which are determined through sample survey by PP.

For the determination of DOE’s acceptance sample size, verification team assumed the following factors:

- Acceptable quality level (AQL) or the Level of Assurance- 1.0% (i.e. the proportion of discrepancies between the project participants’ sample records and the DOE sample that are acceptable up to 1.0% limit)
- Unacceptable Quality Level (UQL) – 20% (i.e., the proportion of discrepancies between the project participants’ sample records and DOE sample records that are unacceptable above 20% limit)
- Producer risk -5% (i.e., there is 5% chance that the DOE will wrongly reject the project participants’ records of acceptable quality)
- Consumer risk -5% (i.e., there is 5% chance that the DOE will wrongly accept the project participants’ records of records of unacceptable quality)

Verification team has determined acceptance sample size for all the sample survey parameters based on the standard “Sampling and surveys for CDM project activities and programmes of activities” version 9. From the above assumed factors, the verification team determined the minimum sample size (n) as 22 and acceptance number I as 1. The same is intimated to PP prior to the site visit. The actual number of sample size where the acceptance survey was done given below:

Parameters	Total Population	PP’s sample size	Acceptance sample size	Acceptance Number	Sampling method used
N _{operating}	7,888	653	22	1	simple random sample
H _{stove}	7,888	653	22	1	simple random sample
F _{kerosene, project}	7,888	653	22	1	simple random sample
B _{biomass, project}	7,888	653	22	1	simple random sample
B _{biomass, non-project}	infinite	104	22	1	simple random sample
N _(T)	7,888	653	22	1	simple random sample
B _{manure, generated}	7,888	653	22	1	simple random sample
B _{manure, fed}	7,888	653	22	1	simple random sample
Application of sludge	7,888	653	22	1	simple random sample

During site visit, verification team visited the selected sample households and interviewed the biogas plant user to check the data reported by PP. The result of the survey is given below:

Parameters	DOE Sample size	No of PP’s record beyond unacceptable level	Accepted / Rejected
N _{operating}	22	0	Accepted

H _{stove}	22	0	Accepted
F _{kerosene, project}	22	0	Accepted
B _{biomass, project}	22	0	Accepted
B _{biomass, non-project}	22	0	Accepted
N _(T)	22	0	Accepted
B _{manure, generated}	22	0	Accepted
B _{manure, fed}	22	0	Accepted
Application of sludge	22	0	Accepted

Verification team finds no error in the PP's survey records. Hence verification team accepts all the data determined through sample survey by PP

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	-	-
Compliance of the project implementation and operation with the registered PDD	-	1	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	2	6	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
Assessment of reported sustainable development co-benefits	-	2	-
Stakeholder Inputs & Legal Dispute	-	-	-
Others (please specify)	-	1	-
Total	2	10	

SECTION E. Verification findings

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

Means of verification	The project is registered under GS4GG, and PP used GS monitoring report template, version 1.1. All the sections of the form were filled as per the GS4GG guidelines and gave all the relevant details.
Findings	No findings
Conclusion	Monitoring report was found to be completed and using the valid version i.e. version 1.1 of the GS MR, hence the monitoring report is complying with the monitoring report form.

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

The verification team has reviewed the validation report & previous verification report and observed that there the following forward Action Request (FAR) was raised during validation.

As per PDD, version 14, 70:30 ratio has been considered for installation of 2 m³ units and 3 m³ units. Estimated emission reduction has been calculated based on the proposed ratio of 2 m³ units and 3 m³ units installed. Since the ratio influence the emission reduction, the same needs to be checked during verification."

PP was asked to justify the same for this monitoring period under FAR-01 in table 1 of Appendix 4 below. As per the response from PP the following is confirmed:

The monitoring report mentions the actual number of units installed. Though the actual implementation is not in line with the schedule mentioned in the PDD, the emission reduction is calculated based on the actual number of units installed. Hence, the verification team found the same to be acceptable.

Though the actual ratio of 2 m³ units and 3 m³ units is not consistent with the ratio considered in the registered PDD, the emission reduction is calculated based on the actual ratio of 2 m³ units and 3 m³ units installed. Hence, the verification team found the same to be acceptable.

The FAR raised in the previous verification report is closed in this verification.

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

Means of verification	<p>The verification team determined the conformity of the actual project activity and its operation with the validated project design document. Verification team has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed CDM project activity proposed in the registered PDD/3/ are in place, and that the project participants have operated the CDM project activity as per the registered PDD/3/.</p> <p>The verification team has checked the information in the monitoring report and compared against the revised PDD.</p> <p>During the onsite inspection, the verification team has checked the project locations, implementation, technology applied, project equipment, and monitoring system against the information in the revised PDD. Interviews with operational personnel and households and random samplings have been carried out.</p>
Findings	<p>CAR10 was raised and closed successfully.</p>
Conclusion	<p>The verification team has reviewed the biogas units commissioning records, application forms, end user agreements/14/ and non-working & repair log records/18/. The verification team has observed at the site that all physical locations of the biogas units on sample basis and found that the details are correctly matching with the monitoring report and monitoring records maintained by PP. The type of the biogas provided and the locations are consistent with the revised PDD. Thus, the verification team has concluded that the project activity was implemented and operated as per revised PDD. The verification team, based on the site visit and document review, was able to conclude that the project activity has been commissioned and implemented as per the revised PDD and that all physical features of the project are in place.</p>

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents¹

No temporary deviation from the registered monitoring plan is sought in this verification.

E.4.2. Corrections

No correction is sought in this verification.

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

There are no changes to the start date of the crediting period in this monitoring.

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).

E.4.4. Inclusion of a monitoring plan

Monitoring plan was already included in the approved PDD. Hence, not applicable.

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

No permanent changes or deviation in the registered monitoring plan is sought

E.4.6. Changes to the project design

No change in project design is sought.

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

Not applicable

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

Means of verification	The verification team checked compliance of project monitoring plan with the applied methodology (AMS I.C, version 18, AMS I.E, version 03, AMS III.R, version 01) and including applicable tools.
Findings	No findings
Conclusion	All parameters stated in the monitoring plan and the applied methodology has been fulfilled in the current monitoring report. All baseline emission parameters have been verified and found satisfactory. The discussion regarding each parameter has been elaborated in the further sections of this report. The monitoring plan as mentioned in the registered PDD is in accordance with the applied methodology. In the opinion of the verification team the monitoring report complies with the requirement of the registered PDD and applied methodologies in the context of the project activity.

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

Means of verification	The verification team has checked the ex-ante parameters and data stated in Section D.1 of MR and compared with section B.6.2 of the registered PDD whether all parameters fixed ex-ante for the crediting period have been applied correctly.		
	Ex-ante Parameter	Value	Consistent with the PDD/3/ & the source mentioned in it
	ρ_{kerosene}	0.817 kg/l	Yes
	$\text{NCV}_{\text{kerosene}}$	43.8 TJ/Gg	Yes
	$\text{EF}_{\text{kerosene}}$	71,900 Kg CO ₂ /TJ	Yes
	$\text{F}_{\text{kerosene, baseline}}$	24.12 L (liters)/year	Yes
	f_{NRB}	0.78	Yes
	$\text{B}_{\text{Biomass, Baseline}}$	4.74 Tonnes/year	Yes
	GWP_{CH_4}	28 t CO ₂ / t CH ₄	Yes
	$\text{VS}_{(T)}$	3.8 for dairy cow, 3.1 for buffalo, 1.4 for other cattle	Yes
	$\text{B}_{\alpha(T)}$	0.15 for dairy cattle, 0.1 for buffalo and other cattle	Yes
	$\text{MCF}_{\text{liquid}}$	80%	Yes
$\text{MCF}_{\text{liquid with crust}}$	50%		
$\text{MCF}_{\text{solid}}$	5%		

	MS_{liquid} MS_{liquid with crust} MS_{solid}	0.32 0.20 0.16	Yes
Findings	No finding		
Conclusion	The values of ex ante fixed parameters have been verified from the revised PDD/3/. Same has been crosschecked with the source mentioned in the PDD and found to be consistent. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values have been correctly applied in the calculation of emission reductions.		

E.6.2. Data and parameters monitored

Means of verification	<p>The verification team has determined whether the approved monitoring plan has been properly implemented and followed by the PP that the monitoring has been carried out in accordance with the approved monitoring plan; and determined whether all parameters including project emission parameters, baseline emission parameters and leakage parameters used for emission reduction calculation stated in the registered monitoring plan are monitored or used appropriately as per the revised PDD.</p> <p>During the verification all monitoring parameters listed in Section D.2 of MR were compared with section B.7.1 of the revised PDD have been verified with regard to the:</p> <ul style="list-style-type: none"> (i) appropriateness of the applied measurement / determination method, (ii) the correctness of the values applied for ER calculation, (iii) the accuracy, and applied QA/QC measures. <p>The monitored values are assessed as follows:</p> <p>N_{operating}: The parameter “number of units installed and operating” is monitored continuously (and recorded monthly). As and when the plant is commissioned the same is entered into the records of SKG Sangha. If any malfunction is found by staffs of the SKG Sangha through regular check-up or through complains by households, the same will be taken into records and the repair date also will be recorded/18/. The non-usage days will be deducted from the total monitoring period days for the calculation of emission reduction. Hence, the actual number of units installed is considered as N_{operating}:. Only if the plants are abandoned or not used by household permanently then the same will be deducted from the total number of units installed for the estimation of N_{operating}. The verification team checked the records/14/ and found that the total number of operating units during this monitoring period is 7931 and 7,888 respectively at the end of 2021 and at the end of crediting period. Verification team also verified all the documents i.e., application, end user agreement, completion certificate & payment receipt for 25 number of samples and found that all the details provided for the respective households in the excel sheet/2/ are matching. Hence, the value considered in the MR is correct.</p> <p>H_{stove}: ‘Annual hours of operation of an average system (hours of burner functioning)’ is measured through sample basis by the respective household member. The value taken is 1,299.02 h/y. Biogas hours per day for cooking and water heating are determined through sample survey and the total value is multiplied by number of days in the year to get the annual operating hours. All the sample records/15/ are verified by the verification team and found that the details provided in the monitoring sheet. Verification team also checked the same during site visit by surveying household randomly selected among the PP samples numbers and found that all the data are correct. No error is found. Hence The survey result shows that the digester produces enough biogas to substitute the previous energy needs. See excel file for year 2021-2022 – KLR 9_10 (Monitoring survey data sheet cell O673).</p> <p>F_{kerosene, project}: The “Annual amount of kerosene consumed by household after installation of biogas unit” is monitored through annual sample survey. Verification</p>
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team checked all the survey sheets of PP/15/. Also verification team interviewed 22 households in it randomly and found that households are no more using the kerosene and confirmed that the value provided by PP is correct. No error is found in the PPs data. Hence the value considered by PP (i.e., 00 litre/year) is found to be correct.

B_{biomass, project}: ‘Consumption of fuel wood in households participating in the project activities ’ is monitored through annual sample survey done by PP. Verification team checked all the survey sheets of PP. Also verification team surveyed 25 households in it randomly and confirmed that the value provided by PP is correct. No error is found in the PP’s data. The monitoring surveys have shown that 0.014 tonnes/year biomass is used by the biogas user project emissions related to use of firewood for cooking have to be considered in the emission reduction calculations (see section E.2 component 2: Non-renewable biomass component). For conservatism, the average value is taken. See excel file for year 2021-2022 – KLR 9_10 (Monitoring survey data sheet cell W676).

B_{biomass, non-project}: ‘Consumption of fuel wood for cooking in households not participating in the project activities’ is monitored through annual sample survey. Total biomass usage per day for cooking & water heating is determined through sample survey and the total value is multiplied with number of days in the year to determine the biomass consumption per year. PP has conducted sample survey of non-project households. 104 samples the survey in the project area. Verification team checked all the survey sheet of PP/16/. Also verification team surveyed 22 households in it randomly and confirmed that the value provided by PP is correct. No error is found in the PP’s data. Hence the value considered by PP)) is found to be correct.

N_(T): ‘Annual average animal population in a household (number of heads of dairy cow, buffalo and other cattle) is monitored through annual sample survey. Verification team checked all the survey sheets of PP/15/. Also verification team surveyed households in it randomly and confirmed that the value provided by PP is correct. No error is found in the PP’s data. Hence the average value considered by PP (2.723 for dairy cows, 0.137 for buffalos and 0.073 for other cattle)) is found to be correct.

B_{manure,generated}: ‘Average amount of animal manure generated per household per year’ is monitored through annual sample survey. Verification team checked all the survey sheet of PP/15/. Also verification team surveyed 22 households in it randomly and confirmed that the value provided by PP is correct. No error is found in the PP’s data. Hence the average value considered by PP () is found to be correct.

B_{manure,fed}: ‘Average amount of animal manure fed into biogas digester per year’ is monitored through annual sample survey. Verification team checked all 285 survey sheet of PP/15/. Also verification team surveyed 22 households in it randomly and confirmed that the value provided by PP is correct. No error is found in the PP’s data. Hence the average value considered by PP (ie, 16.60 tonnes for year 2021-2022) is found to be correct.

Application of sludge: ‘Proper application of the sludge from the biogas unit’ is monitored through annual sample survey. Verification team checked all 285 survey sheet of PP/15/. Also verification team surveyed 22 households in it randomly and confirmed that the value (100% for both the years) provided by PP is correct. No error is found in the PP’s data. PP has also conducted training programme for households in sludge treatment and application. The same is verified from the training records/17/ maintained by SKG Sangha. From the above assessment, the verification team concludes that the biodigester sludge is applied properly by the households which do not lead to anaerobic treatment.

The data/Parameters monitored for SDG 1, SDG 2,SDG3 ,SDG 4, SDG 4, SDG 5, SDG 7, SDG 8, SDG 12,SDG13, SDG 15 & SDG 17 are assessed under section E.9 below.

Findings	CAR09,CAR08,CAR07,CAR04,CL02 and CL01 has been raised and closed.
Conclusion	Corresponding to the §361 of VVS V2/12/, the team confirm that the monitoring has been carried out in accordance with the revised PDD ^{3/} . The monitoring system is in compliance with the information flow for the parameters as mentioned in monitoring plan in revised PDD ^{3/} . The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent.

E.6.2.1. Implementation of sampling plan

Means of verification	<p>The verification team checked whether the PPs have applied a sampling approach to determine the monitored parameters. For the parameters determined through sampling, the verification team checked the sampling approach followed for each monitoring parameters to confirm the sampling plan mentioned in the revised PDD and applied methodology.</p> <p>The following parameters are monitored through sampling:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Sample size required as per PDD^{3/}</th> <th>Actual sample size considered for survey^{1/}</th> <th>Is sample size sufficient?</th> </tr> </thead> <tbody> <tr> <td>B_{biomass, non-project}</td> <td>58</td> <td>104</td> <td>Yes</td> </tr> <tr> <td>H_{stove}</td> <td rowspan="7">162</td> <td rowspan="7">653</td> <td rowspan="7">Yes</td> </tr> <tr> <td>F_{kerosene, project}</td> </tr> <tr> <td>B_{biomass, project}</td> </tr> <tr> <td>N_(T)</td> </tr> <tr> <td>B_{manure,generated}</td> </tr> <tr> <td>B_{manure,fed}</td> </tr> <tr> <td>Application of sludge</td> </tr> </tbody> </table> <p>PP also monitored the following SDG parameters though sample survey also with the above parameters:</p> <ul style="list-style-type: none"> • Time and monetary savings • Annual Operating Hours • Reduction in incidence of hospitalization • Chemical fertilizers reduced <p>The verification team also checked the precision level from the survey data and confirmed that precision level achieved for all parameter is within the limit of 10%. Hence, the sample size considered for all the parameters are found to be OK.</p> <p>Verification team has conducted acceptance sampling to verify the parameter monitored through sampling. The verification team calculated the minimum sample size (n) as 22 and acceptance number (c) as 1 (considering AQL - 1%, UQL - 20%, producer risk – 5% & consumer risk – 5%). Verification team has done survey in randomly in 25 numbers of households (selected from the PP's sample population) and verified the PP's survey data.</p>	Parameter	Sample size required as per PDD ^{3/}	Actual sample size considered for survey ^{1/}	Is sample size sufficient?	B _{biomass, non-project}	58	104	Yes	H _{stove}	162	653	Yes	F _{kerosene, project}	B _{biomass, project}	N _(T)	B _{manure,generated}	B _{manure,fed}	Application of sludge
	Parameter	Sample size required as per PDD ^{3/}	Actual sample size considered for survey ^{1/}	Is sample size sufficient?															
B _{biomass, non-project}	58	104	Yes																
H _{stove}	162	653	Yes																
F _{kerosene, project}																			
B _{biomass, project}																			
N _(T)																			
B _{manure,generated}																			
B _{manure,fed}																			
Application of sludge																			
Findings	CAR05 and CAR06 is raised and closed																		
Conclusion	<p>Verification team concludes the following:</p> <ul style="list-style-type: none"> • The sample size considered for all the parameters (which are monitored through sampling basis) are found to be appropriate • The precision level achieved from the monitored data also confirms that the sample size considered for the monitoring is sufficient. • PP's sample population was selected in all the taluks proportionally based on the number units installed in the respective taluk. • The sampling plan is implemented correctly in accordance with the revised PDD. 																		

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

Means of verification	Not applicable as no monitoring equipment is involved.
Findings	NA
Conclusion	NA

E.8. Assessment of data and calculation of emission reductions or net removals**E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks**

Means of verification	<p>As per the methodology the emission reduction is directly calculated. Baseline & Project emissions are not calculated separately.</p> <p>The verification team has checked whether calculations of baseline GHG emissions calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan.</p> <p>In detail the following has been verified:</p> <p><u>Transparency:</u> It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</p> <p><u>Parameter consistency:</u> It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p> <p><u>Correctness:</u> It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.</p> <p><u>Completeness:</u> It has been checked whether all calculations are complete and without omissions</p> <p>The baseline emissions are calculated for the three components – (i) displacement of kerosene, (ii) displacement of non-renewable biomass and (iii) the capture and destruction of methane from animal manure. The equations applied for the determination of baseline GHG emissions is consistent with the revised approved PDD and methodology:</p> <p>The PDD values of $MS_{manure}(MS_{liquid}, MS_{liquid\ with\ crust}, MS_{solid})$ are estimated based on Fraction of livestock category T's manure handled using manure management system S in climate region k in baseline (management systems considered are liquid/slurry management system, liquid/slurry with natural crust cover system and solid storage) and percentage of animal confinement per day monitored through baseline survey. However as per PDD/3/, the actual confinement time of animal should be considered for the emission reduction calculation. In line with that, PP has estimated animal confinement time through monitoring sample survey which is estimated to be 23.47 hrs/day for 2021-2022 against the baseline estimated value of 17.68 hrs/day (ie, 74.42%). So, the final baseline emission from animal manure management is adjusted with the factor of 1.33 for the year 2021 (calculated for the year 2021) and 1.33 for the year 2022 (calculated for the year 2022 from 23.47/17.67). The verification team checked the calculation and found to be correct.</p> <p>From the calculated baseline emission from the formula, the baseline emission per day is calculated. The project emission per day is multiplied with the actual number of operating days (average operating days of all biogas units during the monitoring period) to estimate the actual baseline emission. Since the baseline emission is adjusted with actual number of operating days, the verification team found this to be appropriate.</p> <p>PP has submitted the calculation in the excel sheet/2/. The baseline calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the revised PDD/3/ and the selected methodologies/6/.</p>
Findings	No findings raised .

Conclusion	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> • The calculations of baseline emission have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. The verification team is able to confirm that the parameters are in line with the VVS for PA, Version 02 para 373 • The emission factor applied is an ex-ante value valid for the fixed crediting period. • Any assumptions used in emission or removal calculations have been justified. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. <p>Hence, the total baseline reduction reported in the monitoring report for the monitoring period is verified to be correct and the summary is given below:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Vintage</th> <th>$\sum BE_{b,y}$ (tCO₂e)</th> </tr> </thead> <tbody> <tr> <td>2022 (01/01/2021 to 31/03/2022)</td> <td>66,908</td> </tr> <tr> <td>Total</td> <td>66,908</td> </tr> </tbody> </table>	Vintage	$\sum BE_{b,y}$ (tCO ₂ e)	2022 (01/01/2021 to 31/03/2022)	66,908	Total	66,908
Vintage	$\sum BE_{b,y}$ (tCO ₂ e)						
2022 (01/01/2021 to 31/03/2022)	66,908						
Total	66,908						

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

Means of verification	<p>The verification team has checked whether calculations of project GHG emissions calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan In detail the following has been verified:</p> <p><u>Transparency</u>: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</p> <p><u>Parameter consistency</u>: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p> <p><u>Correctness</u>: It has been checked whether the applied formulae and methods for calculating project emissions are in accordance with the monitoring plan and the approved methodology.</p> <p><u>Completeness</u>: It has been checked whether all calculations are complete and without omissions</p> <p>The project emissions are calculated for the three components – (i) kerosene usage, (ii) non-renewable biomass usage and (iii) physical leakage of methane from digester. The equations applied for the determination of baseline GHG emissions is consistent with the revised approved PDD and methodology.</p> <p>As per the monitored values, no quantity of kerosene is used and some biomass is consumed in the project situation. Hence project emission due to kerosene, biomass consumption and physical leakage is calculated as 7,448.96 tCO₂ e.</p> <p>The project emission per day is multiplied with the actual number of operating days (average operating days of all biogas units during the monitoring period) to estimate the actual project emissions. Since the project emission is adjusted with actual number of operating days, the verification team found this to be appropriate</p> <p>PP has submitted the calculation in the excel sheet/2/. The baseline calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the revised PDD/3/ and the selected methodologies/6/.</p>
Findings	No finding

Conclusion	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> • The calculations of project emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. The verification team is able to confirm that the calculation are in line with the VVS for PA, Version 02 para 373. • The emission factor applied is an ex-ante value valid for the fixed crediting period. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. <p>Hence, the total project emission reported in the monitoring report for the monitoring period is verified to be correct.</p> <table border="1"> <thead> <tr> <th>Vintage</th> <th>$\sum PE_{b,y}$ (tCO_{2e})</th> </tr> </thead> <tbody> <tr> <td>2021-2022 (01/01/2021 to 31/03/2022)</td> <td>7448.968</td> </tr> <tr> <td>Total</td> <td>7448.968</td> </tr> </tbody> </table>	Vintage	$\sum PE_{b,y}$ (tCO _{2e})	2021-2022 (01/01/2021 to 31/03/2022)	7448.968	Total	7448.968
Vintage	$\sum PE_{b,y}$ (tCO _{2e})						
2021-2022 (01/01/2021 to 31/03/2022)	7448.968						
Total	7448.968						

E.8.3. Calculation of leakage GHG emissions

Means of verification	<p>As verified from the monitoring data, the biomass consumed in the non-project households is lower than the baseline fuel consumption. Also verification team checked with non-project households and confirmed that the no household used renewable energy before the project start which is now changed to non-renewable biomass. Hence the leakage is considered as zero.</p> <p>However, the project households used biomass for cooking during the nonoperating days. Hence the PP has monitored the non-operating days of the biodigester and deducted equivalent of emission reduction from the total emission reduction.</p> <p>For applied methodologies AMS I-C, AMS I-E and AMS-III.R./6/ if the energy generating equipment is transferred from another activity or if existing equipment is transferred to another activity, leakage is to be considered. The project does not involve any movable equipment and hence all the bio-digesters are built newly. Hence there is no equipment transfer happed in the project activity.</p>						
Findings	No findings						
Conclusion	<p>No leakage has to be considered during this MP, as from the non-project HHs surveyed/16/ to assess to the quantity of biomass consumed in the baseline survey and during the project, the consumption of firewood from cooking and for water heating in the non-project households is lower than in the baseline, and thus there is no leakage due to replacement of renewable energy-based cooking with NRB saved under the project in non-project households. However, leakage from usage of NRB by project households during the non-operating days of bio-digester is calculated as 5.62 tCO_{2e} which is verified and found to be correct. The verification team is able to confirm that the parameters are in line with the VVS for PA, Version 02 para 373.</p> <table border="1"> <thead> <tr> <th>Vintage</th> <th>$\sum LE_{b,y}$ (tCO_{2e})</th> </tr> </thead> <tbody> <tr> <td>2021-2022 (01/01/2021 to 31/03/2022)</td> <td>5.62</td> </tr> <tr> <td>Total</td> <td>5.62</td> </tr> </tbody> </table>	Vintage	$\sum LE_{b,y}$ (tCO _{2e})	2021-2022 (01/01/2021 to 31/03/2022)	5.62	Total	5.62
Vintage	$\sum LE_{b,y}$ (tCO _{2e})						
2021-2022 (01/01/2021 to 31/03/2022)	5.62						
Total	5.62						

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

Means of verification	<p>MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodologies as follows:</p> $ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y}$ <p>Where</p> <p>ER_y Emission reduction for total project activity in year y (tCO₂e/yr)</p> <p>$BE_{p,y}$ Baseline emissions for baseline scenario b in year y (tCO₂e/yr)</p> <p>$PE_{b,y}$ Project emissions for project scenario p in year y (tCO₂e/yr)</p> <p>$LE_{p,y}$ Leakage for project scenario p in year y (tCO₂e/yr)</p> <p>PP has submitted the calculation in the excel sheet/2/. The emission reduction calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the revised PDD/3/ and the selected methodologies/6/.</p>															
Findings	CAR02 was raised and closed successfully.															
Conclusion	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> The emission reduction is calculated as per the revised PDD and the applied methodology The emission reduction value reported in the PDD is verified to be correct. The summary of emission reduction are as below: <table border="1"> <thead> <tr> <th>Vintage</th> <th>$\sum BE_{b,y}$ (tCO₂)</th> <th>$\sum PE_{b,y}$ (tCO₂)</th> <th>$\sum LE_{b,y}$ (tCO₂)</th> <th>ER* (tCO₂)</th> </tr> </thead> <tbody> <tr> <td>2021-2022 (01/01/2021 to 31/03/2022)</td> <td>66,908</td> <td>7448.968</td> <td>5.62</td> <td>59,453</td> </tr> <tr> <td>Total</td> <td>66,908</td> <td>7448.968</td> <td>5.62</td> <td>59,453</td> </tr> </tbody> </table> <p>*rounded down values</p>	Vintage	$\sum BE_{b,y}$ (tCO ₂)	$\sum PE_{b,y}$ (tCO ₂)	$\sum LE_{b,y}$ (tCO ₂)	ER* (tCO ₂)	2021-2022 (01/01/2021 to 31/03/2022)	66,908	7448.968	5.62	59,453	Total	66,908	7448.968	5.62	59,453
Vintage	$\sum BE_{b,y}$ (tCO ₂)	$\sum PE_{b,y}$ (tCO ₂)	$\sum LE_{b,y}$ (tCO ₂)	ER* (tCO ₂)												
2021-2022 (01/01/2021 to 31/03/2022)	66,908	7448.968	5.62	59,453												
Total	66,908	7448.968	5.62	59,453												

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

Means of verification	<p>The verification team has checked whether the MR includes a comparison of actual values of the monitoring period with the estimations in the revised PDD/3/. Section E.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the revised PDD</p> <table border="1"> <tr> <td>Emission reduction estimated as per the revised PDD for period of 15 months. /3/</td> <td>Actual emission reduction achieved as per Monitoring report/1/</td> </tr> <tr> <td>70,284 t CO₂e</td> <td>59,453 t CO₂e</td> </tr> </table>	Emission reduction estimated as per the revised PDD for period of 15 months. /3/	Actual emission reduction achieved as per Monitoring report/1/	70,284 t CO ₂ e	59,453 t CO ₂ e
Emission reduction estimated as per the revised PDD for period of 15 months. /3/	Actual emission reduction achieved as per Monitoring report/1/				
70,284 t CO ₂ e	59,453 t CO ₂ e				
Findings	No finding				
Conclusion	The estimated emission reduction as per PDD and the actual emission reduction achieved for the monitoring period are correctly reported in the section E.5 of MR. Since the actual ER is less that estimated ER, hence no justification is required.				

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

Means of verification	The verification team has determined the VER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	No finding
Conclusion	The actual achieved emission reduction is less than the PDD estimation. Hence no justification is required.

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

Relevant SDG	SDG 1: 1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
Parameter description	Average time (hours) and money (Indian Rupee) saved per household per year due to fuel savings achieved by project biogas units.
Monitored Value	1. 302.4 hours per year/HH 2. 942.73 Rupees per year/HH
Means of verification	The Time and monetary savings compared to baseline is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in

	MR is correct. It is also cross-verified through interview with end user during the remote audit.														
Findings	No findings														
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.														
	<table border="1"> <thead> <tr> <th>Vintage</th> <th>Parameter</th> <th>Baseline Estimate</th> <th>Project Estimate</th> <th>Net Benefit</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2021-2022 (01/01/2021 to 31/03/2022)</td> <td>Time Saved</td> <td>0</td> <td>302.4 h/y</td> <td>302.4 h/y</td> </tr> <tr> <td>Money Saved</td> <td>0</td> <td>942.73 INR/y</td> <td>942.73 INR/y</td> </tr> </tbody> </table>	Vintage	Parameter	Baseline Estimate	Project Estimate	Net Benefit	2021-2022 (01/01/2021 to 31/03/2022)	Time Saved	0	302.4 h/y	302.4 h/y	Money Saved	0	942.73 INR/y	942.73 INR/y
Vintage	Parameter	Baseline Estimate	Project Estimate	Net Benefit											
2021-2022 (01/01/2021 to 31/03/2022)	Time Saved	0	302.4 h/y	302.4 h/y											
	Money Saved	0	942.73 INR/y	942.73 INR/y											

Relevant SDG	SDG 2: 2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size SDG 15: 15.1.1 Forest area as a proportion of total land area												
Parameter description	Proper application of the sludge from the biogas unit												
Monitored Value	5.68 tons/year												
Means of verification	“Proper application of the sludge from the biogas unit” is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in MR is correct. It is also cross-verified through interview with end user during the remote audit.												
Findings	No findings												
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.												
	<table border="1"> <thead> <tr> <th>Vintage</th> <th>Baseline value</th> <th>Project Value</th> <th>Net Benefit</th> </tr> </thead> <tbody> <tr> <td>2021-2022 (01/01/2021 to 31/03/2022)</td> <td>0</td> <td>5.68 tons/year</td> <td>5.68 tons/year</td> </tr> <tr> <td>Total</td> <td>0</td> <td>5.68 tons/year</td> <td>5.68 tons/year</td> </tr> </tbody> </table>	Vintage	Baseline value	Project Value	Net Benefit	2021-2022 (01/01/2021 to 31/03/2022)	0	5.68 tons/year	5.68 tons/year	Total	0	5.68 tons/year	5.68 tons/year
Vintage	Baseline value	Project Value	Net Benefit										
2021-2022 (01/01/2021 to 31/03/2022)	0	5.68 tons/year	5.68 tons/year										
Total	0	5.68 tons/year	5.68 tons/year										

Relevant SDG	SDG 2: 2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size SDG 4: 4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill SDG 17: 17.7.1 Total amount of approved funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies.
Parameter description	Total number of people trained on different aspects of the project
Monitored Value	1,791 beneficiaries (women) were trained individually
Means of verification	The training records of SKG Sangha/17/ are verified and found that the data reported in MR is correct.
Findings	No findings

Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.			
	Vintage	Baseline value	Project Value	Net Benefit
	2021-2022 (01/01/2021 to 31/03/2022)	0	1,791 beneficiaries	1,791 beneficiaries
	Total	0	1,791 beneficiaries	1,791 beneficiaries

Relevant SDG	SDG 3: 3.9.1 Mortality rate attributed to household and ambient air pollution SDG 13: Climate Action			
Parameter description	Annual hours of operation of an average system (hours of burner functioning)			
Monitored Value	1,299.02 h/y			
Means of verification	“Annual hours of operation of an average system (hours of burner functioning)” is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in MR is correct. It is also cross-verified through interview with end user during the remote audit.			
Findings	No findings raised			
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.			
	Vintage	Baseline value	Project Value	Net Benefit
	2021-2022 (01/01/2021 to 31/03/2022)	0	1,299.02 h/y	1,299.02 h/y
	Total	0	1,299.02 h/y	1,299.02 h/y

Relevant SDG	SDG 3: 3.9.1 Mortality rate attributed to household and ambient air pollution			
Parameter description	Percentage project households confirming reduction in incidence of hospitalization			
Monitored Value	100%			
Means of verification	“Percentage project households confirming reduction in incidence of hospitalization” is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in MR is correct. It is also cross-verified through interview with end user during the remote audit.			
Findings	No findings raised			
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.			
	Vintage	Baseline value	Project Value	Net Benefit
	2021-2022 (01/01/2021 to 31/03/2022)	0	100%	100%
	Total	0	100%	100%

Relevant SDG	SDG 3: 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) SDG 13: Climate Action		
Parameter description	Average amount of animal manure fed into biogas digester per year.		
Monitored Value	16.60 tons/year		
Means of verification	"Average amount of animal manure fed into biogas digester per year" is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in MR is correct. It is also cross-verified through interview with end user during the remote audit.		
Findings	No findings raised		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	16.60 tons/y
	Total	0	16.60 tons/y
	Net Benefit		16.60 tons/y

Relevant SDG	SDG 3: 3.9.3 Mortality rate attributed to unintentional poisoning		
Parameter description	Reduction in quantity of chemical fertilizers used in the agricultural soils		
Monitored Value	129.21 kg/year		
Means of verification	The reduction in quantity of chemical fertilizer used in agriculture soil is monitored through sample survey/15/. The sample survey sheets are verified and found that the data reported in MR is correct. It is also cross-verified through interview with end user during the remote audit.		
Findings	No findings raised		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	129.21 kg/year
	Total	0	129.21 kg/year
	Net Benefit		129.21 kg/year

Relevant SDG	SDG 5: 5.A.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure		
Parameter description	Number of women trained by SKG Sangha to assure an efficient use of the biogas units		
Monitored Value	1,791 beneficiaries		
Means of verification	All the woman beneficiaries are trained by PP. The same is verified through training records/17/ and cross verified through the interview with end users.		
Findings	No finding		

Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.			
	Vintage	Baseline value	Project Value	Net Benefit
	2021-2022 (01/01/2021 to 31/03/2022)	0	1,791 beneficiaries	1,791 beneficiaries
	Total	0	1,791 beneficiaries	1,791 beneficiaries

Relevant SDG	SDG 7: Afford 7.1.2 Proportion of population with primary reliance on clean fuels and technology			
Parameter description	Number of persons that benefit from efficient and clean technologies			
Monitored Value	36,487 persons benefit by the project			
Means of verification	All the households the biogas systems are in operation are considered to be the households that benefit from efficient and clean technologies. Hence, the total family members in all the project households are considered to be Number of persons that benefit from efficient and clean technologies. The project database is verified and found that the details provided by PP are correct.			
Findings	No finding			
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.			
	Vintage	Baseline value	Project Value	Net Benefit
	2021-2022 (01/01/2021 to 31/03/2022)	0	36,487 persons	36,487 persons
	Total	0	36,487 persons	36,487 persons

Relevant SDG	SDG 8: 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities			
Parameter description	Number of jobs offered			
Monitored Value	6 people employed under the project during the last monitoring period (Based on latest SKG Sangha records).			
	<ol style="list-style-type: none"> 1. S.K. UMESHA 2. A.V. RAJANNA - Field staff 3. B. AKIL KUMAR - Field staff 4. N.V. JAGADISH - Field staff 5. T. AMARA NARAYANA REDDY - Field staff 6. VENKATA KRISHNA REDDY - Field staff 			
Means of verification	The employment records/19/ of SKG Sangha is verified and found that the details provided by PP are correct.			
Findings	No finding			

Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	6 people
	Total	0	6 people

Relevant SDG	SDG 8: 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities		
Parameter description	Annual average wage of people employed (men and women) due to the project activity.		
Monitored Value	212,800 Rupees per year		
Means of verification	The employment records/19/ of SKG Sangha is verified and found that the details provided by PP are correct.		
Findings	No finding		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	212,800 INR/y
	Total	0	212,800 INR/y

Relevant SDG	SDG 12: 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP		
Parameter description	Fuel savings in % achieved by project technologies compared to baseline.		
Monitored Value	99.71 %		
Means of verification	The fuel wood consumption in baseline survey and project survey are verified and found that the fuel wood consumption in baseline and project consumption reported by PP is found to be correct. Also the percentage of fuel wood saving is determined through difference between baseline fuel wood consumption and project fuel wood consumption. The calculation is found to be correct.		
Findings	No finding		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	99.71 %
	Total	0	99.71 %

Relevant SDG	SDG 12: 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP		
Parameter description	Annual amount of kerosene consumed by household after installation of biogas unit		

Monitored Value	0.0		
Means of verification	The fuel wood consumption in baseline survey and project survey are verified and found that the fuel wood consumption in baseline and project consumption reported by PP is found to be correct. Also the percentage of fuel wood saving is determined through difference between baseline fuel wood consumption and project fuel wood consumption. The calculation is found to be correct.		
Findings	No finding		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	0
	Total	0	0
			Net Reduction
			0
			0

Relevant SDG	SDG 15: 15.1.1 Forest area as a proportion of total land area		
Parameter description	Amount of wood savings achieved by the project per year expressed in wood equivalents.		
Monitored Value	4.73 tons/year/HH		
Means of verification	The fuel wood consumption in baseline survey and project survey are verified and found that the fuel wood consumption in baseline and project consumption reported by PP is found to be correct. Also, the amount of fuel wood saving is determined through difference between baseline fuel wood consumption and project fuel wood consumption. The calculation is found to be correct.		
Findings	No finding		
Conclusion	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.		
	Vintage	Firewood usage (kg/day/household)	
		Baseline value	Project Value
	2021-2022 (01/01/2021 to 31/03/2022)	0	4.73 tons/year/HH
	Total	0	4.73 tons/year/HH
			Net Reduction
			4.73 tons/year/HH
			4.73 tons/year/HH

E.10. Stakeholder Inputs & Legal Dispute

Means of verification	<p>All the inputs from stakeholders are related to repair and maintenance of biogas system. PP attended all the cases and resolved the same. There are no other grievances reported by Stakeholders during the current or previous monitoring period. Verification team checked the complaints register and confirmed that all the cases are resolved by repairing stove, component and digesters.</p> <p>Verification team checked with PP whether any legal consent or dispute arise during the monitoring period and PP also confirmed that there are no such legal contests or dispute that has arisen with the project during the monitoring period. Verification team also interviewed stakeholders and independently checked</p>
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	through Google to check any legal dispute ongoing with PP and found no such legal dispute is pending.
Findings	No finding
Conclusion	The verification team confirms the following: <ul style="list-style-type: none"> • The only grievances received from biogas users are related to repairs & maintenance of stoves. All the cases received during the monitoring period are attended and resolved during the monitoring period itself. • No other grievances received during the current or previous monitoring period • No legal consent or dispute raised during the monitoring period.

SECTION F. Internal quality control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by 4KES are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable Gold Standard & CDM requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team. The independent technical reviewer(s) may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before submit final report to Client/Gold Standard. The final approval decision is taken by the Head of the DOE/Director.

The final decision is authorized by the Director, 4KES, once the report is finalized by the Head of the DOE/DOE Manager.

SECTION G. Verification opinion

The verification team confirms that the the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and on-site visit, the data submitted by PP was cross verified with the values mentioned in the emission reduction sheet/2/ and monitoring report/1/. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the approved revised PDD/3/.

Evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined in section E.6 above. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in **59,453 tCO₂e** emission reductions during period 01/01/2021 to 31/03/2022.

SECTION H. Certification statement

4K Earth Science Private Limited has been contracted by “Foundation myclimate – The Climate Protection Partnership” to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported and the contribution to sustainable development indicators from the GS Project activity “Kolar biogas project” GS Reference Number GS670 for the monitoring period 01/01/2021 to 31/03/2022 (including both dates) in the Monitoring Report Version 02.1 (first version) dated 01/08/2022.

The verification is based on the revised PDD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Gold Standard requirements, Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

The management of the ‘SKG Sangha’ and ‘Foundation myclimate – The Climate Protection Partnership’ are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions

& monitoring of SD parameters on the basis set out within the project Final Monitoring Report Version 02.2 dated 13/09/2023. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'SKG Sangha' and 'Foundation myclimate – The Climate Protection Partnership'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 02.2 dated 13/09/2023.

In our opinion the GHG emissions reductions reported for the project activity are fairly stated in the Monitoring Report (final) 02.2 dated 13/09/2023. 4KES based on outcome of verification activities, certifies in writing that, during the monitoring period 01/01/2021 to 31/03/2022 (including both days), the registered GS PA “Kolar biogas project” in the registered GS PA achieved the verified amount of **59,453 tCO₂e** reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PA.

The Verified and certified impacts during the monitoring period 01/01/2021 to 31/03/2022 (including both dates) is stated below:

	Amount	Unit
Baseline emissions (BE)	66,908	tCO ₂ e
Project emissions (PE)	7448.968	tCO ₂ e
Leakage emissions (LE)	5.62	tCO ₂ e
Verified emission reductions (VERs)	59,453	tCO₂e

As observed from the table below we can see that the amount of actual emissions achieved is more than 15 % less than the amount of emissions indicated e-ante for the monitoring period of 15 months and this can happen due to migration of end users, selling of cattle ,etc which result in the project not being able to operate in its theoretical peak thus this is found to be appropriate.

Ex-ante Emissions (15 Months Period)	Actual Emissions achieved (15 Months Period)	Difference (Percentage)
70,284 tCO ₂ e	59,453 tCO ₂ e	-15.4%

Appendix 1. Abbreviations

Abbreviations	Full texts
4KES	4K Earth Science Pvt. Ltd
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CH4	Methane
CL	Clarification Request
CO2e	Carbon dioxide equivalent
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
FCN	Fair Climate Network
GHGs	Greenhouse Gas(es)
GS	Gold Standard
GVC	Gram Vikas Committees
GVK	Gram Vikas Kosh
GWP	Global Warming Potential
HH	Household
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
NCV	Net Calorific Value
NGO	Non Governmental Organisation
PE	Project Emissions
PDD	Project Design Document
PS	Project Standard
PCIA	Partnership for Clean Indoor Air
PCP	Project Cycle Procedure
SD	Sustainable Development
SDG	Sustainable Development Goal
SHG	Self Help Group
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reduction
VVB	Validation and Verification Body
VVS	Validation & Verification Standard
WBT	Water Boiling Test

Appendix 2. Competence of team members and technical reviewers

<u>Certificate of Competence</u>						
Name	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Anand S R				
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	Yes	Yes	Yes	No	No	No
<i>Appointed Date</i>	15-07-2023					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	Sectoral Scope		TA Code	Technical Area within the scope		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
	Energy demand					
	Construction					
	Waste handling and disposal					
	Waste handling and disposal		13.2			
	Agriculture					
Energy industries (renewable - / non-renewable sources)						
Authorized to work as Local Expert for:						
<i>Country/Countries</i>	India					
Compliance check by: Anand S. R.						

<u>Certificate of Competence</u>						
Name	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Koteswara Rao				
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	No	No	No	Yes	No	No
<i>Appointed Date</i>	15-07-2023					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	Sectoral Scope		TA Code	Technical Area within the scope		
	Agriculture		15.1	Agriculture		

Authorized to work as Local Expert for:	
Country/Countries	India
Compliance check by: Anand S. R.	

<u>Certificate of Competence</u>						
Name	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ganesh Jithamanyu D V				
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	No	No	Yes	No	No	No
Appointed Date	15-07-2023					
Authorized to work as Technical Expert for:						
Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand					
	Construction					
	Waste handling and disposal					
	Waste handling and disposal					
	Agriculture					
Energy industries (renewable - / non-renewable sources)						
Authorized to work as Local Expert for:						
Country/Countries	India					
Compliance check by: Anand S. R.						

<u>Certificate of Competence</u>						
Name	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ma Paa Puratchikkanal				
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	27-04-2021					
Authorized to work as Technical Expert for:						

<i>Authorized Technical Area</i>	Sectoral Scope	TA Code	Technical Area within the scope
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy demand	3.1	Energy demand
	Construction	6.1	Construction
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure
	Agriculture	15.1	Agriculture
Authorized to work as Local Expert for:			
<i>Country/Countries</i>	India, Sri Lanka		
Compliance check by: Anand S. R.			

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	SKG Sangha	Monitoring Report	Version 01, dated 08/12/2022	SKG Sangha
	SKG Sangha	Monitoring Report	Version 02, dated 14/02/2023	SKG Sangha
	SKG Sangha	Monitoring Report	Version 2.2, dated 13/09/2023	SKG Sangha
2	SKG Sangha	GS670_Kolar 9_10 ER Spreadsheet_V01	Version 01	SKG Sangha
	SKG Sangha	GS670_Kolar 9_10 ER Spreadsheet_V02_141223	Version 02	SKG Sangha
3	SKG Sangha	Revised and approved PDD	Version 8, Dated 14/10/2020	SKG Sangha
	SKG Sangha	VER Estimation sheet	Dated 14/10/2020	SKG Sangha
4	4K Earth Science Private Limited	Final Verification Report	Version 5.0 Dated 22/01/2024	publicly available
5	GS	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (Version 3.1), 25 th August 2017	Version 03.1	publicly available
6	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	Web Link	publicly available
7	UNFCCC	Kyoto Protocol (1997)	Web Link	publicly available
8	GS	Template: Gold standard for the Global Goals Monitoring report	Version 01	publicly available
9	UNFCCC	CDM project standard for project activities	Version 02	publicly available
10	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 08	publicly available
	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities	Version 04	publicly available

11	UNFCCC	CDM validation and verification standard for project activities	Version 02	publicly available
12	UNFCCC	Glossary “CDM terms”	Version 08	publicly available
13	SKG Sangha	Biogas basic record set: - Biogas distribution records - End user agreement for VER ownership	-	SKG Sangha
14	SKG Sangha	Records of non-working, repair details of biogas	-	SKG Sangha
15	SKG Sangha	Training Records - On-site women maintenance training - On-site beneficiaries training - On-site masons training for construction of biodigester - Supervisors training	-	SKG Sangha
16	FSI	State of Forest Report, Forest Survey of India, Ministry of Environment and Forests, Government of India		Publicly available
17	GS	GS Design Change Review report	-	SKG Sangha
18	SKG Sangha	Project Database	Updated till March 2022	SKG Sangha

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

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

FAR ID	01	Section no.		Date: 27/01/2022
Description of CL				
Project participant response				Date: 28/02/2022
Documentation provided by project participant				
DOE assessment				Date: 10/03/2022

Table 2. CL from this Verification

CL ID	01	Section no.	D.2	Date: 22/03/2023
Description of CL				
PP to clarify how Annual average wage of people employed has been calculated. And PP to provide the calculation steps involved.				
Project participant response				Date: DD/MM/YYYY

It is submitted the annual wage for each employee looking after Kolar Biogas Project. Their remuneration details have been provided below:

Name of employee	Annual wage (INR)
1. S.K. UMESHA	No Payment as he is our Governing body member and Treasurer
2. A.V. RAJANNA - Field staff	180,000/y remuneration and + 36,000/year allowance
3. B. AKIL KUMAR – Office Assistant	200,000/year
4. N.V. JAGADISH - Field staff	180,000/y remuneration and + 36,000/year allowance
5. T. AMARA NARAYANA REDDY - Field staff	180,000/y remuneration and + 36,000/year allowance
6. VENKATA KRISHNA REDDY - Field staff	180,000/y remuneration and + 36,000/year allowance

More evidences about their payments is provided.

Documentation provided by project participant

CL01

DOE assessment **Date:** 13/07/2023

The evidence for the wage calculation has been reviewed and verified. CL01 is closed.

CL ID	02	Section no.	Page 4 Table 2	Date:	01/08/2023
Description of CL					
The end date given in this table is 27/02/2022. Please clarify.					
Project participant response					Date:
The end date in table 2 (page 4) has been corrected to 31/03/2023 as stated in KPI and in the entire MR.					
Documentation provided by project participant					
Revised MR.					
DOE assessment					Date: 02/08/2023
The revisions made have been reviewed and confirmed.					

Table 3. CAR from this verification

CAR ID	01	Section no.	KPI	Date:	22/03/2023
Description of CAR					
PP need to update the annual report submission date. SC website has a annual report submitted on 15 December 2022.					
Project participant response					Date: 05/05/2023
The date of annual report submitted is updated in front page of the MR.					
Documentation provided by project participant					
SC Website					
DOE assessment					Date: 13/07/2023
The updates made to the SC website have been reviewed and found okay. CAR01 is closed.					

CAR ID	02	Section no.	Table 1	Date:	22/03/2023
Description of CAR					
PP need provide the total number of VERs in SDG 13: Amounts achieved along with vintage values.					
Project participant response					Date: 05/05/2023
The total number of GS VERs in SDG13 divided by vintage values is provided in table 1 and 2 (was corrected from GS VER to GS VER).					
Documentation provided by project participant					
Revised MR					
DOE assessment					Date: 13/07/2023

The revisions made have been reviewed and verified.CAR02 is closed.

CAR ID	03	Section no.		Date: 22/03/2023
Description of CAR				
PP need to provide MR period 7 th GS review document for VVB team. This is not available in the website.				
Project participant response				Date: 05/05/2023
<i>The 7th GS review document is submitted.</i>				
Documentation provided by project participant				
GS670-GS4GG Performance Review-MP7				
DOE assessment				Date: 13/07/2023
The performance review has been reviewed and verified.CAR03 is closed.				

CAR ID	04	Section no.	ER Excel Sheet	Date: 22/03/2023							
Description of CAR											
Latitude and longitude of t 4 units (B 992, D122, E316, E1657) in missing in the database. ER sheet (Units - ERs 2021)											
Project participant response				Date: 05/05/2023							
<i>The latitude and longitude for the 4 units requested are included in the new version of database sheets ('Units - ERs 2021' and 'Units - ERs 2022').</i>											
Reg.No	Name	Spouce	Village	Panchayath	Taluk	Size	Func.Date	Start date of next monitoring period	Donor	LATTITUDE	LONGITUDE
B 992	VIMALAMMA	SHANKARAPPA	KOTIGANAHALLI	HARATI	KOLAR	2	1/15/2017	1/01/2018	STUDIOSUS	13 04 34.242142083	78 13 07.132476570
D 122	SAVITHA BAI	YANKAPPA RAO	YALACHEPALLI	DOOLAPALLI	MULABAGAL	2	08/09/2012	1/01/2018	MYCLIMATE	13°02'50.143305896"N	78°26'21.588748796"E
E 316	LAKSHMI	KISHOR KUMAR	KORNAHALI	SOMAYAJALAPALLI	SRINIVASAPURA	2	12/05/2012	1/01/2018	STUDIOSUS	13°22'27.045406871"N	78°19'18.993690295"E
E 1657	GANGA PAMAMMA	M.R. RAMIREDDY	R. REDDYVARIPALLI	KURIGEPALLI	SRINIVASAPURA	2	4/26/2017	1/01/2018		13 34 11.232763954	78 17 01.022675881
Documentation provided by project participant											
<i>Revised ER sheet.</i>											
DOE assessment				Date: 13/07/2023							
The revisions made have been reviewed and verified.CAR04 is closed.											

CAR ID	05	Section no.	D.4Sampling plan	Date: 22/03/2023
Description of CAR				
PP to provide the Survey sheets of non-project households excel sheet for verification				
Project participant response				Date: 05/05/2023
<i>A randomly sample of 5 surveys sheets of non-project households excel sheet for verification (#17, #31, #96, #70, #31).</i>				
Documentation provided by project participant				
<i>Survey Sheets</i>				
DOE assessment				Date: 13/07/2023
The survey sheets have been reviewed and verified. CAR05 is closed.				

CAR ID	06	Section no.	D.4Sampling plan	Date: 22/03/2023
Description of CAR				
PP to provide the survey filled forms for the following IDS. A1491, A1051, B682 and C43.				
Project participant response				Date: 05/05/2023
<i>The monitoring surveys IDS A1491, A1051, B682 and C43 has been provided.</i>				
Documentation provided by project participant				
<i>Monitoring Survey Sheets</i>				
DOE assessment				Date: 13/07/2023
The survey sheets have been reviewed and verified. CAR05 is closed.				

CAR ID	07	Section no.	ER Calculation Sheet	Date: 22/03/2023
Description of CAR				

Number of dairy cows, buffaloes, and other cattle:
PP need to use the consistence values across the cattle numbers. PP considered average values of dairy cow whereas for buffaloes lower bound values has been use. Also the numbers are not rounded down to be conservative. Hence PP need to take action on this and same need to be rectified in the MR.

Project participant response **Date:** 05/05/2023

As explain in section D.4 Implementation of sampling plan (MR page 33), the reason why is used the lower bound values for numbers of buffalos and other cattle is due the precision is not met, for 'buffalos' there are only 83 data sets out of 653 and standard deviation is higher than the average and for 'other cattle' also the precision is not met, there are only 42 samples out of 653 and standard deviation is higher than the average. As the precision is not met, the value used for ER calculation is the lower bound of the confidence interval. Nevertheless the precision is met for dairy cows, that's the reason why some parameters used the average and other the lower bound.

The number of these three parameters now use the round down values (three decimals digits). The slight variation in BE, PE, leakage and ER is updated in MR and ER calculation file.

Documentation provided by project participant

Revised MR

DOE assessment **Date:** 13/07/2023

The revised monitoring report has rounded down values for BE, PE, leakage and ER.

CAR ID	08	Section no.	E.2	Date: 22/03/2023
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Description of CAR

For component 2: Non-renewable biomass component: PP says in MR that no PE have to be considered for biomass consumption. However, the table in MR and excel sheet have numbers. 73.44 for 2021 and 22.16 for 2022 tCO₂. PP need to provide proper justification in this regard.

Project participant response **Date:** 05/05/2023

The statement included in component 2: Non-renewable biomass component has been corrected and include that PE is considered as calculated in excel sheet (page 52 SDG 13).

Documentation provided by project participant

Revised MR

DOE assessment **Date:** 13/07/2023

The revisions made have been reviewed and verified.

CAR ID	09	Section no.		Date: 22/03/2023
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Description of CAR

PP need to provide evidence for the monitoring of spent slurry disposed in the crop fields.

Project participant response **Date:** 05/05/2023

The evidence for the monitoring of spent slurry disposed in the crop fields is collected during the surveys conducted. Therefore the evidence of this information can be found in the monitoring surveys filled in provide as part of our answer CAR ID06.

Documentation provided by project participant

Survey Sheet.

DOE assessment **Date:** 13/07/2023

Evidence for the slurry usage has been reviewed and verified from the Survey sheets.

CAR ID	10	Section no.	MR-7 FVR	Date: 01/08/2023
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Description of CAR

As per registered PDD, 70:30 ratio has been proposed for installation of 2 m³ units and 3 m³ units and the same is considered for the estimation of emission reduction. Since the implementation is still going on, the emission reduction for the next monitoring period should be calculated based on the actual ratio of 2m³ & 3m³ size digesters installed during next verification.

Project participant response **Date:** 02/08/2023

The ratio 70:30 has been proposed in the PDD for the share of 2m³ and 3m³ units to estimate the ER. The estimation for current monitoring period has included the actual ratio of 2m³ and 3m³ units (78:22) and not the 70/30 proposed in the PDD. Please the ER calculation sheet. Besides no more units were installed after June 30, 2017

This is the last monitoring report and hence the last verification report as the fixed 10- year crediting period ended at 31 March 2022.

Documentation provided by project participant

ER Sheet.

DOE assessment

Date: 02/08/2023

The final ratio of the number of 2m³ to 3m³ has been reviewed and confirmed.

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Document information

Version	Date	Description
04.0	6 April 2021	Revision to: Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN); • Make structural and editorial improvements.
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory

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