



**Verification and certification report form for  
Gold Standard project activities**

**BASIC INFORMATION**

|                                                                                                                          |                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title and GS4GG reference number of the project activity</b>                                                          | African Biogas Carbon Programme (ABC) – Kenya - VPA006 GS 5801                                                                                                                                                |
| <b>Scale of the project activity</b>                                                                                     | <input type="checkbox"/> Large-scale<br><input checked="" type="checkbox"/> Small-scale                                                                                                                       |
| <b>Version number of the verification and certification report</b>                                                       | 3.2                                                                                                                                                                                                           |
| <b>Completion date of the verification and certification report</b>                                                      | 13/11/2025                                                                                                                                                                                                    |
| <b>Monitoring period number and duration of this monitoring period</b>                                                   | MP 06 in 1 <sup>st</sup> CP<br>01/04/2023 to 13/03/2024 (including both days)                                                                                                                                 |
| <b>Version number of the monitoring report to which this report applies</b>                                              | 1.5 dated 08/11/2025                                                                                                                                                                                          |
| <b>Crediting period of the project activity corresponding to this monitoring period</b>                                  | 14/03/2017 to 13/03/2024                                                                                                                                                                                      |
| <b>Project representative(s)</b>                                                                                         | Africa Bioenergy Programs Limited (ABPL)                                                                                                                                                                      |
| <b>Host Party</b>                                                                                                        | Kenya                                                                                                                                                                                                         |
| <b>Applied methodologies and standardized baselines</b>                                                                  | Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 1.0                                                                                                                  |
| <b>Mandatory sectoral scopes</b>                                                                                         | 13.2, 1.1                                                                                                                                                                                                     |
| <b>Conditional sectoral scopes, if applicable</b>                                                                        | -                                                                                                                                                                                                             |
| <b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered VPA-DD</b> | 26,310 tCO <sub>2e</sub>                                                                                                                                                                                      |
| <b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>                            | 10,124 tCO <sub>2e</sub>                                                                                                                                                                                      |
| <b>SDG Impacts:</b>                                                                                                      | 1. SDG 7: Affordable and Clean Energy<br>2. SDG 8: Decent work and Economic Growth<br>3. SDG 13: Climate Action<br>4. SDG 2: Zero Hunger<br>5. SDG 3: Good health and well-being<br>6. SDG 5: Gender equality |
| <b>Name and UNFCCC reference number of the DOE</b>                                                                       | E-0052: Carbon Check (India) Private Ltd.                                                                                                                                                                     |

**Name, position and signature of the approver of the verification and certification report**



Amit Anand, CEO

## SECTION A. Executive summary

Carbon Check (India) Private Ltd. (Carbon Check) is performing the sixth verification of the GS project “African Biogas Carbon Programme (ABC) in Kenya - VPA006” which is a VPA under the PoA GS 2747, for the monitoring period 01/04/2023 to 13/03/2024 (inclusive of both days).<sup>14/</sup> The project aims to contribute to the achievement of the Sustainable Development Goals (SDGs) through the dissemination of domestic biogas systems as a local, sustainable energy source, as well as the development of a commercially viable, market-oriented biogas sector. It is also encouraging the switch from traditional non-renewable biomass (NRB) fuels to renewable biogas and so is reducing greenhouse gas (GHG) emissions as mentioned in the VPA-DD /B03/ & MR /01/. These biogas units having a varying size between 2m<sup>3</sup> to 100m<sup>3</sup> are employed to replace conventional fuels like firewood, charcoal and LPG and the slurry produced from the digesting process can be used as organic fertilizers. Digesters of any size are permitted as long as they are demonstrated to be below the small-scale limit. It will install and maintain biogas systems through over 100 biogas-related enterprises engaged in construction, appliances and parts. In order to make biogas technologies more affordable to the end-user, the full digester cost will not be charged to the end-user; technical assistance and after sales services (including a guarantee period) for example are not included in the digester price and are offered free of charge subsidized by carbon revenues.

The VPA implementer has selected the appropriate biogas technology to be implemented through engagement with a wide range of stakeholders. They agreed on a fixed dome digester design to be known as the Kenya National Biogas Model (KENBIM), although other types of biogas digester are permitted under this VPA as long as the technology used meets the eligibility criteria as given in PoA-DD/B03/.The VPA is implemented based on private sector market-oriented principles but also develops governmental support for a favorable regulatory and policy environment, as well as general buy-in promotion and extension. This VPA was retroactively included in the ABC PoA and includes biogas systems of which the construction started since 23/10/2015.CME has established a project database to gather the related information of end users and their biodigester using survey questionnaires prepared by HIVOS and KBP and programmed into the app TaroWorks./08/ As per the project database, it is confirmed the project has so far installed and verified total 4,433 units of digesters in different counties of host country cumulatively since the construction of the first digester, and 75 biodigesters newly installed and 293 digesters were repaired and brought back to functionality plus that were addressed via the grievance mechanism during this monitoring period which is verified by checking the project database.

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

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

The objective of this verification was to verify and certify emission reductions reported for the “African Biogas Carbon Programme (ABC) in Kenya - VPA006” in the host country “Kenya” for the period 01/04/2023 to 13/03/2024 (including both days).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data. It is also confirmed if the monitoring plan complies with the registered VPA-DD and the approved monitoring methodology. Equally, confirming the reductions in anthropogenic emissions by sources are sufficient, definitive, and presented in a concise and transparent manner. Carbon Check’s objective is to perform a thorough, independent assessment of the registered project activity. In particular, the monitoring plan, monitoring report, and the project’s compliance with relevant GS and Host Party criteria are verified to confirm that the component project/s has / have been implemented in accordance with the previously registered project activity and conservative assumptions, as documented in the VPA-DD.

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

**Scope:**

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered VPA-DD and POA-DD
- To verify the implemented monitoring plan with the registered VPA-DD, POA-DD and applied baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- To verify the SDG contribution by the project in line with the registered plan

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

**Verification process:**

The verification comprises a review of the monitoring report /01/ over the monitoring period from 01/04/2023 to 13/03/2024 and based on the registered VPA-DD as part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology, and all related evidence provided by project participants.

The verification has been performed as described in the Gold Standard for the Global Goals Principles and Requirements as below process,

- a. Desk review of the GS MR (version 1.0 dated 07/03/2025) /01/, ER sheet /02/ and the relevant documents
- b. On-site assessment (10/04/2025~12/04/2025)
- c. Issuance of draft verification report & verification protocol
- d. Desk review of the revised MR (V1.1, V1.2, V1.3) and related documents
- e. Resolution of the raised findings
- f. Issuance of the final verification report
- g. Independent technical review of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidence)
- h. Reporting and closure of TR comments/findings and final approval for the decision made
- i. Issuance of final verification report to contracted CME (or authorized representatives) and submission of request for issuance, as appropriate.

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

**Conclusion:**

The verification team assigned by the validation & verification body (VVB) concluded that the monitoring report /01/ meets all relevant requirements of the Gold Standard as per the requirements of GS4GG. The verification has been conducted in line with the GS4GG requirements. /02/

In Carbon Check opinion, the GHG emission reductions reported for the project in the GS4GG 6<sup>th</sup> monitoring report of CP1 are fairly stated. Carbon Check will confirm that each SDG Impacts were calculated correctly based on the methodology and the monitoring plan contained in the registered VPA-DD.

Carbon Check confirmed that each SDG Impacts are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that each SDG Impacts are appropriately calculated, Carbon Check is able to certify each SDG Impacts from the project "African Biogas Carbon Programme (ABC) in Kenya – VPA006" during the indicated monitoring period. Therefore, this is being submitted to the request of issuance, as per GS procedures as applicable.

The project activity was correctly implemented according to the selected monitoring methodology /B01/, monitoring plan, and the registered VPA-DD /B03/. The monitoring system was installed, and maintained in a proper manner,

while collecting monitoring data allowed for the verification of the amount of achieved GHG emission reductions. The following table provides the resulting emission reduction from the project as verified through the document review and on-site interviews by the verification team.

| Vintage                         | ER (tCO <sub>2</sub> e)        |
|---------------------------------|--------------------------------|
| 01/04/2023 - 31/12/2023         | 7,987                          |
| 01/01/2024 - 13/03/2024         | 2,137                          |
| Total for the monitoring period | <b>10,124 tCO<sub>2</sub>e</b> |

## SECTION B. Verification team, technical reviewer and approver

### B.1. Verification team member

| No. | Role                          | Type of resource | Last name   | First name         | Affiliation<br>(e.g. name of central or other office of DOE or outsourced entity) | Involvement in       |                    |            |                       |
|-----|-------------------------------|------------------|-------------|--------------------|-----------------------------------------------------------------------------------|----------------------|--------------------|------------|-----------------------|
|     |                               |                  |             |                    |                                                                                   | Desk/document review | On-site inspection | Interviews | Verification findings |
| 1.  | Team Leader/ Technical Expert | IR               | Nadkarni    | Tanvi <sup>1</sup> | Carbon Check                                                                      | X                    | X                  | X          | X                     |
| 2.  | Team Leader/ Technical Expert | IR               | Kadam       | Campal             | Carbon Check                                                                      | X                    |                    |            | X                     |
| 3.  | Assessor                      | IR               | Bijani      | Vishal             | Carbon Check                                                                      | X                    |                    |            | X                     |
| 4.  | Trainee Assessor              | IR               | Mazroy      | Nadir              | Carbon Check                                                                      | X                    |                    |            | X                     |
| 5.  | Local expert                  | ER               | Ndar Alwala | Samuel             | Carbon Check                                                                      |                      | X                  | X          |                       |

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

| No. | Role               | Type of resource | Last name | First name | Affiliation<br>(e.g. name of central or other office of DOE or outsourced entity) |
|-----|--------------------|------------------|-----------|------------|-----------------------------------------------------------------------------------|
| 1.  | Technical Reviewer | IR               | C         | Indumathi  | Carbon Check                                                                      |
| 2.  | Approver           | IR               | Amit      | Anand      | Carbon Check                                                                      |

## SECTION C. Means of verification

### C.1. Desk/document review

The verification was performed primarily based on the review of the Monitoring report /01/ and the supporting documentation. This process included a review of data and information presented to verify their completeness and a review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3 below. Consideration of materiality in planning the verification is as follows.

<sup>1</sup> Last working day for Tanvi Nadkarni was 17/04/2025

| No. | Risk that could lead to material errors, omissions or misstatements                                   | Assessment of the risk |                                                                                                                                       | Response to the risk in the verification plan and/or sampling plan                                                                                                                                                                                                                                                                                                                                        |
|-----|-------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                                                                       | Risk level             | Justification                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1.  | Human error in the quantification of emissions                                                        | Low                    | Human error is likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording | Depending on the monitoring period being verified, conduct increased verifying during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules                                                                                                                                                                           |
| 2.  | Undue reliance on a poorly designed information system, which may have few effective quality controls | Low                    | Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security               | Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and processed manually and/or in spreadsheets versus those that are generated from an automated system                                                                                                                                                                                     |
| 3.  | Omissions and misstatements in data transfer from handwritten notes into digital Excel ER spreadsheet | Medium                 | Ineffective quality control of data transfer due to unclear QA/QC procedure                                                           | Check QM procedure/manual. CME may demonstrate how to transfer data and how this is crosschecked. Conduct interview with related personnel whether procedure is conducted but not adequately described.                                                                                                                                                                                                   |
| 4   | Sample                                                                                                | Medium                 | Sample size is not suitable; or the surveyed end users are not random                                                                 | Cross-check the procedure to identify the sample size against the applied methodology and sample guideline. Carbon Check conducted a random sample following the sample standard during site-visit period, visited randomly selected sampled end users who are partial sourced from the sample conducted by PP. Based on the result of acceptance sampling, the monitoring records are deemed acceptable. |

## C.2. On-site inspection

| Date              | Time        | Auditor         | Location                        | Topic                                                                                                                                                                            | Required Evidence    |
|-------------------|-------------|-----------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Day 1: 10/04/2025 |             |                 |                                 |                                                                                                                                                                                  |                      |
| 10/04/2025        | 06:00-10:00 | Travel to site. |                                 |                                                                                                                                                                                  |                      |
|                   | 10:00-12:00 | DM              | PP representative office, Kenya | Opening Meeting and brief project description by the PP. Check the project data base / sales records / end user agreement for the total number of biodigesters distributed under | As per Annex 1 below |

| Date                     | Time          | Auditor                     | Location                                   | Topic                                                                                                                      | Required Evidence      |
|--------------------------|---------------|-----------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------|
|                          |               |                             |                                            | the project; random selection of the VVB's samples; Interviews with the monitoring survey team                             |                        |
|                          | 12:00-13:00   | Lunch Break                 |                                            |                                                                                                                            |                        |
|                          | 13:00-17:00   | DM                          | Project units' distribution sites in Kenya | Interviews with the end users to check project implementation and operation and sample households from PP's survey samples | • As per Annex 1 below |
| <b>DAY 2: 11/04/2025</b> |               |                             |                                            |                                                                                                                            |                        |
| 11/04/2025               | 08.00-9.00    | Travel to the project site. |                                            |                                                                                                                            |                        |
|                          | 09:00 – 13:00 | DM                          | Project units' distribution sites in Kenya | Interviews with the end users to check project implementation and operation and sample households from PP's survey samples | As per Annex 1 below   |
|                          | 13:00-14.00   | Lunch Break                 |                                            |                                                                                                                            |                        |
|                          | 14:00 – 17:00 | DM                          | Project units' distribution sites in Kenya | Interviews with the end users to check project implementation and operation and sample households from PP's survey samples | As per Annex 1 below   |
| <b>DAY 3: 12/04/2025</b> |               |                             |                                            |                                                                                                                            |                        |
| 12/04/2025               | 08.00-9.00    | Travel to the project site. |                                            |                                                                                                                            |                        |
|                          | 09:00 – 13:00 | DM                          | Project units' distribution sites in Kenya | Interviews with the end users to check project implementation and operation and sample households                          | As per Annex 1 below   |

| Date | Time        | Auditor | Location                  | Topic                                                                                               | Required Evidence                                              |
|------|-------------|---------|---------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
|      |             |         |                           | from PP's survey samples                                                                            |                                                                |
|      | 13.00-14.00 |         |                           | Lunch                                                                                               |                                                                |
|      | 14:00-15:00 |         | Project Site              | Monitoring plan discussion (to check compliance with the registered VPA-DD and applied methodology) | Internal audits, emergency preparedness, outage and shut down. |
|      | 15:00-16:00 |         | Project site              | Discussion on Monitoring report and ER calculation spread sheets                                    | Compliances to the guidelines, VVS and PS.                     |
|      | 16.00-17.00 |         | Private room for auditors | Auditors time                                                                                       | --                                                             |
|      | 17.00-18.00 |         | Project site              | Closing meeting.                                                                                    |                                                                |

An onsite physical audit has been performed. The team leader and technical expert have conducted the on-site inspection and the acceptance sampling, which is in line with the requirement stated in section 8.3.1.2 of the Validation/Verification Body Requirements (V3.0). Furthermore, VVB has considered the Site Visit and Remote Audit Requirements and Procedures, version 2.0 /B06/ for conducting the onsite visit. In accordance with the requirements provided in paragraph 9.3.4 of the Validation and Verification Standard /B04/, the verification team has conducted physical on-site visit as last physical on-site was nearly 3 years before on 28/07/2022 as part of fourth verification of the project.

### C.3. Interviews

| No. | Interviewee |               |                           | Date       | Subject                                                                                                                                                                                                                                              | Team member                           |
|-----|-------------|---------------|---------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|     | Last name   | First name    | Affiliation               |            |                                                                                                                                                                                                                                                      |                                       |
| 1.  | Samuel      | Mwuangi       | ABPL- Country coordinator | 10/04/2025 | <ul style="list-style-type: none"> <li>- General aspects of the project</li> <li>- Changes since validation / previous verifications</li> <li>- Biodigester construction status</li> <li>- Taroworks application</li> <li>- Quality check</li> </ul> | Tanvi Nadkarni and Samuel Ndar Alwala |
| 2.  | Kithinji    | Leah Kindi    | ABPL- Country coordinator |            |                                                                                                                                                                                                                                                      |                                       |
| 3.  | Ouma        | Evanx         | ABPL- Country coordinator |            |                                                                                                                                                                                                                                                      |                                       |
| 4.  | Vahome      | Salome        | ABPL- CME                 |            |                                                                                                                                                                                                                                                      |                                       |
|     | Mbugua      | Teresia Njeri | ABPL- Country coordinator |            |                                                                                                                                                                                                                                                      |                                       |

|    |       |                  |                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|----|-------|------------------|---------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 5. | Ngigi | Thabitha Wanjiru | ABPL- Country coordinator |  | <ul style="list-style-type: none"> <li>- Project database</li> <li>- Quality management system</li> <li>- Involved personnel and responsibilities</li> <li>- Training and practice of the operational personnel</li> <li>- Implementation of the monitoring plan</li> <li>- Sampling Plan</li> <li>- Sampling Method</li> <li>- Project survey</li> <li>- Monitoring data management</li> <li>- Data uncertainty and residual risks</li> <li>- Procedural aspects of the verification</li> <li>- Environmental aspects</li> <li>- Livelihood of the poor</li> <li>- Access to energy service</li> <li>- Monitoring plan</li> <li>- Monitoring training</li> <li>- Emission reduction calculation</li> </ul> <p>Survey A, survey B, KPT obstacles</p> <ul style="list-style-type: none"> <li>- KPT protocol</li> <li>- Taroworks Use training</li> <li>- Survey period</li> <li>- Job Description</li> <li>- Contract with PD</li> <li>- Data uncertainty and residual risks</li> <li>- Involved personnel and responsibilities</li> <li>- Training and practice of the operational personnel</li> </ul> |  |
|----|-------|------------------|---------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| No. | Interviewee |                 |                   | Date       | Survey Covered         | Subject                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Team member |
|-----|-------------|-----------------|-------------------|------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|     | Last name   | First Name      | Plant Code        |            |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 1   | Gichuki     | Kamau Andrew    | KE-MUR-2204-30227 | 10/04/2025 | VPA6/Survey A, B & PFT | <ul style="list-style-type: none"> <li>- Biodigester Style</li> <li>- Biodigester size</li> <li>- Biodigester ID</li> <li>- Baseline scenario fueltype</li> <li>- Baseline scenario fuelquantity</li> <li>- Baseline scenario manure handle</li> <li>- Person/HH</li> <li>- operation time</li> <li>- biogas stove use</li> <li>- bio-slurry usage</li> <li>- biodigester issues</li> <li>- Animal Type</li> <li>- animal quantity</li> <li>- manure utilize percentage</li> <li>- fuel consumption</li> <li>- After sale service</li> <li>- Accessibility to CME</li> <li>- Any comments</li> </ul> | TN, SA      |
| 2   | Waweru      | Mugwana Solomon | KE-KIA-2303-29728 | 10/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 3   | Nderitu     | Kiboi Shandrak  | KE-LAI-2103-27093 | 10/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 4   | Kanja       | Paul Kinuthia   | KE-KIA-1602-16227 | 11/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 5   | Muchiri     | Mwangi Martin   | KE-KIA-1602-16227 | 12/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 6   | Robert      | Njururi Njuki   | KE-EMB-1805-27918 | 11/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 7   | Muchangi    | Hanna Nyambura  | KE-NYE-1605-16661 | 12/04/2025 | SurveyA&B              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 8   | Gilbert     | Langat          | KE-KER-1705-18150 | 11/04/2025 | SurveyA&B              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 9   | Githirwa    | Maina John      | KE-NYA-1904-25051 | 11/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 10  | Kanana      | Alice           | KE-MER-2202-27075 | 12/04/2025 | VPA6/Survey A, B & PFT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 11  | Ndegwa      | Njoro Amos      | KE-KIA-2302-29673 | 12/04/2025 | SurveyA&B              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |

| PFT samples from VPA01 |                       |                   |            |              |
|------------------------|-----------------------|-------------------|------------|--------------|
| SI.No                  | Name                  | Plant Code        | Date       | Team members |
| 1                      | James Mugo Mwangi     | KE-MUR-1305-07853 | 10/05/2025 | TN, SA       |
| 2                      | Patricia Wairimu Mugo | KE-NYE-1303-08894 | 11/05/2025 | TN, SA       |
| 3                      | Rose Omari Nyakundi   | KE-NYA-1408-14658 | 11/05/2025 | TN, SA       |
| 4                      | Karanja James Ndwiga  | KE-EMB-1412-12299 | 12/05/2025 | TN, SA       |

TN: Tanvi Nadkarni, SA: Samuel Ndar Alwala

### **Type of interview Questions asked by the team members:**

The questions in the questionnaires asked were basically based on requirements of GS4GG. The main topics included, but not limited to, the following:

For end users,

#### **1. General information of biodigester users**

- a. Name
- b. Mobile No.
- c. Age
- d. Gender
- e. Household location
- f. Household Size
- g. Digester Size
- h. Digester type
- i. Digester ID Code
- j. GPS coordinates

#### **2. Baseline scenario**

- a. Before using biogas, which kind of primary fuel did you use for cooking purposes
- b. Before using biogas, how much fuel did you use per day
- c. Before using biogas, how did you handle the manure

#### **3. Project scenario**

- a. Have you participated in the CME's survey in November 2024?
- b. Are you the main cook or a person frequently involved in cooking?
- c. When did you operate the biogas digester?
- d. Construction time of your biogas digester
- e. Biogas devices used
- f. Bio-slurry usage
- g. If the biogas stove is under operation now
- h. Do you agree with the quality of the biogas system
- i. Have you ever smelt biogas leaks from a digester after using it?
- j. Did you use biogas at least once per day for cooking?

#### **4. Animal waste**

- a. Which animals are used for biogas production?
- b. How many animals are used for biogas production?
- c. Was all the manure fed into the bio-digester?

#### **5. Fuel use**

- a. What types of fuel did you use after utilizing the biogas?
- b. How much fuel do you use per day after using biogas?

#### **6. After sale service**

- a. Have you ever had to repair your digester?

#### **7. any comments?**

#### **8. For the Mason representatives,**

- Job Description
- Biodigester construction and operation technology
- Cooperation with CME and Biodigester company

- Use of Taro works application for data collection
- Normal check and maintenance of biodigesters and biogas stoves
- After sale service to end users

**The feedback from end user interviewees is listed as below:**

1. General information of biodigester users  
All the Household (HH) provided the general information of the biodigester and family.
2. Baseline Scenario  
All the Households used to use firewood, Charcoal and/or LPG for cooking purposes. The conduct of KPT was confirmed as well.  
All the households confirmed they handled manure as daily spread, discharged to field or not used
3. Project scenario
  - All households confirmed their participation in the CME's survey.
  - All interviewees confirmed that they are either the primary cook or frequently involved in cooking, and they also confirmed that the digester is newly constructed.
  - All households confirmed that the bio-digester is currently operational, as verified by a site visit.
  - All households confirmed that the bio-slurry is being used as fertilizer, insecticide, pesticide, animal feed, or is being sold.
  - All households confirmed that the biogas stove is currently operational, as verified by the VVB through checking the flame on the stoves.
  - All households confirmed they use biogas for cooking at least once a day.
4. Animal waste  
The animals used for biogas production include fattening and breeding pigs, dairy and non-dairy cows, poultry, sheep, and goats.  
All households provided the number of animals used for biogas production and confirmed the proportion of manure fed into the bio-digester.
5. Fuel use  
Some households confirmed that they use only biogas for cooking, while others use firewood, charcoal, or LPG. The households using firewood, charcoal, or LPG provided the amount of fuel they use per day.
6. After sale service  
Some of the households confirmed they had to get their biodigester repaired. The CME database logs the number of days the biodigester was out of operation to account for the same for calculation of emission reductions.
7. any comments?  
All the household confirmed no more comments.

**The feedback from Mason interviewees is listed as below:**

All the masons provided their names and job descriptions to the verification team and introduced the biodigester construction and operation technology. They confirmed their collaboration with CME and the VPA implementor and stated that they regularly performed checks and maintenance on biodigesters and biogas stoves through the after-sales service system. They also demonstrated the Taroworks application on their phones, explaining how to collect user information and upload it to the online server.

The Verification Team along with site visit, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

#### **C.4. Sampling approach**

## Sampling approach by CME:

The sampling design carried out by the project is demonstrated as below:

Before preparing the MR, CME conducted the carbon monitoring survey to investigate the values used for this monitoring period for monitored parameters following the Carbon monitoring survey sampling protocol which is verified as in line with the requirement in the VPA-DD monitoring plan and methodology requirement. Monitored parameters including  $U_p$ ,  $N_{LT,y}$ ,  $N_{p1,y}$ ,  $MS\%_{i,y}$ ,  $BB_{p1,fuel}$ ,  $MS(T,S,k)$ ,  $MS(P,S,k)$ , Soil Condition, Air quality, Time savings, Usage of time saved, and Bio need to be determined based on the monitoring survey and usage survey which has been assessed below.

The carbon monitoring survey including monitoring survey with the biogas digester user (Survey A), the survey on drop-off rate of digester (usage survey – Survey B) and the project fuel consumption test (PFT), were conducted by Eco Frontier in the period November to December 2024, and the results have been combined in the Carbon Monitoring Report for this monitoring period. Based on checking the report, the verification team confirmed that total 11 number of valid samples for both Usage Survey (Survey B) and project survey (Survey A) together.

A multi-stage sampling approach was used in selecting biogas plants, considering the proportionate representation of different regions and counties in the sample. The sampling frame was stratified by age of biogas plant (8 age groups), and county (about 41 counties). In each strata the sample size was set at 35 plants for survey B and 15 for survey A. Survey A sample size totals 211 which is more than required by the methodology ( $n=100$ ) and in the case of survey B, this is more than 30 required per age stratum. In each stratum, the 35 samples were distributed across the counties in the sampling frame according to the proportional representation of each county. Then, simple random sampling was applied to select the households within each chosen county. In each stratum, the 35 samples were distributed across the counties in the sampling frame according to the proportional representation of each county. Then, simple random sampling was applied to select the households within each chosen county. The VVB has applied acceptance sampling in such a way that at least one sample for each age group is being interviewed and the samples are also selected based on the distribution proportion in counties.

Out of the 35 randomly selected survey B households in each age group, the households with a digester in operation were interviewed for survey A. Out of those, 14 plants were declared invalid, as these households did not have a functioning plant.

### **$BB_{p1,bio}$ and $BB_{p1,fuel}$ - PFT**

This parameter needs to be monitored through project fuel test and PFT survey conducted according to the monitoring plan

Through checking the carbon monitoring report, Carbon Check confirmed that PFT measures the quantity of fuel that is consumed in the project scenario, such as Firewood, Charcoal and LPG consumption. The PFT is conducted with end-user's representative of project scenario and employed a cross-sectional sampling approach, drawing samples from two Voluntary Project Activities (VPAs): VPA06 and VPA01 as they both are implemented in the same country and the CME is same. The PFT is verified as conducted in line with the requirement in the VPA-DD sampling plan and methodology requirement.

As per the VPA-DD, the sample sizes must be determined through ensuring that the results comply with a 90% confidence interval and 30% margin of error. The sample size is large enough to satisfy the "90/30 rule," i.e. the endpoints of the 90% confidence interval lie within  $\pm 30\%$  of the estimated mean.

As per the applied methodology and registered VPA-DD, Carbon Check confirmed that the monitoring frequency is once every 2 years. This is the sixth monitoring period, therefore, it is confirmed that the PFT was conducted in 4<sup>th</sup> verification, so the frequency request is fulfilled.

Through checking the sampling method as stated in the Carbon Monitoring Report, it is verified that the method is in line with the VPA-DD sampling plan, methodology requirement and GS rules. /01//02/

### **$MS_{T,S,K}$ , $MS_{P,S,K}$ , $N_{LT,y}$ , $N_{p1,y}$ - Survey A**

These parameters need to be monitored through Survey A.

Through checking the carbon monitoring report, Carbon Check confirmed that Survey A measures the data including fraction of different types of livestock manure fed into the bio-digester in different climate zones, fraction of different types of livestock manure not fed into the bio-digester in different climate zones and Number of animals of livestock category. Survey A is conducted with the end-users' representative of project scenario target population and currently using the biodigester. The survey was conducted by asking the users questions by questionnaires for Survey A which are pre-defined in Swahili in both soft (Taroworks application, to be accessed by tablets/smart phones) and hard copies.

Survey A is verified as conducted in line with the requirement in the VPA-DD sampling plan and methodology requirement.

As per the VPA-DD and the methodology, the minimum total sample size must be 100 and at least 30 samples for project technologies of each age must be selected. A total sample of 278 were selected for usage survey (survey B) with more than 30 samples for project technologies of each age was selected. From these 278 samples, 211 samples had operational biodigesters and hence were considered Survey A. This meets the requirements stated in the registered VPA-DD and the applied methodology.

As per the registered VPA-DD and the applied methodology, Carbon Check confirmed that the monitoring frequency for monitoring survey (Survey A) is annual. The monitoring survey was conducted in November 2024 which is within one year of the previous monitoring survey conducted for previous MP, which fulfils the frequency requirement.

### **O<sub>p,y</sub>, U<sub>p,y</sub> – survey B**

Usage survey (Survey B) has been conducted to determine the value of U<sub>p,y</sub>.

Through checking the carbon monitoring report, Carbon Check confirmed that Survey B measures the percentage of bio- digesters in use in monitoring period. Survey A and Survey B have been conducted together. Survey B is conducted with end-users' representative of project scenario target population and having the biodigester. The survey was conducted by asking questions to the users by questionnaires which are pre-defined in Swahili in soft (Taroworks application, to be accessed by tablets/smart phones) copies.

Survey B is verified as conducted in line with the requirement in the VPA-DD sampling plan and methodology requirement.

As per the VPA-DD and the methodology, the minimum total sample size must be 100 and at least 30 samples for project technologies of each age must be selected. A total sample of 278 was selected for usage survey (survey B) with more than 30 samples for project technologies of each age was selected, which is higher than GS minimum sample size of 100 households (30 for each age) as defined in the applied methodology.

And as per the registered VPA-DD, Carbon Check confirmed that the monitoring frequency is annual. The usage survey was conducted in November 2024 which is within one year of the previous monitoring survey conducted for previous MP, which fulfils the frequency requirement.

CME has surveyed the samples spans over 41 Counties which were randomly sampled and provided by the CME, covering 8 age groups. To ensure conservativeness, participants in a usage survey with technologies in the first year of use (age 0-1) must have technologies that have been in use on average longer than 0.5 years. For technologies in the second year of use (age 1-2), the usage survey must be conducted with technologies that have been in use on average at least 1.5 years, and so on.

Through checking the sampling method as stated in MR, it is verified that the method is in line with the VPA-DD sampling plan and methodology requirement. Usage questionnaires which were designed according to "*Rule Update Usage Rate Requirements - Technologies and Practices to Displace Decentralized Thermal Energy Consumption*" (Publication Date 11/04/2021) and "*Mandatory Monitoring requirements set out in the REQUIREMENTS AND GUIDELINES: Usage Rate Monitoring V2.0*". /02/

As per section 2.2.1 of the GS Usage Rate Monitoring Guidelines, "*The mandatory requirements are applicable to all project activities, irrespective of their claimable usage rates. The project developer can claim up to a maximum 75% usage rate by meeting the mandatory monitoring requirements. An exception is provided for household biogas digester projects, which can claim up to 90% by following the mandatory monitoring requirements.*" The mandatory monitoring requirements are assessed below:

### **Step 1. Defining stove use and non-use**

All measurements in the usage survey have been conducted in person within the sampled households, the 278 samples were randomly selected for this monitoring period, the monitoring activity of each sample was completed successively during the monitoring period by using questionnaire and checking the stove usage signs.

Hence, it is verified that the stove use and non-use can be monitored and checked by records of questionnaire which have been conducted separately for 278 samples.

## **Step 2. Household Usage Survey**

Usage Survey finished 278 end users during this monitoring period. Hence, it is confirmed that the sample size for the usage survey meets the requirements of the applied methodology as assessed above.

For each sub-request, the assessment is stated below,

i. Kitchen observation

Pictures of the project digesters and stoves for signs of use taken during the field survey by the surveyors have been provided by CME in ER sheet. Through the pictures, the verifier confirmed that the biogas stoves are in good condition and used in kitchen.

ii. Interview with the primary cook

Samples of filled monitoring survey questionnaires have been checked, the verifier verified that the question is directly asking if you are the primary cook in the household, the surveyors have been trained to interview the primary cook who use the stove. Via checking all the answers in the questionnaire samples, it is verified that all interviewees were the primary user/cook in their households.

iii. Photos of the cooking area

Pictures of the kitchen/cooking area of the households taken during the field survey by the surveyors have been provided by CME in reporter sheet. Through the pictures, it is confirmed that the household allowed them to take photos in their kitchens/cooking areas.

iv. GPS coordinates

Via checking the Taroworks App and monitoring report, it is confirmed that the surveyors were instructed to collect GPS coordinates during each survey using integrated function of the Taroworks App and the GPS coordinates of the households surveyed have been recorded on the records by surveyors and summarized in the carbon monitoring report, which is in line with the requirements in the guideline.

## **Step 3. Verification checks**

The record of verification checks in carbon monitoring report has been provided to Carbon Check/07/, it is confirmed that the CME randomly selected 20 HHs for conducting the verification phone check and reached 15 users (more than 5%) to check their answers, after the conclusion of the data collection phase of the usage survey and prior to the verification by the Carbon Check. The sample size is verified in line with the requirement of "telephone a randomly selected 5-10% of the surveyed households". Through the records, it is verified that several questions were asked, which is the same as the questions in the questionnaires and verified that they were accurate. The record of verification checks in monitoring report has been cross-checked with filled monitoring survey questionnaires; it is verified that the verification checks records are in line with the responses from the monitoring survey.

In conclusion, based on checking all the sampling records, Carbon Check confirmed that the sampling monitoring survey results are reasonable for determining the monitored parameters for this monitoring period.

Since the target population is not homogenous but instead consists of several sub-populations (strata), CME has performed random sampling as per the requirement of the applied baseline and monitoring methodology "*Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 1.0*".

In line with paragraph 26 of the Sampling Standard, the verification team has applied the acceptance sampling approach through on-site interviews on the monitoring and usage survey as part of verification. The CME applied a sampling approach to the monitoring survey conducted by the representatives of the CME. The verification team has chosen acceptance sampling in accordance with paragraph 28 of the sampling standard.

Applying paragraph 39 (a) of the CDM sampling standard, version 09 /B04/, a sample size of 11 households was chosen (with no discrepancy records). A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%; producer risk 10%, and consumer risk of 10% each in determining the VVB's sample size Acceptance number

(c) thus determined for the sample is 0. Accordingly, 11 samples were selected and interviewed for survey A and survey B. For the PFT survey, a cross-VPA sampling was conducted by the CME between VPA001 and VPA006 for the selection of households as these two VPAs share common technology and geographical area. 11 samples were selected collectively from VPA001 and VPA006 by VVB to verify the PFT survey conducted

The information provided in the monitoring and usage survey /08/, was cross-checked during the on-site visit. As a part of acceptance sampling, the Verification team could confirm the monitoring survey data /08/ with no discrepant records. Thus, CME's set of records has been accepted in line with paragraph 33 of the sampling standard, version 09 /B04/.

| Parameter           | Verification approach | Population (for VVB's sample)        | VVB's Sample Size |
|---------------------|-----------------------|--------------------------------------|-------------------|
| $N_{p1,y}$          | ASP                   | Survey A (user)<br>-211 <sup>2</sup> | 11                |
| $BB_{b, ratio}$     |                       |                                      |                   |
| $MS_{P,S,K}$        |                       |                                      |                   |
| $N_{T,h}$           |                       |                                      |                   |
| $MS_{T,S,K}$        |                       |                                      |                   |
| Soil condition      |                       |                                      |                   |
| Air Quality         |                       |                                      |                   |
| Time Savings        |                       |                                      |                   |
| Usage of Time saved |                       |                                      |                   |
| Bio                 |                       |                                      |                   |
| $Up1,y$             | ASP                   | Survey B (usage)<br>- 278            | 11                |
| $Op1,y.$            |                       |                                      |                   |
| $BB_{p1,bio}$       | ASP                   | Survey C (PFT)<br>-68                | 11                |

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

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

The VVB has raised 12 clarification requests (CLs), 03 corrective action requests (CARs) and 00 Forward action requests (FARs) during this MP, which are satisfactorily closed by CME.

<sup>22</sup> Common samples are chosen from Survey A and Survey B

## SECTION D. Verification findings

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

There are no FARs raised in the previous verification (MP5).

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

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Findings</b>              | CL 12 and CAR 01 have been raised and closed successfully. Please refer to Appendix 4 for further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Conclusion</b>            | <p>The verification team confirms that the latest available version of the monitoring report template has been used, and the MR follows the monitoring report form and related monitoring report template guide.</p> <p>As verified from the on-site interview and survey report /08/, the audit team confirms the project implementation, and operation complies with the registered VPA-DD /B03/. The starting date of operation is 23/10/2015, which is the date of first digester unit installation. Same is in line with the registered VPA-DD /B03/. 5,818 biodigesters were originally constructed in the VPA with 4,433 plants active. An installation of 66, 1091 and 671 in the 1st 3 years and 640 each in the upcoming years during the first CP scheduled as per the VPA_DD. The project boundary in the registered VPA-DD /B03/ is in line with the actual project boundary.</p> <p>Animal manure is fed into the biodigester and anaerobically degraded by microbes to produce biogas. The biogas is captured mainly for cooking. In addition, some households will use biogas for water heating. The biogas digester is a fixed dome type (Modified KENBIM model, KENBIM, AKUT, and Modified Carmatec). The average lifespan of a well-constructed fixed dome digester is estimated to be at least 25 years but can easily reach 35 years when quality materials are used during construction and O&amp;M practice observed in its operation. VVB reviewed the biodigester manuals/05/ for different types of digesters along with the onsite interviews confirmed the end-users received proper training received for the usage of biodigester at the time of construction.</p> <p>The VPA also involves the installation of plastic digester types (Flexi, Home Biogas, Kentainer, and Takamoto), which typically have a lifespan of 7-10 years. With proper care and UV protection, they can last up to a maximum of 15 years (for Flexi and Takamoto). With improved care, including protection from UV and rodents, the lifespan can extend to 30 years (for Home Biogas and Kentainer).</p> <p>The same has been confirmed by the verification team by checking the technical specifications.</p> <p>Kenya Biogas Programme (KBP) Limited (main implementor) installs digester which is mostly MKD and KENBIM with volumes between 2 to 1000 m3 in households with livestock (cattle, buffalos, dairy cow, pigs etc.). The project conducts continuous construction/installation of digesters since the start of this project on 23/10/2015 based on the demand of households. VVB verified the organization structure and roles of entities through reviewing the code of conduct/03/ according to which independent entities like BCE/ masons are operating.</p> <p>The technology of this project reduces GHG emissions through different ways including displacement of wood, charcoal and LPG used for cooking and avoidance of methane emissions from the animal waste comparing the baseline scenario that most households with the technical potential for a biodigester rely primarily on wood, charcoal and LPG fuel for cooking and aerobic biodegradation of organic matter from animal waste and methane emitted to the atmosphere.</p> <p>CME has established a project database to gather the related information of end users and their biodigester using Taroworks. As per the project database/7/, it is confirmed the project has so far installed total 5,823 units of digesters in different provinces of host country cumulatively since the operation of the first digester on 23/10/2015, At the end</p> |

of this MP, 35 digesters were reported for repair or maintenance. Out of those 11 were repaired, and 24 were excluded as repairs or follow up is ongoing which is verified by checking the project database and grievance record/11//10/.

Carbon Check confirms that the project biogas systems are operational through on-site visits and interviews with end users. Each biogas system has a unique identification number that was provided /04/ and is correct according to the project database /11/. Along with the serial number, the biogas technology, biodigester type, number of animals, fuel consumption, end username, address, commissioning date etc. had also been noted which were found to be consistent on the ground. Geographical coordinates are as provided in MR whole part of the host country. The project location has been clearly provided in section A.2 of the MR, sampled end users' location has been verified by site inspection with GPS device and comparing with project location in google earth. The start date of the 1st crediting period is 14/03/2017 which ends on 13/03/2024. This monitoring period belongs to the 1st crediting period.

The verification team has conducted site visits with checking the project operation and interview with CME, VPA implementor, end users, , masons, in addition to all the provided evidence, it is found that the project has been put into operation and biodigesters were installed and it is found that the implementation of the project activity is in accordance with the registered VPADD. The changes in the factors and parameters used during this monitoring period to arrive at the emission reduction calculations are transparently described in the Monitoring Report.

The emission reduction achieved during this monitoring period is 10,124 tCO<sub>2</sub>e.

The details of verification against changes incorporated by CME during this monitoring period are provided in the respective sections and there is no significant change observed in the project operation compared with the VPA-DD.

CME has introduced the main type of digester which is KENBIM and MKD with volumes between 2 m<sup>3</sup> to 100 m<sup>3</sup> in households with livestock (cattle, goats, dairy cow, pigs (breeding and fattening), poultry etc.). The project conducts continuous construction/installation of digesters since the start of this project on 23/10/2015 based on the demand of households, this has been confirmed by checking the corresponding data of the end users which was recorded by the online system (Taroworks) and the project database.

Via checking the Agreement between CME and participation parties in the construction of biodigesters under the Project, Carbon Check confirmed that CME has signed agreements with the biodigester producers for construction of biodigesters for the project and all the biodigester producers agree to construct/install biodigesters for smallholder livestock farms in line with the Project's technical standards.

This is the last monitoring period of the 1st crediting period, and the verification team herewith confirms that the project implementation is consistent since the project started as mentioned in the VPA-DD. There are no major obstructions or gaps noted during this monitoring period.

The actual sales and operation are found in accordance with the descriptions provided in the VPA-DD. There is no deviation / change evidenced during this monitoring period.

It is noted that no changes have been observed or identified that may impact on the additionality. No addition of component nor extension of technology, no addition nor removal of project sites, no change of values of the actual operational parameter relevant to the determination of emission reductions which are within the control of the CME; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) version 1.0 /B01/. The operational status of all project digesters and impact on identified SDGs from 01/04/2023 to 13/03/2024 have been taken into consideration.

**Continuous grievance mechanism:** As verified during on-site audit, CME does have an effective maintenance/service mechanism in place to resolve any issues by the stakeholders/end users. As part of this, a fully automated process is in place where the comments are captured using TaroWorks app in real time. /08/ Phone numbers, e-mail ID and website details are also provided to the stakeholders to maintain on-going communication. Furthermore, CME has a process in place to ensure users are visited at different times of project development. This was confirmed by the VVB during site visit by interviewing the end users.

**No Double Counting Assessment:** Verification team based on a review of MR /01/ and end user agreement /05/ along with the evidence of ownership/03/, confirms that the beneficiary end users relinquish their right of carbon credits and transferred to the CME, verified by the beneficiary households through a signed covenant. Furthermore, biodigesters implemented under the project is uniquely identified, thus avoiding any potential double counting. Furthermore, based on a review of CME's project database /11/ as well as web-research of carbon registries (CDM, GS, VCS, etc.), provided sample contracts with the active masons/06/ and unique identification system on the biodigester /06/, verification team confirms that there are no other such GS projects in the region where the project intervenes.

Furthermore, for the project users and biodigester unique identifying serial number management system, to avoid double counting, CME has implemented the related actions as follows,

- i. CME has implemented a unique identifying serial number imprinted on each digester that will allow the identification of each individual unit, and the number can be traced from the database.
- ii. The project database was checked prior to each verification to make sure that no unique unit serial number is present more than once in the project database.

In conclusion, Carbon Check verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occurred for this monitoring period.

As a result, it can be confirmed that the project boundary is clearly defined, and the technologies counted in the project are not included in another voluntary or regulatory market or project activity, hence it is assuredly avoiding double counting.

VVB further confirms that there is no risk of double counting with national climate policies and the GS VERs are not included within and counted under a regulated domestic climate mitigation target or NDC.

As verified through document review and on-site interviews, the project implementation and operation, all physical features of the project comply with the project design document /B03/.

Verification team has checked the information in the monitoring report /01/ and compared it against the registered VPA-DD /B03/ and found it to be consistent.

The verification team confirms that:

- a) The project activity is implemented as per registered VPA-DD /B03/.
- b) The actual operation of the proposed project activity is in line with the registered VPA-DD /B03/.
- c) It has reviewed the registered VPA-DD /B03/ including the monitoring plan, and the applied monitoring methodology /B01/, and found that the final MR(V1.3) /01/ for this monitoring period is in line with all the above-mentioned documents.
- d) The implementation and operation of the project, and the steps taken to report emission reductions/removals and other SDG Impacts comply with the applied methodology /B01/ and other applicable regulatory requirements /B02/ /B04/.

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>The verification team of Carbon Check based on a review of records and on-site interviews confirms that a robust and effective grievance addressal mechanism is in place and at the end of this MP, 35 digesters were reported for repair or maintenance. Out of those 11 were repaired, and 24 were excluded as repairs or follow up is ongoing. The most common issues reported by farmers include 'The plant has not been working for a while now' and 'There is no gas production'. /10/</p> <p>In summary, the monitoring period is reasonable, and the operation of the VPA is in accordance with the registered VPA-DD /B03/.</p> |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### D.3. Post-registration changes

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

1. In this MR CME has decided to report  $f_{NRB}$  as a ex ante parameter, VVB reviewed the treatment of the parameter  $f_{NRB}$  and noted that while it is listed as a monitoring parameter in the registered VPA-DD, the CME has considered it as an ex-ante parameter in the current monitoring report. The VVB crosschecked this approach against the applied methodology, which specifies that the  $f_{NRB}$  value shall be “fixed by the baseline study for a given crediting period and updated if necessary as specified in section III.1.”

The VVB further confirmed that the registered PDD also specifies the parameter as fixed for the crediting period, aligning with the conservative approach previously accepted by Gold Standard. In line with this, the VVB verified that the value used in the MR is consistent with the one approved under the last performance review and with activity GS 5642, which follows the same methodological treatment.

Accordingly, the VVB confirms that the change in treatment of  $f_{NRB}$  from a monitoring parameter to an ex-ante parameter is consistent with the methodological provisions and project design and is appropriately reflected in Section B.2.1 of the MR, as - Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline.

2. During the verification audit, the VVB reviewed the treatment of the parameter  $BB_{b4, fuel}$  (fossil fuel in B4) and noted that while the VPA-DD initially specified this parameter to be monitored once per crediting period, the required one-time monitoring was already completed and approved during a previous verification. This established the values of 0.24 tonnes/year/household for LPG and 0.44 tonnes/year/household for biomass.

The VVB confirmed that the monitoring plan allowed for this one-time determination, after which the parameter could be treated as fixed ex-ante for the remainder of the crediting period. The current MR applies these approved values consistently. Therefore VVB confirmed the reported deviation is appropriate

#### D.3.2. Corrections

1. The VS excretion value for sheep was incorrectly described as 0.31 kgVS/dag in the registered VPA-DD. This in fact 0.32 kgVS/day as per IPCC 2006 guidelines volume 4-chapter 10 table 10 A-9 and this is the value used in this MP/B05/. During the verification of the current MP no need for corrections has been identified.
2. VVB reviewed the parameter Methane Conversion Factor (MCF) for the baseline manure management system and noted that while the registered VPA-DD had incorrectly indicated the unit as “kg CH<sub>4</sub>”, the correct unit should be “%”. The current Monitoring Report correctly applies the methodological identifier ( $MCF_{x,k}$ ), the correct unit (%), and the approved value (3.39%).

Based on the review of documentation and calculations, the VVB concludes that the unit correction does not affect emission reduction results and that the parameter is reported accurately and in full alignment with the applied methodology

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

>> Not applicable

#### D.3.4. Inclusion of a monitoring plan

>> Not applicable

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

>>The PoA transitioned to GS4GG on 23/07/2019. The transition annex is applicable to all VPAs registered under the PoA. Most monitoring parameters remained the same but are now expressed in terms of contribution to the SDGs instead of the SD parameters with the exception of the following parameters

- A new SDG is monitored: SDG 5 Achieve gender equality and empower all women and girls with the following indicators:
  - Time savings of the female member in charge of cooking.
  - Usage of saved time.

No Temporary deviations from the registered monitoring plan or Temporary deviations from monitoring methodology or standardized baseline have been proposed during the current monitoring period.

#### D.3.6. Changes to the project design

>> Not applicable

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

>> Not applicable

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

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Findings</b>              | CL 04,05,07, 08,11 was raised and closed successfully. Please refer to Appendix 4 for further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Conclusion</b>            | <p>By means of comparison of the MR with the applied methodology and all applicable GS4GG guidelines, the verification team has checked whether the monitoring system is in compliance with the monitoring plan and related requirements of the applied methodology whether the sample plan conducted accordingly, the source and the applied value of the SDG monitored parameter is acceptable; whether the parameters monitored explain the operational and management structure, responsibilities and institutional arrangement for data collection/archiving, QA/QC procedures.</p> <p>The monitoring system applied by the project compliance with the registered monitoring plan is demonstrated as below:</p> <p><b>Monitoring for SDG parameters</b></p> <p>Carbon Check confirmed that all the monitoring parameters listed in the VPA-DD have been provided in section D of MR corresponding to each SDG impact. The PoA transitioned to GS4GG on 23/07/2019. Most monitoring parameters remained the same but are now expressed in terms of contribution to the SDGs instead of the SD parameters with the exception of the following parameters</p> <ul style="list-style-type: none"> <li>• A new SDG is monitored: SDG5 Achieve gender equality and empower all women and girls with the following indicators:           <ul style="list-style-type: none"> <li>○ Time savings of the female member in charge of cooking</li> <li>○ Usage of saved time</li> </ul> </li> </ul> <p>The sampling design carried out by the project is demonstrated as below:<br/>Before preparing the MR, CME conducted the carbon monitoring survey and usage survey to investigate the values used for this monitoring period for monitored parameters, which is verified as in line with the requirement in the VPA-DD monitoring plan/B03/ and methodology requirement. 20 monitored parameters including <b>BBp,fuel, MST,S,k, MSP,S,k, NT,h, Up,y</b> needs to be determined based on the carbon monitoring survey and usage survey. The sampling approach for the</p> |

parameters has been assessed in section C.4 of this report.

Through checking the sampling method as stated in MR, it is verified that the method is in line with the VPA-DD sampling plan and methodology requirement, usage questionnaires which was designed according to Rule Update Usage Rate Requirements - Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Publication Date 11/04/2021 and Mandatory Monitoring requirements set out in the REQUIREMENTS AND GUIDELINES: Usage Rate Monitoring V2.0.

#### **Monitoring framework**

The MR contains information on the organization structure of carbon monitoring and verification including all the related parties implemented by the CME to implement the monitoring of project activity. The roles and responsibilities of each party have been elaborated in the MR and have been verified by the verification team during the site visit and interviews with the corresponding representatives from parties. EcoFrontier as the surveyor team was commissioned by CME to do the monitoring survey and all the data was reviewed by Hivos and KBP for this monitoring period. The organizational structure is considered sufficient to fulfil the monitoring requirements of the methodology and ensure that emission reductions are verified for this monitoring period. /01/

#### **Project database**

CME has created and maintained the project database along with the biodigester constructed/rehabilitated. During the biodigester construction, data was recorded by the online system (Taroworks) and verified by the project staff & the masons/ biogas installers could fill in the digesters information (including photos, GPS location, etc.) and upload them to the online system (Taroworks) which has been confirmed by checking the online system. The related information of biodigester and corresponding users is derived from an online system and finally summarized in the database which has been confirmed by checking the project distribution records /05/.

Through site inspection, interview with CME, VPA implementer, sampled end users, representative mason and checking the data management system including database and online system, Carbon Check confirmed that CME has provided a completed description of the management of project data and biodigester's construction/rehabilitation which has been verified as actual and correct.

#### **Training**

All the related masons/biogas installers/technicians have participated the training for biodigester construction, promotion and marketing, warranty, after-sale services and using the online system (Taroworks) for data recording.

For the carbon monitoring survey, training was provided for the surveyors carrying out the actual field measurements to get skills and experience required for the data collection activities. After the training, the surveyors went to the households to test and practice the survey tools and data collection process.

The above training courses are confirmed as conducted during this monitoring period by checking the related training report and records. /13/

#### **Quality Assurance and Quality Control**

The related QA/QC procedure has been conducted by CME for the monitoring process including accurate and transparent record keeping, cross-check, monitoring and evaluation which has been verified by checking the related monitoring plan and survey report./07/

Carbon Check confirmed that the QA/QC procedure has been implemented by CME properly during this monitoring period and the data management is confirmed as effective.

In conclusion, the monitoring system is completely in accordance with the approved methodology applied by the GS project and VPA-DD.

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>The verification team has checked the actual monitoring plan against the registered monitoring plan and monitoring methodology and applicable tools. Furthermore, the verification team has checked the monitoring system by means of comparison with the information given in the monitoring plan and monitoring methodology /B01/. The monitoring plan is completely in accordance with the approved methodology /B01/ applied by the registered VPA-DD /B03/.</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

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

| Means of verification | The ex-ante fixed parameters are assessed in the table given below:                              |                          |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Ex Ante Data and Parameters                                                                      |                          |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                       | Parameters                                                                                       | Values applied           | Source                                                                                   | Assessment by VVB                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                       | $f_{NRB,i,y}$ –<br><br>non-renewability status of woody biomass fuel in scenario i during year y | 89.48%                   | GS 5642 BURN cookstove project VPA-DD section B7.2, Which is verified in Validation/B03/ | <p>As per the registered VPA-DD, the value applied was 92% as per default <math>f_{NRB}</math> factors from the CDM. However, this value expired on 18/09/2017.</p> <p>Therefore, the <math>f_{NRB}</math> value was calculated and updated during the first monitoring period as part of the GS registered PDD (GS 5642) which is valid for the whole VPAs in Kenya. Hence this value is confirmed as applicable to this monitoring period.</p> |
|                       | $EF_{b,bio}$ –<br><br>Emission factor of the woody biomass used in baseline scenario b           | 112 tCO <sub>2</sub> /TJ | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 /           | <p>CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD. Hence this value is confirmed as applicable to this monitoring period.</p>                                                                                                                                                                                                                                   |
|                       | $EF_{p,bio}$ –<br><br>Emission factor of the woody biomass used in project scenario p            | 112 tCO <sub>2</sub> /TJ | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 /           | <p>CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD. Hence this value is confirmed as applicable to this monitoring period.</p>                                                                                                                                                                                                                                   |

|  |                                                                                                                  |                                                                                                                                                                                                                                |                                                                                |                                                                                                                                                                                                                                                                                           |
|--|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>EF<sub>p,fuel</sub></b> -<br><br>Emission factors of fossil fuels used in project scenario p                  | Kerosene = 71.9 tCO <sub>2</sub> /TJ<br>LPG = 63.1 tCO <sub>2</sub> /TJ                                                                                                                                                        | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 / | CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD.<br>Hence this value is confirmed as applicable to this monitoring period.                                                                                |
|  | <b>NCV<sub>bio</sub></b> -<br><br>Net calorific value of the non-renewable biomass used in the baseline scenario | 0.015 TJ/tonne                                                                                                                                                                                                                 | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 / | CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD.<br>Charcoal is expressed in wood equivalents, and the NCV of firewood is applied. Hence this value is confirmed as applicable to this monitoring period. |
|  | <b>EF<sub>b, fuel</sub></b> -<br><br>Emission factor of fossil fuels used in baseline scenario b                 | Kerosene = 71.9 tCO <sub>2</sub> /TJ<br>LPG = 63.1 tCO <sub>2</sub> /TJ                                                                                                                                                        | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 / | CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD.                                                                                                                                                          |
|  | <b>NCV<sub>fuel</sub></b> -<br><br>Net calorific value of fossil fuels used in the baseline scenario             | Kerosene = 0.0438<br>LPG = 0.0473                                                                                                                                                                                              | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories/B05 / | CME has applied default values from 2006 IPCC Guidelines for this monitoring period, which is confirmed in line with the VPA-DD.                                                                                                                                                          |
|  | <b>VS<sub>T</sub></b> -<br>Daily volatile solid excreted for livestock category T                                | Dairy cows = 1.90 kg/head/day<br>Other cattle = 1.50 kg/head/day<br>Market Swine = 0.30 kg/head/day<br>Breeding swine = 0.30 kg/head/day<br>Goats = 0.35 kg/head/day<br>Sheep = 0.32 kg/head/day<br>Poultry = 0.02 kg/head/day | Defaults in 2006 IPCC Guidelines for National Greenhouse Gas Inventories       | CME has applied default values from 2006 IPCC Guidelines /B05/ for this monitoring period, which is confirmed in line with the VPA-DD.                                                                                                                                                    |

|  |                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                          |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>Bo<sub>T</sub></b> -</p> <p>Maximum methane production capacity manure produced by animal type</p>                                      | <p>Dairy cows = 0.13 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Other cattle = 0.10 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Market swine = 0.29 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Breeding swine = 0.29 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Goats = 0.13 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Sheep = 0.13 m<sup>3</sup> CH<sub>4</sub>/kg<br/>           Poultry = 0.24 m<sup>3</sup> CH<sub>4</sub>/kg</p> | <p>Volume 4 of 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10</p>                                                                                                                                                                                                                                                            | <p>CME has applied default values from Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10 for this monitoring period, which is confirmed in line with the VPA-DD.<br/>           Hence this value is confirmed as applicable to this monitoring period.</p>        |
|  | <p><b>η<sub>biogasstove</sub></b> -</p> <p>Combustion efficiency of the biogasstove</p>                                                       | <p>99.4 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Default value from the US-EPA (1998) Greenhouse Gases from Small-Scale Combustion Devices in Developing Countries by Kirk R. Smith. R. Uma. V.V.N. Kishore. K. Lata. V. Joshi. Jufeng Zhang. R.A. Ramussen and M. A. K. Khalil referenced in Centre for Energy Studies, Institute of Engineering for the Nepal Biogas Support Programme (NBSP).</p> | <p>CME has applied a default value from the Literature US-EPA (1998) Greenhouse Gases from Small-Scale Combustion Devices in Developing Countries by Kirk.et.al.;, which is confirmed in line with the VPA-DD.<br/>           Hence this value is confirmed as applicable to this monitoring period.</p> |
|  | <p><b>MCF<sub>x,k</sub></b> -</p> <p>The methane conversion factor for the baseline manure management systems (x) in all the regions (k).</p> | <p>3.39%</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Tables 10.A-4 through A-9., Chapter 10, Volume 4 of 2006 IPCC Guidelines</p>                                                                                                                                                                                                                                                                        | <p>CME has applied default values from Tables 10.A-4 through A-9., Chapter 10, Volume 4 of the IPCC 2006 Guidelines for this monitoring period, which is confirmed in line with the VPA-DD.<br/>           Hence this value is confirmed as applicable to this monitoring period.</p>                    |

|  |                                                                                                                           |               |                                                      |                                                                                                       |                                                                                                                                                                                                                                                                                        |
|--|---------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>BB<sub>b1,bio</sub></b><br>Amount of woody biomass used in the baseline scenario b1                                    |               | 3.66 Tonnes/year                                     | KPT primary data 29Sept2015 B1(firewood), sheet '90/30 test'                                          | The values are fixed in the registered VPA-DD for the entire crediting period based on baseline KPT data.<br>Hence this value is confirmed as applicable to this monitoring period.                                                                                                    |
|  | <b>BB<sub>b2,bio</sub></b><br>Amount of charcoal (in fuel-wood equivalents) used in the baseline scenario b2              |               | 7.48- Tonnes/year                                    | 20170322 Survey C BFT Sample Size - KE, sheet 'B2 - 90 30 test'                                       | The values are fixed for the entire crediting period based on baseline KPT data conducted in 2017.<br>Hence this value is confirmed as applicable to this monitoring period.                                                                                                           |
|  | <b>BB<sub>b3,bio</sub></b><br>Amount of fuelwood and charcoal (in fuel-wood equivalents) used in the baseline scenario b3 |               | 7.06- Tonnes/year                                    | 20170322 Survey C BFT Sample Size - KE, sheet 'B2 - 90 30 test'                                       | The values are fixed for the entire crediting period based on baseline KPT data conducted in 2017.<br>Hence this value is confirmed as applicable to this monitoring period.                                                                                                           |
|  | <b>BB<sub>b4,fuel</sub></b><br>Amount of fossil fuels used in baseline scenario b4                                        |               | 0.24 Tonnes/year/hh                                  | VPA06 MR5                                                                                             | The value was determined during the previous monitoring period for VPA 01 CPII and VPA06 CPI.<br>Hence this value is confirmed as applicable to this monitoring period.                                                                                                                |
|  | <b>BB<sub>b1,2,3,4</sub></b><br>Amount of fossil fuel used in the baseline scenarios b1, b2, b3 and b4                    |               | 0.24 Tonnes/year/hh                                  | Refer to parameter BB <sub>b4,fuel</sub>                                                              | The value was determined during the previous monitoring period for VPA 01 CPII and VPA06 CPI, for scenario 4.<br>No fossil fuels were issued in other scenarios.<br>Hence this value is confirmed as applicable to this monitoring period.                                             |
|  | <b>EF<sub>awms,T</sub></b><br>Animal waste methane emission factor by average temperature (Kenya 20°C)                    | <b>Animal</b> | <b>Value</b><br>(m <sup>3</sup> CH <sub>4</sub> /kg) | 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Temperature: World Weather Online /B07/ | CME has applied IPCC default values for the region Asia from volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10 and applied temperature values from world weather online for this monitoring period, which is confirmed in line with the VPA-DD. |
|  |                                                                                                                           | Dairy cow     | 1                                                    |                                                                                                       |                                                                                                                                                                                                                                                                                        |
|  |                                                                                                                           | Goat          | 0.017                                                |                                                                                                       |                                                                                                                                                                                                                                                                                        |
|  |                                                                                                                           | Other cattle  | 1                                                    |                                                                                                       |                                                                                                                                                                                                                                                                                        |
|  |                                                                                                                           | Sheep         | 0.015                                                |                                                                                                       |                                                                                                                                                                                                                                                                                        |

|                   |                                                                                                                                                                                                                                                                                                                                      |                |      |                                                                                                             |                                                                                                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                                                                                                                                                                                                                                                                                                      | Market swine   | 1    |                                                                                                             | Hence this value is confirmed as applicable to this monitoring period.                                                                                                                                         |
|                   |                                                                                                                                                                                                                                                                                                                                      | Poultry        | 0.02 |                                                                                                             |                                                                                                                                                                                                                |
|                   |                                                                                                                                                                                                                                                                                                                                      | Breeding swine | 1    |                                                                                                             |                                                                                                                                                                                                                |
|                   |                                                                                                                                                                                                                                                                                                                                      |                |      |                                                                                                             |                                                                                                                                                                                                                |
|                   | <b>PL</b>                                                                                                                                                                                                                                                                                                                            | -              | 10 % | Estimated using a 10% default rate of total methane production. (As per annex 6 of the applied methodology) | Conservative values from the applied GS methodology used in this monitoring period, which is confirmed with the VPA-DD and Methodology. Hence this value is confirmed as applicable to this monitoring period. |
|                   | Physical leakage of the biodigester                                                                                                                                                                                                                                                                                                  |                |      |                                                                                                             |                                                                                                                                                                                                                |
|                   | The assessment team has checked that all the ex-ante parameters were fixed at the level of VPA and were verified from the validated VPA-DD or updated values during previous verifications. Also, the ex-ante parameter values have been consistently applied for the ER calculation which is evident from the ER calculation sheet. |                |      |                                                                                                             |                                                                                                                                                                                                                |
| <b>Findings</b>   | N/A                                                                                                                                                                                                                                                                                                                                  |                |      |                                                                                                             |                                                                                                                                                                                                                |
| <b>Conclusion</b> | The values mentioned in the Monitoring Report and Emission Reduction Spreadsheet/02/ are consistent with the VPA-DD. The applied values are correct and justified.                                                                                                                                                                   |                |      |                                                                                                             |                                                                                                                                                                                                                |

#### D.5.2 SDG Data and parameters monitored

|                              |                                                                                                         |                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <b>Means of verification</b> | <b>1. SDG 2 Net impact</b>                                                                              |                                                                         |
|                              | Relevant SDG:                                                                                           | SDG2                                                                    |
|                              | Data/Parameter                                                                                          | GS-3 Soil condition                                                     |
|                              | Unit                                                                                                    | %                                                                       |
|                              | Description                                                                                             | Percentage of biogas users who use slurry as a fertilizer               |
|                              | Value applied for this monitoring period                                                                | 99.5                                                                    |
|                              | Measuring /Reading /Recording frequency                                                                 | Annually                                                                |
|                              | Is measuring and reporting frequency in accordance with the monitoring plan and methodology? (Yes / No) | Yes, the measuring and reporting frequency are in line with the VPA-DD. |
|                              | Monitoring equipment with accuracy                                                                      | N/A                                                                     |

|                           |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | N/A                                                                                                                                                                                                                                                                                                                                                                                                       |
|                           | How were the values in the monitoring report verified?                                                                                    | The percentage of project population who use the slurry as a fertilizer is derived from the survey result provided in the monitoring report. The value is based on the Survey A results. CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. |
|                           | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                                                                                                          |
|                           | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.<br><br>Original filled questionnaires are used to cross-check the information in monitoring report.<br><br>Furthermore, Carbon Check has conducted a sampling method during the site visit to check the information received from CME's samples. Refer to section C.4 for the sampling method conducted by Carbon Check.                 |
| <b>2. SDG3 Net impact</b> |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                           |
|                           | Relevant SDG:                                                                                                                             | SDG3                                                                                                                                                                                                                                                                                                                                                                                                      |
|                           | Data/Parameter                                                                                                                            | GS-1 Air Quality                                                                                                                                                                                                                                                                                                                                                                                          |
|                           | Unit                                                                                                                                      | %                                                                                                                                                                                                                                                                                                                                                                                                         |
|                           | Description                                                                                                                               | Percentage of project population who notice less smoke and/or odor from animal barns with the project bio-digester and biogas stove                                                                                                                                                                                                                                                                       |
|                           | Value applied for this monitoring period                                                                                                  | 99.1% of the user report perceived health improvement                                                                                                                                                                                                                                                                                                                                                     |
|                           | Measuring /Reading /Recording frequency                                                                                                   | Annually                                                                                                                                                                                                                                                                                                                                                                                                  |
|                           | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the VPA-DD.                                                                                                                                                                                                                                                                                                                                   |
|                           | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                       |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                       |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | N/A                                                                                                                                                                                                                                                                                                                                                                   |
|  | How were the values in the monitoring report verified?                                                                                    | <p>The percentage of project population who notice less smoke with the biogas stove is derived from the survey A results.</p> <p>CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion.</p>                 |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                                                                      |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>Original filled questionnaires are used to cross-check the information in monitoring report.</p> <p>Furthermore, Carbon Check has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section C.4 for the sampling method.</p> |

|                            |                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                  |      |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
|                            | <b>3. SDG 5 Net impact</b>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                  |      |
|                            | Relevant SDG:                                                                                                                           | SDG 5                                                                                                                                                                                                                                                                                                                                                                                            |      |
|                            | Data/Parameter                                                                                                                          | Time savings                                                                                                                                                                                                                                                                                                                                                                                     |      |
|                            | Unit                                                                                                                                    | %                                                                                                                                                                                                                                                                                                                                                                                                |      |
|                            | Description                                                                                                                             | Percentage of women that report time-savings attributed to the installation of a biodigester                                                                                                                                                                                                                                                                                                     |      |
|                            | Value applied for this monitoring period                                                                                                | Yes, more time available than before having biogas                                                                                                                                                                                                                                                                                                                                               | 95.6 |
|                            |                                                                                                                                         | No, just the same as before (between before and after having Biogas)                                                                                                                                                                                                                                                                                                                             | 4.4  |
|                            |                                                                                                                                         | Yes, less time available than before having biogas                                                                                                                                                                                                                                                                                                                                               | 0.0  |
|                            | Measuring /Reading /Recording frequency                                                                                                 | Annually                                                                                                                                                                                                                                                                                                                                                                                         |      |
|                            | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                      | Yes, the measuring and reporting frequency are in linewith the VPA-DD.                                                                                                                                                                                                                                                                                                                           |      |
|                            | Monitoring equipment with accuracy                                                                                                      | NA                                                                                                                                                                                                                                                                                                                                                                                               |      |
|                            | Is the installed monitoring equipment has been dulycalibrated for this entire monitoringperiod? (Yes / No)                              | NA                                                                                                                                                                                                                                                                                                                                                                                               |      |
|                            | How were the values in the monitoring report verified?                                                                                  | The percentage of project population (women of the households) who notice time savings with the project bio- digester and biogas stove is derived from the survey A results.<br>CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. |      |
|                            | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                           | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                                                                                                 |      |
|                            | Does the data management ensure correct transfer of data and reporting of emission reductionsand are necessary QA/QC processes inplace? | Yes, QA/QC procedures were found to be appropriate and reliable.<br>Originally filled questionnaires are used to cross-check the information in carbon monitoring report. Furthermore, Carbon Check has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section C.4 for the sampling method conducted by Carbon Check.           |      |
| <b>4. SDG 5 Net impact</b> |                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                  |      |
| Relevant SDG:              | SDG 5                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                  |      |
| Data/Parameter             | Usage of saved time                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |      |
| Unit                       | [-]                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |      |

|                     |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                     | Description                                                                                                                               | Usage of saved time                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |
|                     | Value applied for this monitoring period                                                                                                  | Income generating including farming                                                                                                                                                                                                                                                                                                                                                                                                                      | 72% |
|                     |                                                                                                                                           | Recreation                                                                                                                                                                                                                                                                                                                                                                                                                                               | 22% |
|                     |                                                                                                                                           | Helping my husband                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8%  |
|                     |                                                                                                                                           | Social activity (voluntary work, etc)                                                                                                                                                                                                                                                                                                                                                                                                                    | 29% |
|                     |                                                                                                                                           | Other                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4%  |
|                     | Measuring /Reading /Recording frequency                                                                                                   | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |
|                     | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in linewith the VPA-DD.                                                                                                                                                                                                                                                                                                                                                                                   |     |
|                     | Monitoring equipment with accuracy                                                                                                        | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|                     | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|                     | How were the values in the monitoringreport verified?                                                                                     | The proportion of respondents who reported time savings and how they utilized the saved time across various categories, as derived from the survey results in the monitoring report.<br><br>The value is based on the Survey A results. CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. |     |
|                     | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                                                                                                                                                         |     |
|                     | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.<br>Original filled questionnaires are used to cross-check the information in monitoring report.<br>Furthermore, Carbon Check has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section C.4 for the sampling method conducted by Carbon Check.                                                                         |     |
| 5. SDG 7 net impact |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |

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|  | Relevant SDG:                                                                                                      | SDG 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Data/Parameter                                                                                                     | GS-08 Access to affordable and clean energy services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | Unit                                                                                                               | Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Description                                                                                                        | Number of biogas units installed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Value applied for this monitoring period                                                                           | 4,433                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Measuring /Reading /Recording frequency                                                                            | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes, the measuring and reporting frequency are in linewith the VPA-DD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Monitoring equipment with accuracy                                                                                 | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Is the installedmonitoring equipment has been duly calibrated for this entire monitoringperiod? (Yes / No)         | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | How were the values in the monitoring report verified?                                                             | <p>The total number of biogas units installed is derived from the project database.</p> <p>By gathering and analyzing information in project database, the number of biodigesters commissioned has been determined.</p> <p>CME has created and maintained the project database. During the biodigester construction, data was recorded by the online system (Taroworks) and verified by the project staff &amp; the masons/biogas installers could fill in the digesters information (including photos, GPS location, etc.) and upload them to the online database (Taroworks) which has been confirmed by checking the online system. The related information of biodigester and corresponding users is derived from an online system and finally summarized in the database which has been confirmed by checking the project database.</p> <p>Through checking the project database, Carbon Check verified that the numbers can be checked, and the values are consistent.</p> |
|  | If applicable, has the reported data beencross-checked with other available data? (Yes / No)                       | <p>The information listed in the project database are cross-checked with the data of the end users which was recorded by the online system (Taroworks). It is verified that the information of the end users listed in the data of the end users which was recorded by the online system (Taroworks) is consistent with the related information in project database.</p> <p>Furthermore, Carbon Check has conducted a sampling method to check the sales information, which has been elaborated in section C.4 of this report.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are              | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>Only data recorded by the online system (Taroworks) was verified by the project staff, data of this</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|                            |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                               |
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|                            | necessary QA/QC processes inplace?                                                                                                       | household is entered into the project database/11/ ensure the number of biogas plants commissioned are correct and actual.<br>Furthermore, the value of the number of biodigesters commissioned will be determined monthly. Technology days equal to 2 weeks will be reduced for the month of construction of the digester as it is assumed that it will take 14 days for the biodigester to produce biogas.. |
|                            | Relevant SDG:                                                                                                                            | SDG 7                                                                                                                                                                                                                                                                                                                                                                                                         |
|                            | Data/Parameter                                                                                                                           | GS-12 Technology transfer and technological self-reliance                                                                                                                                                                                                                                                                                                                                                     |
|                            | Unit                                                                                                                                     | Number of masons and biogas enterprise staff attending training programmes                                                                                                                                                                                                                                                                                                                                    |
|                            | Description                                                                                                                              | Refers to changes compared to the baseline in activities that build usable and sustainable know-how in a region/country for a technology, where know-how was previously lacking. The number of constructors trained will be monitored.                                                                                                                                                                        |
|                            | Value applied for this monitoring period                                                                                                 | 0<br><br>The value is reported as 0 because no training was conducted during this MP.                                                                                                                                                                                                                                                                                                                         |
|                            | Measuring /Reading /Recording frequency                                                                                                  | Annually                                                                                                                                                                                                                                                                                                                                                                                                      |
|                            | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                       | Yes, the measuring and reporting frequency are in line with the VPA-DD.                                                                                                                                                                                                                                                                                                                                       |
|                            | Monitoring equipment with accuracy                                                                                                       | NA                                                                                                                                                                                                                                                                                                                                                                                                            |
|                            | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                             | NA                                                                                                                                                                                                                                                                                                                                                                                                            |
|                            | How were the values in the monitoring report verified?                                                                                   | The records kept of attendance on the vocational training programmes, including general training extended to entities outside of the programme were verified.                                                                                                                                                                                                                                                 |
|                            | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                            | NA                                                                                                                                                                                                                                                                                                                                                                                                            |
|                            | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes inplace? | Yes, QA/QC procedures were found to be appropriate and reliable.<br>Transparent data analysis and reporting were done by the CME.                                                                                                                                                                                                                                                                             |
| <b>6. SDG 7 net impact</b> |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                               |

|  |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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|  | <b>07. SDG 8 Impact</b>                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | Relevant SDG:                                                                                                      | SDG8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Data/Parameter                                                                                                     | GS-10 Quantitative employment and income generation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Unit                                                                                                               | man-days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Description                                                                                                        | Cumulative number of mason working days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | Value applied for this monitoring period                                                                           | 67,071                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|  | Measuring /Reading /Recording frequency                                                                            | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes, the measuring and reporting frequency are in line with the VPA-DD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | Monitoring equipment with accuracy                                                                                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | How were the values in the monitoring report verified?                                                             | <p>This is calculated by multiplying the number of digesters constructed times the default number of days required for the construction. Non-masonry plants are defaulted to 0.25 working days, while the 4,6,8,10 and 12 m3 masonry plants require respectively 6,7,8,10 and 12 working days of a mason and the same number of working days of a helper (causal laborer). Furthermore, through interviews with the mason representatives, it is verified that the project has created job opportunities for them. CME reviewed the end user agreements in which mason are also signed./06/</p> <p>CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through evidence found properly analyzed and calculated correctly to arrive at the conclusion.</p> |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                      | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | <b>8. U<sub>p1,y</sub></b>                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | Data/Parameter                                                                                                                            | U <sub>p1,y</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Unit                                                                                                                                      | Fraction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | Description                                                                                                                               | Cumulative usage rate for technologies in project scenario p1 in year y, based on cumulative adoption rate and drop-off rate (fraction)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|  | Value applied for this monitoring period                                                                                                  | 71.61%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | Measuring /Reading /Recording frequency                                                                                                   | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | How were the values in the monitoring report verified?                                                                                    | <p>The usage rate is determined on a sampling basis through an annual monitoring survey i.e., survey B result.</p> <p>A single usage parameter is calculated as a weighted average to represent the proportion of project technologies of each age group being credited within the given project scenario.</p> <p>The weighted average usage rate across all age groups is 71.22%. This value has been adjusted downward to 70.93% to account for plant downtime. It is then adjusted upward to 71.60% to reflect plants that ceased operation but were functional for part of the monitoring period.</p> <p>In accordance with the USAGE Guideline v2.0, biogas projects may claim a maximum of 90% usage rate for any individual age group. Consequently, all age-group-specific usage rates have been capped at 90%.</p> <p>Based on the information provided, the site visit findings, and the desk review of data and documentation, the parameter "Cumulative usage rate for technologies in project scenario p1 in year y, based on cumulative adoption rate and drop-off rate" as reported by the project, is accurate and reflects actual operational rate of project. The same is verified as accurate and in line with the</p> |

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|  |                                                                                                                                                  | <p>project's monitoring plan.</p> <p>Furthermore, the VVB also confirmed the same by means of acceptance sampling during on-site visit. The sampling plan has been elaborated in section C.4 of this report.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | <p>If applicable, has the reported data been cross-checked with other available data? (Yes / No)</p>                                             | <p>Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the survey B result is cross-checked with the original filled questionnaires for survey B survey which are based on the results obtained by asking related questions.</p> <p>Furthermore, Carbon Check has conducted a sampling method to check the information received from CME's samples, which has been elaborated in section C.4 of this report.</p> <p>Hence, the cross-check has been conducted and value in the MR is verified as reasonable.</p>                                                                                                                                |
|  | <p>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</p> | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>Participants in the usage survey have technologies with a minimum average usage duration: for age group 0–1 year, the technology should have been in use for more than 0.5 years; for age group 1–2 years, at least 1.5 years of use is required; and so on. The same has been confirmed from the project database, based on the date of commissioning.</p> <p>QA/QC procedure for data collected during the CMS is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the results were then validated by Hivos and CME.</p> |
|  | <b>9. Np1,y</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Relevant SDG:                                                                                                                                    | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Data/Parameter                                                                                                                                   | Np1,y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Unit                                                                                                                                             | Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Description                                                                                                                                      | Cumulative number of project technology-days included in the project database for project scenario p1 against baseline scenario b in year y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Value applied for this monitoring period                                                                                                         | 1,097,776                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | Measuring /Reading /Recording frequency                                                                                                          | Annual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | <p>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</p>                        | <p>Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Monitoring equipment with accuracy                                                                                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|  | <p>Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)</p>                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|  | How were the values in the monitoring report verified?                                                                                    | <p><b>N<sub>p1,y</sub></b> is derived from project database.</p> <p>By gathering and analyzing information in project database, the number of biodigesters commissioned has been determined.</p> <p>CME has created and maintained the project database along with the biodigester constructed/rehabilitated. During the biodigester construction, data was recorded by the online system (Taroworks) and verified by the project staff &amp; the masons/biogas installers could fill in the digesters information (including photos, GPS location, etc.) and upload them to the online database (Taroworks) which has been confirmed by checking the online system. The related information of biodigester and corresponding users is derived from an online system and finally summarized in the database which has been confirmed by checking the project database.</p> <p>Through checking the project database, Carbon Check verified that the numbers can be checked, and the values are consistent.</p> |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | The information listed in the project database is cross checked with the data of the end users which was recorded by the online system (Taroworks), it is verified that the information of the end users listed in the data of the end users which was recorded by the online system (Taroworks) is consistent with the related information in project database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>Only data recorded by the online system (Taroworks) was verified by the project staff, data of this household is entered into the project database/11/ ensure the number of biogas plants commissioned are correct and actual. Furthermore, the value of the number of biodigesters commissioned will be determined monthly.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | <b>10. O<sub>p1,y</sub></b>                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Data/Parameter                                                                                                                            | O <sub>p1,y</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|  | Unit                                                                                                                                      | Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Description                                                                                                                               | The average technology-days during which the biodigesters are operational for project scenario p1 against baseline scenario b1 in year y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Value applied for this monitoring period                                                                                                  | 249.21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Measuring /Reading /Recording frequency                                                                                                   | Continuous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|  | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | How were the values in the monitoring report verified?                                                                                    | <p>The operational rate is determined on a sampling basis through an annual monitoring survey i.e., survey B result.</p> <p>In addition, households are required to notify provincial office staff in a situation when a biodigester stops working. This information is recorded in the Project database, allowing the identification per included biodigester the number of operational days per year. In a scenario where the biodigester stops operating, the number of non-operational days is recorded in the database.</p> <p>Based on the information provided, the site visit findings, and the desk review of data and documentation, the parameter "<i>The average technology-days during which the biodigesters are operational for project scenario p1 against baseline scenario b1 in year y</i>" as reported by the project, is accurate and reflects actual operational rate of project. The same is verified as accurate and in line with the project's monitoring plan.</p> <p>Furthermore, the VVB also confirmed the same by means of acceptance sampling during on-site visit. The sampling plan has been elaborated in section C.4 of this report.</p> |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | <p>Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the survey B result is cross-checked with the original filled questionnaires for survey B survey which are based on the results obtained by asking related questions.</p> <p>Furthermore, Carbon Check has conducted a sampling method to check the information received from CME's samples, which has been elaborated in section C.4 of this report.</p> <p>Hence, the cross-check has been conducted and value in the MR is verified as reasonable.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>QA/QC procedure for data collected during the CMS is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the results were then validated by Hivos and CME.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | <b>11. LE<sub>p1,y</sub></b>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Data/Parameter                                                                                                                            | LE <sub>p1,y</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | Unit                                                                                                                                      | tCO <sub>2</sub> e/year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Description                                                                                                                               | Leakage in project scenario p during year y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Value applied for this monitoring period                                                                                                  | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Measuring /Reading /Recording frequency                                                                                                   | Every 2 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|               |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|               | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.<br><br>The verification team crosschecked the information reported in section E.3 of the MR for the leakage emissions in project scenario, against approved monitoring period IV MR and confirmed that leakage emissions are very low, and the value applied as 0 is correct and appropriate. The verification team also interviewed CME via online meeting and made phone calls to biodigester end-users who confirmed the same results |       |
|               | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
|               | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
|               | How were the values in the monitoring report verified?                                                                                    | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
|               | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
|               | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
| 12. $N_{T,h}$ |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |
|               | Relevant SDG:                                                                                                                             | SDG13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |
|               | Data/Parameter                                                                                                                            | $NT,h$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |
|               | Unit                                                                                                                                      | Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |
|               | Description                                                                                                                               | Number of animals of livestock category T in premise h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |
|               | Value applied for this monitoring period                                                                                                  | Number of animals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | #/hh  |
|               |                                                                                                                                           | Number of dairy cattle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.03  |
|               |                                                                                                                                           | Number of other cattle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.38  |
|               |                                                                                                                                           | Number of pigs (for market)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.84  |
|               |                                                                                                                                           | Number of pigs (for breeding)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.17  |
|               |                                                                                                                                           | Number of poultry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 21.09 |
|               |                                                                                                                                           | Number of sheep                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.10  |
|               |                                                                                                                                           | Number of goats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.34  |
|               | Measuring /Reading /Recording frequency                                                                                                   | Annual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |

|                                        |                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |                   |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                        | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                                                                                                                                                                              |                   |
|                                        | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                     |                   |
|                                        | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | N/A                                                                                                                                                                                                                                                                                                     |                   |
|                                        | How were the values in the monitoring report verified?                                                                                    | The values in the monitoring report were cross-checked with the values in the ER sheet and found to be consistent.<br>Furthermore, the VVB confirmed the values during on-site visit (Refer to section C.3 of this report) by asking questions about how many animals the end user owned during the MP. |                   |
|                                        | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.                                                                                                                                                                                                                                        |                   |
| 13. <b><i>BB<sub>b,ratio</sub></i></b> |                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |                   |
|                                        | Relevant SDG:                                                                                                                             | SDG13                                                                                                                                                                                                                                                                                                   |                   |
|                                        | Data/Parameter                                                                                                                            | <b><i>BB<sub>b,ratio</sub></i></b>                                                                                                                                                                                                                                                                      |                   |
|                                        | Unit                                                                                                                                      | %                                                                                                                                                                                                                                                                                                       |                   |
|                                        | Description                                                                                                                               | Baseline scenario ratios                                                                                                                                                                                                                                                                                |                   |
|                                        | Value applied for this monitoring period                                                                                                  | <b>Baseline scenario</b>                                                                                                                                                                                                                                                                                | <b>Percentage</b> |
|                                        |                                                                                                                                           | B1: Firewood used to meet (more than 50%) of my cooking needs                                                                                                                                                                                                                                           | 75.1%             |
|                                        |                                                                                                                                           | B2: Charcoal used to meet (more than 50%) of my cooking needs                                                                                                                                                                                                                                           | 9.6%              |
|                                        |                                                                                                                                           | B3: Firewood & charcoal used to meet (more than 50%) of my cooking                                                                                                                                                                                                                                      | 0.0%              |
|                                        |                                                                                                                                           | B4: Other fuels                                                                                                                                                                                                                                                                                         | 15.2%             |
|                                        | Measuring /Reading /Recording frequency                                                                                                   | Annually                                                                                                                                                                                                                                                                                                |                   |
|                                        | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                                                                                                                                                                              |                   |
|                                        | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                     |                   |

|                                |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                            |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                        |
|                                | How were the values in the monitoring report verified?                                                                                    | The percentage of project population with different baseline scenarios are captured via survey A results. CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. |
|                                | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                           |
|                                | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.                                                                                                                                                                                                                                                           |
| <b>14. BB<sub>p1,bio</sub></b> |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                            |
|                                | <b>Relevant SDG:</b>                                                                                                                      | SDG13                                                                                                                                                                                                                                                                                                                      |
|                                | Data/Parameter                                                                                                                            | BB <sub>p1,bio</sub>                                                                                                                                                                                                                                                                                                       |
|                                | Unit                                                                                                                                      | Tonnes/year                                                                                                                                                                                                                                                                                                                |
|                                | Description                                                                                                                               | Amount of woody biomass used in the project scenario p1 (one value)                                                                                                                                                                                                                                                        |
|                                | Value applied for this monitoring period                                                                                                  | 1.453                                                                                                                                                                                                                                                                                                                      |
|                                | Measuring /Reading /Recording frequency                                                                                                   | Once every two years                                                                                                                                                                                                                                                                                                       |
|                                | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                                                                                                                                                                                                 |
|                                | Monitoring equipment with accuracy                                                                                                        | Calibrated scales and moisture meters in project fuel test. Fuel consumption is measured by calibrated scales and moisture meters are also used for measuring the moisture content of wood fuel. /12/                                                                                                                      |
|                                | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | Scale was checked and calculated with the standard weight as per the valid calibration certificates. /12/                                                                                                                                                                                                                  |
|                                | How were the values in the monitoring report verified?                                                                                    | For this monitoring period, CME uses the result from PFTs conducted during this monitoring period. The values in the monitoring report were crosschecked with the ER sheet and the PFT results and found to be                                                                                                             |

|  |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                                                 | consistent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                   | <p>Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the KPT result in the Monitoring Report is cross-checked with the original filled questionnaires for KPT survey which are based on the results obtained by asking related questions. /09/</p> <p>Furthermore, Carbon Check has conducted a sampling method to check the information received from CME's samples.</p> <p>Hence, the cross-check has been conducted and value in the MR is verified as reasonable.</p> |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>QA/QC procedure for data collected during the KPT is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the final results were then validated by Hivos and CME.</p>                                                                                                                                                                                      |

|  |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | QA/QC processes in place?                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | <b>15. <math>BB_{p1,fuel}</math></b>                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | <b>Relevant SDG:</b>                                                                                               | SDG13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | <b>Data/Parameter</b>                                                                                              | <b><math>BB_{p1,fuel}</math></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Unit                                                                                                               | Tonnes/year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|  | Description                                                                                                        | Projected amount of fossil fuels used in the project scenario p1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Value applied for this monitoring period                                                                           | 0.02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Measuring /Reading /Recording frequency                                                                            | Once every 2 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology. PFT was conducted in this MP and is valid for 2 years. So, the frequency request is fulfilled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Monitoring equipment with accuracy                                                                                 | Calibrated scales and moisture meters in project fuel test. Fuel consumption is measured by calibrated scales and moisture meters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                | Scale was checked and calculated with the standard weight as per the valid calibration certificates. /12/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | How were the values in the monitoring report verified?                                                             | <p>For this monitoring period, project fuel test (PFT) was executed which measures the data of quantity of fuel that is consumed in the project scenario, such as LPG, charcoal, and firewood consumption. The PFT is conducted with end-user's representative of the project scenario target population and currently using the biodigesters. 3-days Project Field Test (PFT) has been conducted by a survey team considering the age group. Fuel consumption is measured with only fuel from designated stocks that were pre-weighed by the surveyors on four times visit in the 3 full days.</p> <p>The PFT is verified as conducted in line with the requirement in the VPA-DD sampling plan and methodology requirement.</p> <p>As per the VPA-DD, the sample sizes must be determined through ensuring that the results comply with a 90% confidence interval and 30% margin of error. CME has finished 68 samples for PFT which is higher than minimum sample size of 50 households as defined in the sampling plan and applied methodology. The values obtained were found to be higher than the previously obtained values.</p> |

|                                                                                                                    |                                                                                                                                           | Through checking the sampling method as stated in the Monitoring Report, it is verified that the method is in line with the VPA-DD sampling plan, methodology requirement/B01/ and GS rules.                                                                                                                                                                                                                                                                                              |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------|-------|--------------|-------|--------------|-------|----------------|-------|---------|-------|-------|-------|------|-------|
|                                                                                                                    | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the KPT result in the Monitoring Report is cross-checked with the raw data for KPT survey/ which based on the results obtained by asking related questions. /09/<br>Furthermore, Carbon Check has conducted a sampling method to check the information received from CME's samples.<br>Hence, the cross-check has been conducted and value in the MR is verified as reasonable. |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.<br><br>QA/QC procedure for data collected during the KPT is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the final results were then validated by Hivos and CME.                                                                                                                                                     |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | 16. MS <sub>P,S,k</sub>                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Relevant SDG:                                                                                                                             | SDG13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Data/Parameter                                                                                                                            | MS <sub>P,S,k</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Unit                                                                                                                                      | %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Description                                                                                                                               | Fraction of livestock category T's manure not fed into the bio-digester, S in climate region k                                                                                                                                                                                                                                                                                                                                                                                            |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Value applied for this monitoring period                                                                                                  | <table><tr><th>Animal T</th><th>Fraction</th></tr><tr><td>Dairy cattle</td><td>20.4%</td></tr><tr><td>Other cattle</td><td>25.4%</td></tr><tr><td>Market swine</td><td>54.7%</td></tr><tr><td>Breeding swine</td><td>18.3%</td></tr><tr><td>Poultry</td><td>92.4%</td></tr><tr><td>Sheep</td><td>97.9%</td></tr><tr><td>Goat</td><td>97.8%</td></tr></table>                                                                                                                              | Animal T | Fraction | Dairy cattle | 20.4% | Other cattle | 25.4% | Market swine | 54.7% | Breeding swine | 18.3% | Poultry | 92.4% | Sheep | 97.9% | Goat | 97.8% |
|                                                                                                                    | Animal T                                                                                                                                  | Fraction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
|                                                                                                                    | Dairy cattle                                                                                                                              | 20.4%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Other cattle                                                                                                       | 25.4%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Market swine                                                                                                       | 54.7%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Breeding swine                                                                                                     | 18.3%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Poultry                                                                                                            | 92.4%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Sheep                                                                                                              | 97.9%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Goat                                                                                                               | 97.8%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Measuring /Reading /Recording frequency                                                                            | Annual                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No) | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |
| Monitoring equipment with accuracy                                                                                 | N/A                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |              |       |              |       |              |       |                |       |         |       |       |       |      |       |

|  |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Is the installed monitoring equipment duly calibrated for this entire monitoring period? (Yes / No) | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | How were the values in the monitoring report verified?                                              | <p><b><i>MS(P,S,k)</i></b> was derived from Survey A result.</p> <p>The value of <b><i>MS(P,S,k)</i></b> is calculated by deducting <b><i>MS(T,S,k)</i></b> from 100% which have been verified as correct. VVB has cross-checked the result by site inspection and desk review.</p> <p>The manure production data for livestock category T was cross-checked with the farm's animal records obtained from Survey A result (e.g., number of animals, feed intake). The recorded values were consistent with the expected manure output. The reported fraction of manure not fed into the bio-digester aligns with the data observed on-site. Data from monitoring logs and records confirmed figures, and the physical systems for manure collection and feeding were found to be operational.</p> <p>No significant discrepancies were found between reported values and actual practices. The manure collection, handling, and feeding systems are well-maintained.</p> <p>Based on the information provided, the site visit findings, and the desk review of data and documentation, the parameter "<i>Fraction of livestock category T's manure not fed into the bio-digester</i>" as reported by the project, is accurate and reflects actual practices on the ground. The same is verified as accurate and in line with the project's monitoring plan.</p> |

|                                    | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the Survey A result in the Carbon Monitoring Report is cross-checked with the original filled questionnaires for Survey A survey which are based on the results obtained by asking questions related.<br>Furthermore, Carbon Check has conducted a sampling method to check the information received from PD's samples by asking the question of the fraction of livestock category T's manure fed into the bio-digester and deducted from 100% then comparing the result with PD's same sample result, which has been elaborated in section D.4 of this report. |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--|--------------|-------|--|--------------|-------|--|--------------|-------|--|----------------|-------|--|---------|------|--|-------|------|--|------|------|--|
|                                    | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.<br>QA/QC procedure for data collected during the CMS is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the results were then validated by Hivos and CME.                                                                                                                                                                                                                                                                                                                                                |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| <b>17. <math>MS_{T,S,k}</math></b> |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | <b>Relevant SDG:</b>                                                                                                                      | SDG13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | <b>Data/Parameter</b>                                                                                                                     | $MS_{T,S,k}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Unit                                                                                                                                      | %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Description                                                                                                                               | Fraction of livestock category T's manure fed into the bio-digester, S in climate region k                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Value applied for this monitoring period                                                                                                  | <table> <tr> <th>Animal T</th><th>Fraction</th><th></th></tr> <tr> <td>Dairy cattle</td><td>79.6%</td><td></td></tr> <tr> <td>Other cattle</td><td>74.6%</td><td></td></tr> <tr> <td>Market swine</td><td>45.3%</td><td></td></tr> <tr> <td>Breeding swine</td><td>81.7%</td><td></td></tr> <tr> <td>Poultry</td><td>7.6%</td><td></td></tr> <tr> <td>Sheep</td><td>2.1%</td><td></td></tr> <tr> <td>Goat</td><td>2.2%</td><td></td></tr> </table>                                                                                                                                                                                                                         | Animal T | Fraction |  | Dairy cattle | 79.6% |  | Other cattle | 74.6% |  | Market swine | 45.3% |  | Breeding swine | 81.7% |  | Poultry | 7.6% |  | Sheep | 2.1% |  | Goat | 2.2% |  |
| Animal T                           | Fraction                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Dairy cattle                       | 79.6%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Other cattle                       | 74.6%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Market swine                       | 45.3%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Breeding swine                     | 81.7%                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Poultry                            | 7.6%                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Sheep                              | 2.1%                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
| Goat                               | 2.2%                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Measuring /Reading /Recording frequency                                                                                                   | Annual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes /No)                         | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |
|                                    | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |          |  |              |       |  |              |       |  |              |       |  |                |       |  |         |      |  |       |      |  |      |      |  |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | How were the values in the monitoring report verified?                                                                                    | <p><b>MS(T,S,k)</b> was derived from survey A result.</p> <p>The values are calculated values based on the survey A conducted in November 2024.</p> <p>Survey A has been conducted to determine the value by asking questions related to the livestock category and manure fed into the bio-digester which is verified as appropriate to define the final value of this parameter.</p> <p>The survey question notes the fraction of livestock category T's manure fed into the bio-digester.</p> <p>VVB has cross-checked the result by site inspection. Through checking the survey results, Carbon Check confirmed that Survey A is conducted with sampled end-users representative of project scenario target population and currently using the biodigester. The survey A is verified as in line with the requirement in the VPA-DD sampling plan and methodology requirement.</p> <p>The sampling method conducted by CME has been assessed in detail in the below sections.</p> |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | <p>Yes. The value is measured and calculated based on the survey carried out by a third party. The values in the survey A result is cross-checked with the original filled questionnaires for survey A survey which are based on the results obtained by asking related questions.</p> <p>Furthermore, Carbon Check has conducted a sampling method to check the information received from CME's samples by asking questions of the livestock category T's manure fed into the bio-digester and comparing the result with CME's same sample result, which has been elaborated in section C.4 of this report.</p> <p>Hence, the cross-check has been conducted and value in the MR is verified as reasonable.</p>                                                                                                                                                                                                                                                                      |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>QA/QC procedure for data collected during the CMS is that the related questions are recorded on questionnaires. Following the encoding process, the analysis was led by an experienced consultant and the results were then validated by Hivos and CME.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | <b>18. GWP<sub>CH4</sub></b>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Data/Parameter                                                                                                                            | GWP <sub>CH4</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | Unit                                                                                                                                      | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | Description                                                                                                                               | Global Warming Potential of methane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|  | Value applied for this monitoring period                                                                                                  | 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  | Measuring /Reading /Recording frequency                                                                                                   | Annual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

|                                                                                                                   |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |  |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|
|                                                                                                                   | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the reporting frequency is in line with the registered VPA-DD and applied methodology                                                                                                                                                                                                                                                                                                                                                                                                                         |              |  |
|                                                                                                                   | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |  |
|                                                                                                                   | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |  |
|                                                                                                                   | How were the values in the monitoring report verified?                                                                                    | Default values from GS rule update:<br>“Applicability of global warming potential for gold standard for the global goals projects”/B02/<br><br>As per the rule update, “All emission reductions and removals accrued by GS4GG projects and PoAs (micro, small and large scale) will be calculated by using the IPCC AR5 GWP values. This requirement will apply to all GS4GG projects and PoAs and shall enter into force from 01 January 2021”. Hence, the value of IPCC AR5 has been applied for GWP of methane. |              |  |
|                                                                                                                   | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Yes, with IPCC 2019 refinement of 2006 Guidelines /B05/                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |  |
|                                                                                                                   | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |  |
|                                                                                                                   | <b>19.Bio</b>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |  |
|                                                                                                                   | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |  |
|                                                                                                                   | Data/Parameter                                                                                                                            | Bio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |  |
|                                                                                                                   | Unit                                                                                                                                      | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |  |
|                                                                                                                   | Description                                                                                                                               | Use of bio-slurry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |  |
| Value applied for this monitoring period                                                                          |                                                                                                                                           | How do you apply bio-slurry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | % of farmers |  |
|                                                                                                                   |                                                                                                                                           | Use directly for various purposes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 38.3%        |  |
|                                                                                                                   |                                                                                                                                           | Store it first                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 61.1%        |  |
|                                                                                                                   |                                                                                                                                           | I don't use it / discarded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.5%         |  |
| Measuring /Reading /Recording frequency                                                                           | Annually                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |  |
| Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes /No) | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology.                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |  |
| Monitoring equipment                                                                                              | N/A                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |  |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                           |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | with accuracy                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                           |
|  | Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)                              | N/A                                                                                                                                                                                                                                                                                                                                                       |
|  | How were the values in the monitoring report verified?                                                                                    | The percentage of project population which uses bio slurry for different purposes was recorded in Survey A results. CME has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion.                      |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | Originally filled questionnaires are used to cross-check the information in the survey. The verification team has verified that the value used in MR is correct.                                                                                                                                                                                          |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | Yes, QA/QC procedures were found to be appropriate and reliable.<br>Originally filled questionnaires are used to cross-check the information in monitoring report.<br>Furthermore, Carbon Check has conducted a sampling method during the site visit to check the information received from CME's samples. Refer to section C.4 for the sampling method. |
|  | <b>20. N<sub>op1,y</sub></b>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                           |
|  | Relevant SDG:                                                                                                                             | SDG 13                                                                                                                                                                                                                                                                                                                                                    |
|  | Data/Parameter                                                                                                                            | N <sub>op1,y</sub>                                                                                                                                                                                                                                                                                                                                        |
|  | Unit                                                                                                                                      | Number                                                                                                                                                                                                                                                                                                                                                    |
|  | Description                                                                                                                               | Cumulative number of project technologies included in the project database for project scenario p1 in year y                                                                                                                                                                                                                                              |
|  | Value applied for this monitoring period                                                                                                  | 4,433                                                                                                                                                                                                                                                                                                                                                     |
|  | Measuring /Reading /Recording frequency                                                                                                   | Continuous                                                                                                                                                                                                                                                                                                                                                |
|  | Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)                        | Yes, the measuring and reporting frequency are in line with the registered VPA-DD and applied methodology                                                                                                                                                                                                                                                 |
|  | Monitoring equipment with accuracy                                                                                                        | N/A                                                                                                                                                                                                                                                                                                                                                       |
|  | Is the monitoring equipment installed duly calibrated for this entire monitoring period? (Yes / No)                                       | N/A                                                                                                                                                                                                                                                                                                                                                       |

|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | How were the values in the monitoring report verified?                                                                                    | <p><b>Nop1,y</b> is derived from project database.</p> <p>By gathering and analyzing information in project database, the number of biodigesters commissioned has been determined..</p> <p>CME has created and maintained the project database along with the biodigester constructed/rehabilitated. During the biodigester construction, data was recorded by the online system (Taroworks) and verified by the project staff &amp; the masons/biogas installers could fill in the digesters information (including photos, GPS location, etc.) and upload them to the online database (Taroworks) which has been confirmed by checking the online system. The related information of biodigester and corresponding users is derived from an online system and finally summarized in the database which has been confirmed by checking the project database and sales records/11/.</p> <p>Through checking the project database, Carbon Check verified that the numbers can be checked, and the values are consistent.</p> |
|  | If applicable, has the reported data been cross-checked with other available data? (Yes / No)                                             | <p>The information listed in the project database is cross checked with the data of the end users which was recorded by the online system (Taroworks), it is verified that the information of the end users listed in the data of the end users which was recorded by the online system (Taroworks) is consistent with the related information in project database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place? | <p>Yes, QA/QC procedures were found to be appropriate and reliable.</p> <p>Only data recorded by the online system (Taroworks) was verified by the project staff, data of this household is entered into the project database/11/ ensure the number of biogas plants commissioned are correct and actual. Furthermore, the value of the number of biodigesters commissioned will be determined monthly.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### D.5.2. Implementation of sampling plan

| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|
| <b>Findings</b>              | CAR 03 raised and closed successfully. Please refer to Appendix 4 for further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| <b>Conclusion</b>            | <p>According to the standard for sampling and survey /B04/ and related guidelines /B04/ the sampling plan was determined at the time of project registration and applied during monitoring. Sampling method: Stratified random sampling method is adopted as the target population is not homogeneous. Sub-populations called strata are identified and simple random samples from each of these sub-populations are taken, in line with the methodology for the annual survey.</p> <p>The sampling approach follows the Guideline “<i>Sampling and surveys for CDM project activities and program of activities</i>” for calculation of sample size. The sample size included all households and was randomly sampled from a list of all the project biogas systems that are included in the database (which are not permanently or temporarily excluded as per the grievance tracker). The target population is 4,433 during the monitoring period.</p> <p>The total sample size has been derived per the guidelines in the GS methodology “<i>Technologies and Practices to Displace Decentralized Thermal Energy Consumption</i>” Version 1.0 as well as the Mandatory Monitoring requirements set out in the REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING. For the biogas project, the Mandatory Monitoring requirements allow for a usage rate of between 75 and 90%. /B02/.</p> <p>For usage rate (Survey B), sampling has been performed for a population stratified by 40 counties and 8 age groups.</p> <p>A cross-sectional sampling done between two VPAs of the same PoA; VPA001 and VPA006 for PFT survey</p> <ul style="list-style-type: none"> <li>Usage survey (Survey B) and User survey (Survey A): 278 total samples (more than 30 for each age group) and 211 for the user survey (operational plants identified during the usage survey)</li> <li>PFT survey: 68 samples from the population of 4,433 digesters which were installed from the start date.</li> </ul> <p>Total Population (N) is 4,433 and the expected minimum sample size is 100 and at least 30 samples for project technologies of each age were selected, the sample size (n) comes out to be 278 for usage survey. This is then divided up according to the size of each age group to get the number of systems that should be sampled in each temperature zone. CME has provided evidence for the random selection of samples which is checked by the VVB and deemed acceptable.</p> <table border="1"> <thead> <tr> <th>Age group</th><th>Survey B<br/>HHs reached</th></tr> </thead> <tbody> <tr><td>1</td><td>34</td></tr> <tr><td>2</td><td>35</td></tr> <tr><td>3</td><td>35</td></tr> <tr><td>4</td><td>35</td></tr> <tr><td>5</td><td>35</td></tr> <tr><td>6</td><td>35</td></tr> <tr><td>7</td><td>34</td></tr> <tr><td>8</td><td>35</td></tr> </tbody> </table> <p>The operational samples from these 278 samples were selected for user survey i.e., 211.</p> <p>A complete set of data for the specified monitoring period was available at the time of verification. As a part of on-going monitoring studies, the project developer carried out surveys in November 2024. The survey data /08/ has been reviewed by the VVB. The main parameters which are monitored through the survey are:</p> <ul style="list-style-type: none"> <li>Quantity of fuel that is consumed in project scenario p during year y (<math>P_{p,y}</math>)</li> <li>Usage rate in project scenario p during year y (<math>U_{p,y}</math>)</li> </ul> | Age group | Survey B<br>HHs reached | 1 | 34 | 2 | 35 | 3 | 35 | 4 | 35 | 5 | 35 | 6 | 35 | 7 | 34 | 8 | 35 |
| Age group                    | Survey B<br>HHs reached                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 1                            | 34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 2                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 3                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 4                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 5                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 6                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 7                            | 34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |
| 8                            | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                         |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|  | <ul style="list-style-type: none"> <li>• The number of animals of livestock species per category T (<math>N_{(T)h}</math>)</li> <li>• Waste management system</li> <li>• Parameters related to SDG 2, 3, 5, 7, and 13</li> </ul> <p>During verification, VVB used acceptance sampling to determine the operational status of the digesters. A sample size of 11 was determined, based on an AQL of 0.5% and UQL of 20%, producer risk 10% and consumer risk 10%. Acceptance number (c) thus determined for the sample is 0. These 11 samples were also interviewed to confirm the baseline scenario and SDG survey results. It was observed that out of the 11 samples, no discrepant records were observed in comparison with the MR /01/ and ER sheet /02/. Thus, CME set of records has been accepted in line with § 33 of the sampling standard, version 09 /B04/. Verification team has cross verified these sample documents.</p> <p>Verification team confirms that the sampling approach applied by CME is in accordance with the approved VPA-DD including the Guidelines: Sampling and surveys for CDM project activities and program of activities (version 04.0) and Standard: Standard for sampling and surveys for CDM project activities and Programme of Activities /B04/.</p> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

|                              |                                                                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                 |
| <b>Findings</b>              | -                                                                                                                                                          |
| <b>Conclusion</b>            | Scale was checked and calibrated with the standard weight as per the valid calibration certificates /12/. This has been verified and confirmed by the VVB. |

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

##### D.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | <p><b><u>SDG 2 Baseline Impact:</u></b></p> <p>Through checking the MR and through site interviews with sampled end-users, Carbon Check confirmed that the project technology will help users to improve the agriculture by fertilizing the land with the biodigester slurry.</p> <p>Hence, in compliance with the UN's SDG indicator "2.4.1: <i>Proportion of agricultural area under productive and sustainable agriculture</i>", the indicator of SDG2 are defined as: <b>Percentage of biogas users who use slurry as a fertilizer</b></p> <p>The occurrence of the application of slurry to agricultural land is monitored through sampling as part of the annual monitoring effort. Stakeholders were asked how they use the slurry, if at all. The outcome of the survey is the share of households that use bio-slurry.</p> <p>A biodigester is required to produce and use bio-slurry, the baseline, the absence of the project, Therefore, the Baseline Impact benefits are <b>zero</b>.</p> |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **SDG 3 Baseline Impact:**

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps reduce bad odors from animal waste, increasing sanitation, avoiding smoke and dust coming from cooking with solid biomass.

Hence, in compliance with the UN's SDG indicator 3.9.1 "*Mortality rate attributed to household and ambient air pollution*", the indicators of SDG3 are defined as **number of users with a reduced, increased or no change in the incidence of eye problems and respiratory illness.**

In the baseline situation, as per the site interview with sampled end-users and checking the VPA-DD, it is verified that there is no change in pollution level from animal raising and cooking. Therefore, Baseline Impact benefit is zero.

### **SDG 5 Baseline Impact:**

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps the women user, who are the primary cook in the households to save time from cooking and slurry handling and use the time for improvement of life.

the indicator of SDG5 is defined as **(1) Percentage of women that report time-savings attributed to the installation of a biodigester and (2) usage of saved time.**

Through checking the MR and through site interview with sampled end-users, Carbon Check confirmed that in the baseline no construction of biodigesters occurred, so no people benefitting from biogas. Therefore, the Baseline Impact benefits are zero.

### **SDG 7 Baseline Impact:**

In compliance with the UN's SDG indicator "7.1.2 Proportion of population with primary reliance on clean fuels and technology", the indicator of SDG7 is defined as **(a) Number of biogas units installed and (b) Number of masons and biogas enterprise staff attending training programmes.** Through checking the MR and through site interview with sampled end-users, Carbon Check confirmed that in the baseline no construction of biodigesters occurred, so no masons and biogas enterprise staff could attend trainings.. Therefore, the Baseline Impact benefits are zero.

### **SDG 8 Baseline Impact:**

In compliance with the UN's SDG indicator, **number of man-days involved in the construction of biodigesters..**

Through checking the MR and through site interviews, Carbon Check confirmed that in the baseline no biodigesters were constructed. Therefore, the Baseline Impact benefits are zero.

### **SDG 13 Baseline Impact:**

In compliance with the UN's SDG indicator 13.2.1 "*Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production*", the indicator of SDG13 is defined as the total amount of emission reduction.

The baseline emissions are calculated from 2 sources:

1. Baseline emissions from fuel use
2. Baseline emissions from manure handling

### **Baseline emissions from fuel use**

The baseline emissions from fuel use are calculated in accordance with the registered VPA-DD. Applicable baseline scenarios for this VPA006 are defined by the typical baseline fuel consumption patterns in a population that is targeted for adoption of biodigester technology. The amount of baseline scenarios for this VPA has been

defined through a series of baseline Kitchen Performance Tests, and a survey. The survey determines the ratio of users for each identified baseline scenario.

The following formula calculates the three baseline emissions per household:

$$BE_{b,CO_2,y} = \sum_b BB_{b,fuel} * NCV_{fuel} * EF_{b,fuel} + (BB_{b,bio} * NCV_{bio} * EF_{b,bio} * f_{NRB})$$

Where:

|                                 |   |                                                                                                                                                       |
|---------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| $BE_{b,CO_2,y}$                 | = | Cumulative baseline CO <sub>2</sub> emissions from the use non-renewable biomass and fossil fuels during year <i>y</i> , in tCO <sub>2</sub> /year/hh |
| $NCV_{fuel}$                    | = | Net calorific value of fossil fuel, in TJ/tonne                                                                                                       |
| $EF_{b,fuel}$                   | = | CO <sub>2</sub> emission factor of fossil fuel in baseline scenario <i>b</i> , in tonnes/TJ                                                           |
| $BB_{b,bio}$ and $BB_{b4 fuel}$ | = | The quantity of biomass and LPG consumed in the baseline scenario <i>b</i> , in tonnes/year                                                           |
| $NCV_{bio}$                     | = | Net calorific value of biomass, in TJ/tonne                                                                                                           |
| $EF_{b,bio}$                    | = | CO <sub>2</sub> emission factor of biomass in baseline scenario <i>b</i> , in tonnes/TJ                                                               |
| $f_{NRB}$                       | = | Fraction of non-renewable biomass, in percentage                                                                                                      |

Based on the equation above and the application of the associated values, the baseline emissions from fuel use amount to a total of 5.425 tCO<sub>2</sub>/yr/hh

#### Baseline emissions from manure handling

The emissions from the animal waste management system of the baseline are determined using the IPCC 2006 Tier 2 approach. The Tier 2 approach is applicable to situations where baseline data for an estimation of the methane emission factor per category of livestock are available. The baseline emissions per household shall be calculated as follows:

$$BE_{b,CH_4,h,y} = \frac{(VS_T * 365) * (B_{0,T} * 0.67 \text{ kg/m}^3 * MCF_{x,k} * MS_{T,x,k} * GWP_{CH_4} * N_{T,h})}{1000}$$

Where:

|                   |   |                                                                                                                                                                         |
|-------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $BE_{b,CH_4,h,y}$ | = | Baseline emissions from manure handling during the year <i>y</i> in tCO <sub>2</sub> e/hh/year                                                                          |
| $VS_T$            | = | Daily volatile solid excreted for livestock category <i>T</i> in kg dry matter per animal per day                                                                       |
| $B_{0,T}$         | = | Maximum methane producing capacity for manure produced by livestock category                                                                                            |
| $MS_{T,s,k}$      | = | Fraction of livestock category <i>T</i> 's manure handled using manure management system <i>x</i> in climate region <i>k</i> (determined through survey method ex-post) |
| $MCF_{x,k}$       | = | Methane conversion factors for the animal waste handling system in the baseline situation by climate zone <i>k</i> , (%)                                                |
| $GWP_{CH_4}$      | = | Global Warming Potential of methane                                                                                                                                     |
| $N_{T,h}$         | = | Number of livestock category <i>T</i> in premise <i>h</i>                                                                                                               |

Based on the equation above and the application of the associated values, the baseline emissions from fuel use amount to a total of 0.322 tCO<sub>2</sub>/yr/hh

Hence the total baseline emissions amount to 5.747 tCO<sub>2</sub>/yr/hh, which is then divided by 365 and multiplied with “*Technology days plants in operation*” for each month to get the total baseline emissions for the monitoring period as 17,286 tCO<sub>2</sub>e.

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Findings</b>   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Conclusion</b> | <p>The verification team confirms that</p> <ul style="list-style-type: none"> <li>a) The complete data was available and is duly reported;</li> <li>b) As indicated above, the description with regards to cross-check of reported data is included under respective parameters (refer Section D.5.2 of this report);</li> <li>c) Appropriate methods and formulae are used for calculating baseline SDG impact;</li> <li>d) Appropriate emission factors and other reference values were correctly applied.</li> <li>e) The calculation of baseline situation of each SDG impact is correct.</li> </ul> <p>Verification team reviewed the MR confirmed the SDGs monitored are appropriate and verified in the validation./01/</p> |

## D.7.2. Calculation of project SDG impacts and project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of Verification

**SDG 2 Project impact:**

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project technology will help users to improve agriculture by fertilizing the land with the biodigester slurry.

Then the estimated project impact is calculated for different categories in SDG 2.

In the project situation, as per checking the monitoring survey data/08/ and site interview with sampled end-users, it is verified that 99.5% of the end users apply bio slurry as fertilizer.

Based on the equations listed in MR and monitoring survey data which has been verified in D.5.1 and D.5.2 of this report, the verification team confirmed that the Project impacts of SDG 2 was estimated as follows:

| Indicator                                                      | Unit | Project Value |
|----------------------------------------------------------------|------|---------------|
| SDG2 Percentage of biogas users who use slurry as a fertilizer | %    | 99.5          |

**SDG 3 Project impact:**

Through checking the MR and through site interviews with sampled end-users, the verification team confirmed that the project helps reducing smoke and dust coming from cooking with solid biomass leading to eye problems and respiratory illness.

In the project situation, as per checking the carbon monitoring survey data/08/ and site interview with sampled end-users, it is verified that 99.1% of the households recognized that there is reduced eye problems and respiratory illness.

**SDG 5 Project impact:**

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps project helps the female user, who is the primary cook in the households to save time from cooking and slurry handling and use the time for improvement of life.

In the project situation, as per checking the carbon monitoring survey data/08/ and site interview with sampled end-users, it is verified that 95.6% of the households reported time savings and recognized that the time saved was used for improving life. The time saved was used for the following activities:

|                                        |     |
|----------------------------------------|-----|
| Income generating including farming    | 72% |
| Recreation                             | 22% |
| Helping my husband                     | 8%  |
| Social activity (voluntary work, etc.) | 29% |
| Other                                  | 4%  |

**SDG 7 Project impact:**

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project constructed and installed biodigesters which ensure number of people benefitting from biogas.

In project situation, as per checking the project database /11/ and site interview with sampled end-users, it is verified that number of bio-digesters sold under the project activity for this monitoring period is 4,433. The number of masons and biogas enterprise staff attending training programmes is reported as 0 during the monitoring period.

**SDG 8 Project impact:**

Through checking the MR and through site interview with staff representatives, the verification team confirmed that the project created jobs. The project monitors the cumulative number of masons working days which is calculated by multiplying the number of digesters constructed times the default number of days required for the construction. The same is assessed in D.5.2 above. The project contribution towards this SDG is 67,071-man days.

### **SDG 13 Project impact:**

The project has reduced GHG emissions compared to the baseline scenario. This project includes two sources of project emissions:

1. Project emissions due to the continued use of fossil fuels and non-renewable biomass
2. Project emissions due to the methane emissions from manure handling
3. Project emissions due to bio-slurry

### **Project emissions due to the continued use of fossil fuels and non-renewable biomass**

The project scenario is defined by the fuel consumption of end users within the targeted population that adopts the biodigester technology. This formula calculates the project emissions per household:

$$PE_{p,CO2,y} = \sum (BB_{p,fuel} * NCV_{fuel} * EF_{p,fuel}) + (BB_{p,bio} * NCV_{bio} * EF_{p,bio} * f_{NRB})$$

Where:

|                |   |                                                                                                     |
|----------------|---|-----------------------------------------------------------------------------------------------------|
| $PE_{p,CO2,y}$ | = | Cumulative project CO2 emissions from the use non-renewable biomass and fossil fuels (tCO2/hh/year) |
| $BB_{p,fuel}$  | = | The quantity of fossil fuel consumed in the project scenario $p$ , in tonnes/year                   |
| $NCV_{fuel}$   | = | Net calorific value of fossil fuel, in TJ/tonne                                                     |
| $EF_{p,fuel}$  | = | CO2 emission factor of fossil fuel in project scenario $p$ , in tonnes/TJ                           |
| $BB_{p,bio}$   | = | The quantity of biomass consumed in the project scenario $p$ , in tonnes/year                       |
| $NCV_{bio}$    | = | Net calorific value of biomass, in TJ/tonne                                                         |
| $EF_{p,bio}$   | = | CO2 emission factor of biomass in project scenario $p$ , in tonnes/TJ                               |
| $f_{NRB}$      | = | Fraction of non-renewable biomass, in percentage                                                    |

Based on the equation above and the application of the associated values, the project emissions from fuel use amount to a total of 2.256 tCO2/yr/hh

### **Project emissions due to the methane emissions from manure handling**

Project emissions of the methane avoidance component include both the physical leakage of biogas from the biodigester and the incomplete combustion of biogas.

$$PE_{p,CH4,y} = GWP_{CH4} * \sum (N_{T,h,y} * EF_{awms,T}) * PL_y + \sum (N_{T,h,y} * EF_{awms,T}) * (1 - \eta_{new stove}) * (1 - PL_y)$$

Where:

|                |   |                                                                                         |
|----------------|---|-----------------------------------------------------------------------------------------|
| $PE_{p,CH4,y}$ | = | Project emissions from manure handling during the year $y$ in tCO2/year/hh              |
| $GWP_{CH4}$    | = | Global Warming Potential of methane                                                     |
| $N_{T,h}$      | = | Number of livestock category $T$ in premise $h$                                         |
| $EF_{awms,T}$  | = | Emission factor for the defined livestock population category $T$                       |
| $PL_y$         | = | Physical leakage of the biodigester (through measurement or application of 10% default) |

$\eta_{\text{new stove}}$  = Combustion efficiency of the used type of biogas stove

The emission factor (EF<sub>awms</sub>) is calculated as follows:

$$EF_{\text{awms},h} = \frac{(VS_T * 365) * (B_{0,T} * 0.67 \text{ kg/m}^3 * MCF_{x,k} * MS_{T,x,k})}{1000}$$

Where:

EF<sub>awms</sub> = CH<sub>4</sub> emission factor for livestock category *T*, (m<sup>3</sup>CH<sub>4</sub>per animal per year)  
 VS(*T*) = Daily volatile solid excreted for livestock category *T*, (kg dry matter per animal per day)  
 365 = Basis for calculating annual VS production, (days per year)  
 Bo(*T*) = Maximum methane production capacity for manure produced by livestock category *T*, (m<sup>3</sup>CH<sub>4</sub> per kg of VS excreted)  
 MCF<sub>(BL,k)</sub> = Methane conversion factors for the animal waste handling system in the baseline situation by climate zone *k*, (%)  
 MS<sub>(T,S,k)</sub> = Fraction of livestock category *T*'s manure treated in the animal waste management system, in climate region *k* (dimensionless)

Based on the equations above and the application of the associated values, the project emissions from manure management to a total of 0.022 tCO<sub>2</sub>/yr/hh

### Project emission due to bio-slurry

Emissions from bio-slurry must be accounted for if they constitute more than 1% of total project emissions.

#### Step 1: Estimating Total Volatile Solids (VS) Entering the Digester

The daily VS excretion (in kg/day) is multiplied by the average number of animals per household using a biodigester. This gives the total daily VS excreted. This total is then multiplied by the proportion of slurry from each animal that is fed into the digester, resulting in a combined total of 6.72 kgVS/day entering the biodigester.

#### Step 2: Determining Remaining VS in Bio-Slurry

With a digester efficiency of 55%, it is assumed that 45% of the input VS remains in the bio-slurry. Therefore, the remaining VS is calculated as: 6.72 kgVS/day × 45% = 3.02 kgVS/day

#### Step 3: Calculating Methane Potential of Bio-Slurry

The methane potential is assessed by multiplying the maximum methane-producing capacity of manure (per animal) by the remaining methane production factor for liquid digestate (F<sub>ww,CH<sub>4</sub></sub>) from EB 96 Annex 7. This value is then multiplied by the total VS per animal and averaged across digesters, resulting in an estimated methane potential of 0.026 m<sup>3</sup>CH<sub>4</sub>/kgVS/day.

#### Step 4: Calculation of bio-slurry emissions

$$PE_{p1 \text{ bio-slurry}} = (\text{total VS in biodigesters} * 365) * Bo_{\text{dig}} * \sum DMS * MCF * (D_{\text{CH}_4} / 1000) * GWP_{\text{CH}_4}$$

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <p>Where:</p> <p><math>PE_{p1 \text{ bio-slurry}}</math> Project emissions from bio-slurry<br/> <math>Bo_{dig}</math> Maximum methane production capacity for the biodigester<br/> <math>(m^3CH_4/kgVS)</math><br/> <math>DMS</math> Bio-slurry management practice, as a fraction<br/> <math>MCF</math> Methane conversion factor</p> <p><math>D_{CH_4}</math> Density of methane conversion factor<br/> <math>GWP_{CH_4}</math> Global Warming Potential of methane</p> <p>This parameter accounts for more than 1% of the total ERs and hence, are considered as project emissions that are accounted for in the emission reductions.</p> <p>Based on the equations above and the application of the associated values, the project emissions from bio-slurry to a total of 0.103 tCO<sub>2</sub>/yr/hh</p> <p>The total project emissions (fuel use + manure management + bio-slurry) are calculated as 2.381 tCO<sub>2</sub>/yr/hh. This value is then divided by 365 and multiplied with “<i>Technology days plants in operation</i>” for each month to get the total baseline emissions for the monitoring period as 7,162 tCO<sub>2</sub>e.</p> |
| <b>Findings</b>   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Conclusion</b> | <p>The verification team confirms that:</p> <ol style="list-style-type: none"> <li>The complete data was available and is duly reported;</li> <li>As indicated above, the description with regards to cross-check of reported data is included under respective parameters (refer Section D.5.1 and D.5.2. of this report);</li> <li>Appropriate methods and formulae for calculating project SDG impact were followed;</li> <li>The calculation of project situation of each SDG impact is correct.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

### D.7.3. Calculation of leakage GHG emissions

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Means of verification | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Findings              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Conclusion            | <b>Project Leakage Assessment</b><br>In line with the registered VPA-DD section B.6.2, Leakage emission with respect project boundary is zero. However, physical leakage of the bio-digester is considered using IPCC default value, i.e., 10% in the project emission which is consistent with section B.7.1 of the registered VPA-DD.<br><br>In line with the baseline and monitoring methodology, the CME has outlined 05 possible sources of leakage out of which only 01 is applicable.<br><br>These sources include: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                       | <b>Potential source of leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                       | The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.                                                                                                                                                                                                                                                                                                             | As per Table 11 of the VPA-DD, monitoring survey records /08/ and, on-site assessment, it is confirmed that no displaced baseline technology is reused outside the project boundary. Additionally, the project emissions involve emissions from the bio-digester, which include physical leakage and incomplete combustion of biogas, as well as emissions from the animal waste not treated in the bio-digester. Hence, the default factor 10% has been used during calculations to determine project Emissions. |
|                       | The non-renewable biomass or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.                                                                                                                                                                                                                                                                                                                                                                | Most household rely on wood and charcoal in Kenya. The small share of households that use a lower emitting energy source, such as LPG, will not switch back to NRB due to the project activity.                                                                                                                                                                                                                                                                                                                   |
|                       | The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.                                                                                                                                                                                                                                                                                                                                                           | Not applicable as users are displacing use of traditional fuels like firewood, charcoal and LPG.                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                       | The project population compensates for loss of the space heating effect of inefficient technology by adopting some other                                                                                                                                                                                                                                                                                                                                                                                                   | No reported use of space heating at baseline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                 |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | form of heating or by retaining some use of inefficient technology.                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                 |
|  | By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.                                                                                                                                                                                                     | The project technology, high efficiency technology or renewable energy sources were not reported at baseline in the project boundary. Thus, this source of leakage was not considered relevant for the project. |
|  | As per the VPA-DD, leakage assessment must be conducted every two years using appropriate survey methods, which may be integrated with regular monitoring surveys where applicable. Leakage risks considered to be very low may be excluded, provided their insignificance is clearly justified. This approach was applied during the review of VPA06 MP I, II, III, IV, and V, where the VVB concluded that leakage was insignificant and could be disregarded for this PoA. |                                                                                                                                                                                                                 |

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

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Findings</b>              | CL 11 raised and closed successfully. Please refer to Appendix 4 for further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Conclusion</b>            | <p>The emission reductions are calculated as follows:</p> $ER_{y,h} = U_{y,h} \times (BE_{y,h} - PE_{y,h}) \times NO_{p1,y}$ <p>Where:</p> <p><math>ER_{y,h}</math> = Annual average emission reductions in year y</p> <p><math>U_{y,h}</math> = Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys</p> <p><math>BE_{y,h}</math> = Annual average baseline emissions per household in year y</p> <p><math>PE_{y,h}</math> = Annual average project activity emissions per household in year y</p> <p><math>NO_{p1,y}</math> = Total number of biogas units commissioned as of year y</p> |

|  |                                                                                                                                                                                                    |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Hence, in the total emission reduction (displacement of non-renewable biomass and fossil fuels + avoidance of methane emissions from AWMS) for the monitoring period is 10,124 tCO <sub>2e</sub> . |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### D.7.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered VPA-DD

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                              |                                                             |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                              |                                                             |
| <b>Findings</b>              | --                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                              |                                                             |
| <b>Conclusion</b>            | The ex-ante estimate value of the emission reductions for the monitoring period as per the registered VPA-DD /B03/ is 26,310 tCO <sub>2e</sub> and the actual emission reductions achieved for the monitoring period is 10,124 tCO <sub>2e</sub> .                                                                                                                                                                                                               |                                                                                              |                                                             |
|                              | <b>SDG</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Values estimated in ex ante calculation of approved VPA-DD for this monitoring period</b> | <b>Actual values achieved during this monitoring period</b> |
|                              | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 26,310 tCO <sub>2e</sub>                                                                     | 10,124 tCO <sub>2e</sub>                                    |
|                              | The emission reduction calculations provided in the ER sheet have been verified to be correct and in line with the registered VPA-DD /B03/. The actual emission reduction in this monitoring period is found to be lower than the estimated value in the registered PDD for this monitoring period. Hence VVB confirms the difference in the value is acceptable and no overestimation of emission reduction happened in the project for this monitoring period. |                                                                                              |                                                             |

#### D.7.6. Comparison of actual SDG Impacts and Estimates in the registered VPA-DD

| SDG | SDG Impact                                                                    | Values estimated registered PDD for this monitoring period | Actual values achieved during this monitoring period | Explanation from CME                                                                                                                                                                                                                    |
|-----|-------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | GS-3 Soil quality (Percentage of biogas users who use slurry as a fertilizer) | Not estimated                                              | 99.5                                                 | The value is not estimated in the VPA-DD but calculated as being 0 in section E.4. The reason of the difference is the construction of biodigesters resulting in the availability of bio-slurry which is used by most users for farming |
| 3   | GS-1 Air Quality (Perceived improvement in health by                          | Not estimated                                              | 91.1                                                 | The value is not estimated in the VPA-DD but calculated as being 0 in section E.4. The reason of the difference is the construction of biodigesters resulting in the access                                                             |

|    |                                                                                                                                                                         |               |        |                                                                                                                                                                                                                                        |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | the user<br>(incidence of<br>eye problems<br>and respiratory<br>illness)                                                                                                |               |        | to clean cooking gas which resulted<br>in an improvement in health                                                                                                                                                                     |
| 5  | Achieve<br>gender<br>equality and<br>empower all<br>women and<br>girls                                                                                                  | Not estimated | 95.6   | The value is not estimated in the<br>VPA-DD but calculated as being 0 in<br>section E.4. The reason of the<br>difference is the construction of<br>biodigesters resulting in time savings<br>of women compared to the baseline.        |
| 7  | GS-08 Access<br>to affordable<br>and clean<br>energy<br>services<br>(Number)                                                                                            | 5,030         | 4,433  | This value is lower but close to the<br>ex-ante estimated value                                                                                                                                                                        |
|    | GS-12<br>Technology<br>transfer and<br>technological<br>self-reliance<br>(Number of<br>masons and<br>biogas<br>enterprise staff<br>attending<br>training<br>programmes) | Not estimated | 0      | The value is not estimated in the<br>VPA-DD but calculated as being 0 in<br>section E.4. No training programs<br>were implemented in this MP, so the<br>result is 0                                                                    |
| 8  | GS-10<br>Technology<br>transfer and<br>technological<br>self-reliance<br>(man-days)                                                                                     | Not estimated | 67,071 | The value is not estimated in the<br>VPA-DD but calculated as being 0 in<br>section E.4. The reason of the<br>difference is the construction of<br>biodigesters resulting in employment<br>opportunities for masons and<br>technicians |
| 13 | Verified<br>emission<br>reductions(tCO<br>2)                                                                                                                            | 26,310        | 10,124 | This value is lower than ex-ante<br>estimated                                                                                                                                                                                          |

VVB analyzed the difference in monitored and estimated values and reviewed the justification for the difference. Emission reduction values are observed lower than the estimate and the justifications for the difference were confirmed appropriate.

#### D.7.7. Remarks on difference from estimated value in registered VPA-DD

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Means of verification</b> | Document Review, Interview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Findings</b>              | --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Conclusion</b>            | <p>The ex-ante estimated value of the emission reductions for the monitoring period as per the registered VPA-DD /B03/ is 26,310 tCO<sub>2</sub>e and the actual emission reductions achieved for the monitoring period is 10,124 tCO<sub>2</sub>e. For SDG 13, since actual emission reduction is lower than the estimated value and hence it is acceptable to the verification team. The monitoring report /01/ provides a reason for the decrease in the actual emission reduction and the same was confirmed by the verification team by interviewing the representatives of CME and by reviewing the actual implementation status of the project.</p> <p>For other SDG parameters, CME has provided justification in the Monitoring report, and an assessment of the same is provided below:</p> <ul style="list-style-type: none"><li>• SDG 7: Access to affordable and clean energy services (Number) was estimated as 5,030 which is higher than the achieved value and hence, acceptable to the verification team. The number of masons and biogas enterprise staff attending training programmes was not estimated in the registered VPA-DD.</li><li>• SDG 5: Not estimated in the VPA-DD.</li><li>• SDG 2: Not estimated in the VPA-DD.</li><li>• SDG 3: Not estimated in the VPA-DD.</li><li>• SDG 8: Not estimated in the VPA-DD.</li></ul> |

## SECTION E. Internal quality control

>>

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

## SECTION F. Verification/Certification opinion

>>

Carbon Check (India) Private Ltd. (Carbon Check) has performed the 6<sup>th</sup> periodic verification in first crediting period for the registered GS Project Activity "African Biogas Carbon Programme (ABC) – Kenya – VPA006 (GS5801)".

The verification team assigned by the VVB concludes that the project activity as described in the VPA-DD /B03/ and the Monitoring report /01/ meets all relevant requirements of the Gold Standard. The verification has been conducted in line with the GS4GG requirements for project activities. /B02/

### Verification methodology and process

The Verification team confirms the contractual relationship signed between the VVB, Carbon Check (India) Private Ltd., and the CME on 06/08/2024 /14/. The team assigned to the verification meets the

Carbon Check's internal procedures including the UNFCCC/GS requirements for team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and Carbon Check's procedures and requirements.

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

- Reviewing the PoA-DD, VPA-DD /B03/, including the monitoring plan and the corresponding validation report /B03/;
- Desk review of MR /01/, ER spreadsheet and other relevant documents including documents related to the project activities in emission reductions.
- Review of the applied monitoring methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 1.0/B01/.
- On-site inspection (10/04/2025 - 12/04/2025)
- Resolution of CARs and CLs raised during verification.
- Issuance of Verification Report.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan, and the registered and revised VPA-DD. The monitoring system was installed, and maintained in a proper manner, while monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and site interviews, the verification team confirms that the project activity has resulted in 10,124tCO<sub>2e</sub> emission reductions during the reported monitoring period.

This statement covers the verification period from 01/04/2023 to 13/03/2024 (including both the dates).

The VVB has raised 12 clarifications, 03 corrective action requests 00 forward action requests, all of which are satisfactorily closed. VVB has raised 00 forward action request which needs to be resolved during the next verification.

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

The VVB hereby certifies that the project activity achieved emission reductions by sources of GHG equal to 10,124tCO<sub>2e</sub> and all monitoring requirements have been fulfilled and are substantiated by an audit trail that contains evidence and records.

## Appendix 1. Abbreviations

| Abbreviations    | Full Texts                                            |
|------------------|-------------------------------------------------------|
| ABPL             | Africa Bioenergy Program limited                      |
| ASP              | Acceptance Sampling                                   |
| AQL              | Acceptable Quality level                              |
| BE               | Baseline Emissions                                    |
| CER              | Certified Emission Reduction                          |
| CAR              | Corrective Action Request                             |
| Carbon Check     | Carbon Check (India) Private Ltd.                     |
| CDM              | Clean Development Mechanism                           |
| CH <sub>4</sub>  | Methane                                               |
| CL               | Clarification Request                                 |
| CO <sub>2</sub>  | Carbon Dioxide                                        |
| CO <sub>2e</sub> | Carbon Dioxide Equivalent                             |
| EB               | CDM Executive Board                                   |
| EF               | Emission Factor                                       |
| FA               | Final Approval                                        |
| FAR              | Forward Action Request                                |
| FNRB             | Fractional Non-Renewable Biomass                      |
| FVR              | Final Verification Report                             |
| GHG              | Greenhouse gas(es)                                    |
| GS4GG            | Gold Standard for Global Goals                        |
| GWP              | Global Warming Potential                              |
| IPCC             | Intergovernmental Panel on Climate Change             |
| KBP              | Kenya Biogas Programme                                |
| LE               | Leakage Emissions                                     |
| MP               | Monitoring Period                                     |
| MR               | Monitoring Report                                     |
| MWh              | Mega Watt Hour                                        |
| OSV              | On-Site Visit                                         |
| VPA-DD           | Voluntary Project Activity- Design Document           |
| PoA-DD           | Programme of activity – Design Document               |
| PE               | Project Emissions                                     |
| PP(s)            | Project Participant(s)                                |
| QC/QA            | Quality Control/ Quality Assurance                    |
| TA               | Technical Area                                        |
| TR               | Technical Review                                      |
| UQL              | Unacceptable Quality Level                            |
| UNFCCC           | United Nations Framework Convention on Climate Change |
| VER              | Verified Emission Reductions                          |
| VPA-DD           | Project Design Document                               |
| VVS              | Validation and Verification Standard                  |
| VVB              | Validation & Verification Body                        |

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



### Carbon Check (India) Private Limited

## Certificate of Competency

### Ms. Tanvi Sunil Nadkarni

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

*for the following functions and requirements:*

|                                                               |                                                       |                                                                    |                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Validator                 | <input checked="" type="checkbox"/> Verifier          | <input checked="" type="checkbox"/> Team Leader                    | <input checked="" type="checkbox"/> Technical Expert                        |
| <input type="checkbox"/> Technical Reviewer                   | <input type="checkbox"/> Validator/Verifier (Trainee) | <input type="checkbox"/> Gender Expert                             | <input type="checkbox"/> Plastic Waste Expert                               |
| <input type="checkbox"/> CCB Expert                           | <input type="checkbox"/> Legal Expert                 | <input type="checkbox"/> Financial Expert                          | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input type="checkbox"/> SDG Expert                           | <input type="checkbox"/> Expert Social aspect         | <input type="checkbox"/> Expert Environmental Aspect               | <input type="checkbox"/> Health Expert                                      |
| <input checked="" type="checkbox"/> Regional Expert for India |                                                       | <input checked="" type="checkbox"/> FOEN Approved Technical Expert | <input type="checkbox"/> FOEN Approved Quality officer                      |

*in the following Technical Areas:*

|                                            |                                            |                                  |                                             |                                             |
|--------------------------------------------|--------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------------------|
| <input checked="" type="checkbox"/> TA 1.1 | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1  | <input checked="" type="checkbox"/> TA 3.1  | <input type="checkbox"/> TA 4.1             |
| <input type="checkbox"/> TA 4. n           | <input type="checkbox"/> TA 5.1            | <input type="checkbox"/> TA 5.2  | <input type="checkbox"/> TA 7.1             | <input type="checkbox"/> TA 8.1             |
| <input type="checkbox"/> TA 9.1            | <input type="checkbox"/> TA 9.2            | <input type="checkbox"/> TA 10.1 | <input checked="" type="checkbox"/> TA 13.1 | <input checked="" type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1           | <input type="checkbox"/> TA 15.1           | <input type="checkbox"/> TA 16.1 |                                             |                                             |

Issue Date

**06<sup>th</sup> February 2025**

Expiry Date

**31<sup>st</sup> December 2025**



**Mr. Vikash Kumar Singh**  
Director - Compliance

Revision History of the document:

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|-----------------------|--------------------------------------|
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| Feb 2025              | Revised to include FOEN requirements |

CCIPL\_FM 7.9 Certificate of Competency\_V8.0\_05022025

<sup>1</sup> Please refer to previous version of FM 7.9 for the revision history



## Carbon Check (India) Private Limited

### Certificate of Competency

**Mr. Campal Deepak Kadam**

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- |                                                               |                                                       |                                                                    |                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Validator                 | <input checked="" type="checkbox"/> Verifier          | <input checked="" type="checkbox"/> Team Leader                    | <input checked="" type="checkbox"/> Technical Expert                        |
| <input type="checkbox"/> Technical Reviewer                   | <input type="checkbox"/> Validator/Verifier (Trainee) | <input type="checkbox"/> Gender Expert                             | <input type="checkbox"/> Plastic Waste Expert                               |
| <input type="checkbox"/> CCB Expert                           | <input type="checkbox"/> Legal Expert                 | <input type="checkbox"/> Financial Expert                          | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input type="checkbox"/> SDG Expert                           | <input type="checkbox"/> Expert Social aspect         | <input type="checkbox"/> Expert Environmental Aspect               | <input type="checkbox"/> Health Expert                                      |
| <input checked="" type="checkbox"/> Regional Expert for India |                                                       | <input checked="" type="checkbox"/> FOEN Approved Technical Expert | <input type="checkbox"/> FOEN Approved Quality officer                      |

in the following Technical Areas:

- |                                            |                                            |                                  |                                             |                                             |
|--------------------------------------------|--------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------------------|
| <input checked="" type="checkbox"/> TA 1.1 | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1  | <input checked="" type="checkbox"/> TA 3.1  | <input type="checkbox"/> TA 4.1             |
| <input type="checkbox"/> TA 4. n           | <input type="checkbox"/> TA 5.1            | <input type="checkbox"/> TA 5.2  | <input type="checkbox"/> TA 7.1             | <input type="checkbox"/> TA 8.1             |
| <input type="checkbox"/> TA 9.1            | <input type="checkbox"/> TA 9.2            | <input type="checkbox"/> TA 10.1 | <input checked="" type="checkbox"/> TA 13.1 | <input checked="" type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1           | <input type="checkbox"/> TA 15.1           | <input type="checkbox"/> TA 16.1 |                                             |                                             |

Issue Date

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Director - Compliance

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<sup>1</sup> Please refer to previous version of FM 7.9 for the revision history



## Carbon Check (India) Private Limited

### Certificate of Competency

**Mr. Vishal Bijani**

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- |                                                               |                                                       |                                                         |                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Validator                 | <input checked="" type="checkbox"/> Verifier          | <input type="checkbox"/> Team Leader                    | <input checked="" type="checkbox"/> Technical Expert                        |
| <input type="checkbox"/> Technical Reviewer                   | <input type="checkbox"/> Validator/Verifier (Trainee) | <input type="checkbox"/> Gender Expert                  | <input type="checkbox"/> Plastic Waste Expert                               |
| <input type="checkbox"/> CCB Expert                           | <input type="checkbox"/> Legal Expert                 | <input type="checkbox"/> Financial Expert               | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input type="checkbox"/> SDG Expert                           | <input type="checkbox"/> Expert Social aspect         | <input type="checkbox"/> Expert Environmental Aspect    | <input type="checkbox"/> Health Expert                                      |
| <input checked="" type="checkbox"/> Regional Expert for India |                                                       | <input type="checkbox"/> FOEN Approved Technical Expert | <input type="checkbox"/> FOEN Approved Quality officer                      |

in the following Technical Areas:

- |                                  |                                            |                                  |                                            |                                  |
|----------------------------------|--------------------------------------------|----------------------------------|--------------------------------------------|----------------------------------|
| <input type="checkbox"/> TA 1.1  | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1  | <input checked="" type="checkbox"/> TA 3.1 | <input type="checkbox"/> TA 4.1  |
| <input type="checkbox"/> TA 4. n | <input type="checkbox"/> TA 5.1            | <input type="checkbox"/> TA 5.2  | <input type="checkbox"/> TA 7.1            | <input type="checkbox"/> TA 8.1  |
| <input type="checkbox"/> TA 9.1  | <input type="checkbox"/> TA 9.2            | <input type="checkbox"/> TA 10.1 | <input type="checkbox"/> TA 13.1           | <input type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1 | <input type="checkbox"/> TA 15.1           | <input type="checkbox"/> TA 16.1 |                                            |                                  |

Issue Date

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## Carbon Check (India) Private Limited

### Certificate of Competency

**Mr. Samuel Ndar Alwala**

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- |                                                               |                                                       |                                                         |                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------|
| <input type="checkbox"/> Validator                            | <input type="checkbox"/> Verifier                     | <input type="checkbox"/> Team Leader                    | <input type="checkbox"/> Technical Expert                                   |
| <input type="checkbox"/> Technical Reviewer                   | <input type="checkbox"/> Validator/Verifier (Trainee) | <input type="checkbox"/> Gender Expert                  | <input type="checkbox"/> Plastic Waste Expert                               |
| <input type="checkbox"/> CCB Expert                           | <input type="checkbox"/> Legal Expert                 | <input type="checkbox"/> Financial Expert               | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input type="checkbox"/> SDG Expert                           | <input type="checkbox"/> Expert Social aspect         | <input type="checkbox"/> Expert Environmental Aspect    | <input type="checkbox"/> Health Expert                                      |
| <input checked="" type="checkbox"/> Regional Expert for Kenya |                                                       | <input type="checkbox"/> FOEN Approved Technical Expert | <input type="checkbox"/> FOEN Approved Quality officer                      |

in the following Technical Areas:

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|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| <input type="checkbox"/> TA 1.1  | <input type="checkbox"/> TA 1.2  | <input type="checkbox"/> TA 2.1  | <input type="checkbox"/> TA 3.1  | <input type="checkbox"/> TA 4.1  |
| <input type="checkbox"/> TA 4. n | <input type="checkbox"/> TA 5.1  | <input type="checkbox"/> TA 5.2  | <input type="checkbox"/> TA 7.1  | <input type="checkbox"/> TA 8.1  |
| <input type="checkbox"/> TA 9.1  | <input type="checkbox"/> TA 9.2  | <input type="checkbox"/> TA 10.1 | <input type="checkbox"/> TA 13.1 | <input type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1 | <input type="checkbox"/> TA 15.1 | <input type="checkbox"/> TA 16.1 |                                  |                                  |

Issue Date

06<sup>th</sup> February 2025

Expiry Date

31<sup>st</sup> December 2025

Mr. Vikash Kumar Singh  
Director - Compliance

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<sup>1</sup> Please refer to previous version of FM 7.9 for the revision history



## Carbon Check (India) Private Limited

### Certificate of Competency

**Ms. Indumathi C**

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- |                                                                            |                                                          |                                                                    |                                                                             |
|----------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Validator                              | <input checked="" type="checkbox"/> Verifier             | <input checked="" type="checkbox"/> Team Leader                    | <input checked="" type="checkbox"/> Technical Expert                        |
| <input checked="" type="checkbox"/> Technical Reviewer                     | <input type="checkbox"/> Validator/Verifier (Trainee)    | <input type="checkbox"/> Gender Expert                             | <input checked="" type="checkbox"/> Plastic Waste Expert                    |
| <input type="checkbox"/> CCB Expert                                        | <input type="checkbox"/> Legal Expert                    | <input checked="" type="checkbox"/> Financial Expert               | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input checked="" type="checkbox"/> SDG Expert                             | <input checked="" type="checkbox"/> Expert Social aspect | <input checked="" type="checkbox"/> Expert Environmental Aspect    | <input type="checkbox"/> Health Expert                                      |
| <input checked="" type="checkbox"/> Regional Expert for India and Srilanka |                                                          | <input checked="" type="checkbox"/> FOEN Approved Technical Expert | <input type="checkbox"/> FOEN Approved Quality officer                      |

in the following Technical Areas:

- |                                            |                                            |                                  |                                             |                                             |
|--------------------------------------------|--------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------------------|
| <input checked="" type="checkbox"/> TA 1.1 | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1  | <input checked="" type="checkbox"/> TA 3.1  | <input type="checkbox"/> TA 4.1             |
| <input type="checkbox"/> TA 4. n           | <input type="checkbox"/> TA 5.1            | <input type="checkbox"/> TA 5.2  | <input type="checkbox"/> TA 7.1             | <input type="checkbox"/> TA 8.1             |
| <input type="checkbox"/> TA 9.1            | <input type="checkbox"/> TA 9.2            | <input type="checkbox"/> TA 10.1 | <input checked="" type="checkbox"/> TA 13.1 | <input checked="" type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1           | <input type="checkbox"/> TA 15.1           | <input type="checkbox"/> TA 16.1 |                                             |                                             |

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<sup>1</sup> Please refer to previous version of FM 7.9 for the revision history

### Appendix 3. Documents reviewed or referenced

| S. No. | Document                                                                                                                                                                                                                                                                                                                                                         |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /01/   | <ol style="list-style-type: none"> <li>1. Monitoring report v1.5 dated 08/11/2025</li> <li>2. Monitoring report v1.4 dated 26/09/2025</li> <li>3. Monitoring report v1.3 dated 18/07/2025</li> <li>4. Monitoring report v1.2 dated 17/05/2025</li> <li>5. Monitoring report v1.1 dated 01/05/2025</li> <li>6. Monitoring report v1.0 dated 18/03/2025</li> </ol> |
| /02/   | Emission reduction calculation spreadsheet V1.2                                                                                                                                                                                                                                                                                                                  |
| /03/   | CME agreements <ol style="list-style-type: none"> <li>1. Cover letter</li> <li>2. Code of Conduct</li> </ol>                                                                                                                                                                                                                                                     |
| /04/   | Evidence for Distribution records.                                                                                                                                                                                                                                                                                                                               |
| /05/   | Biodigester Manual                                                                                                                                                                                                                                                                                                                                               |
| /06/   | Evidence for unique Identification Number.                                                                                                                                                                                                                                                                                                                       |
| /07/   | Assurance check list on monitoring survey                                                                                                                                                                                                                                                                                                                        |
| /08/   | Records of monitoring/project surveys                                                                                                                                                                                                                                                                                                                            |
| /09/   | KPT survey raw data                                                                                                                                                                                                                                                                                                                                              |
| /10/   | Grievance mechanism master sheet                                                                                                                                                                                                                                                                                                                                 |
| /11/   | Project database and sales records                                                                                                                                                                                                                                                                                                                               |
| /12/   | Calibration certificates of equipment                                                                                                                                                                                                                                                                                                                            |
| /13/   | Training records                                                                                                                                                                                                                                                                                                                                                 |
| /14/   | Countersigned contract agreement, Carbon Check & ABPL                                                                                                                                                                                                                                                                                                            |

## Background Documents

| Ref no. | Reference Document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /B01/   | Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), Version 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| /B02/   | <ul style="list-style-type: none"> <li>a) Gold Standard Principles and Requirements version 2.1, dated 31/01/2025</li> <li>b) Gold Standard Programme of Activity Requirements version 3.0, dated 12/11/2024</li> <li>c) GS Validation-and-Verification-Standard version 2.0, dated 12/11/2024</li> <li>d) Community Services Activity Requirements (version 1.2) under GS4GG</li> <li>e) GS Requirements and Guidelines: Usage Rate and Monitoring, version 2.0, 27/10/2020</li> <li>f) GS Rule update, Applicability of global warming potential for gold standard for the global goals projects dated 13/06/2021</li> </ul> |
| /B03/   | Registered PoA-DD, VPA-DD, Version 2.3 dated 21/01/2019 and corresponding Validation Report Version 02 dated 18/02/2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| /B04/   | <p>Standards</p> <ul style="list-style-type: none"> <li>a) Sampling and surveys for CDM project activities and programme of activities, version 09.0</li> <li>b) Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0.</li> <li>c) CDM Validation and verification standard for project activities version 3.0</li> </ul>                                                                                                                                                                                                                                                       |
| /B05/   | <ul style="list-style-type: none"> <li>1. 2006 IPCC Guidelines for National Greenhouse Gas Inventories</li> <li>2. 2019 Refinement to IPCC 2006 Guidelines</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| /B06/   | Site Visit and Remote Audit Requirements and Procedures, version 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| /B07/   | World weather online <a href="http://www.worldweatheronline.com/v2/weather-averages.aspx?q=Nairobi,%20Kenya">http://www.worldweatheronline.com/v2/weather-averages.aspx?q=Nairobi,%20Kenya</a>                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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

Table 1. CLs from this verification

| CL ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 01 | Section no. | MR, Cover Page | Date : 04/04/2025        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|----------------|--------------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |             |                |                          |
| <ol style="list-style-type: none"> <li>1. The monitoring period number on the cover page of the MR is inconsistent. It is listed as the 6th monitoring period in the ER spreadsheet V1 and the GS impact registry, but as the 5th monitoring period in Monitoring Report V1. The CME needs to clarify this discrepancy.</li> <li>2. Inconsistency in the start date of monitoring period. 01/04/2023 according to ER spreadsheet V1. 31/04/2023 according to the Monitoring report V1. CME needs to clarify the same.</li> </ol> |    |             |                |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |             |                | <b>Date : 01/05/2025</b> |
| <ol style="list-style-type: none"> <li>1. This is a mistake, it is now revised to v1.1</li> <li>2. This is a typo, it is now revised to 01/04/2023 and consistent with the ER spreadsheet</li> </ol>                                                                                                                                                                                                                                                                                                                             |    |             |                |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |    |             |                |                          |
| MR v1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |             |                |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |             |                | <b>Date: 09/05/2025</b>  |
| VVB checked the updated MR v1.1, and found the MP and start date of MP to be corrected according to the ER sheet and registry. Hence, CL 01 is closed.                                                                                                                                                                                                                                                                                                                                                                           |    |             |                |                          |

| CL ID                                                                                                                                                                                                                                                                                                                                                                                                        | 02 | Section no. | MR, D.2 | Date : 04/04/2025        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|---------|--------------------------|
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                                                                     |    |             |         |                          |
| <p>CME needs to address the following inconsistencies:</p> <ol style="list-style-type: none"> <li>1. Footnotes 9 and 11 refer to master sheet for VPA01 and VPA03, whereas the associated VPA number is 06.</li> <li>2. In section D.2 of the MR, for the parameter “GS-3 Soil condition” the source of data mentioned “VPA06 MPVI_survey_SDG_ER v1.4”. However, the ER spreadsheet is version 1.</li> </ol> |    |             |         |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                          |    |             |         | <b>Date : 01/05/2025</b> |
| <ol style="list-style-type: none"> <li>1. This was a mistake, the information was not updated and an incorrect file was used. The correct RMT file is now added to the evidences and the section is updated with that information</li> <li>2. The reference is updated and now correct</li> </ol>                                                                                                            |    |             |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                         |    |             |         |                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| VPA06 MP6 MRT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
| MR v.1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Date: 09/05/2025</b> |
| <p>1. VVB reviewed the updates in MR V1.1 and confirmed that the footnotes and data have been revised. The corresponding RMT sheet, attached as evidence, has been verified, and the data is found to be consistent. However, it was noted that the footnote numbering series is changed, after footnote 9 there is footnote 12. Please correct the footnote numbering accordingly. CL02-01 remains open.</p> <p>2. VVB has reviewed the updated ER and MR sheets and confirmed that the references have been correctly updated. Therefore, Part 2 of the CL is considered closed..</p> |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Date: 17/05/2025</b> |
| <p>This finding was not found, a screenshot of the footnotes below:</p> <p><sup>7</sup> See VPA06 MPVI survey SDG ER sheet SDG 8 a3:c9</p> <p><sup>8</sup> See VPA06 MPVI survey SDG ER sheet DB_MPVI cell B5819</p> <p><sup>9</sup> VPA06 MPVI survey SDG <u>ER</u> sheet plant type A3:B14</p> <p><sup>10</sup> VPA06 MPVI RMT sheet analysis A3:E9</p> <p><sup>11</sup> VPA06 MPVI RMT sheet analysis A3:E9 sheet VPA06 MP6 MRT column J</p> <p>and on the next page footnote 12. No changes necessary</p>                                                                           |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |
| no updates made, number is correct and consistent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Date:</b>            |
| the footnote series is found to be appropriate. Hence CL is closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |

|                                                                                                                                                               |    |                    |         |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|---------|--------------------------|
| <b>CL ID</b>                                                                                                                                                  | 03 | <b>Section no.</b> | MR, B.1 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                      |    |                    |         |                          |
| In section B.1.1 of the MR, it is mentioned that " <i>1 FAR was issued</i> ". However, the FAR has not been described. Therefore, clarification is requested. |    |                    |         |                          |
| <b>Project participant response</b>                                                                                                                           |    |                    |         | <b>Date : 01/05/2025</b> |
| The text is from the previous MR and was not removed. This is now deleted. No FAR was issued                                                                  |    |                    |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                          |    |                    |         |                          |
| MR v1.1                                                                                                                                                       |    |                    |         |                          |
| <b>VVB assessment</b>                                                                                                                                         |    |                    |         | <b>Date: 09/05/2025</b>  |
| VVB reviewed the updates in MR V1.1 and confirmed it was mistakenly added and removed in the updated MR. hence this CL is closed.                             |    |                    |         |                          |

|                                                                                                                                                                                                                                          |    |                    |         |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|---------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                             | 04 | <b>Section no.</b> | MR, D.1 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                                                                                                 |    |                    |         |                          |
| In Section D.1 of the Monitoring Report, the source of data for the parameter “PL” is cited as IPCC. However, there is no reference to the specific chapter, section, or version of the IPCC document. Hence, clarification is requested |    |                    |         |                          |
| <b>Project participant response</b>                                                                                                                                                                                                      |    |                    |         | <b>Date : 01/05/2025</b> |
| Reference to the methodology is added                                                                                                                                                                                                    |    |                    |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                     |    |                    |         |                          |
| <i>MR v1.1</i>                                                                                                                                                                                                                           |    |                    |         |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                    |    |                    |         | <b>Date: 09/05/2025</b>  |
| VVB reviewed the updates in MR V1.1 and confirmed the updated reference by crosschecking with the methodology. Hence the CL is closed.                                                                                                   |    |                    |         |                          |

|                                                                                                                                                                                                                                                                             |    |                    |         |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|---------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                                                                | 05 | <b>Section no.</b> | MR, D.2 | <b>Date: 04/04/2025</b>  |
| <b>Description of CL</b>                                                                                                                                                                                                                                                    |    |                    |         |                          |
| In Section D.2 of the Monitoring Report, the value of the parameter “Bo” for "store it first" is stated as 62.1% which is inconsistent with the value in the ER spreadsheet i.e., 61.1% (tab bio-slurry, cell C6). Therefore, CME is requested to clarify this discrepancy. |    |                    |         |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                         |    |                    |         | <b>Date : 01/05/2025</b> |
| This should be 61.1% and is now updated.                                                                                                                                                                                                                                    |    |                    |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                        |    |                    |         |                          |
| <i>MRv1.1</i>                                                                                                                                                                                                                                                               |    |                    |         |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                       |    |                    |         | <b>Date: 09/05/2025</b>  |

As per the CMEs response the value of the parameter Bio is 61.1%, as per the ER sheet tab 'bio-slurry' cell D19 and D20 and section D.2 of the MR the value is:

| How do you apply bio-slurry | % of farmers |
|-----------------------------|--------------|
| Use for various crops       | 99.0%        |
| Don't use it                | 1.0%         |

As per section D.3 of the MR the achieved value in the current MP for parameter Bio is:

| How do you apply bio-slurry       | % of farmers |
|-----------------------------------|--------------|
| Use directly for various purposes | 38.2%        |
| Store it first                    | 61.1%        |
| I don't use it / discarded        | 0.5%         |

CME is requested to clarify the value of parameter "Bio" in the ER sheet and the MR. CL05 remains open.

#### Project participant response

Date: 17/05/2025

This is now updated and consistent with the ER sheet. The link in the MR is updated and the values as well. This is added:

| Parameter 'Bio'   Bio               |                                       |          |
|-------------------------------------|---------------------------------------|----------|
| % Use directly for various purposes | 38.3%                                 | of which |
|                                     | Used as fertilizer                    | 98.2%    |
|                                     | "% of bio slurry sold                 | 0.7%     |
|                                     | use as insecticide                    | 0.9%     |
|                                     | used as animal feed                   | 0.3%     |
| other                               | 0.1%                                  |          |
| % Bioslurry Stored                  | 61.1%                                 | of which |
|                                     | composting without roof               | 2.67%    |
|                                     | Composting with roof                  | 0.31%    |
|                                     | Liquid slurry (brown porridge type)   | 62.24%   |
|                                     | Solid storage                         | 12.49%   |
|                                     | Uncovered lagoon (black watery mass.) | 12.29%   |
|                                     | sundrying                             | 10.00%   |
| % Bioslurry Discarded               | 0.5%                                  |          |
| Sum                                 | 100.0%                                |          |

#### Documentation provided by project participant

|                                                                                             |                         |
|---------------------------------------------------------------------------------------------|-------------------------|
| MR v1.2                                                                                     |                         |
| ER sheet v1.2                                                                               |                         |
| <b>VVB assessment</b>                                                                       | <b>Date: 09/05/2025</b> |
| CME has provided consistent value "Bio" in the ER sheet and the MR. Hence the CL is closed. |                         |

|                                                                                                                                                                                                                                                                                                 |      |                    |         |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------|---------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                                                                                    | CL 6 | <b>Section no.</b> | MR, D.4 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                                                                                                                                                        |      |                    |         |                          |
| In Section D.4 of the Monitoring Report, the target population of the survey is described as being from "seven age clusters," while elsewhere it is mentioned as being from "8 age groups." The CME is requested to correct these inconsistencies within and between the MR and ER spreadsheet. |      |                    |         |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                             |      |                    |         | <b>Date : 01/05/2025</b> |
| This should be 8, and is now updated                                                                                                                                                                                                                                                            |      |                    |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                            |      |                    |         |                          |
| <i>Mr v1.1</i>                                                                                                                                                                                                                                                                                  |      |                    |         |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                           |      |                    |         | <b>Date: 09/05/2025</b>  |
| VVB reviewed the updates in MR V1.1 and confirmed that the data has been revised to reflect 8 age clusters, ensuring consistency with other sections of the MR and the registered VPA-DD. Accordingly, the CL is considered closed.                                                             |      |                    |         |                          |

|                                                                                                                                                                                                                                                                                                                                    |       |                    |        |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|--------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                                                                                                                       | CL 07 | <b>Section no.</b> | MR B.2 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                           |       |                    |        |                          |
| The Registered VPA-DD includes the estimation of the parameter "GS-07 Livelihood of the Poor." However, this parameter is not included in the current monitoring report, and there is no clear explanation for its exclusion in Section B.2 of Monitoring Report V1. The CME is requested to provide clarification on this matter. |       |                    |        |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                |       |                    |        | <b>Date : 01/05/2025</b> |
| As indicated in section 2.4 permanent changes apply to the monitoring framework due to the transition GS4GG. The transition Annex supersedes the VPA06-DD                                                                                                                                                                          |       |                    |        |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                               |       |                    |        |                          |
| <i>12July19 ABC PoA-VPA transition annex 1.6</i>                                                                                                                                                                                                                                                                                   |       |                    |        |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                              |       |                    |        | <b>Date: 09/05/2025</b>  |
| VVB reviewed the transition document "12July19ABC PoA-VPA transition annex 1.6" and confirmed the parameters included in the calculation of SDGs. Hence the CL is closed                                                                                                                                                           |       |                    |        |                          |

|                          |       |                    |         |                          |
|--------------------------|-------|--------------------|---------|--------------------------|
| <b>CL ID</b>             | CL 08 | <b>Section no.</b> | MR, D.2 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b> |       |                    |         |                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| In table 1 of the monitoring report:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |
| <ol style="list-style-type: none"> <li>1. The value for 'GS-1 Air Quality' is listed as 99.2%, while the ER sheet shows the value as 99.1%. CME is requested to clarify this discrepancy. Additionally, the same value appears in Sections D.2, D.3, E.2, E.4, E.5, and E.6.</li> <li>2. The value for 'Time Savings' is listed as 94.6%, whereas the ER sheet and Section D.2 of the Monitoring Report indicate a value of 95.6%. CME is requested to clarify this discrepancy.</li> <li>3. for '<i>Income Generating (including farming)</i>', '<i>Recreation</i>', and '<i>Helping my husband</i>', Table 1 presents values of 73%, 21%, and 9% respectively, while the ER sheet shows 72%, 22%, and 8%. CME is required to address these inconsistencies.</li> </ol> |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Date : 01/05/2025</b> |
| <ol style="list-style-type: none"> <li>1. This was an error and is now revised to 99.1 in the MR</li> <li>2. As above, this is now updated and made consistent</li> <li>3. As above</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |
| MR v1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Date: 09/05/2025</b>  |
| <ol style="list-style-type: none"> <li>1. VVB reviewed the updates in MR V1.1 and confirmed the values are now consistent in MR and with ER sheet. CL08-01 is closed</li> <li>2. VVB reviewed the updates in MR V1.1 and confirmed the values are now consistent in MR and with ER sheet. CL08-02 is closed</li> <li>3. VVB reviewed the updates in MR V1.1 and found the values are still not updated properly and still inconsistent. CL08-03 remains open.</li> </ol>                                                                                                                                                                                                                                                                                                 |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Date: 17/05/2025</b>  |
| 3. This is now updated, somehow a 7 of the value 72 was deleted. Table 1 should be correct now                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |
| MR v1.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Date: 02/06/2025</b>  |
| Table q of the MR is updated to provide consistent values. Hence, CL is closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                          |

|                          |       |                    |         |                         |
|--------------------------|-------|--------------------|---------|-------------------------|
| <b>CL ID</b>             | CL 09 | <b>Section no.</b> | MR, E.2 | <b>Date:</b> 04/04/2025 |
| <b>Description of CL</b> |       |                    |         |                         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          |
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| The value of Project Emissions (PE) stated in Section E.2 of the Monitoring Report is 1.103 tCO <sub>2</sub> e, whereas the 'PE' tab, cell D66 of the ER sheet shows 2.381 tCO <sub>2</sub> e. Additionally, the reference cited in this section of the Monitoring Report points to the cell for ' <i>Total Project Emissions from bio-slurry</i> ' in the ER sheet. Therefore, CME is requested to clarify these inconsistencies |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                               | <b>Date : 01/05/2025</b> |
| Both the reference and the value is now updated and consistent                                                                                                                                                                                                                                                                                                                                                                    |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                              |                          |
| MR v1.1                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Date: 09/05/2025</b>  |
| VVB reviewed the updates in MR V1.1 and confirmed the values are now consistent in MR and with ER sheet. Hence the CL is closed.                                                                                                                                                                                                                                                                                                  |                          |

|                                                                                                                                                                                                              |       |                    |         |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|---------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                 | CL 10 | <b>Section no.</b> | MR, B.1 | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                                                                     |       |                    |         |                          |
| As per the database, the total number of installed units are 5,823, some of which are permanently or temporarily excluded. The same needs to be clarified in section B.1 of the MR.                          |       |                    |         |                          |
| <b>Project participant response</b>                                                                                                                                                                          |       |                    |         | <b>Date : 01/05/2025</b> |
| This is now clarified in section b.1                                                                                                                                                                         |       |                    |         |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                         |       |                    |         |                          |
| MR v1.1                                                                                                                                                                                                      |       |                    |         |                          |
| <b>VVB assessment</b>                                                                                                                                                                                        |       |                    |         | <b>Date: 09/05/2025</b>  |
| VVB reviewed the updates in MR V1.1 and confirmed the section B.1 is updated with the information for the difference in the total number installed and considered in ER calculation. Hence the CL is closed. |       |                    |         |                          |

|                          |       |                    |          |                          |
|--------------------------|-------|--------------------|----------|--------------------------|
| <b>CL ID</b>             | CL 11 | <b>Section no.</b> | ER sheet | <b>Date : 04/04/2025</b> |
| <b>Description of CL</b> |       |                    |          |                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <ol style="list-style-type: none"> <li>1) In the ER spreadsheet, under the "bio-slurry" tab, cell C2 states that the bio-digester slurry is "Used as Fertilizer (Daily spread)." However, it corresponds to the question "% Use directly for various purposes" in the "Survey A" tab, column CJ. The CME is requested to rectify this inconsistency.</li> <li>2) In the ER spreadsheet, under the "bio-slurry" tab, cell C3, "% of bio slurry sold" does not contain any formula or reference, therefore lacks information about the source of the value. The CME is requested to provide clarification.</li> <li>3) For the parameter "GS-3 Soil condition" defined as "Percentage of biogas users who use slurry as a fertilizer," the calculation in the ER spreadsheet under the "Analysis A" tab, cell C55, is given as "1 - fraction of slurry discarded." This implies the portion of slurry that is not discarded. However, this portion may be used for various purposes other than as application of fertilizer according to "Survey A" tab. Therefore, the CME is requested to clarify the calculation method for this parameter.</li> <li>4) In the "PE" tab, cell D37, there appears to be an error in the calculation. The maximum methane-producing capacity for manure from "goats" is multiplied by the daily volatile solids excreted for "dairy cows" under livestock category T. The CME is requested to correct this error.</li> <li>5) In the "PE" tab, cells E37:E43, the units specified for the EF<sub>AWMS</sub> values are incorrect. The CME is requested to revise and update them appropriately.</li> <li>6) In the 'SDG 8' tab, columns G and H under the "Masonry" table do not clearly specify the type of data presented. CME needs to provide clarification.</li> </ol> |                         |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Date: 01/05/2025</b> |
| <ol style="list-style-type: none"> <li>1. This is now updated and linked to the percentage using it as fertilizer. Some bio-slurry values changed as a result and are updated</li> <li>2. This is updated. It turns out that only 2 hh are not applying bio-slurry as fertilizer. Based on this the calculation is updated.</li> <li>3. Only 2 hh discards slurry. Based on this the impact is recalculated.</li> <li>4. This is now updated. Since the Bo is the same for both categories, no impact on the ER resulted</li> <li>5. This is now updated and expressed as per head of animal</li> <li>6. This is now updated</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |
| Mr v1.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Date: 09/05/2025</b> |

1. VVB reviewed the updated ER sheet and confirmed in tab "*bio slurry*" the references of the cells are now correct, expect the cell D6 for other uses refers to the % used as animal feed. CL11-01 remains open.
2. The "bio-slurry" tab, cell C3, "% of bio slurry sold" is now updated to use correct reference. Hence, CL11-02 is closed.
3. VVB reviewed the updates in MR V1.1 and found the parameter calculated in updated ER in different way than mentioned in the VPA-DD or Monitoring plan followed in the previous MR. CME needs to clarify on this. CL11-03 remains open.
4. VVB reviewed the updated ER sheet and confirmed the formula correctly used in the calculation in the tab "*PE*". CL11-04 is closed
5. As per the MR section D>2 the unit for EF AWMS is provided as m<sup>3</sup> CH<sub>4</sub>/kg, CME is requested to clarify. CL11-05 remains open
6. VVB reviewed the updated ER sheet and confirmed the cells are updated to mention the type of data presented. Hence CL11-06 is closed.

**Project participant response**

**Date: 17/05/2025**

1. Animal feed is a rare category, and therefore often grouped under others. This is now updated to the category used as animal feed

3. The PP checked the previous MR and excel and has now applied the same approach. Below the presentation in the current excel (left) and at the right the previous MP excel

|    |                                   |        |
|----|-----------------------------------|--------|
| 15 | % Bioslurry Discarded             | 0.5%   |
| 16 | Sum                               | 100.0% |
| 17 | What do you do with your slurry   |        |
| 18 | Use directly for various purposes | 38.3%  |
| 19 | Store it first                    | 61.1%  |
| 20 | I don't use it / discarded        | 0.5%   |
| 21 | Project emissions from bio-slurry |        |

|    |                                   |        |
|----|-----------------------------------|--------|
| 14 | Sum                               | 100.0% |
| 15 | What do you do with your slurry   |        |
| 16 | Use directly for various purposes | 31%    |
| 17 | Store it first                    | 68%    |
| 18 | I don't use it / discarded        | 1%     |
| 19 | Project emissions from bio-slurry |        |

5. this is now updated and matching with the IPCC tables

| Table 10A-4<br>Methane Emission Factor Derivation for Dairy Cows |                                |                  |        |                               |                 |          |                    |       |      |
|------------------------------------------------------------------|--------------------------------|------------------|--------|-------------------------------|-----------------|----------|--------------------|-------|------|
| Manure Management System MCFs                                    |                                |                  |        |                               |                 |          |                    |       |      |
| Lagoon <sup>1</sup>                                              | Liquid/<br>Slurry <sup>1</sup> | Solid<br>Storage | Drylot | Pasture/<br>Range/<br>Paddock | Daily<br>Spread | Digester | Burned<br>for Fuel | Other |      |
| 66%                                                              | 17%                            | 2.0%             | 1.0%   | 1.0%                          | 0.1%            | 10.0%    | 10.0%              | 1.0%  |      |
| 68%                                                              | 19%                            | 2.0%             | 1.0%   | 1.0%                          | 0.1%            | 10.0%    | 10.0%              | 1.0%  |      |
| 70%                                                              | 20%                            | 2.0%             | 1.0%   | 1.0%                          | 0.1%            | 10.0%    | 10.0%              | 1.0%  |      |
| 71%                                                              | 22%                            | 2.0%             | 1.0%   | 1.0%                          | 0.1%            | 10.0%    | 10.0%              | 1.0%  |      |
| 73%                                                              | 25%                            | 2.0%             | 1.0%   | 1.0%                          | 0.1%            | 10.0%    | 10.0%              | 1.0%  |      |
| 74%                                                              | 27%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 75%                                                              | 29%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 76%                                                              | 32%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 77%                                                              | 35%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 77%                                                              | 39%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 78%                                                              | 42%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 78%                                                              | 46%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 78%                                                              | 50%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 79%                                                              | 55%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 79%                                                              | 60%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 79%                                                              | 65%                            | 4.0%             | 1.5%   | 1.5%                          | 0.5%            | 10.0%    | 10.0%              | 1.0%  |      |
| 79%                                                              | 71%                            | 5.0%             | 2.0%   | 2.0%                          | 1.0%            | 10.0%    | 10.0%              | 1.0%  |      |
| 80%                                                              | 78%                            | 5.0%             | 2.0%   | 2.0%                          | 1.0%            | 10.0%    | 10.0%              | 1.0%  |      |
| 80%                                                              | 80%                            | 5.0%             | 2.0%   | 2.0%                          | 1.0%            | 10.0%    | 10.0%              | 1.0%  |      |
| Manure Management System Usage (MS%)                             |                                |                  |        |                               |                 |          |                    |       |      |
| lay                                                              | 15.0%                          | 27.0%            | 26.3%  | 0.0%                          | 10.8%           | 18.4%    | 0.0%               | 0.0%  | 2.6% |
|                                                                  | 0.0%                           | 35.7%            | 36.8%  | 0.0%                          | 20.0%           | 7.0%     | 0.0%               | 0.0%  | 0.5% |
|                                                                  | 0.0%                           | 17.5%            | 60.0%  | 0.0%                          | 18.0%           | 2.5%     | 0.0%               | 0.0%  | 2.0% |
|                                                                  | 16.0%                          | 1.0%             | 0.0%   | 0.0%                          | 76.0%           | 8.0%     | 0.0%               | 0.0%  | 0.0% |
|                                                                  | 0.0%                           | 1.0%             | 1.0%   | 0.0%                          | 36.0%           | 62.0%    | 0.0%               | 0.0%  | 0.0% |
|                                                                  | 0.0%                           | 0.0%             | 1.0%   | 0.0%                          | 83.0%           | 5.0%     | 0.0%               | 6.0%  | 4.0% |
|                                                                  | 0.0%                           | 1.0%             | 2.0%   | 0.0%                          | 80.0%           | 2.0%     | 0.0%               | 17.0% | 0.0% |
|                                                                  | 4.0%                           | 38.0%            | 0.0%   | 0.0%                          | 20.0%           | 29.0%    | 2.0%               | 7.0%  | 0.0% |
|                                                                  | 0.0%                           | 1.0%             | 0.0%   | 0.0%                          | 27.0%           | 19.0%    | 1.0%               | 51.0% | 0.0% |

| Emission Factors<br>kg CH <sub>4</sub> per head per year |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |           |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |  |  |  |  |
|----------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|--|--|--|--|
| Cool                                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Temperate |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    | Warm |    |    |    |    |    |  |  |  |  |
| 10                                                       | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26        | 27  | 28  | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42   | 43 | 44 | 45 |    |    |  |  |  |  |
| 48                                                       | 50 | 53 | 55 | 58 | 63 | 65 | 68 | 71 | 74 | 78 | 81 | 85 | 89 | 93 | 98 | 105       | 110 | 112 | 21 | 23 | 25 | 27 | 29 | 34 | 37 | 40 | 43 | 47 | 51 | 55 | 59 | 64   | 70 | 75 | 83 | 90 | 92 |  |  |  |  |
| 11                                                       | 12 | 13 | 14 | 15 | 20 | 21 | 22 | 23 | 25 | 27 | 28 | 30 | 33 | 35 | 37 | 42        | 45  | 46  | 23 | 24 | 25 | 26 | 27 | 28 | 28 | 28 | 29 | 29 | 29 | 29 | 30 | 30   | 31 | 31 | 31 | 31 |    |  |  |  |  |
| 1                                                        | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1         | 1   | 2   | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 2  | 2  | 2  | 2  |    |  |  |  |  |
| 1                                                        | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1         | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1  | 1  | 1  | 1  |    |  |  |  |  |
| 2                                                        | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2         | 2   | 2   | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 2  | 2  | 3  | 3  |    |  |  |  |  |
| 9                                                        | 10 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 20 | 21 | 23 | 24 | 26 | 28        | 31  | 31  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5    | 5  | 5  | 6  | 6  |    |  |  |  |  |
| 5                                                        | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5         | 5   | 5   | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5    | 5  | 5  | 6  | 6  |    |  |  |  |  |

Documentation provided by project participant

MR v1.2, excel sheet v1.2

VVB assessment

Date: 02/06/2025

|                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Reference for the category Animal feed is now updated in the ER sheet.</li> <li>2. Consistent approach used in the ER sheet for “GS-3 Soil condition”.</li> <li>3. ER sheet tab PE is now updated to use units for EF as per the IPCC tables.</li> </ol> <p>Hence the CL is closed.</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |                    |           |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------|-----------|--------------------------|
| <b>CL ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>CL 12</b> | <b>Section no.</b> | <b>NA</b> | <b>Date : 17/04/2025</b> |
| <b>Description of CL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                    |           |                          |
| <p>According to the document “DEV_652” published on the GS-registry for GS2750, CME had requested to postpone date of submission of VPA RCP (for VPAs 01, 02, 03, and 06) beyond 25/11/2023, which was not approved by GS.</p> <p>In the same document, it is stated that “<i>Delay in the completion of revalidation means that no Certified Impact Statements shall be issued for the period of delay from 25/11/2023 for the following projects: VPA01 – GS2750, VPA02 – GS2751, VPA03 – GS4236, and VPA06 – GS5801.</i>” In light of this, the CME is required to clarify whether these four projects are eligible for the issuance of credits for their respective monitoring periods falling after 25/11/2023 and before the renewal of CP was approved / end of the monitoring period, whichever occurs earlier.</p> |              |                    |           |                          |
| <b>Project participant response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |                    |           | <b>Date : 01/05/2025</b> |
| The deviation request refers to the CP2 of the each of the VPA mentioned. Since this verification concerns the first CP, this is not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |                    |           |                          |
| <b>Documentation provided by project participant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |                    |           |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |                    |           |                          |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |                    |           | <b>Date: 09/05/2025</b>  |
| The CME has provided the clarification received from Mr. Vikash Talyan Senior Director, Standard Development & Innovation, The Gold Standard Foundation, regarding the issuance for the VPA06. Hence, CL12 is closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |                    |           |                          |

**Table 2. CARs from this verification**

|                                                                                                                                |           |                    |                |                         |
|--------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|----------------|-------------------------|
| <b>CAR ID</b>                                                                                                                  | <b>01</b> | <b>Section no.</b> | <b>MR, G.1</b> | <b>Date: 04/04/2025</b> |
| <b>Description of CAR</b>                                                                                                      |           |                    |                |                         |
| As per the MR template guide, in section G.1, CME needs to elaborate on how the grievances were responded to and/or mitigated. |           |                    |                |                         |
| <b>PD response</b>                                                                                                             |           |                    |                | <b>Date: 01/05/2025</b> |

A narrative is added, for exact detail reference is made to the grievance sheet, as there are too many to mention.

A mistake was discovered, the pivot table in the grievance sheet did not capture the data from all grievances. This is now updated and as a result the number of grievances increased. The MR has been updated accordingly

#### Documentation provided by PD

MR v1.1

VPA01 and VPA06 grievances combined

#### VVB assessment

Date: 09/05/2025

VVB reviewed the updated MR and the document titled "VPA01 and VPA06 Grievance Combined," and confirmed that the relevant section has been updated in the MR and the revised document has been verified. Hence the CAR is closed.

| CAR ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 02 | Section no. | Supporting Documents | Date: | 04/04/2025       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|----------------------|-------|------------------|
| Description of CAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |    |             |                      |       |                  |
| CME needs to provide the following documents:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |             |                      |       |                  |
| <ol style="list-style-type: none"> <li>1. SDG-Impact-Tool</li> <li>2. Evidence for the biodigesters specifications and numbers distributed under the project</li> <li>3. Biodigester Manual</li> <li>4. PFT raw data along with calibration and purchase records of KPT equipment</li> <li>5. Evidence for unique product identification number under the project</li> <li>6. Warranty Cards/certificates</li> </ol>                                                                                                                                                                                                           |    |             |                      |       |                  |
| CME response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |             |                      |       | Date: 01/05/2025 |
| <ol style="list-style-type: none"> <li>1. The impact tool is not applicable as the VPA was registered before it became mandatory.</li> <li>2. This is mentioned in tab DB_MPVI in the excel sheet shared, see column B for the unique numbers, and the rows for the numbers distributed.</li> <li>3. The biodigester manual is added to the list of evidences. But this is normally not subject to verification</li> <li>4. See file : PFT Confirmation2024_raw data and Scale calibration certification</li> <li>5. See answer 2, and see also the shared warranty certificates and salesforce records in the list</li> </ol> |    |             |                      |       |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| of evidences of the plants visited by the VVB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                         |
| 6. see #5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |
| <b>Documentation provided by CME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
| See folder evidences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Date: 09/05/2025</b> |
| VVB has reviewed the submitted documents and verified the supporting evidence. The Impact Tool is deemed not applicable, as the registration date precedes its mandatory implementation. Warranty certificates have been reviewed and, along with Salesforce records, are accepted as valid evidence for discrete plant codes. The biodigester manual has also been provided and verified by VVB. Additionally, the PFT raw data sheet has been examined and found to be consistent with the calculations presented in the ER sheet. Hence the CAR is closed. |                         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |                    |                      |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|----------------------|-------------------------|
| <b>CAR ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 03 | <b>Section no.</b> | Supporting Documents | <b>Date: 02/06/2025</b> |
| <b>Description of CAR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |                    |                      |                         |
| CME needs to provide the following documents:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |                    |                      |                         |
| Evidence of legal ownership of the project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                    |                      |                         |
| <ol style="list-style-type: none"> <li>1. Evidence of legal ownership of the project, Certificate of incorporation of the CME and VPA implementer</li> <li>2. Initial Sample size calculation sheet along with evidence for random selection of samples, precision achieved calculation (for monitoring survey, usage survey, and PFT)</li> <li>3. Records of monitoring/project surveys of the project stored and reported in project database, including additional monitoring survey and KPT carried out during this MP</li> <li>4. Evidence for surveys recorded on TaroWorks App</li> <li>5. Evidence for Continuous Input and Grievance Mechanism and list of inputs/grievances received along with their responses/mitigations. Records of grievance tracker for the excluded Projects</li> <li>6. KPT Records for the monitoring period, Calibration and purchase records of KPT equipment, KPT protocol</li> <li>7. Contractual agreement between the CME and the VPA implementer</li> <li>8. Contractual agreements between the CME/VPA implementer with Quality Service Providers (QSPs) and BCEs/masons</li> <li>9. Contractual agreements between the CME/VPA implementer with EcoFrontier and independent consultant</li> <li>10. CME Manual for the project along with Organization Structure and responsibility chart</li> <li>11. Project survey, Monitoring survey and usage survey Questionnaire template</li> </ol> |    |                    |                      |                         |
| <b>CME response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |                    |                      | <b>Date: 06/06/2025</b> |
| <b>Documentation provided by CME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                    |                      |                         |
| 1. Evidence of legal ownership of the project, Certificate of incorporation of the CME and VPA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |                    |                      |                         |

implementer

- ➔ See cover letter in the package signed by the CME (ABPL), who is also the VPA01 and VPA06 implementer.
- 2. Initial Sample size calculation sheet along with evidence for random selection of samples, precision achieved calculation (for monitoring survey, usage survey, and PFT)
  - ➔ As per methodology, there is not requirement to calculate the sample size precision for survey A and B. The requirement is having a minimum sample of 30 per age group for the usage survey and at least 100 for the user survey. The CME has demonstrated this in the MR. 90/30 for the PFT is calculated. This is both described in the MR and referenced to the relevant excel sheets.
- 3. Records of monitoring/project surveys of the project stored and reported in project database, including additional monitoring survey and KPT carried out during this MP
  - ➔ This is all included in the excel sheet. The excel sheet will be stored and uploaded to the GS database, including supporting evidences as per regular procedures.
- 4. Evidence for surveys recorded on TaroWorks App
  - ➔ See folder taro works evidences
- 5. Evidence for Continuous Input and Grievance Mechanism and list of inputs/grievances received along with their responses/mitigations. Records of grievance tracker for the excluded Projects
  - ➔ A grievance sheet is shared with inputs grievances during previous rounds, along with responses and mitigations. It is clearly stated what actions are undertaken and includes records for the excluded projects.
- 6. KPT Records for the monitoring period, Calibration and purchase records of KPT equipment, KPT protocol
  - ➔ This was shared for CAR 02 already. There are no purchase records as the KPT equipment is reused each year.
- 7. Contractual agreement between the CME and the VPA implementer
  - ➔ N/A, the CME is the VPA implementer
- 8. Contractual agreements between the CME/VPA implementer with Quality Service Providers (QSPs) and BCEs/masons
  - ➔ BCE/masons are independent entities operating under a code of conduct. This is attached. Please also refer to the certificates shared in R1- listing the 3 party agreement, including the BCE of biodigester installation.
- 9. Contractual agreements between the CME/VPA implementer with EcoFrontier and independent consultant

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <p>→ Contracts cannot be shared as because of confidentiality. However, the fact that I am responding, should be sufficient evidence that the independent consultant is contracted. The CME will send an email declaring that EcoFrontier and I were contracted if needed.</p> <p>10. CME Manual for the project along with Organization Structure and responsibility chart<br/>Project survey, Monitoring survey and usage survey Questionnaire template</p> <p>→ The responsibilities w.r.t monitoring are mentioned in the monitoring report in figure 2. No other organizational structure and charts are available.</p> <p>→ The questionnaires are included now. Note that the version that is used is fully digitalized in Taro works, and may have minor differences with this version. Also, in the ER sheets shared, all column headers refer to a question, all column headers together are the questionnaire.</p> |                         |
| <b>VVB assessment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Date: 29/06/2025</b> |
| VVB reviewed the documents provided and confirmed appropriate. Hence, CAR 03 is closed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |

**Table 3. FARs from this verification**

|                                                                                                                                                            |    |                    |     |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------|-----|--------------------------|
| <b>FAR ID</b>                                                                                                                                              | 01 | <b>Section no.</b> | G.1 | <b>Date : 28/10/2025</b> |
| <b>Description of FAR</b>                                                                                                                                  |    |                    |     |                          |
| PD is requested to provide updates on the ongoing grievances reported in the current monitoring period (01/04/2023 – 13/03/2024) in the next verification. |    |                    |     |                          |
| <b>Project participant response</b>                                                                                                                        |    |                    |     | <b>Date :</b>            |
|                                                                                                                                                            |    |                    |     |                          |
| <b>Documentation provided by project participant</b>                                                                                                       |    |                    |     |                          |
|                                                                                                                                                            |    |                    |     |                          |
| <b>VVB assessment</b>                                                                                                                                      |    |                    |     | <b>Date:</b>             |
|                                                                                                                                                            |    |                    |     |                          |