

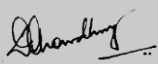


VARANASI SMART CITY BIO- CONVERSION PROJECT



Report ID	ET-006708
Project Title	Varanasi Smart City Bio-Conversion Project
Project ID	VCS 4493
Verification period	16-June-2022 to 30-June-2023
Crediting period	16-June-2022 to 16-June-2029
Original date of issue	11-June-2024
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Version	02
VCS Standard Version	4.6
Client	Gobardhan Varanasi Foundation SPV
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Summary:**Description of the project:**

The project “Varanasi Smart City Bio-Conversion Project” with project ID 4493 employs the CDM methodology AMS-III.AO version 1.0 and AMS-III.D. version 21.0 /B01/,/B02/. The project involves in the co-digestion of the animal manure (cow-dung), pressmud and Napier grass, which will produce the compressed biogas. As PP is unable to demonstrate the baseline scenario for pressmud and Napier grass, this project only considered cowdung to calculate the emission reduction and claiming credits for methane avoidance. The project will produce approx. 2500-2800 kg of the biogas, which shall be supplied to the retailer. The project is to avoid the emissions of methane to the atmosphere from cowdung that would have otherwise been left to decay anaerobically. The condition is considered as the baseline scenario before the implementation of the project activity.

TÜV SÜD has signed the contractual agreement with the “Gobardhan Varanasi foundation SPV” (PP) to performed joint validation and verification involving installation of biogas generation plant using cowdung at Varanasi, India titled as Varanasi Smart City Bio-Conversion Project (“the Project”) which is listed under VCS registry with project ID 4493 started on 10-March-2022.

TÜV SÜD has performed joint validation and verification service as per the requirements of section 4 “Validation and verification requirements” of VCS Standard Version 4.6 following the guidance of Validation and Verification Manual. Validation & Verification Team has used risk-based approach to provide conformance with ISO 14064-3 and ISO 14065. Validation & Verification Team has conducted independent assessment of estimated and actual GHG statement of emission reductions and removals that have occurred because of the project implementation during this monitoring period to be materially correct and conform claim against the requirements of VCS Program rules and applied methodology.

The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive, and presented in a concise and transparent manner. In particular, monitoring plan, monitoring report and the project’s compliance with relevant VCS, UNFCCC and host party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented.

The scope is to be defined as an independent and objective review of the VCS Joint Project Description & Monitoring Report (JPD MR). The VCS Joint PD & MR is reviewed against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.4, dated 29-August-2023), VCS Standard (v4.6, dated 21-March-2024), Program Definitions(v4.5, dated 16-April-2024), Registration & Issuance Process (v4.4, dated 04-October-2023) VCS Validation and Verification Manual (v3.2, dated 19-October-2016) applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring UNFCCC methodology, also assess the claims and assumptions made in the VCS Joint PD & MR without limitation on the information provided by the project participants.

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered VCS Joint PD & MR and VCS rules and requirements.
- To verify the implemented monitoring plan with the registered VCS Joint PD & MR and applied UNFCCC baseline and monitoring methodology.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.
- The method and criteria used for validation and verification:

The joint validation and verification consist of the following phases:

- A review of data and information; Cross checks between information provided in VCS Joint PD & MR and information from sources with all necessary means without limitations to the information provided by the project proponent.
- Onsite interviews with project stakeholders: Interviews with relevant stakeholders in host country with personnel having knowledge with the project development via telephone, email or direct on-site visit.
- Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent.
- A cross-check between information provided in the monitoring report and data from other sources such as inventories, purchase records, or similar data sources.
- Reference to available information relating to projects or technologies similar to project under validation and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.
- Review of calculations and assumptions made in determining the GHG data and emission reductions.
- The resolution of outstanding issues and the issuance of the final verification report and opinion.

Validation & Verification Team has validated and verified that the statement of historical data and information of the project to a reasonable level of assurance and ensures that the project meets the relevant materiality requirements (misrepresentation <5% for small scale project) through means of onsite assessment as per the audit criteria. Validation & Verification Team has not identified any

uncertainties which might impact GHG statement of emission reductions and removals as result of risk-based approach.

During joint validation and verification of grouped project titled as Varanasi Smart City Bio-Conversion Project ('the Project') which is listed under VCS registry with project ID 4493, 25 Clarification Requests (CL), 12 Corrective Action Requests (CARs) and 00 Forward Action Requests (FARs) are raised, addressed, and closed out by VVB.

Based upon the conclusion of objective evaluation process against the criteria of applicable methodology and project standard under the scope of validation and verification. Hereby, TÜV SÜD concludes Varanasi Smart City Bio-Conversion Project ('the Project') which is listed under VCS registry with project ID 4493. The project activity is estimated to reduce 4,741 tCO₂e annually (average) for the first crediting period of 07 years and has achieved the estimated GHG Emission Reductions 2,806 tCO₂e during monitoring period from 16-June-2022 to 30-June-2023.

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1 INTRODUCTION

1.1 Objective

TÜV SÜD has been commissioned by the Project Proponent to perform an independent joint validation and verification assessment. This report summarizes the findings of verification of the project, performed based on the VCS Program Guide (v4.4, dated 29-August-2023), VCS Standard (v4.6, dated 21-March-2024), Program Definitions (v4.5, dated 16-April-2024), Registration & Issuance Process (v4.4, dated 04-October-2023) VCS Validation and Verification Manual (v3.2, dated 19-October-2016). Verification is required for all VCS project activities intending to register project under the VCS program. The purpose of a joint validation and verification is to have a thorough and independent assessment of the proposed project against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design and monitoring report, as documented, is sound and reasonable and meets the identified criteria. Validation and verification are a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, VCU's.

The objective of the validation and verification work is to comply with the requirements of Verified Carbon Standards requirements. Validation & Verification Team's objective is to ensure that:

- Validation of project activity to conform eligibility against the requirements of VCS program.
- Evaluation of the reasonableness of assumptions, limitations, and methods to assess and determine whether the project and its GHG statement conforms with the VCS Program rules for future activities.
- Assessment of appropriateness of applied methodology, methodological tools and applicable methodological regulatory in accordance with the VCS program rules and requirements.
- Project activity has been implemented and operated as per description in PDMR, and all physical features (technology, project equipment, monitoring, and metering equipment) of the project are in place.
- Published PDMR and associate objective evidence provided are sufficient, verifiable and in accordance with applicable VCS rules and requirements.
- Actual monitoring systems and procedures comply with the monitoring systems and procedures described in the registered monitoring plan and the approved methodology.
- Objective Information is recorded and preserved as per the applicable requirements.
- Assessment of the sustainability monitoring parameters as per the VCS Program rules.

1.2 Scope and Criteria

The validation and verification scope of assessment are defined by the underlying to review the Joint Project Description (PD) and Monitoring Report, project design, the project's baseline study and monitoring plan and other relevant documents. Validation/verification team has employed a risk-based approach in the validation, focusing on the identification of significant risks and

reliability of project monitoring and generation of emission reductions. The validation and verification are not meant to provide 'any consulting towards the project proponent. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

TUV SUD has engaged a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

- VCS Program Guide v4.4 (dated 29-August-2023)
- VCS Standard v4.6 (dated 21-March-2024)
- Program Definitions v4.5 (dated 16-April-2024)
- Registration & Issuance Process v4.4, (dated 04-October-2023)
- VCS Validation and Verification Manual v 3.2 (dated 19-October-2016)
- UNFCCC CDM methodology - AMS-III.AO. Methane recovery through controlled anaerobic digestion. version 1.0.
- UNFCCC CDM methodology - AMS-III.D. Methane recovery in animal manure management systems. Version 21.0.
- Other relevant rules, including the host country legislation.

The scope of this joint validation and verification, by independent checking of objective evidence, is as follows:

- To validated and verify that the project is implemented as described in the joint VCS Joint PD & MR.
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.
- To establish that the data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reduction calculation.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence. The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The joint validation and verification process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications (CLs), corrective actions (CARs), and/or forward actions (FARs) may provide input for improvement of the project design.

1.3 Reasonableness of Assumptions and Level of Assurance

The assumptions, limitations, and methods to support any statements are assessed against the requirements of VCS program guide version 4.4, VCS Standard version 4.6, and applied methodology/methodological tools. The errors identified in the project are within threshold limit of materiality as per the conclusion of assessment under scope of joint validation and verification hence, GHG emission reductions are calculated without material misstatements. The level of assurance for verifications shall be reasonable with respect to material errors, omissions, and misrepresentations.

The verification has been planned and organized to achieve a: Reasonable level of assurance as per VCS Standard (v4.6).

The threshold for materiality with respect to the aggregate of errors, omissions, and misrepresentations relative to the total reported GHG emission reductions and/or removals shall be five percent for projects as per the section 4.1.10(4) of the VCS standard 4.6 /B07/.

1.4 Summary Description of the Project

The Varanasi Smart City Bio-Conversion Project is a methane recovery and usage. The project is situated in Shahanshahpur in the Varanasi district of Uttar Pradesh state in India. The Project is owned by Gobardhan Varanasi Foundation SPV. The plant is to co-digest about 70TPD of cowdung from local suppliers and nearby residents.

The project aims to prevent cowdung that would have otherwise been allowed to decompose anaerobically from releasing methane into the atmosphere. Based on this, the proposed project only claims the emissions reduction by treating the cow manure, which also establishes the project's boundaries. The baseline scenario is the same as the scenario existing prior to the implementation of the project activity. The project activity recovers biogas that would otherwise be directly emitted into the atmosphere, resulting in a reduction in greenhouse gas emissions.

The Project is anticipated to reduce emissions by 33,187 tCO₂e in total throughout the first seven years of renewable crediting (16 June 2022 to 16 June 2029), with an average annual reduction of 4,741 tCO₂e during this period. An estimated 2,806 tCO₂e of emissions were reduced over the current monitoring period, which spanned from 16-June-2022 to 30-June-2023.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

To assess the assumptions, limitations, and methodologies that support a statement reasonably regarding the outcome of future activities and to determine compliance with the VCS program and rules, the Validation & Verification team gathers evidence and reviews desk reviews. The Validation & Verification team also confirm that historical data and information meets a reasonable level of assurance to evaluate relevant materiality requirements and fulfilment by the

project activity. Subsequently to the direct communication, an on-site visit to the facilities and project area is conducted, and objective evidence related to the project's implementation and operation is verified. This ensures that the project activity complies with the requirements of the VCS program and the applied methodology by evaluating the collection, reporting, and aggregation of GHG emission reductions and/or removals, as well as the qualitative data that goes along with it. This leads to an assessment conclusion and the creation of a draft joint validation and report. This joint validation and verification report and other supporting documentation then undergo an internal quality control by the Certification Body of "Environment and Energy" before submission to the VCS. If a deviation is suggested or found, the Validation & Verification team assesses the request in accordance with the guidelines in the VCS program guide version 4.4 and VCS Standard Version 4.6.

Using a risk-based procedure and the validation and verification methods outlined in the VCS Standard Version 4.6 in accordance with ISO 14064-3 and ISO 14065, the information submitted by project participants is evaluated. Before the validation and verification process begins, a qualified Validation & Verification team is chosen, as indicated in table 2.1.1. For the purpose of assessing the VCS project activities, the team is chosen to address the technical area(s), sectoral scope(s), and pertinent host country experience. To further ensure quality and completeness, a capable Technical Reviewer or Technical Reviewer Team is assigned.

Table 2.1.1 Composition of Team under scope of Validation and Verification

Role/Qualification	Last Name	First Name
Team Leader, Validator & Verifier, Technical Expert & Country Expert	Kudtarkar	Shruti
Trainee Validator & Verifier	Rizwan	Sumbul
Trainee Validator & Verifier	Basak	Deepjyoti
Technical Reviewer	K	Sudheendra
Technical expert to technical reviewer	Rawat	Ashish
Approver	Chowdhury	Deepankar

2.2 Document Review

Desk review is carried out by Validation & Verification Team to confirm sufficiency of evidence and associated data and information to be verified for project development stage, project implementation phase and current monitoring period through completeness check (i.e., identification of source and nature of objective evidence). Validation & Verification Team reviewed project description, details of project proponents, geospatial information of project i.e., site numbers and locations, development and implementation of project activity, development of monitoring plan and implementation, applied methodologies, applied regulatory documents, measurement frequency of monitored parameters, calibration frequency of monitoring equipment. Also, reviewed and evaluated quality assurance and quality control procedures with respect to their influence on generation and reporting of GHG emission reductions or net anthropogenic GHG removals. This process included:

- A review of data and information presented by the PP to verify their completeness.
- A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs

Validation & Verification Team crosschecked JPDMR information with respect to objective evidence to determine whether the provided quantitative are accurate. Through the process of the validation and verification, the revised VCS Joint PD and MR, monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the validation and verification team. The list of documents referred during the course of this joint validation and verification has been provided in Appendix-2.

2.3 Interviews

Validation & Verification Team has conducted interviews during site visit to discuss with respective personnel to verify the data and records pertaining to project activity under scope of validation and verification in successfully manner. The summary of on-site interviews under the scope of validation and verification is mentioned in Table 2.3.1:

- Assessed Implementation and operation of the project in accordance with the JPDMR and confirmed during on-site assessment. The geocoordinates of the location of Project activity is mentioned in section 1.4.
- Validated the project implementation against the reporting in Joint Project description and Monitoring report (JPDMR).
- Cross-checked the ownership and facility details against the reporting in JPDMR.
- Validated the technology, system, equipment specifications against the reporting in JPDMR.
- Reviewed information flows for generating, aggregating, and reporting monitoring parameters and confirmed during on-site assessment.
- Interviewed with relevant personnel to determine whether operational and data collection procedures are implemented in accordance with registered monitoring plan/validated permanent changes to monitoring plan during on-site assessment.
- Cross checked between information provided in JPDMR and data from consolidated in ER (Emission Reductions) sheets sourced from plant logbooks, inventories, purchase records and confirmed during on-site assessment.
- Checked monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the JPDMR, the applied methodologies and the other applied methodological regulatory documents which is to be confirmed during on-site assessment.

Table 2.3.1 Summary of conduct of on-site interviews under scope of validation and verification

S. No	Interviewee			Date	Subject	Team Member
	Last name	First name	Affiliation			
1	Shinde	Vikramaditya	Deputy Manager	28/12/2023,	Project design, Implementation	Shruti Kudtarkar

2	Roy	Suman k	Project Manager	29/12/2023	and operation of project, project boundary, application of methodology, baseline scenario, additionality, calculation of emission reductions, implementation and compliance with monitoring plan, stakeholder and other safeguards
3	Dr. Santosh	Tripathi	Manager-GIS		
4	Sundaran	Athira	Jr. Environment Scientist		
5	Tiwari	Niharika	Jr. Environment Scientist		
6	Singh	Shubham	Stakeholder		
7	Dubey	Omprakash	Cow dung supplier		
8	Pandey	Suraj	Cow dung supplier		

2.4 Site Visits

TUV SUD Asia Private Limited has conducted an on-site inspection from 28th and 29th December 2023 to confirm the implementation and operation status of the project activity. A reasonable level of assurance has been maintained through the on-site visit for the purpose of validation and verification as follows:

- An assessment of the implementation and operation of the project activity through onsite interviews with the representatives of project proponent and stakeholders.
- Confirmation of the pre-project scenario.
- Confirmation of the applicability of the methodology and monitoring and controlling instruments and operational arrangements.
- Confirm the data collection procedures are implemented in accordance with the Monitoring Period
- Assessment of the project boundaries
- Assessment of the monitoring provisions by checking the monitoring arrangement.
- A review of information aggregating and reporting of the monitoring parameters
- A check of the observations of monitoring practices against the requirements of the VCS
- Joint PD & MR/01/ and the applied monitoring methodologies

- A review of calculations and assumptions made in determining the GHG data and ERs, and
- An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

This section summarizes the findings from the joint validation & verification of the project activity. In this section the findings from the document review, assessments and onsite interviews are provided. Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The validation & verification team identified CL, CAR and 00 FAR. All CAR and CLs raised by TUV SUD Asia Private Limited during this joint validation & verification have been resolved. Please refer to Appendix 3. below for the details of the CARs/CLs and their closure.

2.5.1 Forward Action Requests

A forward action request (FAR) should be issued, where; Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs VVBs not relate to VCS requirements for issuance of ERs achieved during subject monitoring. As it is the Joint validation and first verification there are no previous FARs to be identified by Validation & Verification Team.

3 VALIDATION FINDINGS

3.1 Project Details

The project “Varanasi Smart City Bio-Conversion” Project is a methane recovery and utilization project located in village Shahanshahpur of Varanasi district In Uttar Pradesh State of India. The Project Proponent is Gobardhan Varanasi Foundation SPV. The project involves co-digestion of around 70TPD of Cowdung & other feedstock such as Press-mud or Napier grass sourced from nearby farmers/dairy farms and sugar mills. The project will produce 2500-2800 kg/Day of compressed Biogas, which shall then be supplied to retailers for conversion to Biogas and subsequent utilization in transport. The residual waste from biogas plant is converted into fermented organic manure (FOM) & Liquid fermented organic Manure (LFOM) and sold to nearby farmers for agriculture uses.

The Bio-gas project avoid the emissions of methane to the atmosphere from cowdung that would have otherwise been left to decay anaerobically and emissions savings but also has many other benefits for the local peoples. It contributes to sustainable development.

SDG 12.5: The project uses cowdung and organic waste as feedstock to produce biogas. Thus, the project will achieve Target 12.5 of SDG 12 Ensure sustainable consumption and production patterns. This contributes to achieve one of India's stated sustainable development priorities "By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

SDG 8.5: The project is promoting local economic development and improving the level of people's life by proving potential job opportunities to the residents and it has provided 25, Long and short terms employment positions for local people.

SDG 13: The project uses continuous stirred tank reactor (CSTR) to treat cowdung and generate biogas to avoid methane emissions. This contributes to achieve India's stated sustainable development priorities.

Section 1.1. of the VCS Joint PD& MR /01/ contains a clear summary description of the projects. The completeness and accuracy of the project description was validated through onsite interviews.

The eligibility criteria have been provided clearly in section 1.4 of the Joint PD & MR /01/. Validation and Verification team conclude that the description of project is accurate, complete, and provides a good understanding of the project activity.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Audit history	Initially for the desk review, client has provided the JPDMR, ER sheet and other relevant documents via email. In the next step validation and verification team has raised the findings in terms of CLs and CARs, attach in the Appendix 4 of the report. Furthermore, the site visit for the project activity was conducted by Validation and verification team on 28/12/2023 and 29/12/2023 to: - Assess the consistency of information provided by the client in JPDMR. - Check credibility of supportive evidence. - Verification of monitoring parameter for the time-period starting from 16-June-2022 to 30-June-2023 (01 years and 14 days).
Sectoral scope	13 (Waste handling and disposal)

AFOLU project category, if applicable	The project activity is biogas generation project by using the cowdung which left over decay and the methane is emitted in the atmosphere. The pressmud and Napier grass is not considered as a feedstock in the project activity. Hence the criteria are not mandatory to the project activity.
Project activity type	Type III – Other Project Activities
General eligibility of the project to participate in the VCS Program	The project activity meets all the rules relevant VCS rule and requirements related to pipeline listing deadline, Project doesn't receive any public comment after the listing of the project, which has confirmed with PP and checked the email received. Validation and verification team has done the opening meeting with the validation/verification body with the PP and interview the relevant stakeholder. The project activity is using the approved UNFCCC methodology- AMS-III.AO. Methane recovery through controlled anaerobic digestion. Version 1.0. AMS-III.D.- Methane recovery through controlled anaerobic digestion. Version 21.0.
AFOLU project eligibility, if applicable	The project activity is biogas generation project by using the cowdung which left over decay and the methane is emitted in the atmosphere. The pressmud and Napier grass is not considered as a feedstock in the project activity. Hence the criteria are not mandatory to the project activity.
Transfer project eligibility, if applicable	The proposed project activity has not been registered and is not seeking registration at moment under any other GHG programs. In support of the same, double check declarations from the individual instance owners have been provided to VVB. Assessment team has cross checked the commissioning certificate and the double counting declaration to confirm the same.
Project design	This is not a group project activity.
Project ownership	VVB has confirmed by referring the MoU Dated June 2021 that the project is owned by Gobardhan Varanasi Foundation SPV and will be considered as the legal owner of this project activity.
Project start date	16-June-2022
Project crediting period	16-June-2022 to 15-June-2029 (7 years)
Project scale	Small Scale

Likelihood of achieving estimated GHG emission reduction or removals	Calendar year of crediting period	Estimated GHG emission reductions or removals (tCO ₂ e)
	16-June-2022 to 31-December-2022	2,588
	01-January-2023 to 31-December-2023	4,741
	01-January-2024 to 31-December-2024	4,741
	01-January-2025 to 31-December-2025	4,741
	01-January-2026 to 31-December-2026	4,741
	01-January-2027 to 31-December-2027	4,741
	01-January-2028 to 31-December-2028	4,741
	01-January-2029 to 09-March-2029	2,153
	Total estimated ERRs during the first or fixed crediting period	33,187
	Total number of years	7
	Average annual ERRs	4,741
Technologies and measures implemented by the project activity	During the site Visit Validation and Verification team has check the technical specification provided for the SPV to confirm the technical specification of the equipment.	
Implementation schedule of the project activity or activities	The project activity was commissioned on 16-June-2022 and has been in operation continuously since the commissioning without any scheduled maintenance and shutdowns. Assessment team has cross checked the Commissioning certificate to confirm the same.	
Project location	The project is situated in Shahanshahpur in the Varanasi district of Uttar Pradesh state in India. The geographical	

	coordinates of project activity are 25° 11' 37.39" N and 82° 51' 22.39" E.
Conditions prior to project initiation	The project is a Greenfield project and does not involve generation of GHG emissions for the purpose of their subsequent reduction, removal, or destruction. Prior to the initiation of the project activity, the cowdung is left over to decay anaerobically which results methane is emitted in the atmosphere.
Project compliance with applicable laws, statutes and other regulatory frameworks	The Project has received necessary approvals for development and commissioning from the state Nodal agencies and is complying to the local laws and regulations. The project activity does not fall under the purview of the Environmental Impact Assessment (EIA) notification of the Ministry of Environment, Forest & Climate Change (MOEF&CC), Government of India (As per MOEF&CC Notification No. - S.O. 1533, dated 14th September 2006). The project is also implemented under GOI's Sustainable Alternative Towards Affordable Transportation "SATAT" scheme. The SATAT Scheme (Sustainable Alternative Towards Affordable Transportation) is an initiative by the government of India with the objective of setting up Compressed Biogas production plants. The project activity involves the storage of compressed gas in gas cylinder; hence PESO approval has been taken which is confirmed by Validation and verification team. The relevant national laws and regulations pertaining to generation of energy in India are: Solid waste management Rules, 2016. However, the generation of Biogas from waste is not a legal requirement or a mandatory option.
Double counting and participation under other GHG programs	PP has provided the no double counting declaration where it confirms that project receiving or seeking credit for reductions and removals from a project activity under another GHG program including the REC mechanism.
No double claiming with emissions trading programs or binding emission limits	Assessment team confirms by checking the double counting declaration provided by the PP, that the Net GHG emission reductions or removals generated by the project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions in any Emission Trading program or other binding limits.

No double claiming with other forms of environmental credit	As per PD MR and undertaking provided, PP would not consider the credit from any other mechanism for the current monitoring plan.
Supply chain (Scope 3) emissions double claiming	The project proponent(s) is not a buyer or seller of a product whose emissions footprint is changed by the project activities.
Sustainable development contributions	The project activity is contributing towards fulfilling 3 SDG goals: SDG 12.5: The project uses cowdung as feedstock to produce biogas. Thus, the project will achieve Target 12.5 of SDG 12 to ensure sustainable consumption and production patterns. SDG 8.5: The project is promoting local economic development and improving the level of people's life by providing potential job opportunities to the residents. SDG 13: The project uses CSTR to treat cowdung and generate biogas to avoid methane emissions in the environment.
Additional information relevant to the project	Not applicable

3.2 Project Activity Instances in Grouped Projects

This is not a group project activity. Hence the section is no applicable.

3.3 Safeguards

3.3.1 Stakeholder Engagement and Consultation

3.3.1.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	Local community members and Local government officials (e.g. village council members) are the stakeholders have been identified for this project activity by analyzing the beneficiaries/people who are affected by the project activity. This has been confirmed during the site visit and interviewing the Client representative.

Legal or customary tenure/access rights	The project has been approved by local government and has no conflicting rights with stakeholders. Among the local stakeholders, employees have access to the project site and access to the resources (as per their designation/work profile). Local community members have access to project site if they want to share any feedback/grievance about the project activity are welcome to the project. Local/State /national government officials can also visit the project for any inspection regarding compliance to the regulations or any other purpose as required by the government.
Stakeholder diversity and changes over time	Stakeholders identified for this project activity are diverse in nature – in terms of socio-economic status, age and gender wise and the diversity is unlikely to change over time. This has been confirmed by the validation and verification team in the form of interview.
Expected changes in well-being	1. Economic well-being - The project will supply job opportunities to residents and increase their income. 2. Environmental well-being – as this project activity reduces GHG emissions into the atmosphere by restricting the methane emission from cowdung and generating biogas using the present technology. Also, the project will supply organic fertilizers to around farmland and increase their production. Thus, it will bring environmental well-being in the locality
Location of stakeholders	Village Shahanshahpur of Varanasi district, Uttar Pradesh
Location of resources	Village Shahanshahpur of Varanasi district, Uttar Pradesh

3.3.1.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder engagement process	The project owner conducted local stakeholder consulting meeting on 10-August-2023. In the meeting local villagers, government officers were invited for interaction and provide their opinions on the construction of this project. Since the local communities are the predominant stakeholders for the meeting, Hence the invitation letters were sent to Gram Pradhan & Govt officials on 24-July-2023. During LSC Meeting, Questionnaires were distributed to collect comments from local villages. The assessment team has

	crosschecked the feedback forms and found that the list of questions mentioned in the section 2.1.2 of JPDMR version 04 are correct. The project proponent maintains a register at the plant, where the local stakeholders can come or contact the register about any problems or concerns. This is to ensure a good communication between the local stakeholder and the project partner. The same has been confirmed by Grievance form.
Consultation outcome	The purpose of the meeting was clearly outlined i.e., making local villagers, Local community members, and village council members can get the awareness of this biogas generation project activity. The primary objective of this project is to capture the methane emitted in the environment from the cowdung which left over decay anaerobically. The PP was encouraged by all the positive feedback/ comments received from stakeholders and there were no negative comments in any manner. The questions asked by stakeholders were only on process of biogas generation, which was clearly elaborated by PP representatives. All comments raised during local stakeholder consultation have been considered in the report and corresponding precaution measures and corrective actions (if any) have been proposed to ensure all issues during construction and operation of the project are properly addressed. The assessment team has checked the stakeholder feedback form to check the comments received during the local stakeholder meeting. It has been confirmed that there are no negative comments received during the consultation.
Ongoing communication	The project owner established the mechanism for on-going communication with local stakeholders. That is, a feedback register is maintained at the project site office, and any stakeholders can express their opinions and views on the project. Irrespective of the complaint, it will be addressed with utmost priority.
Stakeholder input	The feedback/comments received from stakeholders were quite positive and no negative comments were received. Hence, it was not necessary for any updates to project design as the questions asked by stakeholders were only on process biogas generation, employment opportunities to the local people and these were explained satisfactorily to stakeholders by the PP representatives. In general, local stakeholders are supportive of the project construction. The survey shows that a majority of local stakeholders think the Project will help improve the life of local people and promote local economic development without much adverse environmental impact.

3.3.1.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Obtaining consent	The project has conducted the approval process for operation and establishment, such as UPPCB Consent, PESO Approval & Other business license of the project has been approved by local government. The project activity does not affect any IPs, LCs, and customary rights holders. Therefore, there is no ongoing or unresolved conflicts in relation to the project activity.
Outcome of FPIC discussion	No consent is needed from the IPs, LCs and customary right holders as the project activity does not involve any encroachment of Indigenous Customary land rights. The project activity is constructed within the project boundary.

3.3.1.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Development process	Feedback register is made available at the project site office where any stakeholder can reach & register his/her feedback/suggestion.
Grievance redress procedure	The project proponent has appointed a staff member to record and collect conflicts and dissatisfaction from stakeholders. Stakeholders' feedback is monitored on regular basis, and the appropriate actions will be initiated immediately on record of grievance & it will be resolved immediately. It is found by assessment team that there is no grievances received during the monitoring period.

3.3.1.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
This project was open for public comment from 09/01/2024 to 08/02/2024. Assessment team has verified the project portal on VERRA website	Not applicable as there are no comments till date	VVB has checked the Webpage and has confirmed that there are no public comments that has been received for the Project activity instance.

“https://registry.terra.org/app/projectDetail/VCS/4493” and found that there were no comments received during the monitoring period.

3.3.2 Respect for Human Rights and Equity

3.3.2.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination and sexual harassment	It has been verified and confirmed by interviewing the people during site visit that no discrimination or sexual harassment occur in project activity.
Management experience	It has been verified and confirmed during site visit that no new entity is involved in project design or implementation.
Gender equity in labor and work	It has been verified and confirmed during site visit that there is no discrimination in workers with respect to gender in providing jobs and also there is no discrimination in respect to wages between genders.
Human trafficking, forced labor, and child labor	It has been verified and confirmed during site visit that project activity does not and will not use victims of human trafficking, forced labor, and child labor.

3.3.2.2 Human Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Human rights	The project activities do not involve IPs, LCs, and customary rights holders as the location of the Project activity is the property of the project owner. Thus, this section is not applicable.

3.3.2.3 Indigenous Peoples and Cultural Heritage

Item	Evidence gathering activities, evidence checked, and assessment conclusion
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Preservation and protection of cultural heritage	The project activities do not involve cultural heritage as the location of the Project Activity is the property of the project owner. Thus, this section is not applicable
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3.3.2.4 Property Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Rights to territories and resources	Not applicable as the Project does not involve any legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights, held by stakeholders. The land for the Varanasi Smart City Bio-Conversion Project is owned by Varanasi Municipal Corporation
Respect for property rights	Not applicable

3.3.2.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Process used to design the benefit sharing plan	As per VCS standard 4.6, section 3.19, this criteria is not applicable for the project, as the project does not impact any property rights.
Summary of the benefit sharing plan	Not applicable
Approval and dissemination of benefit sharing plan	Not applicable
Benefit sharing during the	Not applicable

monitoring period	
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3.3.3 Risks to Local Stakeholders and the Environment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Risks to stakeholder participation	During site visit no risk has been identified to stakeholder participation, hence no mitigation or preventive measure is required.
Working conditions	To mitigate the risk necessary trainings and well outlined operation procedures is provided. PP has taken all measures to ensure proper working condition. Assessment team has not identified any risk during site visit
Safety of women and girls	During the site visit it has been verified and confirmed that the project involves no risk to the safety of women and girls.
Safety of minority and marginalized groups, including children	During the site visit it has been verified that the project involves no risk to the marginalized group including children in the project site as per the local laws.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	There is no air, noise, water is polluting due to implementation and operation of the project activity. Assessment team identified that no risk is associated.

3.3.4 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	During the site visit it is verified that project activity causes no Impacts on biodiversity and ecosystems. Thus, it is confirmed that no risk is identified.

Soil degradation and soil erosion	During the site visit it is verified that project activity causes no Soil degradation and soil erosion. Thus, it is confirmed that no risk is identified.
Water consumption and stress	During the site visit it is confirmed that no risk is identified related to water consumption.
Usage of fertilizers	During the site visit it is verified that project activity doesn't use any fertilizer. Thus, it is confirmed that no risk is identified.

3.3.4.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species and habitat	The project is not located in, or adjacent to habitats for rare, threatened, or endangered species. Thus, this section is not applicable.

3.3.4.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
No species have been introduced during the monitoring period.	Not applicable, as there was no species identified at validation are being mitigated,

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
No invasive species is present	Not applicable

3.3.4.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	This section is not applicable for this project

3.4 Application of Methodology

3.4.1 Title and Reference

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
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Methodology	AMS-III.AO.	Methane recovery through controlled anaerobic digestion	1.0 ¹
Methodology	AMS-III.D.	Methane recovery in animal manure management systems	21.0 ²
TOOL	Tool 05	Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	3.0 ³
TOOL	Tool 21	Demonstration of additionality of small-scale project activities	13.1 ⁴
TOOL	Tool 14	Project and leakage emissions from anaerobic digesters	2.0 ⁵
TOOL	Tool 07	Tool to calculate the emission factor for an electricity system	07.0 ⁶
TOOL	Tool 06	Project emissions from flaring	04.0 ⁷

3.4.2 Applicability

Methodology ID	Applicability condition	Assessment and conclusion
AMS-III.AO. Methane recovery through controlled anaerobic digestion		
AMS-III.AO.	This methodology comprises measures to avoid the emissions of methane to the atmosphere from biomass or other organic matter that would have otherwise been left to decay anaerobically in a solid waste	The purpose of the project activity is to avoid the emissions of methane to the atmosphere from biomass that was left to decay anaerobically. The biomass / feedstock used in the project activity is cow dung and

¹ https://cdm.unfccc.int/UserManagement/FileStorage/CDM_AMSU745LJQM81SDJJOJ2S4G7ID9EIKFGD

² <https://cdm.unfccc.int/UserManagement/FileStorage/1AWXEKHVTF423LCN56Z9GIMQOS8JR>

³ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-05-v3.0.pdf>

⁴ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-21-v13.1.pdf>

⁵ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-14-v2.pdf>

⁶ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

⁷ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

disposal site (SWDS), or in an animal waste management system (AWMS), or in a wastewater treatment system (WWTS). In the project activity, controlled biological treatment of biomass or other organic matters is introduced through anaerobic digestion in closed reactors equipped with biogas recovery and combustion/flaring system. The following conditions apply:

- (a) Digestion of biomass or other matter (excluding cowdung and sludge generated in the wastewater treatment works) as a single source of substrate is included.
- (b) Co-digestion of multiple sources of biomass substrates, e.g. MSW, organic waste, cowdung, wastewater, where those organic matters would otherwise have been treated in an anaerobic treatment system without biogas recovery is also eligible.
- (c) If for one or more sources of substrates, it cannot be demonstrated that the organic matter would otherwise been left to decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-digested substrates.
- (d) Project participants shall apply the procedures related to the “competing use for the biomass” according to the latest “General guidance on leakage in biomass project activities”.

pressmud. The pressmud is sourced from nearby farmers /dairy farms and sugar mills. However, PP is not able to demonstrate that the organic matter would otherwise been left to decay anaerobically, hence as per para 1 (c) of AMS IIIA0, baseline emissions related to such organic matter has been accounted as zero and the baseline emission has only been considered for utilization of cowdung.

With respect to that the emission reduction / removal is only calculated by considering the cowdung as feedstock. This has been checked and confirmed by the validation and verification team during on-site visit and ER spreadsheet,

	(e) Project activities treating cowdung as single source substrate shall apply AMS-III.D “Methane recovery in animal manure management systems”, similarly projects only treating wastewater and/or sludge generated in the wastewater treatment works shall apply AMS-III.H “Methane recovery in wastewater treatment”. (f) The project activity does not recover or combust landfill gas from the disposal site (unlike AMS-III.G “Landfill methane recovery”) and does not undertake controlled combustion of the waste that is not treated biologically in a first step (unlike AMS-III.E “Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment”). Project activities that recover biogas from wastewater treatment shall use methodology AMS-III.H.	
AMS-III.AO.	Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO ₂ equivalent annually.	Validation and verification team has assessed the ER spreadsheet and found that the annual average emission reduction for the first crediting period is 4,471 tCO ₂ e which is less than 60 kt CO ₂ . Hence the criteria is complied with the project.
AMS-III.AO.	The location and characteristics of the disposal site of the biomass used for digestion in the baseline condition shall be known, in such a way as to allow the estimation of its methane emissions. Guidelines in AMS-III.G, AMS-III.D, AMS-III.E (concerning stockpiles) and AMS-III.H	Validation/verification team has confirmed through the review of the documents provided by the PP as per the CPCB report the management and method for the disposal of the waste with the efficient utilization, as these methods are not mandated by the government. Depending upon the

(as the case may be) shall be followed in this regard. Project activities for co-digestion of cowdung shall also meet the requirements under paragraphs 1 and 2(c) of AMS-III.D. The following requirement shall be checked ex ante at the beginning of each crediting period:

- a) Establish that identified landfill(s)/stockpile(s) can be expected to accommodate the waste to be used for the project activity for the duration of the crediting period; or
- b) Establish that it is common practice in the region to dispose off the waste in solid waste disposal site (landfill/stockpile).

resources and management system, the dairy farms are using such method to dispose the waste. As mentioned in the section vii(b) in the CBCB report “the bio-gas plant is also a way to handle the waste, especially cow/buffalo dung”. The letter provided by the Varanasi municipal co-operation in which is confirm that the there is no such management for the handling of the dairy farm waste especially cow/buffalo waste/05/.

Additionally, it was confirmed when the validation/verification team interviewed the stakeholder during their on-site visit that, in the pre-project situation, animal waste from several livestock farms was inappropriately and unscientifically disposed in neighbouring regions. As a result, the waste piled in layers, with the lowest layer being subjected to pressure and heat due to the lack of air. This results an anaerobic decomposition without methane recovery. The current anaerobic system is to be replaced by the proposed project activity. It entails the scientific treatment of these wastes in a centralized facility with closed biodigesters operating under anaerobic circumstances. Methane produced during the process is also recovered. Purified methane, or Bio-CNG, is the end product that is subsequently used in thermal and transportation applications.

Therefore, in the absence of project activity, the baseline scenario entails the untreated decomposition of press mud, animal manure, and municipal solid waste (MSW) inside the project boundary, which releases methane into the atmosphere. This is also confirmed that the disposable of waste in the region particular in the

		stockpiling into the solid waste disposal site.
AMS-III.AO.	The project participants shall clearly define the geographical boundary of the region referred to in 3(b), and document it in the CDM-PDD. In defining the geographical boundary of the region, project participants should take into account the source of waste, i.e. if waste is transported up to 50 km, the region may cover a radius of 50 km around the project activity. In addition, it should also consider the distances to which the final product after digestion will be transported. In either case, the region should cover a reasonable radius around the project activity that can be justified with reference to the project circumstances but in no case it shall be more than 200 km. Once defined, the boundary should not be changed during the crediting period(s).	The transportation distance between the location of identified waste to the project location is less than 200 km. This has been verified by VVB using the using geocoordinates of vendors supplying the cowdung to the project activity. Hence the criteria is complying with the project activity.
AMS-III.AO.	In case residual waste from the digestion is handled aerobically and submitted to soil application, the proper conditions and procedures (not resulting in methane emissions) for storage and transportation and soil application must be ensured.	Validation/verification team confirms that the residual waste from the project activity is supplied to the farmers for agricultural purpose. Which has been checked with the fertilizer sales invoice/11/. Hence the criteria is complied.
AMS-III.AO.	In case residual waste from the digestion is treated thermally/mechanically, the provisions in AMS-III.E related to thermal/mechanical treatment shall be applied	This criterion is not applicable because the residual waste is provided to farmers to agricultural purpose.
AMS-III.AO.	In case residual waste from the digestion is stored under anaerobic conditions and/or delivered to a landfill, emissions from the residual waste shall to be taken into account and calculated as per the latest version of the Tool to determine	This criterion is not applicable because the residual waste is provided to farmers to agricultural purpose.

	methane emissions avoided from disposal of waste at a solid waste disposal site.	
AMS-III.AO.	In case the outflow from the digestion is discharged to a subsequent wastewater treatment system or to the natural water receiving body, relevant procedure in AMS-III.H shall be followed to estimate the resultant project emissions.	Not applicable in this project scenario, the residual waste directly supplied to the local farmers.
AMS-III.AO.	Technical measures shall be used to ensure that all biogas captured from the digester is combusted/flared.	The biogas produced from the project activity will be upgraded and used as Bio CNG (Compressed biogas) for transportation purposes. Also, the project technology has been designed in such a way that the open flaring system is installed at the project location to flare off the unused biogas. The flaring system is designed to safely flare the generated biogas in case of less demand, excess biogas generated or unforeseen emergencies such as Bio-CNG plant breakdowns. This flare system is solely for emergency situation and not used under normal operation.
AMS-III.AO.	All the applications to utilize the recovered biogas detailed in paragraph 3 of AMS-III.H are eligible for use under this methodology. The relevant procedure in AMS-III.H shall be followed in this regard.	Not applicable, as project is not claiming emission reduction credits for biogas utilization.
AMS-III.D. Methane recovery in animal manure management systems		
AMS-III.D.	This methodology covers project activities involving the replacement or modification of anaerobic cowdung management systems in livestock farms to achieve methane recovery and destruction by flaring/combustion or gainful use of the recovered methane. It also covers treatment of manure collected from several farms in a centralized plant.	The project activity is collecting manure from several vendors to the project location i.e the centralized point. Thus, the project activity satisfies the condition of the methodology.

AMS-III.D.	This methodology is only applicable under the following conditions: (a) The livestock population in the farm is managed under confined conditions. (b) Manure or the streams obtained after treatment are not discharged into natural water resources (e.g. river or estuaries), otherwise "AMS-III.H Methane recovery in wastewater treatment" shall be applied. (c) The annual average temperature of baseline site where anaerobic manure treatment facility is located is higher than 5 °C; (d) In the baseline scenario the retention time of manure waste in the anaerobic treatment system is greater than one month, and if anaerobic lagoons are used in the baseline, their depths are at least 1 m; (e) No methane recovery and destruction by flaring or combustion for gainful use takes place in the baseline scenario.	a) Not Applicable: During the on-site visit, it is observed that the project does not involve managing the animals on all the farms covered by the project. Hence criteria is not applicable. b) Applicable: Cowdung is co-digested in the project activity and the residual waste is supplied for agricultural purpose. As a result, no discharge into any natural bodies of water occurs. This is verified during the on-site visit. c) Applicable: The baseline sites are located in the same state and region as the project activity, which is situated in Uttar Pradesh, India. Between 30 to 35 degrees⁸ Celsius for the average daily high, this is one of the warmest parts of India. As a result, the baseline location, where the anaerobic manure treatment facility is situated, has an annual average temperature that is roughly substantially greater than 5 °C. d) Applicable: Given that the anaerobic lagoon treatment system in the baseline scenario has a retention duration longer than one month, this project activity achieved both requirements. Furthermore, the depth of these anaerobic lagoons is at least one meter. Consequently, this project activity meets the requirements for Type III.D small-scale projects.
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⁸ Climate Uttar Pradesh: Temperature, climate graph, Climate table for Uttar Pradesh (climate-data.org)

		e) Applicable: In the baseline scenario, there is no methane recovery and destruction through flaring, combustion, or gainful usage.
AMS-III.D.	The project activity shall satisfy the following conditions: (a) The residual waste from the cowdung management system shall be handled aerobically, otherwise the related emissions shall be taken into account as per relevant procedures of "AMS-III.AO Methane recovery through controlled anaerobic digestion". In the case of soil application, proper conditions and procedures (not resulting in methane emissions) must be ensured; (b) Technical measures shall be used (including a flare for exigencies) to ensure that all biogas produced by the digester is used or flared; (c) The storage time of the manure after removal from the animal barns, including transportation, should not exceed 45 days before being fed into the anaerobic digester. If the project proponent can demonstrate that the dry matter content of the manure when removed from the animal barns is larger than 20%, this time constraint will not apply.	a) Applicable: The project activity treats the manure as co-digestion along and the leftover waste from the whole process (i.e., as bio-manure) gets delivered for application to the soil. This is verified during the on-site visit. b) Applicable: In the project activity, all of the digester's biogas is upgraded to compressed biogas (CBG), which is entirely used for transportation, technical considerations taken into account throughout the design process. Additionally, a flaring system is also installed in the project premises to flare off the unused biogas. The flaring system is designed to safely flare the generated biogas in case of less demand, excess biogas generated or unforeseen emergencies such as Bio-CNG plant breakdowns. This flare system is solely for emergency situation and not used under normal operation. c) Applicable: The design of the project activity makes sure that the manure is stored for no more than 45 days before being fed into the anaerobic digester. The plant's actual process design and specifications provide confirmation of this.

AMS-III.D.	Projects that recover methane from landfills shall use "AMS-III.G Landfill methane recovery" and projects for wastewater treatment shall use AMS-III.H. Projects for composting of cowdung shall use "AMS-III.F Avoidance of methane emissions through composting". Project activities involving co-digestion of cowdung and other organic matters shall use the methodology "AMS-III.AO Methane recovery through controlled anaerobic digestion".	Since methane is not recovered from landfills in the project activity, AMSIII.G is not applicable. In the same way, AMSIII.H is not used because the project does not account for emission calculations in relation to wastewater treatment. Similar to this, cowdung is not composted in this project; rather, it is handled by co-digestion with other organic materials; as a result, AMS-III.AO has been applied in place of AMS-III.F.
AMS-III.D.	Utilization of the recovered biogas in one of the options detailed in AMS-III.H is also eligible under this methodology. The respective procedures in AMS-III.H shall be followed in this regard. If the recovered biogas is used to power auxiliary equipment of the project activity, it should be taken into account accordingly, using zero as its emission factor; however, energy used for such purposes is not eligible as an SSC CDM Type I project component.	This criterion is not applicable.
AMS-III.D.	New facilities (Greenfield projects) and project activities involving capacity additions compared to the baseline scenario are only eligible if they comply with the related and relevant requirements in the "General guidelines for SSC CDM methodologies".	The project activity is a greenfield project that involves building a new facility; in contrast to the baseline scenario, there is no capacity addition involved. Therefore, this condition is not relevant.
AMS-III.D.	The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the "General guidelines for SSC CDM methodologies".	Since the project activity does not entail replacing equipment, this requirement does not apply to the project activity.
AMS-III.D.	Measures are limited to those that result in aggregate emission reductions of less than or equal to 60	For the first crediting period, the yearly average emission reduction is 4,471 tCO ₂ e, or less than 60 kt CO ₂ .

kt CO2 equivalent annually from all Type III components of the project activity.

Tool 05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation

Tool ID	Applicability condition	Assessment and conclusion
Tool 05	If emissions are calculated for electricity consumption, the tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption: (a) Scenario A: Electricity consumption from the grid. The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer. (b) Scenario B: Electricity consumption from (an) off-grid fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants are installed at	The project involves electricity consumption from the grid. Hence Scenario A is applicable

	the site of the electricity consumer and supply the consumer with electricity. The captive power plant(s) is/are not connected to the electricity grid; or (c) Scenario C: Electricity consumption from the grid and (a) fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants operate at the site of the electricity consumer. The captive power plant(s) can provide electricity to the electricity consumer. The captive power plant(s) is/are also connected to the electricity grid. Hence, the electricity consumer can be provided with electricity from the captive power plant(s) and the grid.	
Tool 05	This tool can be referred to in methodologies to provide procedures to monitor amount of electricity generated in the project scenario, only if one out of the following three project scenarios applies to the recipient of the electricity generated: (a) Scenario I: Electricity is supplied to the grid; (b) Scenario II: Electricity is supplied to consumers/electricity consuming facilities; or (c) Scenario III: Electricity is supplied to the grid and consumers/electricity consuming facilities.	The project activity doesn't involve generation of electricity; hence this is not applicable
Tool 05	This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of leakage. The tool only accounts for CO2 emissions	No captive renewable power generation technologies are installed to provide electricity in the project activity; hence this is not applicable

Tool 21 Demonstration of additionality of small-scale project activities

Tool ID	Applicability condition	Assessment and conclusion
Tool 21	The use of the methodological tool “Demonstration of additionality of small-scale project activities” is not mandatory for project participants when proposing new methodologies. Project participants and coordinating/managing entities may propose alternative methods to demonstrate additionality for consideration by the Executive Board.	Project Doesn’t propose a new methodology, hence this tool is applicable for the project
Tool 21	Project participants and coordinating/managing entities may also apply “TOOL19: Demonstration of additionality of microscale project activities” as applicable.	Project is not a microscale project activity; hence this tool is not applicable for the project

Tool 14 Project and leakage emissions from anaerobic digesters

Tool ID	Applicability condition	Assessment and conclusion
Tool 14	The following sources of project emissions are accounted for in this tool: (a) CO2 emissions from consumption of electricity associated with the operation of the anaerobic digester; (b) CO2 emissions from consumption of fossil fuels associated with the operation of the anaerobic digester; (c) CH4 emissions from the digester (emissions during maintenance of the digester, physical leaks through the roof and side walls, and release through safety valves due to excess pressure in the digester); and	In the project scenario (a) The project involves electricity consumption from the grid; hence this is applicable. (b) The project doesn’t involve consumption of fossil fuels; hence this is not applicable. (c) This is applicable, as project may involve leakage from digester, (d) The project doesn’t involve flaring of gas, hence this is not applicable

	(d) CH ₄ emissions from flaring of biogas.	
Tool 14	The following sources of leakage emissions are accounted for in this tool: (a) CH₄ and N₂O emission from composting of digestate; (b) CH₄ emissions from the anaerobic decay of digestate disposed in a SWDS or subjected to anaerobic storage, such as in a stabilization pond.	In the project scenario (a) The project doesn't involve composting of digestate; hence this is not applicable. (b) The project doesn't involve anaerobic storage, such as in a stabilization pond; hence this is not applicable.
Tool 14	Emission sources associated with N ₂ O emissions from physical leakages from the digester, transportation of feed material and digestate or any other on-site transportation, piped distribution of the biogas, aerobic treatment of liquid digestate and land application of the digestate are neglected because these are minor emission sources or because they are accounted in the methodologies referring to this tool.	This is minor emission hence not considered in project case. Hence this is not applicable.

TOOL 06 Project emissions from flaring

Tool ID	Applicability condition	Assessment and conclusion
Tool 6	This tool provides procedures to calculate project emissions from flaring of a residual gas. The tool is applicable to enclosed or open flares and project participants should document in the VCS PDD the type of flare used in the project activity.	Applicable: The project activity includes an open flare. This project uses AMS III.AO. and within this methodology, the project emissions refer to this tool.
Tool 6	This tool is applicable to the flaring of flammable greenhouse gases where:	Applicable: Option b is applicable as the source of the residual gas is a biogenic source (biogas).

	(a) Methane is the component with the highest concentration in the flammable residual gas; and (b) The source of the residual gas is coal mine methane or a gas from a biogenic source (e.g., biogas, landfill gas or wastewater treatment gas).	
Tool 6	The tool is not applicable to the use of auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. In the case of an enclosed flare, there shall be operating specifications provided by the manufacturer of the flare and these shall be followed by the project participant.	Applicable: The project does not utilize auxiliary fuels. The residual gas (biogas) contains approximately 50% methane, providing ample flammable gas to sustain combustion. The flare is not an enclosed flare in the project.

3.4.3 Project Boundary

The Project boundary is defined as per the Methodology AMS-III.AO Methane recovery through controlled anaerobic digestion version 1.0 and AMS-III.D. Methane recovery in animal manure management systems, version 21.0.

AMS III. AO, Version 1.0

S.No.	Clause	Inclusion in Boundary
a	Where the solid waste (including animal manure, where applicable) would have been disposed and the methane emission occurs in absence of the proposed project activity;	The solid waste would have been disposed of in the identified solid waste disposal site. This is included in the project boundary. The project boundary covers the waste collection area of Varanasi district, Uttar Pradesh.
b	In the case of projects co digesting wastewater, where the wastewater would have been treated anaerobically in the absence of the project activity;	There is no co digesting of wastewater in the project activity. Hence, this is not included in the project boundary.
c	Where the treatment of biomass or other organic matters through anaerobic digestion takes place;	The project boundary includes an anaerobic digester where the treatment of organic

		matter through anaerobic digestion takes place.
d	Where the residual waste from biological treatment or products from those treatments, like slurry, are handled, disposed, submitted to soil application, or treated thermally/mechanically;	The dedicated drying yard for the residual waste from the digestion is included in the project boundary. The farmlands where the composted residual waste from the project plant is submitted to soil are not at the project site, but they are included in the project boundary.
e	Where biogas is burned/flared or gainfully used, including biogas sale points, if applicable;	The project site includes an open flaring system which is included in the boundary. The sale points are also included in the project boundary.
f	And the itineraries between them (a, b, c, d and e), where the transportation of waste, wastewater, where applicable manure, residual waste after digestion, or biogas occurs.	The transportation route between a, c and d are included in the project boundary.

AMS III. D., Version 21.0

S.No.	Clause	Inclusion in Boundary
The project boundary includes the physical, geographical site(s) of:		
a	The livestock	The geographical sites of the livestock used for animal manure generation are included in the project boundary
b	Animal manure management systems (including centralised manure treatment plant where applicable)	Animal manure management systems (including centralized manure treatment plant where applicable) have been included in the project boundary
c	Facilities which recover and flare/combust or use methane	The project site includes an open flaring system which is included in the boundary. The sale points are also included in the project boundary

The sources of greenhouse gas identified in the Joint PD & MR /01/ are deemed to be appropriate and assessed below:

Source		Gas	Included?	Assessment and conclusion
Baseline	Animal manure treatment process	CO ₂	No	Excluded for simplification. This is conservative.
		CH ₄	Yes	The major source of emissions in the baseline as the cowdung is left over to decay anaerobically and methane is directly emitted to the environment.
		N ₂ O	No	Excluded for simplification. This is conservative.
Project	Emissions due to physical leakage of biogas	CO ₂	No	Excluded for simplification. This is conservative.
		CH ₄	Yes	The major source of emissions from digester (emissions during maintenance of the digester, physical leaks through roofs and side walls, and release through safety valves due to excess pressure in the digester).
		N ₂ O	No	Not applicable
	Emissions from use of electricity	CO ₂	Yes	Electricity consumption for operation of the equipment of the project is considered.
		CH ₄	No.	Not applicable
		N ₂ O	No.	Not applicable
	Emissions from the transportation of the wastes from sources to the project site	CO ₂	Yes	Major Emission Source due to the combustion of diesel in the vehicles
		CH ₄	No.	Not significant. Excluded for simplification
		N ₂ O	No.	Not Applicable
		CO ₂	Yes	Biogas upon flaring will give CO ₂

Source	Gas	Included?	Assessment and conclusion
Emissions from flaring of Biogas	CH ₄	No.	Major Emission Source CH ₄ emissions due to the inefficiency of an open flare system (assumed to be 50% efficiency according to the tool applied)
	N ₂ O	No.	Not Applicable

3.4.4 Baseline Scenario

Around 70TPD of cowdung and additional feedstock, such as press-mud or Napier grass, which are obtained from local farmers, dairy farms, and sugar mills, will be co-digested in the proposed plant. The use of biogas for transportation is not included in the project's boundaries, and the planned project is solely claiming emission reduction credits for methane avoidance. According to AMS IIIA0 paragraph 1(c), baseline emissions related to organic matter (Press-mud or Napier grass) used as feedstock in biodigesters have been set at zero, with the exception of the use of cowdung, as PP is unable to demonstrate that the organic matter would otherwise be allowed to decay anaerobically. Therefore, the project's baseline scenario solely applies to cowdung.

Baseline scenario for cowdung

The largest problem on dairy farms and gaushalas is how to dispose of cow and buffalo excrement, according to the CPCB report "Guidelines for Environment Management of Dairy Farms and Gaushalas," which was published in September 2019⁹. Cattle manure from many Gaushala and dairy farms is dumped into the sewers, filling them up. Numerous gases produced by the manure are released into the atmosphere directly, with no methane recapture. The situation directly complies with paragraph 17 of the applied methodology AMS-III.D (version 21) which states that- "the baseline scenario is the situation where, in the absence of the project activity, cowdung is left to decay anaerobically within the project boundary and methane is emitted to the atmosphere".

Additionally, according to a National Bank for Agricultural and Rural Development (NABARD) report on Sectoral Paper on Animal Husbandry "The primary source of methane (CH₄) emissions from the animal husbandry sector is cattle rearing, namely intestinal fermentation and manure management" ¹⁰. Animal husbandry techniques in India make it clear that manure management is the stage at which greenhouse gas emissions (GHGs) occur. These emissions include CO₂ during combustion and CH₄ in anaerobic conditions of storing (SWDS) and dumping (Animal Waste Management System).

According to the pre-project scenario, gaushalas and other livestock farms produce animal dung, which is then carelessly disposed of in the neighboring low-lying areas. Layers of trash are eventually accumulated, with the lowest layer being exposed to pressure and heat in the absence

⁹ <https://www.dpcc.delhigovt.nic.in/uploads/news/7d7567c34697a215ed3520f88972e71c.pdf>

¹⁰ <https://www.nabard.org/auth/writereaddata/file/AH%20Final.pdf>

of air. Thus, in these situations, anaerobic decomposition conditions arise in the absence of methane recovery. Additionally, the letter from Varanasi Smart City Limited, Statement for Traditional Use of Cattle Dung, provides a comprehensive explanation of the baseline circumstance.

The planned project activity is replacing the current anaerobic system with a closed biodigester facility that treats these wastes scientifically under anaerobic conditions, with the option to recover methane produced during the process. After that, the biogas (purified methane) is used in transportation. Therefore, the project's baseline scenario is that livestock farms' anaerobic manure management systems (lagoons) are permitted to decompose animal dung waste, and methane is released into the atmosphere directly without the need for a facility for methane recovery and destruction.

3.4.5 Additionality

Assessment team has confirmed that project activities may establish the additionality in accordance with paragraphs 15–16 of AMS-III.D (Version 21.0) by demonstrating that the host country does not have any regulations that apply to the project site that mandate the collection and destruction of methane from livestock manure. In that case, following the "Guidelines on the demonstration of additionality of small-scale project activities" is not necessary. Activities related to greenfield projects are also subject to this additionality requirement.

Assessment confirms that there are currently no national legislation pertaining to the project site that mandate the collection and disposal of methane derived from cowdung. The following provides information on pertinent regulations and their non-applicability:

- Solid waste management Rules, 2016¹¹
- The Sustainable Alternative Towards Affordable Transportation (SATAT) scheme¹²

Hence, as assessed above it is confirmed that the project carried out by the Gobardhan Varanasi Foundation SPV is a voluntary activity that is not carried out in accordance with any legal requirements. Furthermore, as the project is a green-field activity. Therefore, the project does not need to demonstrate additionality. Therefore, the project is considered automatically additional in accordance with AMS-III.D (Version 21.0).

3.4.6 Quantification of GHG Emission Reductions and Carbon Dioxide Removals

As per para 12, AMS-III.AO (Version 1.0), The baseline emissions are calculated as:

$$BE_y = BE_{SWDS,y} + BE_{vw,y} + BE_{manure,y} - MD_{reg,y} * GWP_{CH_4}$$

$BE_{SWDS,y}$ Yearly methane generation potential of the solid waste anaerobically digested by the project activity

¹¹ https://cpwb.nic.in/uploads/MSW/SWM_2016.pdf

¹² <https://satat.co.in/satat/#/>

$BE_{manure,y}$	Where applicable, baseline emissions from the manure co-digested by the project activities, calculated as per the relevant procedures of AMS-III.D
$BE_{ww,y}$	Where applicable, baseline emissions from the wastewater co-digested, calculated as per the procedures of AMS-III.H
$MD_{reg,y}$	Amount of methane that would have to be captured and combusted in the year y to comply with the prevailing regulations (tonne)
GWP_{CH_4}	GWP for CH ₄ (value of 28 is used)

Since, the project doesn't involve wastewater co-digestion & there is no biogas that would have to be captured and combusted to comply with the prevailing regulations in the baseline scenario.

Hence $BE_{ww,y}$ and $MD_{reg,y}$ are 0.

For feedstock (Press-mud or naiper grass) in biodigester, PP is not able to demonstrated that the organic matter would otherwise been left to decay anaerobically, hence as per para 1 (c) of AMS IIIA0, baseline emissions related to such organic matter has been accounted as zero. Hence $BE_{swds,y} = 0$.

Baseline Emissions due to Manure ($BE_{manure,y}$)

Baseline emissions from the manure co-digested in the project activity is calculated as per the relevant procedures of AMS-III.D, Ver 21.0.

For estimation of baseline emission option in paragraph 17(b) is chosen, baseline emissions are estimated using the amount of manure that would decay anaerobically in the absence of the project activity based on direct measurement of the quantity of manure treated together with its specific volatile solids (SVS) content. The baseline emissions are determined as follow.

$$BE_{manure,y} = GWP_{CH_4} \times D_{CH_4} \times UF_b \times \sum_{j,LT} MCF_j \times B_{0,LT} \times Q_{manure,j,LT,y} \times SVS_{j,LT,y}$$

Where:

$Q_{manure,j,LT,y}$	= Quantity of manure treated from livestock type LT and cowdung management system j (tonnes/year, dry basis)
$SVS_{j,LT,y}$	= Specific volatile solids content of cowdung from livestock (tonnes/tonnes, dry basis)
MCF_j	= Annual methane conversion factor (MCF) for the baseline cowdung management system
$B_{0,LT}$	= Maximum methane producing potential of the volatile solid generated for animal type LT (m ³ CH ₄ /kg-dm)
D_{CH_4}	= CH ₄ density (0.00067 t/m ³ at room temperature (20 °C) and 1 atm pressure)

GWP_{CH_4} = Global Warming Potential (GWP) of CH₄

UF_b = Model correction factor to account for model uncertainties (0.94)

The default values used for the purpose are listed below:

Parameter	Details	Value	Source
MCF_j	Annual methane conversion factor (MCF) for the baseline cowdung management system	0.8	IPCC default value, Volume 4, Chapter10, Table 10.17
$B_{0,LT}$	Maximum methane producing potential of the volatile solid generated for animal type (cow) (m ³ CH ₄ /kg-dm)	0.13	METHANE CONVERSION FACTORS FOR MANURE MANAGEMENT SYSTEMS, Page 68 ¹³
D_{CH_4}	CH ₄ density (0.00067 t/m ³ at room temperature (20 °C) and 1 atm pressure)	0.00067	AMS-III.D, Ver 21.0
GWP_{CH_4}	Global Warming Potential (GWP) of CH ₄	28	IPCC Fifth Assessment Report, Table 8.A.1
UF_b	Model correction factor to account for model uncertainties	0.94	AMS-III.D, Ver 21.0
SVS	Specific volatile solids content of cowdung from livestock (tonnes/tonnes, dry basis)	0.7856	It is confirmed by validation and verification team from the third party lab reports during the on-site visit presented by PP.

¹³ https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch10_Livestock.pdf

Based on above default parameters, the equation would be

$$BE_{manure,y} = (28 \times 0.00067 \times 0.94 \times 0.71 \times 0.13 \times Q_{manure,j,LT,y} \times 0.52) \times 10^3$$

$$BE_{manure,y} = (0.000846381 \times Q_{manure,j,LT,y}) \times 10^3$$

In the project scenario,

Baseline Case	TPD	Source
Cow Dung (TPD)	70	Page 23, Feasibility Report August 2020
No of Days	300	
Quantity of manure treated (TPA), Dry Basis	21,000	Calculated
Moisture content on Manure	80.62%	It is confirmed by VVB from the lab reports provided by PP available onsite.
$Q_{manure,j,LT,y}$ Quantity of manure treated (TPA), Wet Basis	4069.8	Quantity of manure (dry basis) = quantity of manure (wet basis) $\times$ (1- water content of manure (wet basis))
$BE_{manure,y}$	5,863 (Round down value)	Calculated

Using the default and monitored values, The total baseline emissions achieved in current monitoring period is

Parameter	16-June -2022 to 31-December-2022	01-January-2023 to 30-June-2023	Total MP (16-June - 2022 to 30-June-2023)
Quantity of manure treated (Tonnes) (Dry Basis)	5,133	10,474	15,607
Quantity of manure treated (Tonnes) Wet Basis)	995	2,030	3,025
Baseline Emissions due to Manure (tCO ₂ e)	1,272	2,595	3,938
Baseline Emission for MR Period (tCO₂e)			3,938

Project Emission:

As per Para 13 of **AMS III AO (Ver 01)**, Project activity emissions consist of:

- (a) CO₂ emissions due to incremental transportation distances.
- (b) CO₂ emissions from electricity and/or fossil fuel consumption by the project activity facilities.
- (c) In case the residual waste from the digestion is stored under anaerobic conditions and/or delivered to a SWDS or treated in a WWTS: the methane emissions from the disposal/storage/treatment of these residual waste.
- (d) Methane emissions from physical leakages of the anaerobic digester.
- (e) Methane emissions due to flare inefficiency.

$$PE_y = \left\{ PE_{transp,y} + PE_{power,y} + PE_{res\ waste,y} \right. \\ \left. + PE_{phy\ leakage,y} + PE_{flaring,y} \right\}$$

Where:

PE_y	Project activity emissions in the year y (tCO ₂ e)
$PE_{transp,y}$	Emissions from incremental transportation in the year y (tCO ₂ e)
$PE_{power,y}$	Emissions from electricity or fossil fuel consumption in the year y (tCO ₂ e)
$PE_{res\ waste,y}$	In case residual wastes are subjected to anaerobic storage, or disposed in a landfill: methane emissions from storage/disposal/treatment of waste (tCO ₂ e)
$PE_{phy\ leakage,y}$	Methane emissions from physical leakages of the anaerobic digester in year y (tCO ₂ e)
$PE_{flaring,y}$	Methane emissions due to incomplete flaring in year y as per the "Tool to determine project emissions from flaring gases containing methane" (tCO ₂ e)

In the project case,

		Value	Reason
$PE_{res\ waste,y}$	In case residual wastes are subjected to anaerobic storage, or disposed in a landfill: methane emissions from storage/disposal/treatment of waste (tCO ₂ e)	0	As the residual wastes from the biogas plant is not handed anaerobically, these residues are utilized as bio-manure for soil application

Therefore, the formula used to calculate baseline emissions is simplified to be:

$$PE_y = PE_{phyleakage,y} + PE_{power,y} + PE_{transp,y} + PE_{flaring,y}$$

Methane emissions from physical leakages of the anaerobic digester ($PE_{phyleakage,y}$)

As per para 17 of AMS-III AO (Ver 01), Methane emissions due to physical leakages from the digester and recovery system shall be estimated using a default factor of 0.05 m³ biogas leaked/m³ biogas produced. Hence it's for simplification & as a conservative approach, this is calculated as 0.05 times the $B_{Emanure,y}$.

$$PE_{phyleakage,y} = 0.05 * B_{Emanure,y}$$

Hence, for the project case

$$PE_{phyleakage,y} = 0.05 * 20,027$$

$$PE_{phyleakage,y} = 1,001 \text{ tCO}_2\text{e}$$

Emissions from electricity or fossil fuel consumption ($PE_{power,y}$)

As no fossil fuel is consumed in the project activity, hence only Emission for electricity use is considered. According to "Tool to calculate baseline, project and/ or leakage emissions from electricity consumptions" (Version 01)

$$PE_{power,y} = EC_y \times (1 + TDLY_y) \times EF_{grid,CM,y}$$

Where,

EC_y	:	Electricity consumption of the project facility in the year y (MWh).
$TDLY_y$	:	Average technical transmission and distribution losses for providing electricity in year y, (20%)
$EF_{grid,CM,y}$	:	Emission coefficient of the grid (combined margin emission factor of NEWNE Grid of India in the year y (tCO ₂ e/MWh)

Emission coefficient of the grid ($EF_{grid,CM,y}$)

The combined margin of the electricity grid is sourced from "CO₂ Baseline database for the Indian Power Sector "Version 19.0 dated Nov 2023 of Central Electricity Authority of India¹⁴ which follows Tool to calculate the emission factor for an electricity system". The baseline emission factor ($EF_{grid,CM,y}$) is calculated as a combined margin (CM), consisting of the combination of operating margin ($EF_{grid,OM,y}$) and build margin ($EF_{grid,BM,y}$) factors according to the following steps. Calculation for this combined margin is based on data from an official source publicly available.

The combined margin of the Indian grid used for the project activity is as follows:

¹⁴ <https://cea.nic.in/cdm-co2-baseline-database/?lang=en>

Parameter	Value (tCO ₂ /MWh)	Nomenclature	Sources
EF _{grid, CM,y}	0.9124	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.5) & build margin (0.5) values, sourced from Baseline CO ₂ Emission Database, Version 19.0 dated Nov 2023 published by Central Electricity Authority (CEA), Government of India
EF _{grid, OM,y}	0.9580	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (2020-21, 2021-22, & 2022-23) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 19.0 dated Nov 2023 published by Central Electricity Authority (CEA), Government of India
EF _{grid, BM,y}	0.8670	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 19.0 dated Nov 2023 published by Central Electricity Authority (CEA), Government of India

Hence, $EF_{grid,CM,y} = 0.9124 \text{ tCO}_2\text{e/MWh}$

Hence, Emissions from electricity consumption is estimated as

Emissions from electricity or fossil fuel consumption ($PE_{power,y}$)

$$PE_{power,y} = EC_y \times (1 + 20\%) \times 0.9124$$

So, In the project scenario,

		Source
Electricity Consumed (KWh per Day)	2400	Page 23, Feasibility Report August 2020
No of Days	300	
EC_y Annual electricity consumed by the project (MWh)	720	Calculated
PE_{power,y}	788	Calculated

Emissions from incremental transportation ($PE_{transp,y}$)

The project emissions from incremental transportation by the project activity facilities as follows:

$$PE_{transp,y} = (Q_y / CT_y) * DAF_w * EF_{CO2,transport} + (Q_{res-waste,y} / CT_{res-waste,y}) * DAF_{res-waste} * EF_{CO2,transport}$$

Where,

Q _y	Quantity of raw waste/manure treated and/or wastewater co-digested in the year y (tonnes)
CT _y	Average truck capacity for transportation (tonnes/truck)
DAF _w	Average incremental distance for raw solid waste/manure and/or wastewater transportation (km/truck)
EF _{CO2 transport}	CO2 emission factor from fuel use due to transportation (kgCO2/km, IPCC default values or local values may be used)
Q _{res waste y}	Quantity of residual waste produced in year y (tonnes)
CT _{res waste y}	Average truck capacity for residual waste transportation (tonnes/truck)
DAF _{res waste}	Average distance for residual waste transportation (km/truck)

In the project scenario, only project emission for transport of manure to site is considered, In the baseline scenario, press mud produced in sugar mills were used in different industrial applications, hence its consumption in Gobardhan plant does not result in any incremental transport, hence not considered for estimation of project emission project emission for transport of press mud to site is not considered.

Project emission for transport of manure to site		Source
Quantity of raw waste/manure treated (Q _y)	21000	Tonnes
Quantity of residual waste produced ¹⁵ (Q _{res waste y})	4069.81	Tonnes
Average truck capacity for transportation (tonnes/truck) (CT _y / CT _{res waste y})	12	The normal capacity is 18T but however considering the empty haulage it is projected as 12 t/truck

¹⁵ Quantity of residual waste is conservatively considered as equal to Quantity of manure (Dry Basis) treated in the Gobardhan plant. Waste generated is distributed to nearby farmer at no cost, hence no monitoring of same is undertaken. However, for the purpose of PE estimation, it considered as equal to total manure (Dry Basis) treated in plant

		which is conservative and fixed for the crediting period.
Average incremental distance for raw solid waste/manure (km/truck) (DAF _w)	30	Average distance travelled by truck to carry manure varies from 2 to 30km, However, Average distance of 30km is considered, which is conservative and fixed for the crediting period.
Average incremental distance for residual waste (km/truck) (DAF _{res waste})	5	Average distance travelled by truck to carry residual waste varies from 100m to 5km, However, Average distance of 30km is considered, which is conservative and fixed for the crediting period.
CO ₂ emission factor from fuel use due to transportation (kgCO ₂ /km) (EF _{CO₂ transport})	0.7375	India specific Emission factors for Transport, India GHG program, https://shaktifoundation.in/wp-content/uploads/2017/06/WRI-2015-India-Specific-Road-Transport-Emission-Factors.pdf
PE_{transp y}	40	Calculated

Hence, **PE_{transp y} = 40 tCO₂e**

Methane emissions due to flaring (PE_{flaring,y})

As per TOOL06, Project emissions from flaring (version 04.0) para 39,

$$PE_{flare,y} = GWP_{CH_4} \times \sum_{m=1}^{525600} F_{CH_4, RG, m} \times (1 - \eta_{flare, m}) \times 10^{-3}$$

Where,

PE _{flare,y}	Project emissions from flaring of the residual gas in year y (tCO ₂ e)
GWP _{CH₄}	Global warming potential of methane valid for the commitment period (tCO ₂ e/tCH ₄)
F _{CH₄, RG, m}	Mass flow of methane in the residual gas in the minute m (kg)
η _{flare m}	Flare efficiency in the minute

In the project scenario,

		Source
Global warming potential of methane (GWP _{CH₄})	28	Default Value

Flare efficiency in the minute ($\eta_{flare,m}$)	50%	Default value from section 6.2.1 of CDM Methodological tool TOOL06, V 04.0 for an open flare
Mass flow of methane in the residual gas	0	Considered zero, however same shall be monitored during the verification period
PE_{flare,y}	0	Calculated

Now, As per Para 13 of **AMS III D (Ver 01)**, Project activity emissions consist of:

- Physical leakage of biogas in the manure management systems which includes production, collection and transport of biogas to the point of flaring/combustion or gainful use ($PE_{PL,y}$);
- Emissions from flaring or combustion of the gas stream ($PE_{flare,y}$);
- CO2 emissions from use of fossil fuels or electricity for the operation of all the installed facilities ($PE_{power,y}$);
- CO2 emissions from incremental transportation distances;
- Emissions from the storage of manure before being fed into the anaerobic digester ($PE_{storage,y}$).

$$PE_y = PE_{PL,y} + PE_{flare,y} + PE_{power,y} + PE_{transp,y} + PE_{storage,y}$$

Where:

PE_y = Project emissions in year y (t CO2e)

$PE_{PL,y}$ = Emissions due to physical leakage of biogas in year y (t CO2e)

$PE_{flare,y}$ = Emissions from flaring or combustion of the biogas stream in the year y (t CO2e)

$PE_{power,y}$ = Emissions from the use of fossil fuel or electricity for the operation of the installed facilities in the year y (t CO2e)

$PE_{transp,y}$ = Emissions from incremental transportation in the year y (t CO2e), as per relevant paragraph in AMS-III.AO

$PE_{storage,y}$ = Emissions from the storage of manure (t CO2e)

Now,

$PE_{PL,y}$	Emissions due to physical leakage of biogas in year	
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$PE_{flare,y}$	Emissions from flaring or combustion of the biogas stream in the year	Not applicable , as its already covered in Project emission for AMS IIIA.O
$PE_{power,y}$	Emissions from the use of fossil fuel or electricity for the operation of the installed facilities in the year	
$PE_{transp,y}$	Emissions from incremental transportation in the year , as per relevant paragraph in AMS-III.AO	
$PE_{storage,y}$	Emissions from the storage of manure	Considered 0 , As a) The storage time of the manure after removal from the animal barns, including transportation, is less than 24 hours before being fed into the anaerobic digester; b) (b) The dry matter content of the manure when removed from the animal barns is more than 20%.

Hence, project emission from the project activity shall be:

$$PE_y = PE_{phyleakage,y} + PE_{power,y} + PE_{transp,y} + PE_{flaring,y}$$

		Value	unit
$PE_{phyleakage,y}$	Methane emissions from physical leakages of the anaerobic digester	293	t CO ₂ e/year
$PE_{power,y}$	Emissions from electricity or fossil fuel consumption	788	t CO ₂ e/year
$PE_{transp,y}$	Emissions from incremental transportation in the year	40	t CO ₂ e/year
$PE_{flaring,y}$	Methane emissions due to flaring	0	t CO ₂ e/year
Project Emission		1,121	tCO₂/year

Using the default and monitored values, The total project reduction achieved in current monitoring period is

Parameter	16-June -2022 to 31-December-2022	01-January-2023 to 30-June-2023	Total MP (16-June -2022 to 30-June-2023)
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Methane emissions from physical leakages of the anaerobic digester ($PE_{phy\text{leakage},y}$)	63.60	129.77	193.38
Emissions from electricity consumption ($PE_{power,y}$)			
Electricity Consumed (MWh)	196	655	851
Emissions from electricity consumption ($PE_{power,y}$)	215	717	932
Methane emissions due to flaring ($PE_{flaring,y}$)¹⁶	0	0	0
Emissions from incremental transportation ($PE_{transp,y}$)			
Quantity of manure treated (Wet Basis)	1283	2618	3,901.7
1. Emissions from incremental transportation (Manure Collection)	2.37	4.83	7.2
Quantity of Residual Waste produced	1283	2618	3,901.7
2. Emissions from incremental transportation (Residual waste)	0.39	0.80	1.2
$PE_{transp,y} =$	2.76	5.63	8.4
Project Emission (16-June-2022 to 30-June-2023)	280.74	850.84	1,131.58
Project Emission for MR Period (tCO ₂ e)			1,132 (Roundup Value)

Leakage Emission:

As per methodology AMS III A0, para 18 - If the project technology is the equipment transferred from another activity or if the existing equipment is transferred to another activity, leakage effects are to be considered (LEy)

Assessment: According to the technique used, leakage effects are not taken into account because the equipment or equipments needed for the project activity are not being moved from another facility, nor will the current equipment be moved to another activity.

As per para 26 methodology AMS III D - It is determined by following the relevant procedure in the methodological tool "Project and leakage emissions from anaerobic digesters" and para 25 of tool 14, (Project and leakage emissions from anaerobic digesters), The leakage emissions

¹⁶ No flaring of biogas has been conducted during the monitoring period from (16-June -2022 to 30-June-2023), hence methane emission from flaring ($PE_{flaring}$) has been considered as zero. Respective declaration has been provided to VVB

associated with the anaerobic digester ($LEAD,y$) depend on how the digestate is managed. They include emissions associated with storage and composting of the digestate.

Assessment: According to the technique used, leakage effects are not taken into account because the project does not include the storage or composting of the digestate.

Therefore, $LEy=0$

3.4.7 Methodology Deviations

No methodology deviations identified in the project activity.

3.4.8 Monitoring Plan

The monitoring plan is developed in accordance with the modalities and procedures for VCS project activities. The monitoring plan, which is implemented by the project participant describes about the monitoring organisation, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

Operational and Management Structure

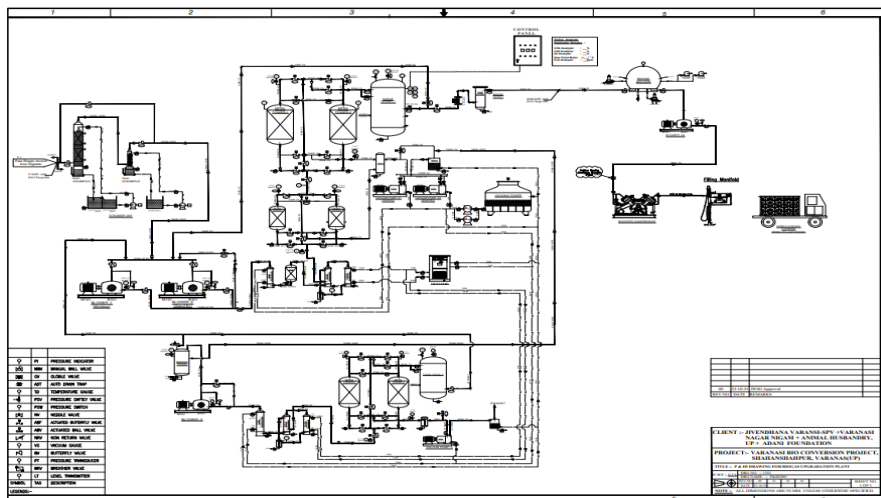
The operational and management structure of the project is summarized as below:

- Site manager: Engineer responsible for recording of the monitored parameters and the defined frequency
- Site engineer: Responsible for the data collection (monitoring) from various departments and compilation.
- SCADA operator: Monitoring all equipment and process variables (flow rate, biogas content, temperature, pressure, etc.) on SCADA System. Keeping electronic records extracted from Scada and archives them.

Organizational Chart

Refer JPD MR version 04.

Plant SLD



Quality Assurance and Quality Control (QA/QC) procedures

During site visit validation and verification team found that the project owner provided appropriate trainings to the staff members involved in the project. The training materials provided by the PP. includes both the general and technical aspects of the project. It is confirmed by assessment team that all the monitoring tools – such as the power meter, flow meter, and weight scale undergone routine calibration in accordance with applicable national norms and laws. To ensure the accuracy and performance, flow meters, electricity meters, and other crucial project monitoring equipment undergone routine maintenance and testing in accordance with the manufacturers' technical standards. The meters were calibrated in compliance with national norms or criteria, including the frequency of calibration. The accuracy class of the meters complied with the specifications. The project sponsor will retain the calibration reports in the archives for a minimum of two years following the conclusion of the most recent crediting period. To ensure the proper monitoring, the project owner carried out internal auditing by cross-referencing the data from data logbooks and invoices to make sure that the data being measured and tracked for emission reduction calculations is accurate and consistent.

Data Management

The site engineer is the responsible person for data recording and archiving, training, daily operating checks, and meter calibration. Every information gathered are logged and regularly backed up. To ensure adherence to the operational procedures specified in this monitoring plan, internal audits were also conducted. The purpose of this internal audit is to find any operational procedure changes that may be made in the future to enhance reporting and monitoring. The Site Manager receives monthly report from the Site Engineer regarding the monitored data and

project performance. In case of any non-compliance with the specified protocols and/or malfunctions with the monitoring apparatus, the site engineer will promptly notify the site manager and develop appropriate action plans.

The project proponent designated a site engineer who is responsible for monitoring the reductions in greenhouse gas emissions and ensuring that all data collected during monitoring is electronically archived and retained for a minimum of two years following the conclusion of the most recent crediting period. After the crediting period ends, electronic data and documents will be routinely copied, stored, and retained for a minimum of two years. Written information and records, such as receipts or electricity bills for cross-checking, will be copied, archived, and maintained for a minimum of two years following the conclusion of the crediting period.

Procedure in case of failure

The site engineer is responsible to investigate the cause of the problem as soon as feasible and take appropriate action if a data exceeds the allowable range during data collection or if an unexpected circumstance is discovered. It is necessary to preserve and store the pertinent mistakes and fixes. If a flow meter is discovered to be defective, a qualified engineer will be fixing it right away or replace it with a new calibrated meter. The assessment team confirms that the internal process for considering the conservative values in case of the data record is missing or damaged during the monitoring periods is satisfactory.

Emergency Preparedness

The site manager makes sure that through capacity building exercises and trainings, project staff members are equipped with the necessary abilities to handle emergency situations appropriately. To reduce exposure to occupational hazards, health and safety trainings are provided to the entire crew. There is always at least one trained technical staff member on duty. All pertinent data files, maintenance logs, defect reports, and other records pertaining to monitoring are kept in an open and well-organized way at a specified location. In the event of an emergency, the responsible personnel will notify the site manager right away so that any required action can be taken.

3.5 Non-Permanence Risk Analysis

The project activity does not require a non-permanence risk analysis. Hence this is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Implementation Status	Assessment steps, evidence checked, & conclusion:
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Project implementation	VVB has checked and verified that there is no misstatement provided by project proponent. The information and details related to project commissioning, double counting, project location, project capacity, technical description, meter calibrations, ER sheet etc. are similar during the site visit as well as mentioned in project description.																						
Monitoring plan	According to VVB, the monitoring plan was created in compliance with the guidelines and practices for the VCS project's activities. The monitoring plan, which the project participant will carry out, includes information on the monitoring organization, the parameters to be tracked, monitoring techniques, quality assurance, quality control methods, data archiving, and storage. During the site visit VVB has also observed that site incharge, O&M representatives and shift incharge are aware and trained for their work and responsibilities. VVB has checked and verified that there are no misstatements between the actual monitoring system (observed during site visit) and the monitoring plan presented by project participants in project description and applied methodology. Data and Parameters Available at Validation <table> <tr> <td>Data / Parameter</td><td>D_{CH4}</td></tr> <tr> <td>Data unit</td><td>m³CH₄ / m³CH₄</td></tr> <tr> <td>Description</td><td>Density of methane at normal conditions</td></tr> <tr> <td>Source of data</td><td>CDM Tool 14, version 02.0</td></tr> <tr> <td>Value applied:</td><td>0.00067</td></tr> <tr> <td>Justification of choice of data or description of measurement methods and procedures applied</td><td>Data considered from the tool 'Thermophysical properties of fluids. II. Methane, Ethane, Propane, Isobutane and Normal Butane' by B.A. Younglove, J.F. Ely</td></tr> <tr> <td>Purpose of Data</td><td>Calculation of project emissions</td></tr> <tr> <td>Comments</td><td>-</td></tr> </table> <table> <tr> <td>Data / Parameter</td><td>GWP_{CH4}</td></tr> <tr> <td>Data unit</td><td>tCO_{2e}/t_{CH4}</td></tr> <tr> <td>Description</td><td>Global Warming Potential for CH₄</td></tr> </table>	Data / Parameter	D_{CH4}	Data unit	m ³ CH ₄ / m ³ CH ₄	Description	Density of methane at normal conditions	Source of data	CDM Tool 14, version 02.0	Value applied:	0.00067	Justification of choice of data or description of measurement methods and procedures applied	Data considered from the tool 'Thermophysical properties of fluids. II. Methane, Ethane, Propane, Isobutane and Normal Butane' by B.A. Younglove, J.F. Ely	Purpose of Data	Calculation of project emissions	Comments	-	Data / Parameter	GWP_{CH4}	Data unit	tCO _{2e} /t _{CH4}	Description	Global Warming Potential for CH ₄
Data / Parameter	D_{CH4}																						
Data unit	m ³ CH ₄ / m ³ CH ₄																						
Description	Density of methane at normal conditions																						
Source of data	CDM Tool 14, version 02.0																						
Value applied:	0.00067																						
Justification of choice of data or description of measurement methods and procedures applied	Data considered from the tool 'Thermophysical properties of fluids. II. Methane, Ethane, Propane, Isobutane and Normal Butane' by B.A. Younglove, J.F. Ely																						
Purpose of Data	Calculation of project emissions																						
Comments	-																						
Data / Parameter	GWP_{CH4}																						
Data unit	tCO _{2e} /t _{CH4}																						
Description	Global Warming Potential for CH ₄																						

	Source of data	IPCC Fifth Assessment Report, Chapter 8, Table 8. A.1 ¹⁷ (page 731)
	Value applied:	28
	Justification of choice of data or description of measurement methods and procedures applied	Global warming potential of methane valid for the relevant commitment period.
	Purpose of Data	Used in • Calculation of baseline emissions • Calculation of project emissions
	Comments	-
	Data / Parameter	MCF _j
	Data unit	%
	Description	Methane correction factor for cow manure in baseline situation
	Source of data	IPCC default value, Volume 4, Chapter10, Table 10.16 METHANE CONVERSION FACTORS FOR MANURE MANAGEMENT SYSTEMS, Page 68
	Value applied:	0.80
	Justification of choice of data or description of measurement methods and procedures applied	IPCC default value has been considered for the calculations.
	Purpose of Data	Calculation of baseline emissions
	Comments	-
	Data / Parameter	UF _b

¹⁷ https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf

	Data unit	Fraction
	Description	Model correction factor to account for model uncertainties
	Source of data	IPCC default value, Volume 4, Chapter 10, Table 10.A-4
	Value applied:	0.94
	Justification of choice of data or description of measurement methods and procedures applied	IPCC default value has been considered for the calculations.
	Purpose of Data	Calculation of baseline emissions
	Comments	-
	Data / Parameter	B_{0,LT}
	Data unit	m ³ CH ₄ /kg-dm
	Description	Maximum methane production potential of the volatile solid generated for the animal type (Cow)
	Source of data	IPCC 2006 Guidelines, table 10.A-4, chapter 10, volume 4.
	Value applied:	0.13
	Justification of choice of data or description of measurement methods and procedures applied	IPCC default value.
	Purpose of Data	Calculation of baseline emissions.
	Comments	-
	Data / Parameter	TDL_y
	Data unit	%

	Description	Average technical transmission and distribution losses for providing electricity in year y
	Source of data	The default value in 'Tool to calculate baseline, project and or leakage emissions from electricity consumption' (Version 01)
	Value applied:	20
	Justification of choice of data or description of measurement methods and procedures applied	Default Value
	Purpose of Data	For the calculation of the Project Emission
	Comments	-
	Data / Parameter	EF _{grid, OM, y}
	Data unit	tCO ₂ /MWh
	Description	Operating margin CO ₂ emission factor for Indian National grid
	Source of data	Baseline CO ₂ Emission Database, Version 19.0, Nov 2023 published by Central Electricity Authority (CEA), Government of India
	Value applied:	0.9580
	Justification of choice of data or description of measurement methods and procedures applied	The operating margin emission factor is a 3-year generation weighted average data, based on the most recent data available on CEA database. Data compiled in CEA CO ₂ CDM database is in line with the requirements Version 04.0.0 of "Tool to calculate the emission factor for an electricity system".
	Purpose of Data	Calculation of baseline emissions
	Comments	-
	Data / Parameter	EF _{grid, BM, y}

	Data unit	tCO ₂ /MWh
	Description	Build margin CO ₂ emission factor of grid
	Source of data	Baseline CO ₂ Emission Database, Version 19.0, Nov 2023 published by Central Electricity Authority (CEA), Government of India
	Value applied:	0.8670
	Justification of choice of data or description of measurement methods and procedures applied	The build margin emission factor is the most recent data available from CEA CO ₂ Baseline database. Data compiled in CEA CO ₂ CDM database is in line with the requirements Version 04.0.0 of "Tool to calculate the emission factor for an electricity system"
	Purpose of Data	Calculation of baseline emissions
	Comments	The build Margin is calculated ex ante and fixed for the entire crediting period.
	Data / Parameter	EF _{grid, CM, y}
	Data unit	tCO ₂ /MWh
	Description	Combined margin CO ₂ emission factor for grid
	Source of data	Calculated
	Value applied:	0.9124
	Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid, CM, y} = EF_{grid, OM, y} * W_{OM} + EF_{grid, BM, y} * W_{BM}$
	Purpose of Data	Calculation of baseline emissions
	Comments	The Combined Margin is calculated ex ante and fixed for the crediting period.
	Data / Parameter	EF _{CO₂, transport}
	Data unit	Kg CO ₂ /km

	Description	CO2 emission factor from fuel use due to transportation	
	Source of data	India specific Emission factors for Transport, India GHG program, https://shaktifoundation.in/wp-content/uploads/2017/06/WRI-2015-India-Specific-Road-Transport-Emission-Factors.pdf	
	Value applied:	0.7375	
	Justification of choice of data or description of measurement methods and procedures applied	Emission factor for freight Vehicles more than 12 tonnes (Heavy Vehicle)	
	Purpose of Data	Calculation of project emissions	
	Comments	This parameter is fixed ex-ante for the entire crediting period.	
	Data / Parameter	$\eta_{flare,m}$	
	Data unit	%	
	Description	The fraction of methane destroyed from flaring. The flare efficiency depends on the combustion efficiency of the flare	
	Source of data	Default value from section 6.2.1 of CDM Methodological tool TOOL06, V 04.0 for an open flare	
	Value applied:	50%	
	Justification of choice of data or description of measurement methods and procedures applied	The value of the flare efficiency used for the emission reduction calculations are as per the section 6.2.1 of CDM Methodological tool TOOL06, V 04.0 for an open flare	
	Purpose of Data	Calculation of project emissions	
	Comments	This parameter is fixed ex-ante for the entire crediting period.	

	Data / Parameter	DAFw	
	Data unit	km/truck	
	Description	Average incremental distance for raw solid waste/manure transportation	
	Source of data	Survey & plant records	
	Value applied:	30	
	Justification of choice of data or description of measurement methods and procedures applied	Average distance travelled by truck to carry manure varies from 2 to 30km, However, Average distance of 30km is considered, which is conservative and fixed for the crediting period.	
	Purpose of Data	Calculation of project emissions	
	Comments	This parameter is fixed ex-ante for the entire crediting period.	
	Data / Parameter	DAF _{res-waste,y}	
	Data unit	km/truck	
	Description	Average incremental distance for residual waste transportation	
	Source of data	Survey & plant records	
	Value applied:	5	
	Justification of choice of data or description of measurement methods and procedures applied	Average distance travelled by truck to carry residual waste varies from 100m to 5km, However, Average distance of 30km is considered, which is conservative and fixed for the crediting period.	
	Purpose of Data	Calculation of project emissions	
	Comments	This parameter is fixed ex-ante for the entire crediting period.	
	Data and Parameters monitored:		

	Data / Parameter	$Q_{manure,j,LT,y}$													
	Data unit	T/year													
	Description	Quantity of manure (Cow dung) Dry Basis treated in baseline digester in year y													
	Source of data	Weighbridge													
	Description of measurement methods and procedures applied	Quantity of cow manure treated is measured using electronic weighbridge regularly and records are kept on paper and electronically													
	Frequency of monitoring/recording	Continuous with annual aggregation													
	Value applied:	21000													
	Monitoring equipment	<table><tr><td colspan="2">Weighbridge</td></tr><tr><td>Type</td><td>Electronic Weighbridge</td></tr><tr><td>Capacity</td><td>60 MT</td></tr><tr><td>Make</td><td>Leotronics Scale</td></tr><tr><td>Calibration Date</td><td> 09-12-2021 09-12-2022 </td></tr><tr><td>Calibration Frequency</td><td>Annual</td></tr></table>		Weighbridge		Type	Electronic Weighbridge	Capacity	60 MT	Make	Leotronics Scale	Calibration Date	09-12-2021 09-12-2022	Calibration Frequency	Annual
	Weighbridge														
	Type	Electronic Weighbridge													
	Capacity	60 MT													
Make	Leotronics Scale														
Calibration Date	09-12-2021 09-12-2022														
Calibration Frequency	Annual														
QA/QC procedures applied	Regular weighing of waste by project proponent will be carried out in a weighbridge according to Monitoring plan. The weigh bridge would be calibrated annually														
Purpose of data	Calculation of baseline emissions														
Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters Quantity of manure (dry basis) = quantity of manure (wet basis) × (1-water content of manure¹⁸)														

¹⁸ Moisture content in manure is estimated as 80.62% (Site Records (Lab Report))

	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	$SVS_{j,LT,y}$
	Data unit	Kg VS/kg-dm
	Description	Specific volatile solids content of cowdung from livestock type LT and cowdung management system j in year y
	Source of data	Lab Report, which is measured as per the guideline in annex 2 of AM0073 ¹⁹
	Description of measurement methods and procedures applied	Method for determination of Volatile Solids in animal waste From: USDA. Agricultural Waste Management Field Handbook. Chapter 4 - Agricultural Waste Characteristics. Page 2. <u>Definitions</u> • Total Solids: Residue remaining after water is removed from waste material by evaporation; dry matter; • Volatile Solids: The part of total solids driven off as volatile (combustible) gases when heated to 600° C; organic matter; • Fixed Solids: The part of total solids remaining after volatile gases driven off at 600° C; ashes. <u>Determination method</u> 1. Evaporate free water on steam able and dry in oven at 103° C for 24 hours or until constant weight to obtain the Total Solids. 2. Place Total Solids residue in furnace at 600° C for at least 1 hour. Volatile Solids are determined from weight difference of total and Fixed Solids.

Commented [DJ1]: PP is requested to provide the lab report

¹⁹ https://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_8CTM5MFZLTD075ZK1A6D7AK3YPIG75

	• Volatile matter (dry basis) = $W2 - Wf / W2 - W1$ Where W1 is the weight of sample container, W2 is combined weight of the sample container and oven dried sample, Wf is the combined constant weight of the sample container and sample after heating at 600 °C
Frequency of monitoring/recording	Annually
Value applied:	73.75 % ²⁰
Monitoring equipment	Electric scales
QA/QC procedures applied	-
Purpose of data	Calculation of baseline emissions and project emissions
Calculation method	Method for determination of Volatile Solids in animal waste from: USDA. Agricultural Waste Management Field Handbook. Chapter 4 - Agricultural Waste Characteristics. Page 2
Comments	Sampling details: The samples will be taken annually. Each sample from the gaushalas will be taken and if it is collected from the local livestock farms, samples will be collected, mixed with 30 randomly selected farmers and sent for testing. A conservative value will be taken for the ER calculations.
Data / Parameter	FoP
Data unit	hours
Description	Operating hours of Flare
Source of data	Plant records/logbook

Commented [DJ2]: PP is requested to provide the logbook for the entire monitoring period

²⁰ (Site Records (Lab Report))

	Description of measurement methods and procedures applied	The values will be obtained from Logbook data maintained by the plant personnel based on the hour's meters in the flaring unit.
	Frequency of monitoring/recording	Data to be aggregated monthly.
	Value applied:	0
	Monitoring equipment	Plant Records
	QA/QC procedures applied	As per manufacturer's specifications. A flare detector has been applied to determine flare operation time as required by the Tool 06 "Project emissions from flaring" version 6
	Purpose of data	Calculation of project emissions
	Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	BG _{burnt,y}
	Data unit	m ³
	Description	Biogas volume produced in the anaerobic digester in year y
	Source of data	Plant records/logbook
	Description of measurement methods and procedures applied	The amount of Biogas produced in year y. The values will be obtained from Logbook data maintained by the plant personnel. A flow meter will be used to measure the quantity of the Biogas produced in the anaerobic digester. Methane content in the biogas would be measured using Biogas analyzer. The fraction of methane in the biogas would be measured with a

Commented [DJ3]: PP is requested to provide the flare detector number, calibration certificates.

		continuous analyzer (values are recorded with the same frequency as the flow).
	Frequency of monitoring/recording	Data to be aggregated monthly.
	Value applied:	825,000 ²¹
	Monitoring equipment	Flow meters
	QA/QC procedures applied	As per manufacturer's specifications and calibrated once in three years.
	Purpose of data	For the calculation of the project emissions
	Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters.
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	EC PJ,y
	Data unit	MWh
	Description	Amount of electricity consumed from the grid as a result of the project activity
	Source of data	Electricity meter reading from electricity meter bill by the State Electricity Board or any Private Supplier
	Description of measurement methods and procedures applied	Data is measured and recorded continuously through meters and meter readings are archived electronically. The data will be calculated by monitoring the difference between the reading in meter at the end of the month and beginning of the month. This parameter will be updated ex-post each year over the crediting period.

²¹ Project is expected to produce 2500m³ of biogas per day, hence annual biogas is estimated s 2500 * 330 = 825,000m³

	Frequency of monitoring/recording	Monthly
	Value applied:	720
	Monitoring equipment	Electricity meter (Electricity Board Energy Meter)
	QA/QC procedures applied	As the meters will be maintained by third party agency the accuracy of data is ensured. The meters are entirely under the control of State Electricity Board/DISCOM. The metering system will be calibrated according to CEA regulations which specifies Electricity meters to be calibrated once in 5 years. Calibration frequency: One in five years
	Purpose of data	Calculation of Project emissions
	Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	$Q_{res} \cdot waste, y$
	Data unit	T/year
	Description	Quantity of residual waste produced in year y
	Source of data	Plant records, weighbridge
	Description of measurement methods and procedures applied	Quantity of waste is measured using electronic weighbridge regularly and records are kept on paper and electronically.
	Frequency of monitoring/recording	Data to be aggregated monthly.
	Value applied:	5,250

	Monitoring equipment	Plant Records
	QA/QC procedures applied	Regular weighing of waste by project proponent will be carried out in a weighbridge according to monitoring plan. The weigh bridge would be calibrated annually
	Purpose of data	Calculation of project emissions
	Calculation method	Quantity of residual waste is conservatively considered as equal to Quantity of manure (Dry Basis) treated in the Gobardhan plant. Waste generated is distributed to nearby farmer at no cost, hence no monitoring of same is undertaken. However, for the purpose of PE estimation, it considered as equal to total manure (Dry Basis) treated in plant
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	EC PJ,ky
	Data unit	MWh
	Description	Amount of electricity consumed from the grid as a result of the project activity
	Source of data	Electricity meter reading from electricity meter bill by the State Electricity Board or any Private Supplier
	Description of measurement methods and procedures applied	Data is measured and recorded continuously through meters and meter readings are archived electronically. The data will be calculated by monitoring the difference between the reading in meter at the end of the month and beginning of the month. This parameter will be updated ex-post each year over the crediting period.
	Frequency of monitoring/recording	Monthly

	Value applied:	Months	Unit Consumed (KVAh)	Vintage (KVAh)
		Jun-22	10680	218183
		Jul-22	32025	
		Aug-22	25178	
		Sep-22	20445	
		Oct-22	11843	
		Nov-22	50213	
		Dec-22	67800	
		Jan-23	144323	727330
		Feb-23	97973	
		Mar-23	151553	
		Apr-23	141003	
		May-23	120413	
		Jun-23	72068	
		Total (Kvah)	945513	
		Total Units (KWh)	850961.25	
		Total Units (MWh)	851	
	Monitoring equipment	Electricity meter (Electricity Board Energy Meter)		
	QA/QC procedures applied	As the meters will be maintained by third party agency the accuracy of data is ensured. The meters are entirely under the control of State Electricity Board/DISCOM. The metering system will be calibrated according to CEA regulations which specifies Electricity meters to be calibrated once in 5 years. Calibration frequency: One in five years		
	Purpose of data	Calculation of Project emissions		

Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

Data and Parameters monitored for monitoring period:

Data / Parameter	$Q_{manure,j,LT,y}$				
Data unit	T/year				
Description	Quantity of manure (Cow dung) treated in baseline digester in year y				
Value applied:	Months	Manure Consumed (tones)	Qty of Cow Dung (In Ton, wet basis)	Qty of Cow Dung (In Ton, dry basis)	Source
	Jun-22	367	5,133	995	Cow dung purchase Invoices
	Jul-22	320			
	Aug-22	1383			
	Sep-22	323			
	Oct-22	219			
	Nov-22	900			
	Dec-22	1621			
	Jan-23	1349	10,474	2,030	
	Feb-23	1181			
	Mar-23	1836			
	Apr-23	2273			
	May-23	2071			
	Jun-23	1764			
	Total	15607			

	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	$SVS_{j,LT,y}$
	Data unit	Kg VS/kg-dm
	Description	Specific volatile solids content of animal manure from livestock type LT and animal manure management system j in year y
	Value applied:	0.7856
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.
	Data / Parameter	FoP
	Data unit	Hours
	Description	Description Operating hours of Flare
	Value applied:	0
	Comments	No flaring of biogas has been conducted during the monitoring period from (16-June -2022 to 30-June-2023), hence methane emission from flaring (PE_{Flare}) has been considered as zero. Respective declaration has been provided to VVB

	Data / Parameter	BG _{burnt,y}		
	Data unit	m3		
	Description	Biogas volume produced in the anaerobic digester in year y		
	Value applied:	Q ²²		
	Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.		

	Data / Parameter	Q _{res · waste,y}												
	Data unit	T/year												
	Description	Quantity of residual waste produced in year y												
	Value applied:	<table> <tr> <th>Year</th> <th>Qty of Cow Dung (In Ton, wet basis)</th> <th>Qty of Cow Dung (In Ton, dry basis)</th> <th>Qty of residual waste generated</th> </tr> <tr> <td>2022</td> <td>5,133</td> <td>995</td> <td>995</td> </tr> <tr> <td>2023</td> <td>10,474</td> <td>2,030</td> <td>2,030</td> </tr> </table>	Year	Qty of Cow Dung (In Ton, wet basis)	Qty of Cow Dung (In Ton, dry basis)	Qty of residual waste generated	2022	5,133	995	995	2023	10,474	2,030	2,030
	Year	Qty of Cow Dung (In Ton, wet basis)	Qty of Cow Dung (In Ton, dry basis)	Qty of residual waste generated										
2022	5,133	995	995											
2023	10,474	2,030	2,030											
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.													

	Data / Parameter	EC _y		
	Data unit	MWh		
	Description	Amount of electricity consumed from the grid as a result of the project activity		

²² As per PP declaration, No flaring of biogas has been conducted during the monitoring period from (16-June -2022 to 30-June-2023), hence methane emission from flaring (PE Flare) has been considered as zero

	Value applied:	Months	Unit Consumed (KVAh)	Vintage (KVAh)	Source
		Jun-22	10680	218183	Monthly Electricity Bills
		Jul-22	32025		
		Aug-22	25178		
		Sep-22	20445		
		Oct-22	11843		
		Nov-22	50213		
		Dec-22	67800		
		Jan-23	144323	727330	
		Feb-23	97973		
		Mar-23	151553		
		Apr-23	141003		
	May-23	120413			
	Jun-23	72068			
	Total (Kvah)		945513		
Total Units (KWh)		850961.25			
Total Units (MWh)		851			
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.				
AFOLU-specific project implementation	NA				

4.2 Accuracy of Reduction and Removal Calculations

Assessment has confirmed that the calculation of the emission reductions is found to be correct. The details of the reported and the verified values for all parameters are listed in section 4.1 of this report. The parameter $EG_{PJ,y}$ is directly sourced from monthly meter reading reports in the form of invoices. The PP has provided the complete set of data for all the monitored parameters in the ER spreadsheet. This data has been verified as described in section 4.3 below. The

formulae & method used to calculate the baseline emissions, project emissions and leakage are appropriate and in line with the approved methodology used in the project activity. The PP has determined the combined grid emission factor as 0.9124 tCO₂/MWh as per the official data published by Central Electricity Association in India. The grid emission factor has been fixed ex-ante for the entire crediting period. As per CER excel spreadsheet submitted by the PP, the net emission reductions for the current monitoring period were verified as 2,806 tCO₂e. The assessment team able to confirm that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.3 Quality of Evidence to Determine Reductions and Removals

When verifying the report emission reduction, TUV SUD ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above.

- ✓ When assessing the audit trails, TUV SUD also examined:
- ✓ whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
- ✓ the source and nature of the evidence

if comparable information was available from sources other than that used in the monitoring report, TUV SUD cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix 4.

TUV SUD assessed that the data collection system met the requirements of the monitoring plan as per the UNFCCC applied methodology. Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity. The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

5 VALIDATION AND VERIFICATION OPINION

5.1 Validation and Verification Summary

TÜV SÜD South Asia Private Limited has performed joint validation and verification of the emission reductions reported for the project activity “Varanasi Smart City Bio-Conversion Project”

VCS Registration Reference No. 4493, for the monitoring period from 16-June-2022 to 30-June-2023, with regard to the relevant requirements for VCS Version 4.6.

The project proponent is Gobardhan Varanasi Foundation SPV is responsible for:

1. The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the PDMR, version 4 dated 11-06-2024.
2. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

Assumptions, limitations, and methods included in the validation process were reasonable and the project is likely to achieve estimated GHG emission reduction or removals, explaining that actual results may vary since the estimates are based on assumptions that are subject to change. For verification, reasonable level of assurance was achieved on the quantity of GHG emission reductions achieved by the project during the verification period 16-June-2022 to 30-June-2023 as provided in the project's GHG statement given in the JPDMR version 4 dated 11-06-2024.

Validated GHG emission reductions in the period from 16-June-2022 to 16-June-2029, calendar year wise break down of emission reductions are given in the table below: (table). For validation period from 16-June-2022 to 16-June-2029, calendar year wise break down of GHG emission reductions is given in the table below: (table)

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCUs (tCO ₂ e)	Estimated removal VCUs (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
16-June-2022 to 31-December-2022	3,197	608	0	0	0	2,588
01-January-2023 to 31-December-2023	5,863	1,121	0	0	0	4,741
01-January-2024 to 31-December-2024	5,863	1,121	0	0	0	4,741
01-January-2025 to 31-December-2025	5,863	1,121	0	0	0	4,741
01-January-2026 to 31-December-2026	5,863	1,121	0	0	0	4,741

01-January-2027 to 31-December-2027	5,863	1,121	0	0	0	4,741
01-January-2028 to 31-December-2028	5,863	1,121	0	0	0	4,741
01-January-2029 to 16-June-2029	2,666	513	0	0	0	2,153
Total	41,041	7,850	0	0	0	33,187
Total number of crediting years	7					
Annual average over the crediting period	4,741					

Based on the documented evidence and corroborated by an on-site assessment, TÜV SÜD can confirm that:

1. The project has been implemented and operated as per the validated JPD MR.
2. The monitoring plan in the registered JPD MR is as per the applied baseline and monitoring methodology.
3. The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS requirements and
4. Level of assurance on the quantity of GHG emission removal in tCO₂ equivalents achieved by the project during the verification period as provided in the project's GHG statement is reasonable.

5.2 Validation Conclusion

TÜV SÜD South Asia has been engaged by "Gobardhan Varanasi Foundation SPV" to perform the validation of the project activity "Varanasi Smart City Bio-Conversion Project." The management of the project participant/owner is responsible for the preparation of the GHG emissions data and the reported/estimated GHG emissions reductions on the basis set out within the project's Monitoring Plan in the VCS PD and the approved methodologies AMS-III.AO: - "Methane recovery through controlled anaerobic digestion" and AMS-III.D - "Methane recovery in animal manure management systems". Our Validation approach was based on the requirements as defined by the VCS board. Our approach is risk-based, drawing on an understanding of the risks associated

with estimated GHG emissions data and the controls in place to mitigate these. The validation team confirms that: The projects description compliance with, the requirements and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS standard version 4.6 and VCS Programme Guide version 4.4. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews with Project Owner have provided TUV SUD with sufficient evidence for positive validation opinion as per the requirement of VCS. The project is expected to generate annual average of 4,741 tCO₂e during the length of entire crediting period 16-June-2022 to 16-June-2029.

Crediting Period: From 16-June-2022 to 16-June-2029

Validated estimated GHG emission reductions and carbon dioxide removals for the project crediting period:

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCUs (tCO ₂ e)	Estimated removal VCUs (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
16-June-2022 to 31-December-2022	3,197	608	0	0	0	2,588
01-January-2023 to 31-December-2023	5,863	1,121	0	0	0	4,741
01-January-2024 to 31-December-2024	5,863	1,121	0	0	0	4,741
01-January-2025 to 31-December-2025	5,863	1,121	0	0	0	4,741
01-January-2026 to 31-December-2026	5,863	1,121	0	0	0	4,741
01-January-2027 to 31-December-2027	5,863	1,121	0	0	0	4,741
01-January-2028 to 31-	5,863	1,121	0	0	0	4,741

December-2028						
01-January-2029 to 16-June-2029	2,666	513	0	0	0	2,153
Total	41,041	7,850	0	0	0	33,187
Total number of crediting years	7					
Annual average over the crediting period	4,741					

5.3 Verification conclusion

It is TÜV SÜD's opinion the GHG emission reduction stated in the joint JPDMR version 04 of 11-06-2024 for the "Varanasi Smart City Bio-Conversion Project" in Varanasi for the period 16-June-2022 to 30-June-2023 are fairly stated. The GHG emission reductions were calculated correctly based on the approved monitoring methodology CDM Executive Board: AMS-III.AO: - "Methane recovery through controlled anaerobic digestion" and AMS-III.D - "Methane recovery in animal manure management systems and the monitoring plan contained in the registered VCS-PD. Hence TUV SUD can certify that the emission reduction from the project during the verification period.

Verification Period: From 16-June-2022 to 30-June-2023

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
16-June-2022 to 31-Dec-2022	1,272.05	280.74	0	0	0	991
01-Jan-2023 to 30-June-2023	2,595.46	850.84	0	0	0	1,745
Total	3,938.40	1,131.58	0	0	0	2,806

5.4 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
16-June - 2022 to 30-June-2023	4,936	2,806	-43.15%	The ER generated during the current monitoring period is less than the estimated values, because of the actual availability of monthly feedstock.

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Not Applicable

APPENDIX 2: REFERENCE DOCUMENTS

Ref.No	Title of Document	Version	Date
/01/	Interim version-	02	19/02/2024
	1. VCS PD MR 4493 17June2022 to 30June-2023-(Revised Template v4.4)	03	03/06/2024
	2. VCS PD MR 4493 17June2022 to 30June-2023-(Revised Template v4.4)	04	11/06/2024
	3. VCS PD MR 4493 16June2022 to 30June-2023-(Revised Template v4.4)	04	11/06/2024
/02/	Final version		
	4. VCS PD MR 4493 16June2022 to 30June-2023-(Revised Template v4.4)_commented_280524	04	11/06/2024
	Ex-ante and Ex-post sheet	--	--
	Interim version-		
/03/	1. VCS4493-Gobadhan ER Sheet-19042024		
	2. 20240528_VCS4493-Gobadhan ER Sheet-Ver 3		
	3. 20240611_VCS4493-Gobadhan ER Sheet		
	Final version-		
/04/	4. 20240611_VCS4493-Gobadhan ER Sheet		
	Bio CNG Plant (1).kml	--	--
	VCS4493=Organisation chartt	--	--
	Baseline scenario:	--	--
/05/	1. CPCB report		
	2. Undertaking letter from Varanasi smart city limited		
	3. NABAD report		
	Electricity Bill from 30/06/2022 to 30/06/2023	--	--
/06/	Calibration certifiates:	--	--
	1. Flow meter calibration		
	2. Weight Bridge Calibration		

	3. calibration certificate of gas analyzer		
/08/	Ownership Documents: 1. Certificate of incorporation 2. Memorandum of association	--	--
/09/	Local Stakeholder meeting documents: 1. Invitation letter for meeting 2. Banner of the LSC 3. LSC picture 4. Feedback documents 5. Attendance 6. Minutes of meeting	--	--
/10/	Feedstock invoices (Cow dung)	--	--
/11/	Fertiliser sales invoice	--	--
/12/	Declaration on the double counting	--	--
/13/	Quality, health, safety and environment policy	--	--
/14/	Email communication from VERRA- no public comment received under after listing	--	--
/15/	Visitor and Grievances records	--	--
/16/	Training records of employess	--	--
/17/	Project feasibility report	--	--
/18/	CPCB Letter of categorisation of the industrial sector into red, orange, green and white categories	--	--
/19/	Total employees details working in SPV and Salary slips	--	--
/20/	Regulatory clearance: 1. Fire NOC 2. NoC from Municipal Corporation for SPV Registration 3. PESO Licence	--	--

	4. Consent to established 5. Consent to operate		
/21/	Purchase Order for Equipment's	--	--
/22/	Equipment Commissioning; 1. Biodigester commissioning certificate 2. Compressor commissioning certificate	--	--
/23/	Picture of compressor	--	--

Background Document

Ref	Documents
/B01/	Applied baseline and monitoring methodology: AMS-III.AO- Methane recovery through controlled anaerobic digestion. Version 1.0
/B02/	Monitoring methodology AMS-III.D- Methane recovery in animal manure management systems. Version 21.0
/B03/	Tool 05- Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation. Version 3.0
/B04/	Tool 21- Demonstration of additionality of small-scale project activities. Version 13.1
/B05/	Tool 14- Project and leakage emissions from anaerobic digesters. Version 2.0.
/B06/	Tool 07- Tool to calculate the emission factor for an electricity system. Version 07.0
/B07/	VCS Requirements 1. VCS Standard (4.6 dated 21-March-2024) 2. VCS Program Guide (4.4 dated 29-August-2023) 3. VCS Validation and Verification Manual version (v3.2, dated 19-October-2016) 4. Registration & Issuance Process (v4.4, dated 04-October-2023) 5. VCS Program Definitions version (v4.5, dated 16-April-2024)

APPENDIX 3: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Table 1. CL from this validation and verification

CL ID	01	Section no.	1.1	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029 In section 1.1, of joint JPDMR version 01, PP has stated that “The proposed plant will treat about 90TPD of Cowdung & around 30TPD of Press-mud per day sourced from nearby farmers or aggregators. The biogas production capacity would be 3TPD” it is noted that PP has provided the Project Report which states utilization of cowdung quantity and biogas production capacity however, this project report is not found credible. Also, PP has provided the excel sheet for data () upon press mud collection from farmers, but actual source of data is not provided, PP has also not provided supporting evidence for quantity of press mud and manure collected. PP has stated that “The residual wastes will be used for soil application by local farmers” however, neither supporting evidence for residual waste sold to local farmer provided nor payment records are shared. Hence, PP needs to provide the respective evidence against the requirement of VCS Standard, Version 4.5.				
Project participant response				Date: 19-April-2024
Project Feasibility Report (Aug 2020) by Jivendhana is provided to VVB. Purchase invoice for press mud and cow dung has been provided to VVB. Residual waste from the biodigester is given to local farmers without any monetary benefits to be used as fertilizer for their farm land, Hence Invoice can't be provided. However, an undertaking from local farmer is provided as supporting to same to VVB.				
Documentation provided by project participant				
Undertaking for local villagers regarding residual waste from bio digester Project Feasibility Report (Aug 2020) by Jivendhana				
VVB assessment				Date: 28-May-2024

Response provided by PP is not structured properly. PP is needed to frame the response properly and provide an explanation/justification to address each point raised in the finding.

1. The feedstock values (cow dung and pressmud) mentioned in JPDMR is inconsistent with the report entitle "Project Feasibility Report (Aug 2020) by Jivendhana" provided by PP. Moreover, since plant is already operational, PP is required to provide actual capacities in the project design description based on technical specifications of the plant and machinery involved in the project which has not be provided in the PDMR since it still refers to feasibility report for describing project design. The project is registered under GOI scheme SATAT. It is also found that the daily capacity of plant is mentioned 2 TPD on SATAT scheme website whereas in the JPDMR it is mentioned 3 TPD. PP needs to correct these inconsistencies wrt capacities of waste processing and provide technical specification for supporting feedstock TPD values.
2. PP has provided a self-attested excel sheet which indicates the monthly procurement (quantity) of cow dung (from Jun 22 to Jul 23) and sales figure against it. Data on monthly procurement of press mud is not submitted. To verify self-attested, excel based data of cow dung, PP is required to submit monthly sales receipt and invoices from vendor for cow dung. Further, PP is needed to submit monthly procurement data on press mud (excel format and monthly sales receipt and invoices from Sugar mill for press mud).
3. Undertaking from local farmers is not submitted to VVB for verification. Further, PP needs to provide records of quantity of sludge generated from digester and use of it as fertilizer during the monitoring period.

CL 1 remains open.

Project participant response		Date: 03-June-2024
1. The feedstock values (70TPD of Cowdung & around 30TPD of Press-mud or Napier grass) is now revised and made consistent with the report entitle "Project Feasibility Report (Aug 2020) by Jivendhana" provided by PP. The actual design capacity of plant has been updated in Section 4.1 of the revised JPDMR. The project will produce 2500-2800 kg/Day of compressed Bio gas, which shall then be supplied to retailers. This is as per Project Feasibility Report (Aug 2020) and same has also bene updated in section 1.1 of the revised JPDMR. 2. Copy of Monthly payment invoices to cow dung supplier has been provided to VVB. A lump sum press mud was purchased from sugar mills at the start of project. Copy of press mud purchase invoice has been provided to VVB. 3. The residual waste from biogas plant is converted into fermented organic manure (FOM) & Liquid fermented organic Manaure (LFOM) and sold to nearby farmers for agriculture use purpose. Copy of sale invoices are provided to VVB.		
Documentation provided by project participant		
• JPDMR (Ver 03) • Monthly Cow Dung Payment Receipt • Press Mud payment Receipt. • FOM and LFOM Sale Invoices		
VVB assessment		Date: 07-June 2024

1. The "Project Feasibility Report (Aug 2020) by Jivendhana" states that the total amount of feedstock is 70 TPD (including cowdung and press mud) which will generate 2500–2800 kg of compressed biogas per day. However, in JPDMR the feedstock value is given as 70 TPD of cowdung and 30 TPD of press mud. Hence CL is open.
2. With reference to the Feasibility report, PP shall also clarify how the project will produce 2500-2800 kg/day of compressed Biogas, which shall then be supplied to retailers. Hence CL is open.
3. There are no changes has been identified in the updated PDMR, PP is requested to provide actual capacities in the project design description based on technical specifications of the plant and machinery involved in the project which has not be provided in the PDMR since it still refers to feasibility report for describing project design. Hence CL is open.
4. PP has provided the monthly invoices for cow-dung procurement from suppliers which has been check and confirmed by the VVB. However, PP has provided the invoice for pressmud for month January and February 2024 which is not inline with the monitoring period. Hence PP is needed to submit monthly procurement data on press mud (excel format and monthly sales receipt and invoices from Sugar mill for press mud). Hence CL is open.
5. PP has provided the sale invoices of residual waste provided to the local trust and farmers which is checked and confirm by VVB. Hence the CL is closed.

Project participant response		Date: 11-June-2024
1.	The proposed plant involves co-digestion of around 70TPD of Cowdung & other feedstock such as Press-mud or Napier grass sourced from nearby farmers/dairy farms and sugar mills. The use of press-mud and napier grass is envisaged only in case of emergencies or shortfall of required cowdung to maintain requisite technical requirement of biodigester. The quantum of cowdung envisaged can also be referred from page 23 of the provided Project Feasibility Report, wherein running cost of plant is considered for 70,000kg or 70TPD of cowdung only. Section 1.1 of the project has been updated accordingly in revised JPDMR.	
2.	The estimate of biogas production per tones of cowdung in Project Feasibility Report is based on inputs provided from sector experts. Furthermore, as per UREDA available resource (https://ureda.uk.gov.in/dpages/bio-energy-schemes), 25kg cow dung is required for generation of 1m ³ Biogas, hence for production of 2800 kg/day of compressed biogas, feedstock (cow dung) requirement is estimated as 70TPD.	
3.	The technical specifications of the plant and machinery involved in the project has now been updated in Section 1.12 of the revised JPDMR.	
4.	The proposed project is only claiming emission reduction credits for methane avoidance via treatment of cowdung only and no credits are claimed for utilization of Press-mud or Napier grass. Hence this CL is not applicable for project case.	
5.	Closed	
Documentation provided by project participant		
JPDMR (Ver 04)		
VVB assessment		Date: 12-June 2024

1. PP has confirmed that the project involved 70 TPD cow dung project will produce 2500-2800 kg/Day of compressed Biogas, which has been supplied to retailers for conversion to Biogas. The press-mud and napier grass is also one source feedstock for biogas formation but the use of these feed stoke in the case of shortfall of the require cowdung to maintain the technical requirement of the biodigester. This is confirmed with the feasibility report and monthly cow dung invoice. Hence this finding is closed.
2. PP has provided a study from which it is clear that 25kg of cow dung is required to produce 1m³ Biogas. Therefore, in the project activity the production of 2800 kg/day of compressed biogas required 70 TPD of cow dung which is in-line with the feasibility report. Hence the CL is closed.
3. The technical specification of the machinery involved in the project has been demonstrated in the PDMM. Hence the finding is closed.
4. This is confirmed that the PP has provided the invoice of cowdung and only claiming the emission reduction from the cowdung. Hence the finding is closed.

Table 2. CL from this validation and verification

CL ID	02	Section no.	1.1	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 1.1, of joint JPDMR version 01, PP has stated that "The scenario existing prior to the implementation of the project is the cowdung and press-mud waste was left to decay in anaerobic manure management system (uncovered open lagoon) and methane is emitted to the atmosphere directly without any methane recovery and destruction facility. The baseline scenario is the same as the scenario existing prior to the implementation of the project activity". It is noted that PP has applied combination of following methodologies: ▪ AMS-III.AQ, version 1 ▪ AMS-III.AQ, version 2 Through discussion with cow dung & press mud suppliers, it is understood prior to project initiation cow dung was partially being used for household/agricultural purposes whereas press mud was too being used to certain extent as a manure. Moreover, it is understood that neither of it is disposed off in uncovered open lagoons. Especially for households, normal practice of disposing cow dung is piling it up near the vicinity of the house. PP needs to justify with supporting evidence baseline scenario identified that how entire amount of cow dung & press mud was being disposed anaerobically in uncovered open lagoons.				
Project participant response				Date: 19-April-2024

90-95% of the dairy manure generated in the region is disposed in pits dug on vacant land adjacent to the houses. When manure is disposed into these pits, it forms anaerobic lagoon conditions. A small percentage of the dairy manure (approx. 5-10%) is converted into dung cakes by drying in the open sun for household consumption purpose.

In the project activity, the PP has contracted with the local household and dairy owners who are collecting the manure and dispose the dairy manure into the pits. Most Dairy farmers and household have agreed to provide the manure for the project activity, the present disposal practices are anaerobic lagoon. And baseline analysis considers anaerobic lagoon as the most-likely scenario and the emission reductions are calculated accordingly as per the applied methodology.

Documentation provided by project participant

VVB assessment

Date: 03-June-2024

PP has not provided supportive evidence to justify the baseline scenario identified for cow dung & press mud. The premise of PP's justification that 90 to 95% of dairy manure would have been left to decay anaerobically in the pits adjacent household and 5 to 10% converted into dung cakes remains unsubstantiated.

Throughout JDPMR, description of baseline scenario varies. Eg. In 1.1, it is described as "cowdung and press-mud waste were left to decay in anaerobic manure management system (uncovered open lagoon)". In 3.2 "The identified disposal site with stockpiling as the characteristics, can be expected to accommodate the waste to be used for the project activity projected for the entire crediting period". Following explanation provided in 3.2, PP is needed to identify baseline waste disposal sites where the cow dung and press mud would have stockpiled in the PDMR and provide VVB evidence of waste being sent to these sites in the baseline scenario.

In addition, baseline scenario for transportation is described as "In the absence of the project activity, the accordant amount of CNG (fossil fuel based) would have been delivered through the current supply mix of the country, leading to carbon dioxide emissions.". In this case, 1) PP is to explain which are the current supply mix of country that have been replaced by project CNG. 2) description of the baseline scenario is not properly structured and does not provide clarity on what exactly is the baseline scenario for transportation.

PP has not submitted the contract with the local household and dairy owners from whom the manure is collected.

CL 2 remains open.

Project participant response

Date: 03-June-2024

The project involves co-digestion of around 70 TPD of Cowdung & around 30TPD of Press-mud or naiper grass sourced from nearby farmers or dairy farms and sugarcane mills. The biogas produced from plant shall be sold to retailers for biogas production and subsequent utilisation in transport as CNG & Household as PNG. Furthermore, In the revised JPDMR,

- PP has decided to not claim credits from use of biogas in transport sector due to non-availability of No double accounting undertaking from Biogas retailers, hence respective applied methodology, AMS IIIAQ has been removed in the revised JPDMR. The section of biogas production is now outside the boundary of this project activity.
- Furthermore, out of feedstock (Press-mud or naiper grass) in biodigester, PP is not able to demonstrate that the organic matter would otherwise been left to decay anaerobically, hence as per para 1 (c) of AMS IIIAQ, baseline emissions related to such organic matter has been accounted as zero, in the in the revised JPDMR.
- For Cowdung, as per CPCB Report “Guidelines for Environment Management of Dairy Farms and Gaushalas” dated Sep 2019, the disposal of cow/buffalo dung is the biggest challenge in dairy farms and gaushalas. Many Gaushala and dairy farms discharge the cattle dung into the drains, leading to clogging. The dung produces many gases which are directly emitted to atmosphere without any methane recovery. Also, as per report of National Bank for Agriculture and Rural Development (NABARD) on Sectoral Paper on Animal Husbandry, Methane (CH₄) emission occurs mainly from this sector due to livestock rearing (enteric fermentation and manure management). It is evident from the animal husbandry practices in India that GHG emissions (both CO₂ during combustion and CH₄ in anaerobic condition of stockpiling (SWDS) and dumping (Animal Waste Management System) occur at the stage of manure management. The baseline scenario has also been clearly explained by the Varanasi Smart City Limited, Statement for Traditional Use of Cattle Dung. Therefore, the baseline scenario for the Project is that in the absence of the Project, the cowdungs are left to decay within the project boundary and methane is emitted to the atmosphere.

Documentation provided by project participant

- JPDMR (Ver 03)
- ER Sheet (Ver 03)
- CPCB Report “Guidelines for Environment Management of Dairy Farms and Gaushalas” dated Sep 2019
- National Bank for Agriculture and Rural Development (NABARD) on Sectoral Paper on Animal Husbandry
- Letter from Varanasi Smart City Limited, Statement for Traditional Use of Cattle Dung

VVB assessment

Date: 03-June-2024

1. PP has removed the methodology – AMS III AQ from the JPD MR and decided not to claim any carbon credits due to non-availability of No double accounting undertaking from Biogas retailers. Hence the CL is closed. 2. In line with the methodology para 1 (c) of AMS III AO, the demonstration of the organic matter (Press-mud or Naiper grass) has been left to decay anaerobically is not possible by PP. Hence the baseline emissions related to such organic matter is accounted as zero in the project activity, however the project emissions have been calculated according to the procedures presented in this methodology for all co-digested substrates. Hence the CL is closed. 3. As mentioned by PP the following evidence are not provided: • CPCB Report “Guidelines for Environment Management of Dairy Farms and Gaushalas” dated Sep 2019. • National Bank for Agriculture and Rural Development (NABARD) on Sectoral Paper on Animal Husbandry. • Letter from Varanasi Smart City Limited, Statement for Traditional Use of Cattle Dung. Therefore, PP has requested to provide the evidence to justify the disposal of cow/buffalo dung is the biggest challenge in dairy farms and gaushalas. Hence the CL is open.	
Project participant response	Date: 11-June-2024
1.Closed 2.Closed 3.The Respective documents has now been provided to VVB	
Documentation provided by project participant	
• CPCB Report “Guidelines for Environment Management of Dairy Farms and Gaushalas” dated Sep 2019. • National Bank for Agriculture and Rural Development (NABARD) on Sectoral Paper on Animal Husbandry. • Letter from Varanasi Smart City Limited, Statement for Traditional Use of Cattle Dung.	
VVB assessment	Date: 12-June-2024
PP has provided the documents, as per the CPCB report the waste produce from the dairy farm is the biggest challenge in India now a day. The CPCB has guided the management and method for the disposal of the waste with the efficient utilization, as these methods are not mandated by the government. Depending upon the resources and management system, the dairy farms are using such method to dispose the waste. As mentioned in the section vii(b) in the CBCB report “the bio-gas plant is also a way to handle the waste, especially cow/buffalo dung”. The letter provided by the Varanasi municipal co-operation in which is confirm that there is no such management for the handling of the dairy farm waste especially cow/buffalo waste. few households are using the to prepare the dung cake (Uppley) for domestic purpose however the practice is limited to the few households only that is not common practice across the livestock farm. This is confirmed that before the project activity there are not any proper management of the handling and disposal of the waste generated by the dairy farm. Hence this finding has been closed.	

Table 3. CL from this validation and verification

CL ID	03	Section no.	1.11	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 1.11, of joint JPDMR version 01, PP has stated that "As the Project uses domestic technology, no technology transfer will occur." However, statement lacks clarity as PP has not specified if any manufacturing/production equipment purchased/transported from provider outside of the project boundary. Hence, PP needs to provide clarity upon the same against the requirement of section 1.11 of latest Joint Project Design and Monitoring report template.				
Project participant response				Date: 19-April-2024
The equipment for the Project is not transferred from another facility and the existing equipment will not be transferred to another activity, thus leakage effects are not considered. The respective correction in section 1.12 (As per VCS JPDMR template ver 4.4) has been done.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VB assessment				Date: 28-May-2024
PP has mentioned in the revised PDMR that the equipment in the project is not transferred from another project.				
Purchase orders provided by PP for project equipment: aerotiller, agitators, biogas compressor, fertilizer plant, heating system, odorization unit are in draft. PP is needed to provide PO raised for this equipment. Also, PP is needed to provide annexures as required in CL 29.				
CL 3 remains open.				
Project participant response				Date: 03-June-2024
Mention of draft on PO are related to commercial terms only (which is not applicable for project case, as no investment analysis is considered in additionality justification). The technical specification is still applicable for the project case. However, Copies of Final PO and Annexure has been provided to VVB.				
Documentation provided by project participant				
PO copy for Aerotillers, agitators, biogas compressor, fertilizer plant, heating system, odorization unit				
VB assessment				Date: 07-June 2024

PP has provided the draft copies of the equipment mention in the CL 03. However, to verify the technical details of equipment used in the project activity, PP is requested to provide the final version of Purchase order for Agitators, Biogas Compressor, Heating system, Aerotilers and Odorization plant. Also, PP is requested to provide the following Annexure mentioned in the PO of Ballon:

- Annexure-II: General Terms and Conditions (GTC).
- Annexure-III (a): Technical Offer from M/s. Atmos Power Private Ltd. Installation and all accessories.
- Annexure-III (b): Technical Offer from M/s. Lucky International for Fabric Portion.

Hence the CL is open

Project participant response

Date: 11-June-2024

Provided PO are SAP generated Copies, where by default draft is water printed on few PO copies, which can't be removed due to system constraint. Hence, same can be considered as final PO copies. For the purpose of further verification, site installed technical speciation plate picture for compressor has been provided to VVB to cross verify same from provided compressor PO copies.

Furthermore, as mentioned earlier, mention of draft on PO are related to commercial terms only (which is not applicable for project case, as no investment analysis is considered in additionality justification). The technical specification in provided PO is still applicable for the project case.

Documentation provided by project participant

Technical specification name plate picture of compressor

PO copies have already been provided to VVB

VVB assessment

Date: 12-June 2024

VVB has checked the purchase order (PO) provided by the PP as due to SAP generated few PO are in draft watermark which has been checked with the PP. At the time of the onsite visit the VV team has checked the equipment and its specification. Moreover, the PP has provided the picture of the compressor same has verified at the time of site visit. Hence this finding has been closed.

Table 4. CL from this validation and verification

CL ID	04	Section no.	3.1	Date: 18-January-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029

In section 3.1, of joint JPDMR version 01, PP has stated that “Contract was signed to ensure that the final consumers and retailers shall not claim emission reductions resulting from its consumption and only the producer of Biogas, i.e. Gobardhan Varanasi Foundation SPV claims emission reductions” However, no such clause is identified in contractual evidence submitted by PP. Hence, PP needs to provide valid objective evidence upon the same against the requirement of AMS-III.AQ Version 02.

Project participant response

Date: 19-April-2024

Undertaking of No Double accounting and all right to Gobardhan Varanasi Foundation SPV to claim emission reductions resulting from its consumption is under process and shall be submitted to VVB

Documentation provided by project participant

VVB assessment

Date: 28-May-2024

1. Response provided by PP is incomplete and not acceptable as PP can't provide response stating undertaking will be provided in future.
2. To justify applicability with AMS III-A.Q paragraph 8, PP is required to submit the contract signed by the retailer, final users and producer of Biogas stating that “The final consumers and retailers shall not claim emission reductions resulting from its consumption. Only the producer of the Biogas can claim emission reductions.

In relation to the sale of biogas to consumers, PP has submitted VVB two contracts with buyers of biogas. The first contract is with GAIL dated 20 June 2022 and second contract is with Adani Gas dated 23 Dec 2022. During on-site audit, the audit team confirmed that the biogas filling station bears Adani Gas mark on it and is operated by the PP in partnership with Adani Gas. Given this condition, PP is needed to explain following:

- 2.1.1 How the biogas produced during the period 20 June 2022 to 23 Dec 2022 has been utilized. Did PP have GAIL filling station before Adani Gas? If yes, PP needs to provide photographic evidence bearing the date of such photographs.
- 2.1.2 Status of GAIL contract, an explanation if GAIL contract is invalid or terminated and an explanation why the contract with Adani Gas was signed and is in force.
- 2.1.3 Contract with Adani Gas mentions that the gas will be supplied through CBG to households in future. PP has not provided explanation in the PDMR about this clause of the contract and justification if it will claim ER on recovered biogas injected into CBG in which case PP is further needs to demonstrate how the project complies with provisions in annex 1 of AMS III.H.

CL 4 remains open.

Project participant response

Date: 03-June-2024

As explained in CL 2 above, PP has decided to not claim credits from use of biogas in transport application due to non-availability of No double accounting undertaking from Biogas retailers. Therefore, respective applied methodology, AMS IIIAQ has been removed in the revised JPDMR. Hence CL 04 is not applicable for the project case

Documentation provided by project participant	
JPDMR (Ver 03)	
ER Sheet (Ver 03)	
VVB Assessment	Date: 07-June 2024
PP has now removed the AMS III AQ methodology. Hence the applicability criteria are not required to demonstrate. Hence the CL is closed.	

Table 5. CL from this validation and verification

CL ID	05	Section no.	3.3	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.3, of joint JPDMR version 01, PP has stated that “The project boundary includes the anaerobic digesters in the poultry litter, two-stage anaerobic reactors, the Biogas generation process places, lands where bio-residual is submitted for soil application, the Biogas plant and the transportation of cowdung, and bio-residual as well as the transportation from the Biogas plant to filling station” however, information is not consistent with section 1.1 which does not mention poultry litter and also has not specification of transportation to filling station also, no schematic is provided for the project boundary in line with section 1.11. Hence, PP needs to provide the clarity upon the same against the requirement of VCS Standard version 4.5 and correction if required against the requirement of – latest Joint Project Description & Monitoring Report template.				
Project participant response				Date: 19-April-2024
Mention of Poultry Litter was typo error and not applicable for project case. Same has been corrected in Revised VCS PD MR				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024

PP has removed poultry litter from 3.3. description of project boundary. However, following issues remain open:

1. PP has mentioned that the biogas displaces fuel CNG. It is not consistent with other sections of PDMR wherein PP mentions that biogas displaces fossil fuel.
2. In the boundary description, PP has given list of equipment. It is unclear what is the difference between anaerobic digesters and two-stage anaerobic reactors.
3. Furthermore, boundary description includes *“the Biogas generation process places, lands where bio-residual is submitted for soil application, the Biogas plant and the transportation of cowdung, and bio-residual as well as the transportation from the Biogas plant to filling station”*. The description is not correctly drafted and lacks information on boundary elements as per applied methodologies. Also, refer CL 2 in this regard.
4. PP has not provided a schematic diagram showing arrangement of the equipment and process flow for all the sources of GHG emissions included in the project boundary as per applied methodologies.

CL 5 remains open.

Project participant response

Date: 03-June-2024

1. As explained in CL 2 above, PP has decided to not claim credits from use of biogas in transport. Therefore, respective applied methodology, AMS IIIAQ has been removed in the revised JPDMR. Hence CL is not applicable for the project case
2. Mention of anaerobic digesters and two-stage anaerobic reactors was a type error and hence removed from revised JPDMR. The revised project boundary in section 3.3 has been updated as *“the project boundary includes the project plant, lands where bio-residual is submitted for soil application and the transportation of cowdung, and bio-residual as well as the transportation from the Biogas plant to filling station”*
3. Explained in Point 1 above
4. Schematic diagram showing arrangement of the equipment and process flow for all the sources of GHG emissions has been included in section 3.3 of JPDMR

Documentation provided by project participant

JPDMR (Ver 03)

ER Sheet (Ver 03)

VVB Assessment

Date: 07-June 2024

1. PP has removed the AMS III AQ methodology, Hence the CL is closed.
2. PP has revised the JPDMR which has been checked by VVB. Hence the CL is closed.
3. PP has removed the AMS III AQ methodology, Hence the CL is closed.
4. PP has provided the schematic diagram in section 3.3 of revised JPDMR. However, the process is not clear from the start point i.e. input of feedstock till the output i.e. generation of biogas and waste produced from the project activity. Therefore, PP is requested to revise the schematic diagram where the process and equipment arrangement is clearly depicted. Hence the CL remains open.

Project participant response

Date: 11-June-2024

1.Closed
2.Closed
3.Closed
4.Plant SLD has been included in Section 6.3 of the revised JPDMR, Reference of same is also provided in section 3.3
Documentation provided by project participant
JPDMR (Ver 04)
VVB Assessment
Date: 12-June 2024
The SLD and organization chart are now incorporate in the PD MR. Hence, this finding has been closed.

Table 6. CL from this validation and verification

CL ID	06	Section no.	3.3	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.3, of joint JPDMR version 01, PP has specified baseline emission source "CNG used for transport process" however, information is not consistent with section 1.1 which does not mention CNG in baseline scenario. Hence, PP needs to provide the clarity upon the same against the requirement of AMS-III.AQ version 2.				
Project participant response				Date: 19-April-2024
Description of baseline scenario has been corrected in Section 1.1 of in Revised VCS PD MR				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024
Refer CL 2 regarding this.				
CL 6 remains open.				
Project participant response				Date: 03-June-2024

As explained in CL 2 above, PP has decided to not claim credits from use of biogas in transport application. Therefore, respective applied methodology, AMS IIIAQ has been removed in the revised JPDMR. Hence CL 06 is not applicable for the project case

Documentation provided by project participant

JPDMR (Ver 03)

ER Sheet (Ver 03)

VVB Assessment

Date: 07-June 2024

PP has removed the AMS III AQ methodology and not claiming the credits from use of biogas in transport application, Hence the CL is closed.

Table 7. CL from this validation and verification

CL ID	07	Section no.	3.4	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.4, of joint JPDMR version 01, PP has stated “Therefore, the baseline scenario for the Project is that in the absence of the Project, the cowdungs are left to decay within the project boundary and methane is emitted to the atmosphere; and CNG from fossil origin would be used in transportation applications.” which is not consistent with section 1.1 also, PP needs to demonstrate with supporting proof that how it concluded upon baseline identification of transportation mode/vehicle type in accordance with section 2 of AMS-III.AQ version 2? Hence, PP needs to provide the clarity/justification upon the same against the requirement of AMS-III.AQ version 2.				
Project participant response				Date: 19-April-2024
Description of baseline scenario has been corrected in Section 1.1 of in Revised VCS PD MR.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024
Refer CL 2 regarding this. CL 7 remains open.				
Project participant response				Date: 03-June-2024
This is already explained in CL 2				
Documentation provided by project participant				

JPDMR (Ver 03)	
ER Sheet (Ver 03)	
WVB Assessment	Date: 07-June-2024
PP has revised the baseline scenario in JPDMR and removed the AMS III AQ methodology. Hence the CL is closed.	

Table 8. CL from this validation and verification

CL ID	8	Section no.	3.5	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.5, of joint JPDMR version 01, PP has stated “There are three analysis methods for the investment barrier analysis namely simple cost analysis (Option I), investment comparison analysis (Option II) and benchmark analysis (Option III)” however, from where this approach is taken/referred it is not clear. Hence, PP needs to provide the clarity upon the same against the requirement of tool 21.				
Project participant response				Date: 19-April-2024
As per para 32 of “Tool for the demonstration and assessment of additionality” (version 07.0.0), for financial analysis of the project, the following three options are available.				
Option I: Simple Cost Analysis				
Option II: Investment Comparison Analysis				
Option III: Benchmark Analysis				
The respective correction in section 3.5 (As per VCS JPDMR template version 4.4) has been done.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
WVB assessment				Date: 28-May-2024

1. PP has calculated NPV. However, it has not provided how NPV is the most suitable financial indicator for project type and decision-making context. Also, PP shall provide the step wise approach provided in the applied tool to demonstrate the additionally of project activity.
2. Input values used in the NPV calculation is not consistent with the feasibility report. PP shall provide the evidence how the input values are calculated in feasibility report with credible evidence.
3. PP is required to justify discount factor selected and how it is in line with the project type and financial indicator chosen. This justification should be included in the PDMMR.
4. PP is required to provide 1) audited balance sheets for actual operation cost and revenue for FY 2022-23, 2023-24. 2) monthly sales receipt or rate contract with vendors for cow dung and press mud price from June 2022 to April 2024 3) electricity bills of the plant from June 2022 to April 2024 4) Fuel bills for the trucks/vehicles carrying cow dung and press mud to plant from source since June 2022 to April 2024 4) Monthly sales receipt for biogas from June 2022 to April 2024 5) Monthly salary slips/daily wages payment for staff employed in operation & maintenance of the plant from June 2022 to April 2024 7) O&M agreement covering entire equipment in the plant or audited balance sheet for O&M cost of the plant FY 2022-23, 2023-24 8) Original scan copy of the board resolution of Varanasi Nagar Nigam to formulate Gobardhan Foundation SPV for the purpose of operating biogas plant. 9) Actual capital cost of the project (based on the POs placed to suppliers, land lease agreement etc.) including sources of finances (bank loan sanction letter, financier approving the funding to the project).

CL 8 remains open.

Project participant response

Date: 03-June-2024

As explained in Section 3.5 of revised JPDMMR, in line with AMS-III.D (Version 21.0), project is not required to demonstrate additionality and is deemed automatically additional. Hence CL 08 is not applicable for the project case.

Documentation provided by project participant

JPDMMR (Ver 03)

VWB Assessment

Date: 07-June 2024

As per the paragraph 15 of the methodology AMS-III.D the project should comply with requirement as “the Project activities may demonstrate the additionality by showing that there is no regulation in the host country, applicable to the project site, that requires the collection and destruction of methane from livestock manure. If so, it is not required to apply the “Guidelines on the demonstration of additionality of small-scale project activities”.

In context of the above requirement PP confirm that there are no regulations in the country that is applicable to the project site, that requires the collection and destruction of methane from cowdung. However, PP is requested to demonstrate the local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement. Hence this fining remains open.

Project participant response

Date: 11-June-2024

Section 3.5 of the JPDMMR has been revised to include local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement

Documentation provided by project participant

JPDMR (Ver 04)	
VVB Assessment	Date: 12-June 2024
PP has confirmed that there are no regulations in the country that is applicable to the project site, that requires the collection and destruction of methane from cowdung in the section 3.5 of the PDMR. Hence this finding has been closed.	

Table 9. CL from this validation and verification

CL	09	Section no.	3.5	Date: 18-January-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.5, of joint JPDMR version 01, PP has provided the information on assumption with respect to demonstration of additionality however, in NPV excel sheet so many parameters are mentioned as calculated (NPV sheet, Assumptions sheet) for which no supporting evidence of information/records are provided. Hence, PP needs to provide objective evidence against the requirement of applied tool 21.				
Project participant response				Date: 19-April-2024
Supporting related to NPV estimates has been provided to VVB				
Documentation provided by project participant				
VVB assessment				Date: 28-May-2024
PP has assumed below mentioned parameters in NPV sheet for which either values from the feasibility report are mismatching or no supportive evidence is provided which was available at the decision-making time.				
1. Annual Biogas production capacity (TPD) 2. Amount of Biogas Produced (TPA) 3. Cow dung requirement (TPD) 4. Cow Dung Purchase Price (Rs/kg) 5. Press Mud requirement (TPD) 6. Press Mud Purchase Price (Rs/T) 7. Daily Electricity requirement (KWh)				
Hence the CL remains open.				
Project participant response				Date: 03-June-2024
As explained in Section 3.5 of revised JPDMR, in line with AMS-III.D (Version 21.0), project is not required to demonstrate additionality and is deemed automatically additional. Hence CL 09 is not applicable for the project case.				

Documentation provided by project participant	
JPDMR (Ver 03)	
VVB Assessment	Date: 07-June 2024
As per the paragraph 15 of the methodology AMS-III.D the project should comply with requirement as “the Project activities may demonstrate the additionality by showing that there is no regulation in the host country, applicable to the project site, that requires the collection and destruction of methane from livestock manure. If so, it is not required to apply the “Guidelines on the demonstration of additionality of small-scale project activities”. In context of the above requirement PP confirm that there are no regulations in the country that is applicable to the project site, that requires the collection and destruction of methane from cowdung. However, PP is requested to demonstrate the local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement. Hence this fining remains open.	
Project participant response	Date: 11-June-2024
Section 3.5 of the JPDMR has been revised to include local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement	
Documentation provided by project participant	
JPDMR (Ver 04)	
VVB Assessment	Date: 12-June 2024
PP has confirmed that there are no regulations in the country that is applicable to the project site, that requires the collection and destruction of methane from cowdung in the section 3.5 of the PDMR. Hence this finding has been closed.	

Table 10. CL from this validation and verification

CL	10	Section no.	1.1	Date: 18-January-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029	
It was captured during the discussion with PP that it plans to use neoprene grass as feedstock in the plant & has obtained technical proposals from manufacturer's for procuring equipment related to grass cutting etc. PP is required to clarify in case of neoprene grass how it justifies applicability of current meth/tools with the proposed change and why this was not considered in justifying project design description & other relevant requirements in PDMR.	
Project participant response	Date: 19-April-2024
Neoprene grass being an organic waste is applicable for Meth AMS-III.AO. The development of neoprene grass feedstock is for the purpose of meeting emergencies in case availability of press mud is not available with PP and to run plant smoothly during such phases. Hence the same as not part of project description.	
Documentation provided by project participant	
NA	
VVB assessment	Date: 28-May-2024
PP has plans to use neoprene grass in case of unavailability of press mud. Hence, PP shall demonstrate the applicability of cultivation of neoprene grass according to paragraph 7 of applied methodology AMS III AQ version 2.0. Hence the CL remains open.	
Project participant response	Date: 03-June-2024
As explained in CL 2 above, PP has decided to remove AMS IIIAQ in the revised JPDMR. Furthermore, As explained in CL2, Furthermore, out of feedstock (Press-mud or naiper grass) in biodigester, PP is not able to be demonstrated that the organic matter would otherwise been left to decay anaerobically, hence as per para 1 (c) of AMS IIIAQ, baseline emissions related to such organic matter has been accounted as zero, in the in the revised JPDMR.	
Hence CL 10 is not applicable for the project case.	
Documentation provided by project participant	
JPDMR (Ver 03)	
ER Sheet (Ver 03)	
VVB Assessment	Date: 07-June 2024
VVB has checked that PP has now removed the AMS III AQ methodology in JPDMR. PP has considered the baseline emission of the feedstock as zero which is in-line with the methodology AMS III AO. Hence the CL is closed.	

Table 11. CL from this validation and verification

CL	11	Section no.	Ownership	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. PDMR mentions that Gobardhan Foundation SPV is the PP. However, POs of all project equipment is issued by Adani Gas. It is not clear why Adani Gas is issuing PO for the project equipment and its role in the project is not clarified in the PDMR. 2. Commissioning certificates for compressor and digester are issued to Adani Gas by OEMs. Therefore, Adani Gas has the legal right to control and operate the plant. PP needs to justify how Gobardhan Foundation SPV is the PP in this case as per ownership requirement of VCS Standard.				
Project participant response				Date: 03-June-2024
Gobardhan Varanasi Foundation SPV is a special purpose vehicle, formed by Varanasi Nagar Nigam (VNN) and People's Response for India's Development & Empowerment (PRIDE, an initiative by Adani Foundation). As per MoU Dated June 2021, for implementation/Installation of project, land will be provided by VVN at No charges and PRIDE has provided the required CAPEX by raising its own funds through Adani Foundation without any pre-condition or considerations. VVN shall also be responsible for operation, transport, maintenance, getting necessary approvals, movement of facilities & transport etc for the project. PRIDE, may on behalf of SPV would make necessary payment to vendor/ technology providers. However, post plant successful set up, The Gobardhan Varanasi Foundation SPV shall be responsible for further plant operation, production and sale of CBG, All the profits/revenue generated, and expense incurred shall vest with the SPV only. Hence, it is confirmed that the project is owned by Gobardhan Varanasi Foundation SPV and will be considered as the legal owner of this project activity. This is also in compliance to para 3.7.1 (3) of VCS Standard version 4.6. The same has also been updated in Section 1.8 of the JPDMR				
Documentation provided by project participant				
Copy of MoU to implement project (Dated June 2021)				
Joint PDMR (Ver 03)				
VB assessment				Date: 07-June 2024
As per PP's justification in the JPDMR and the evidence provided confirmed that Gobardhan Varanasi Foundation SPV is the legal owner of the project. Hence the CL is closed.				

Table 12. CL from this validation and verification

CL	12	Section no.	Regulatory surplus	Date: 28-May-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029

It is found that the project is implemented under GOI's Sustainable Alternative Towards Affordable Transportation "SATAT" scheme. However, this information is not coming out clearly in the PDMR. PP shall demonstrate that the project meets regulatory surplus requirement in the view of scheme SATAT.

Project participant response

Date: 03-June-2024

The SATAT Scheme (Sustainable Alternative Towards Affordable Transportation) is an initiative by the government of India with the objective of setting up Compressed Biogas production plants. The Scheme was launched in October 2018 by the Ministry of Petroleum and Natural Gas in collaboration with several oil related public sector units like Bharat Petroleum Corporation and Hindustan Petroleum Corporation. 'SATAT' scheme on Compressed Bio Gas (CBG) encourages entrepreneurs to set up CBG plants, produce & supply CBG to Oil Marketing Companies (OMCs) for sale as automotive & industrial fuels.

As explained above, SATAT is an initiative by Government of India to Encourage entrepreneurs to set up CBG plants and is not mandatory guidelines/regulation to implement the project by private entities. Hence, CBG project implemented by Gobardhan Varanasi Foundation SPV is voluntary initiative and is not implemented in compliance with any regulatory requirement. Above explanation has also been updated in Section 1.15 of the JPDMR

Documentation provided by project participant

Joint PDMR (Ver 03)

VB assessment

Date: 07-June 2024

PP has mentioned the GOI initiative in the revised version of JPDMR. It is clearly mentioned that CBG project implemented by Gobardhan Varanasi Foundation SPV is voluntary initiative and is not implemented in compliance with any regulatory requirement. Hence CL is closed.

Table 13. CL from this validation and verification

CL	13	Section no.	1.8	Date: 28-May-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029

According to section 3.7 of VCS Standard 4.6, Upon reviewing the provided information and documental evidence, VVB has noted address mentioned in the provided Pollution consent copy is not same as in other documents. In consent, it is mentioned STV whereas in the other documents it is mentioned as SPV. PP is required to clarify the difference in the documents. Additionally, PP has referred the pollution certificate document as consent but upon reviewing the document, it is observed that it is approval of establishment post which PP should have applied for the consent, so PP is required to provide the consent copy.

Project participant response**Date:** 03-June-2024

UPPCB Consent to operate is provided to the VVB

Documentation provided by project participant

UPPCB CTO Copy

Joint PDMR (Ver 03)

VVB assessment**Date:** 07-June 2024

1. With reference to the "Consent under section 21/22 of the Air (Prevention and control of Pollution) Act, 1981 (as amended) to M/s. GOBARDHAN VARANASI FOUNDATION SPV":
 - PP shall provide the test report for the particulate matter from 125 KVA D.G.Set operating within the project premises as the parameter set by the UPPCB.
 - PP shall demonstrate how the project activity complies with Environmental (Protection) Act 1986, Water (Prevention and Control of Pollution) Act 1974, Air (Prevention and Control of Pollution) Act 1981 as amended and Environment (Protection) Act 1986.
 - PP shall confirm the total area of plantation within the project premises as per the guidelines set up by the Board vide its Office Order no.H16405/220/2018/02 dt. 16/02/2018.
 - PP shall demonstrate the Air Pollution Control System in the project activity to achieve the norms as notified in the E.P.Rules 1986 as amended.
 - PP shall provide adequate arrangement for fighting the accidental leakages/discharge of any air pollutant/gas/liquid from the vessel, machinery etc. which are likely to cause fire hazard including environmental pollution.
 - Under the Noise Pollution (Regulation and Control) Rule 2000, PP shall provide the noise monitoring from all sources within the project premises.
 - PP shall provide the first compliance report submitted with respect to the consent conditions imposed under the Air (Prevention and control of Pollution) Act, 1981.
 - PP shall provide the submitted Environmental Statement as per rule no.14 as per E.P Rules 1986.
2. With reference to the "Consent under Section 25/26 of The Water (Prevention and control of Pollution) Act, 1974 (as amended) for discharge of effluent to M/s. GOBARDHAN VARANASI FOUNDATION SPV":
 - PP shall provide the NOC certificate from CGWA for abstraction of ground water.
 - PP shall demonstrate the conservation of rainwater as per the specific condition mention in the CTO for water.
 - PP shall demonstrate how the project activity complies with Waste Management Rules as notified by MoEF&CC such as the Hazardous and Other Wastes (Management and Transboundary movement) Rules, 2016

Hence the CL remain open

Project participant response	Date: 11-June-2024
1.Event though PP has taken CTO consent from UPPCB, however as per CPCB letter regarding Classification of Industries under RED, Orange, Green and White categorization for industries, <i>CBG plants (irrespective of the type of feeds) producing fermented organic manure (FOM) & Liquid fermented organic Manaure (LFOM) as by-products</i> are categorized as WHITE industries, which doesn't require any CTO/CTE consent from PCB. Hence PP is not required to provide any compliance report as provided in CTO letter. Hence this CL is not applicable for the project case. 2. Same as explained in point 1	
Documentation provided by project participant	
CPCB letter regarding Classification of Industries under RED, Orange, Green and White categorization for industries	



WB assessment	Date: 12-June 2024
PP has now clarified that the condition mentioned in the CTO regarding compliance submission does not apply, based on the industry categorization evidenced in the provided CPCB letter. Therefore, CL has been closed.	

Table 14. CL from this validation and verification

CL	14	Section no.	1	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. PP shall use VCS program standard 4.6 as the version 4.7 is applicable on or after 1st January 2025. 2. PP shall demonstrate law and regulations applicability in the PDMR in section 1.15. Also clarify that why the PESO requirements are not discussed in 1.15 as project has PESO license.				
Project participant response				Date: 03-June-2024
1. VCS Standard has been updated to Ver 4.6 in the revised Joint PDMR 2. Justification related to all law and regulations applicability has been explained in Section 1.15 of JPDMR				
Documentation provided by project participant				
Joint PDMR (Ver 03)				
WB assessment				Date: 07-June 2024
1. PP has now updated the JPDMR with Project Standard version 4.6. 2. PP has clarified that the project involves storage of gas cylinder, therefore the PESO licence is required. However, with respect to CL 13, the compliance of regulation under Air and Water CTO needs to be demonstrated. Hence this finding is open.				
Project participant response				Date: 11-June-2024
1. Closed 2. As explained in CL 13, this CL is not applicable for the project case				
WB assessment				Date: 12-June 2024
This finding has been closed.				

Table 15. CL from this validation and verification

CL	15	Section no.	1.9	Date: 28-May-2024
Description of CL				

PP has provided project completion and handover letter from Rostfrei Steels Storage Tanks dated 19/06/2022 as documentary evidence for project start date. This letter states that for one number of biogas digester tank (GFS) having diameter 31.8, height 8.45 and volume 6711.2 KL, installation was completed before 30/03/2022 and commissioning completed before 16/06/2022. The letter is signed and stamped by Rostfrei, however signatory name is missing. The letter is signed but not stamped by Adani Gas Ltd with no signatory name. There are following issues identified in the letter:

1. The letter is not clear on exact date the commissioning of digester as it only provides references to completion of commissioning before 16th June which can be any date prior to 16th June.
2. If the commissioning of digester is completed before 16th June, then the project start date selected by PP which is 17/06/2022 is incorrect.
3. The letter gives reference to Adani Gas Limited PO for GFS dated 07 Oct 2020. Adani Gas Ltd has placed PO to Atmos Power Pvt. Ltd. dated 12 Nov 2020. So, certainly this reference to Adani Gas PO dated 07 Oct 2020 is found untrue.

VVB has found this letter not credible. PP is required to maintain transparency in this process and submit VVB only authentic documents. Start date of the project activity remains unclear.

Project participant response

Date: 03-June-2024

Project Start date is considered as Date of CU compressor installation at project site (17-June-2022). The document provided for biodigester installation is correct as the installation of biodigester was completed in early June 2022, however same was only under testing stage. The final approval of commission after successful test was granted to vendor on 16 June 2022, as mentioned in provided letter.

Furthermore, even after biodigester installation, minor quantity of biogas was produced for testing purpose only and hence can't be considered as date of project began generating GHG emission reductions. The actual generation of biogas has commenced post installation of CU compressor only. Hence, the start date of project is considered as date of CU compressor installation at project site (17-June-2022). Evidence related to CU compressor installation has already been provided to VVB

Documentation provided by project participant

VVB assessment

Date: 07-June 2024

PP is requested to provide the credible evidence for the start date of the project as provided documents is not a part of the project boundary which is compressor. Hence this CL remain open.

Project participant response

Date: 11-June-2024

Copy of Biodigester commissioning certificate has been provided to VVB

Documentation provided by project participant

Biodigester commissioning certificate

VVB assessment	Date: 12-June 2024
PP has provided the commissioning certificate of the biodigester. Hence this finding has been closed.	

Table 16. CL from this validation and verification

CL	16	Section no.	1.15	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. It is observed that PA is registered under SATAT scheme. Hence, PP shall provide supportive evidence to justify that SATAT scheme is not a mandatory regulation which project activity needs to adhere. 2. PP shall clarify the other regulatory act related to the National Biofuel policy 2018 and MNRE program on urban, industrial, and agricultural wastes / residues (2017-20). 3. With reference to The Factories Act, 1948 PP is required to provide the valid factories license. 4. With reference to the mentioned Indian boilers act, PP is required to provide the below documents. Additionally, PP has referred the amendment along with the principal regulation. i. Boiler certificate ii. Certified Boiler operator 5. PP shall also provide policy on; I. Child labor II. Anti-discrimination III. Employment (equal opportunity and remuneration) IV. Compliance with relevant law V. Health and Safety VI. Forced labor. VII. Sexual harassment VIII. Compensation to project actor IX. Safe work condition X. Emergency protocol				
Project participant response				Date: 03-June-2024
1. This is already explained in CL 12. 2. Project is a waste to biogas generation project and doesn't produce any biofuel, hence National Biofuel policy 2018 is not applicable for project case. 3. The Factories Act, 1948 is not applicable for project case. Relevant correction has been done in Section 1.15 of Joint PDMR. 4. No boiler is installed at project item hence Indian boilers act is not applicable for project case. Relevant correction has been done in Section 1.15 of Joint PDMR. 5. Gobardhan Varanasi Foundation SPV is registered as Not for Profit organization, hence no corporate policy document is available & required for project case. However, Gobardhan SPV will comply with all regulatory & statutory compliance.				
Documentation provided by project participant				
VVB assessment	Date: 07-June 2024			

1. The project implemented by Gobardhan Varanasi Foundation SPV is voluntary initiative and is not implemented in compliance with any regulatory requirement. Hence CL is closed. 2. It is found that project doesn't produce any biofuel, hence National Biofuel policy 2018 is not applicable for project case and CL is closed. 3. The project has complied with the national rules and regulation. Hence the CL is closed. 4. It is confirmed that there are no boilers included in the project activity, Hence the Indian boilers act is not applicable for project case. The CL is closed. 5. In section 2.3 of JPD MR, PP has mentioned that the project meets all the requirement related to labour and work. Therefore, PP is requested to submit the internal policy to justify how the project activity meet the requirements. Hence the CL is open.	
Project participant response	Date: 11-June-2024
1.Closed 2.Closed 3.Closed 4.Closed 5. Gobardhan SPV QHSE policy document has been shared with VVB	
Documentation provided by project participant	
Gobardhan SPV QHSE policy	
VVB assessment	Date: 12-June 2024
PP has provided the quality, health, safety and environment policy of the Gobardhan Varanasi Foundation SPV. Hence this finding has been closed.	

Table 17. CL from this validation and verification

CL	17	Section no.	1.18.1	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. According to SDG 8.5, "Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" PP shall provide the following documents: i. Employment policy, ii. Pay slips of the employees iii. Health and safety training iv. Training on handling of waste v. Use of the protective equipment while handling the waste and operations				
Project participant response				Date: 03-June-2024

The project is promoting local economic development and improving the level of people's life by providing potential job opportunities to the local people. Provided 4 long terms and 10 short term employment positions for local people. No further changes during the first monitoring period. During the course of operation, various training related to Environment, Health & Safety is provided to the site team. Training record has been provided to the VVB. An undertaking from SPV is provided to VVB to confirm the number of employments in the project case.	
Documentation provided by project participant	
No of Employee undertaking from PP	
Training Records	
VVB assessment	Date: 07-June 2024
PP has provided the attendance sheet for the training session. However, with reference to the MoU – point (d), PP is requested to provide the pay slips to justify the 4 long terms and 10 short term employment positions offered to the local people. Hence the CL remains open.	
Project participant response	Date: 11-June-2024
Pay slip of the people employed at site has been provided to VVB	
Documentation provided by project participant	
Payslip of the employee	
VVB assessment	Date: 12-June 2024
PP has provided the payslip of the employees; hence this finding has closed.	

Table 18. CL from this validation and verification

CL	18	Section no.	1.18.2	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. As per template filling guideline version 4.3 and project standard 4.6 requirement, PP shall briefly describe how the project activities measure the monitoring parameter during the monitoring period (17-June-2022 to 30-June-2023) that result in SDG 8, SDG 11 and SDG 13 contributions. 2. PP shall clarify and describe in the PDMR that how the processing of 90TPD of Cowdung & around 30TPD of Press-mud was monitored and what all are the steps include in the monitoring process.				
Project participant response				Date: 03-June-2024

6. Section 1.18 has been updated in Revised JPDMR to include monitoring of SDG parameters. 7. As no baseline emission has been claimed for processing of press mud, hence same is not included in Monitoring plan. Monitoring plan for cowdung has been included in section 6.3 of revised JPDMR	
Documentation provided by project participant	
Joint PDMR (Ver 03)	
VVB assessment	Date: 07-June 2024
1. PP has replaced the SDG 11 with SDG 12.5 in the revised version of JPDMR. However, it is not clear how the SDG 12.5 is applicable in the project activity. Therefore, PP is requested to clarify the same. Hence the CL remain open. 2. In section 6.3 of JPDMT, PP has mentioned that the quantity of manure on wet basis are recorded by the weighbridge operator and reported to the site engineer. The Daily recordings are aggregated monthly and recorded. Hence the CL is closed.	
Project participant response	Date: 11-June-2024
1.Relvent SDG has been updated with justification of its applicability in revised Joint PDMR 2.Closed	
Documentation provided by project participant	
JPDMR (Ver 04)	
VVB assessment	Date: 12-June 2024
PP has updated the PDMR, hence this finding has been closed.	

Table 19. CL from this validation and verification

CL	19	Section no.	1.9	Date: 28-May-2024
Description of CL				

1. With reference to the 'ATGL-Agreement for supply of CBG' the Name, designation, date of the Gobardhan was not provided on page 36 and it has been mentioned in that price of the CBG gas as applicable from 26 December 2022, however project started selling the biogas from June. 2. With reference to the "GAIL-Gobardhan sale Agreement (2006-2022)" the ministry of petroleum & natural gas, government of India issued policy guideline for synchronisation of CBG produce by plant under SATAT scheme which is mandated to operationalise the CBG. It is not clear that who is the buyer of the BIOGAS as each agreement says the buyer agreement with the PP. 3. With reference to the documents provided by PP, it is observed that there are two agreements signed for selling and buying the Biogas. The first agreement between Gobardhan Varanasi Foundation-SPV (as a seller) and GAIL (as a buyer) is signed on dated 20-June-2022 whereas the second agreement signed between Gobardhan Varanasi Foundation-SPV (as a seller) and ATGL (as a buyer) on dated 23-Dec-2022. It was also observed during the on-site visit that there was an Adani refueling station near the project location from which the locals and project vehicle getting refilled. Hence, PP should provide the clarification for signing two agreements with two different buyers. Also, PP shall provide the clarification on the usage/flaring of Biogas produced from 20-June-2022 to 23-Dec-2022 with substantial evidence.	
Project participant response	Date: 03-June-2024
1. As explained in CL 2 above, PP has decided to remove AMS IIIAQ in the revised JPD MR. Hence this is not applicable for the project case. 2. As explained in CL 12, SATAT is not a mandatory compliance but a scheme to encourage private parties to install a biogas unit, hence biogas producers are allowed to sign two CBG gas sale agreement with any no of retailers, which in this case is two (ATGL and GAIL). 3. As explained in point 2, sale of CBG to two vendor is allowed and SATAT is only a promotional scheme to encourage private parties to install a biogas unit. No gas flaring is done in the project case, all gas produced is sold to CBG retailer only.	
Documentation provided by project participant	
Joint PD MR (Ver 03)	
VVB assessment	Date: 07-June 2024
VVB has checked that PP has now removed the AMS III AQ methodology in JPD MR. Therefore, the CL is no more applicable for the project activity. Hence it is closed.	

Table 20. CL from this validation and verification

CL	20	Section no.	2.2	Date: 28-May-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029

With reference VCS standard 4.6 paragraph 3.19.4 to 3.19.10: PP shall demonstrate in the PDMR section 2.2.

1. How the employees were aware about the safety protocol and emergency situations may arise at the project location. Also, mention the mitigation action plan.
2. The risks related to the safety of women and girls in the local community due to project activities, design and implement.
3. The mitigation measures that protect and appropriately respond to harm to women and girls in the local community.
4. Identification of risk and mitigation measures as a result of project activity to children and minority/marginalized in the local community.
5. Identification of impact caused by air, noise, discharges to water, generation of waste, release of hazardous materials at the project location. Also, mention the mitigation measures taken by project activity for the same.

PP shall provide supporting evidence to clarify the requirements under section 2.2.

Project participant response

Date: 03-June-2024

1. Awareness about safety protocol and emergency situations has been provided via conduct of training program at site. Evidence of training provided to VVB.
2. No risk identified from the project on safety of women and girls in the local community.
3. No risk identified from the project on to women and girls in the local community.
4. No risk identified from the project to children and minority/marginalized in the local community.
5. During the course of operation, various training related to Environment, Health & Safety is provided to the site team. Training record has been provided to the VVB.

Documentation provided by project participant

Training Records

VVB assessment

Date: 07-June 2024

VVB has confirmed with the evidence provided by the PP that the training has been provided on safety measures, process training for slurry preparation, safety measures, and operation of equipment and maintenance in plant. It is also checked from the feedback register provided by PP that in term of safety, the project activity has no risk to women, girls, and minority. Hence the CL is closed.

Table 21. CL from this validation and verification

CL	21	Section no.	2.3	Date: 28-May-2024
Description of CL				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029.
With reference VCS standard 4.6 paragraph 3.19.11 to 3.19.18:

1. PP shall provide the flow chart of proficient management team with roles and responsibilities, who are directly or indirectly responsible for the seamless operation of the project activity.
2. PP shall clarify the water limit approved and consumption records of the water. what is the source of the fresh water? Or if the borewell was installed in the project activity then kindly provide the Central Ground Water Authority (CGWA) approval certificate.
3. PP shall clarify the role of Varanasi Municipal Corporation as the project land is owned by the Varanasi Municipal Corporation.

Project participant response

Date: 03-June-2024

1. Operational and Management Structure has been updated in section 6.3 of JPDMR.
2. Fresh water requirement for the plant has been met through one borewell installed at project site. The respective approval from CGWA has been applied and under process.
3. Gobardhan Varanasi Foundation SPV is a special purpose vehicle, formed by Varanasi Nagar Nigam (VNN) and People's Response for India's Development & Empowerment (PRIDE, an initiative by Adani Foundation). As per MoU, Dated June 2021, the land for the project is provided by VNN to SPV free of charges and shall take care of plant transport, operation etc until SPV is formed (Gobardhan Varanasi Foundation SPV). Post plant set up, The SPV shall be responsible for further plant operation, maintenance, production, and sale of CBG, All the profits/revenue generated, and expense incurred shall vest with the SPV only.

Documentation provided by project participant

Joint PDMR (Ver 03)

VVB assessment

Date: 07-June 2024

1. PP has provided the operational chart to VVB. However, the same is not provided in the JPDMR. Therefore, PP is requested to update the same in section 6.3 of JPDMR. Hence the CL remain open.
2. With reference to the "Consent under Section 25/26 of The Water (Prevention and control of Pollution) Act, 1974 (as amended) for discharge of effluent to M/s. GOBARDHAN VARANASI FOUNDATIONSPV", it is mandate by PP to obtain the NOC certificate from CGWA for abstraction of ground water. Therefore, PP is requested to provide the same. Hence the CL remain open.
3. With reference to the MoU provided by the PP, it is clarified that VNN provided 9.65 acre of land to SPV free of charges for 15 years. The land is provided free of charge to SPV solely for the project setting up purpose with due "change of land use" as per parameter laid down by the Government of UP vide GO. No. 636/37-2-2021, dated 24th May 2021 for the purpose of setting up the plant facilities. Hence the CL is closed.

Project participant response

Date: 11-June-2024

- 1.Operational chart has been provided in section 6.3 of JPDMR
2. As explained in CL 13, CTO/CTE and respective compliance requirement is not applicable for the project case.
- 3.Closed

Documentation provided by project participant

Joint PDMR (Ver 04)

VVB assessment	Date: 12-June-2024
PP has now clarified that the condition mentioned in the CTO regarding compliance submission does not apply, based on the industry categorization evidenced in the provided CPCB letter. Therefore, CL has been closed.	

Table 22. CL from this validation and verification

CL	22	Section no.	3.1	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029 PP shall clarify the applicability of AMS-III.H. "Methane recovery in wastewater treatment" methodology in the project activity.				
Project participant response				Date: 03-June-2024
AMS IIIAQ referred to AMS IIIH for estimation of project emissions. As explained in CL 2 above, PP has decided to remove AMS IIIAQ in the revised JPD MR. Hence CL 22 is not applicable for the project case.				
Documentation provided by project participant				
JPD MR (Ver 03)				
VVB assessment				Date: 07-June-2024
PP has removed the AMS III AQ methodology for the JPD MR. Hence the reference of AMS III H for estimation of project emissions is not applicable in the project activity. Hence the CL is closed.				

Table 23. CL from this validation and verification

CL	23	Section no.	6.1	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029 As per the project description there are two feedstocks used to produce the Biogas. PP has considered "Methane correction factor for cow manure in baseline situation" MCFj. However, PP has not considered the MCFj value for press mud. MCF for cow dung is not considered.				
Project participant response				Date: 03-June-2024

As explained in CL 2, feedstock (Press-mud or naiper grass) in biodigester, PP is not able to demonstrate that the organic matter would otherwise been left to decay anaerobically, hence as per para 1 (c) of AMS IIIA0, baseline emissions related to such organic matter has been accounted as zero, in the in the revised JPDMR. MCG value for cow dung is updated in JPDMR and ER sheet

Documentation provided by project participant

JPDMR (Ver 03)

ER Sheet (Ver 03)

VVB assessment

Date: 07-June 2024

PP has removed the AMS III AQ methodology from the project activity, and the MCG value for cow dung in the JPDMR and ER sheet is found correct. Hence the CL is closed.

Table 24. CL from this validation and verification

CL	24	Section no.	6.2	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
1. PP is requested to provide the calibration certificate of the flow meter, weighbridge, and muffle furnace, for year 2022 - 2023. 2. PP shall provide the energy meters details (main and backup) and calibration detail in JPDMR and provide the calibration certificates of these meters.				
Project participant response				Date: 03-June-2024
1. Calibration certificate of the flow meter, weighbridge for year 2022 – 2023 has been provided to VVB. 2. Project doesn't involve any energy generation as it's an cowdung to Biogas project. Hence no energy meters are installed for the project activity. For the project consumption purpose, energy is taken from grid via meters installed by local energy distribution body. The meters are under control of distribution body and PP has no control over its calibration.				
Documentation provided by project participant				
Calibration certificate of the flow meter, weighbridge for year 2022 – 2023				
VVB assessment				Date: 07-June 2024
1. PP has provided the calibration certificate of weighbridge for the year 2022 – 2023. Hence the CL is closed. 2. PP has confirmed that the meters will be maintained by third party agency the accuracy of data is ensured. The meters are entirely under the control of State Electricity Board/DISCOM. The metering system will be calibrated according to CEA regulations which specifies Electricity meters to be calibrated once in 5 years, which has been checked and confirm by VVB. Hence the CL is closed.				

Table 25. CL from this validation and verification

CL	25	Section no.	Evidence	Date: 28-May-2024
Description of CL				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
- With reference to the documents provided by PP, it is observed that the purchase orders (PO) provided for the Agitators, Aerotiler, Biogas Compressor, Heating System, and Odorization Unit are the draft version. PP shall provide the final copy of purchase orders. - With reference to the Purchase order of Balloons, PP shall also provide the Annexures documents mentioned below: - General Terms and Conditions (GTC) - Technical Offer from M/s. Atmos Power Private Ltd. Installation and all accessories. - Technical Offer from M/s. Lucky International for Fabric Portion. - Quality Assurance Plan: To be provided by M/s. Atmos Power Pvt Ltd.				
Project participant response				Date: 03-June-2024
Copies of PO and Annexure has been provided to VVB				
Documentation provided by project participant				
Copies of PO				
VVB assessment				Date: 07-June 2024
- PP is requested to provide the final copy of purchase order for the Agitators, Aerotiler, Biogas Compressor, Heating System, and Odorization Unit. - With reference to the Purchase order of Balloons, PP shall also provide the Annexures documents mentioned below: - General Terms and Conditions (GTC) - Technical Offer from M/s. Atmos Power Private Ltd. Installation and all accessories. - Technical Offer from M/s. Lucky International for Fabric Portion. - Quality Assurance Plan: To be provided by M/s. Atmos Power Pvt Ltd.				
Hence the CL remain open				
Project participant response				Date: 11-June-2024
1.This is already explained in CL 03				
2. Relevant documents has been provided to VVB				
Documentation provided by project participant				
Technical specification name plate picture of compressor				
PO copies have already been provided to VVB				
VVB assessment				Date: 12-June 2024



PP has provided the PO copy and technical specification of the compressor with picture. Hence this findings has been closed.

Table 26. CAR from this validation and verification

CAR ID	01	Section no.	NA	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
PP has provided the joint JPD MR version 01 as per the "Joint Project Description & Monitoring Report: VCS Version 4.2" however, latest version of the template is available since 19 September 2019 hence, PP needs incorporate the project information in latest version of Joint Project Description & Monitoring Report template against the requirement of VCS Standard Version 4.5.				
Project participant response				Date: 19-April-2024
VCS PD MR has been revised to template ver 4.4				
Documentation provided by project participant				
VCS JPD MR (Ver 02)				
VVB assessment				Date: 28-May-2024
PP has provided the JPD&MR using template version 4.4, which is found correct by VVB. Hence the CAR is closed.				

Table 27. CAR from this validation and verification

CAR ID	02	Section no.	2.5	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In joint JPD MR version 01, PP has not incorporated the section 2.5 hence, PP needs to incorporate the information in respective section against the requirement of latest Joint Project Description & Monitoring Report template.				
Project participant response				Date: 19-April-2024
This CAR is not applicable, as VCS PD MR has been revised to template version 4.4				
Documentation provided by project participant				
VCS JPD MR (Ver 02)				
VVB assessment				Date: 28-May-2024
PP used the revised template of JPD&MR version 4.4. Hence the CAR is closed.				

Table 28. CAR from this validation and verification

CAR ID	03	Section no.	1.9	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 1.9 of joint JPDMR version 01, PP has stated that “The project adopts renewable crediting periods of 3*7 years” However, statements lack clarity of specific information. Hence, PP needs to incorporate the clear information in respective section against the requirement of latest Joint Project Description & Monitoring Report template.				
Project participant response				Date: 19-April-2024
The respective correction in section 1.10(As per VCS JPDMR template version 4.4) has been done.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024
PP has mentioned “Seven years, twice renewable” in section 1.10. Hence the CAR is closed.				

Table 29. CAR from this validation and verification

CAR ID	04	Section no.	1.10	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 1.10 of joint JPDMR version 01, PP has altered the template with respect to categorization/options of project activity scale selection. Hence, PP needs to incorporate the clear information in respective section against the requirement of latest Joint Project Description & Monitoring Report template.				
Project participant response				Date: 19-April-2024
The respective correction in section 1.11 (As per VCS JPDMR template ver 4.4) has been done.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024
VVB has checked and confirm that PP has now mention the year wise breakup of emission reduction in section 1.10 in the revised JPD&MR version 2. Hence the CAR is closed.				

Table 30. CAR from this validation and verification

CAR ID	05	Section no.	1.11	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 1.11 of joint JPDMR version 01, PP has not provided the information upon age and average lifetime of the installed equipment as per manufacturer's technical specifications. Hence, PP needs to incorporate the clear information in section 1.11 against the requirement of latest Joint Project Description & Monitoring Report template -				
Project participant response				Date: 19-April-2024
The operational life of the Bio-methanation project activity is 25 years based upon the standard operational and maintenance practices followed at site. The respective correction in section 1.12 (As per VCS JPDMR template ver 4.4) has been done.				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VB assessment				Date: 28-May-2024
PP has not provided any supportive evidence to justify the claim of 25 years lifetime for the installed equipment. Furthermore, PP shall provide a schematic diagram including the monitoring parameters and mention the list and the arrangement of the main manufacturing/production technologies, systems and equipment involved in the project activity. Hence the CAR remains open.				
Project participant response				Date: 03-June-2024
As per CERC Order dated: 23rd June 2020, life of a biogas plant is indicated as 25 yrs (page 5), Ref: https://www.cercind.gov.in/2020/regulation/159_reg.pdf . Same has also been updated in section 1.12 of JPDMR.				
Schematic diagram showing arrangement of the equipment and process flow for all the sources of GHG emissions has been included in section 3.3 of JPDMR				
Documentation provided by project participant				
JPDMR (Ver 03)				
VB assessment				Date: 07-June 2024

1. The reference provided by PP to justify the lifetime of project activity is publicly available data which is common for Biogas power projects. Irrespective to that the lifetime of the Gobardhan Varanasi Foundation SPV shall be demonstrate by the technology installed by the project activity. 2. PP has provided the Schematic diagram in section 3.3; however, the diagram does not clearly depict the equipment arrangement and the process of feedstock intake till the biogas generation and waste production. Hence the CAR remains open.	
Project participant response	Date: 11-June-2024
1.The overall project life is considered as 25 yrs as per provided CERC regulation. Gobardhan Varanasi Foundation SPV has installed multiple equipment like biodigester, compressor etc which are subject to replacement if any damage/malfunction is found in them. Hence, technical life of individual equipment's can't be considered as overall life of the project. Furthermore, as per specification provided on compressor supplier (Burckhardt Compression) web page, the compressor systems are defined lifetime of more than 25 years and the average lifetime is 30 to 50 years. Hence, the technical life of Gobardhan Varanasi Foundation SPV is considered as 25 yrs. 2. Plant SLD has been included in Section 6.3 of the revised JPDMR	
Documentation provided by project participant	
JPDMR (Ver 04) https://www.burckhardtcompression.com/about-us/sustainability-in-practice/material-topics/3-longevity-and-cyclability/	
VVB assessment	Date: 12-June 2024
Based on the PP justification and publicly available data for the lifetime of the compression type of the biogas system, PP has selected the 25 years lifetime of the project activity. VVB has confirm the same, hence this finding has been closed.	

Table 31. CAR from this validation and verification

CAR ID	06	Section no.	1.14	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029 In section 1.14 of joint JPDMR version 01, PP has stated that "The project activity is in compliance with all relevant statutory and regulatory laws applicable in the host country." However, insufficient information is provided with respect to project specific host country requirement in the context of relevant statutory and regulatory laws. Hence, PP needs to incorporate sufficient information in respective section against the requirement of latest Joint Project Description & Monitoring Report template.				

Project participant response	Date: 19-April-2024
The respective correction in section 1.15 (As per VCS JPDMR template ver 4.4) has been done. The revised JPDMR now include all relevant statutory and regulatory laws applicable in the host country	
Documentation provided by project participant	
VCS JPDMR (Ver 02)	
VVB assessment	Date: 28-May-2024
VVB has checked and confirm that PP has now provide the information of relevant statutory and regulatory laws applicable in the host country consider for the project activity. However, PP shall provide the documentary evidence that how the project meets the mentioned regulatory rules and requirements. Hence, the CAR is open.	
Project participant response	Date: 03-June-2024
Justification related to all law and regulations applicability has been explained in Section 1.15 of JPDMR. Furthermore, copy of regulatory approval like UPPCB CTO and PESO approval has been provided to VVB	
Documentation provided by project participant	
UPPCB CTO and PESO approval	
VVB assessment	Date: 07-June 2024
With reference to CL 13, PP shall demonstrate the compliance of Air and Water CTO in section 1.15. Hence the CAR remains open.	
Project participant response	Date: 11-June-2024
As explained in CL 13, CTO/CTE is not applicable for project case, Hence, this CAR is not applicable	
Documentation provided by project participant	
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VVB assessment	Date: 12-June 2024
This finding has been closed.	

Table 32. CAR from this validation and verification

CAR ID	07	Section no.	1.17	Date: 18-Dec-2023
Description of CAR				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029

In Table 1, section 1.17 of joint JPDMR version 01, SDG target number and indicator details are not found consistent for SDG Goals 13 and 8 with official terminology of United Nation, Department of Economic and Social Affairs, Sustainable Development. Also, Contribution over project lifetime response for SDG goal 13 is not found valid. Hence, PP needs to incorporate accurate information in respective section against the requirement of latest Joint Project Description & Monitoring Report template.

Project participant response	Date: 19-April-2024
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The respective correction in section 1.18.2 (As per VCS JPDMR template ver 4.4) has been done

Documentation provided by project participant

VCS JPDMR (Ver 02)

VVB assessment	Date: 28-May-2024
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It is found that the indicator is missing for SDG 8.5, However PP is mentioning 18 people employed after the commissioning of PA for which PP shall provide the supportive evidence (employment details) to justify the claim. Also, for SDG 13, target's goal and indicator are missing. Hence CAR remains open.

Project participant response	Date: 03-June-2024
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Number of direct & indirect employment undertaking from Gobardhan SPV has been provided to VVB

Documentation provided by project participant

Direct & indirect employment undertaking from Gobardhan SPV

VVB assessment	Date: 07-June 2024
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Under section 1.18, PP is requested to mention the indicators of all SDGs claimed under project activity. Hence the CAR remains open.

Project participant response	Date: 11-June-2024
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SDG indicator has been revised and updated in Section 1.18 of the joint PDMMR

Documentation provided by project participant

JPDMR (Ver 04)

VVB assessment	Date: 12-June 2024
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PP has updated the PDMMR, hence this finding has been closed.

Table 33. CAR from this validation and verification

CAR ID	08	Section no.	2.2	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 2.2 of joint JPDMR version 01, PP has not provided summary/conclusion of on-going mechanism for feedback collection from stakeholders also, no, comment/record of grievance (if any received) is provided as evidence. Hence, PP needs to incorporate accurate information in respective section and provide the requested objective evidence against the requirement of latest Joint Project Description & Monitoring Report template.				
Project participant response				Date: 19-April-2024
The respective correction in section 2.1.2 (As per VCS JPDMR template version 4.4) has been done. The revised JPDMR now include summary/conclusion of on-going mechanism for feedback collection from stakeholders				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024
PP shall provide the supportive evidence to justify the grievance mechanism mentioned in section 2.1.2 of the revised JPDMR version 2. Hence the CAR remains open.				
Project participant response				Date: 03-June-2024
Copy of visitor cum grievance register has been provided to VVB				
Documentation provided by project participant				
Copy of visitor cum grievance register				
VVB assessment				Date: 07-June 2024
PP has provided the visitor cum grievance register to justify the grievance mechanism mentioned in section 2.1.2 of the revised JPDMR. VVB has assessed the feedback provided by the visitors and concluded that the presence of project activity is positively impacted the society and local livelihood. Hence the CAR is closed.				

Table 34. CAR from this validation and verification

CAR ID	09	Section no.	3.1	Date: 18-Dec-2023
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Description of CAR	
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029	
In section 3.1 of joint JPDMR version 01, PP has stated that “The Biogas is used for CNG vehicles” however, no details in description are provided on this. Also, no records in support are provided. Hence, PP needs to incorporate sufficient information in respective section and submit the records against the requirement of AMS-III.AO.	
Project participant response	Date: 19-April-2024
Biogas shall be used for vehicles, and this can be referred from Biogas Sale agreement with GAIL, which is already provided to VVB. Furthermore, BioCNG sale invoice demonstrate that the Bio CNG sale to GAIL, which is a prominent supply of CNG for vehicles in the region.	
Documentation provided by project participant	
VVB assessment	Date: 28-May-2024
The Sale agreement provided by PP indicate the use of Biogas for transport as well as for domestic application, which does not satisfy the scope and applicability conditions of applied methodology AMS-III. A.Q version 2. Subsequently, PP has provided the summary sheet indicating the quantity of CNG sold which cannot be considered as credible evidence. PP is requested to provide the monthly sale record of Biogas to GAIL which was agreed between the PP and Gail as per the agreement GAIL-Gobardhan sale Agreement (20062022) clause 11. Hence the CAR remains open.	
Project participant response	Date: 03-June-2024
As explained in CL 2 above, PP has decided to remove AMS IIIAQ in the revised JPDMR. Hence CAR09 is not applicable for the project case.	
Documentation provided by project participant	
JPDMR (Ver 03)	
VVB assessment	Date: 07-June 2024
PP has now removed the AMS-III. A.Q methodology. Hence the CAR is closed.	

Table 35. CAR from this validation and verification

CAR ID	10	Section no.	3.1	Date: 18-Dec-2023
Description of CAR				

Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029	
In section 3.1 of joint JPDMR version 01, PP has stated that “The methane content in upgraded gas will be in line with applicable regulations in host country.” however, it has not specified such regulations and justification how it complies with the same. Hence, PP needs to incorporate sufficient information in respective section against the requirement of applied methodology.	
Project participant response	Date: 19-April-2024
The methane content in upgraded gas will be in line with applicable regulations in host country. The CNG produced by the project activity will be checked in accordance to Indian Standard IS 15958:2012 “Compressed Natural Gas (CNG) for Automotive Purposes — Specification. The respective correction in section 3.2 (As per VCS JPDMR template ver 4.4) has been done.	
Documentation provided by project participant	
VCS JPDMR (Ver 02)	
VVB assessment	Date: 28-May-2024
VVB has checked and confirm that according to 15958:2012, the minimum requirement of methane content in biogas 90% which is in line with the requirement for Automobile sector. The same is verified with the test report provided by the PP. Hence the CAR is closed.	

Table 36. CAR from this validation and verification

CAR ID	11	Section no.	4.1	Date: 18-Dec-2023
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 4.1 of joint JPDMR version 01, PP has not provided sufficient information specific to this project activity implementation in the context of methods and procedures (including monitoring procedures) followed in accordance with the monitoring plan. Hence, PP needs to incorporate sufficient information in respective section against the requirement of VCS Standard version 4.5.				
Project participant response				Date: 19-April-2024
Section 4.1 (As per VCS JPDMR template version 4.4) has been updated to include Main technical parameters of the project				
Documentation provided by project participant				
VCS JPDMR (Ver 02)				
VVB assessment				Date: 28-May-2024

VVB has found that PP has now included the technical parameters of the project in the revised version of JPDMR version 2.0. Hence the CAR is closed.

Table 37. CAR from this validation and verification

CAR ID	12	Section no.	3.5	Date: 28-May-2024
Description of CAR				
Monitoring Period: 01, 17-June-2022 to 30-June-2023, Crediting Period: 01, 17-June-2022 to 16-June-2029				
In section 3.5 of JPDMR version 2 (As per VCS JPDMR template version 4.4), PP shall consider the latest version of Tool 27: Investment analysis Version 13 which is applicable from 28 November 2023 to demonstrate the financial viability of the project.				
Project participant response				Date: 03-June-2024
As explained in Section 3.5 of revised JPDMR, in line with AMS-III.D (Version 21.0), project is not required to demonstrate additionality and is deemed automatically additional. Hence CAR 12 is not applicable for the project case.				
Documentation provided by project participant				
JPDMR (Ver 03)				
VVB assessment				Date: 07-June 2024
As per the paragraph 15 of the methodology AMS-III.D the project should comply with requirement as <i>"the Project activities may demonstrate the additionality by showing that there is no regulation in the host country, applicable to the project site, that requires the collection and destruction of methane from livestock manure. If so, it is not required to apply the "Guidelines on the demonstration of additionality of small-scale project activities"</i> .				
In context of the above requirement PP confirm that there are no regulations in the country that is applicable to the project site, that requires the collection and destruction of methane from cowdung. However, PP is requested to demonstrate the local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement. Hence this fining remains open.				
Project participant response				Date: 11-June-2024
Section 3.5 of the JPDMR has been revised to include local/ nation rules and regulation which shows that the project activity is not mandate by the state government or any other legal requirement				
Documentation provided by project participant				



JPDMR (Ver 04)	
WVB assessment	Date: 12-June 2024
PP has updated the PDMR, hence this finding has closed.	

Table 38. FAR for this validation and verification

NA.