PRODUCTION FACILITY AND OUTPUT AUDIT REPORT

OF

"INDUSTRIAL BIOCHAR PROJECT DEVELOPED ALONGSIDE CORN GROWING SMALLHOLDERS"

IN

TELANGANA, INDIA

METHODOLOGY: BIOCHAR METHODOLOGY (VERSION 3; EDITION 2022)

FACILITY ID: 301704

OUTPUT AUDIT REPORTING PERIOD: 09/02/2023 TO 06/05/2024 (FIRST AND LAST DAYS INCLUDED)

FOR

puro•earth

BY

Carbon CHECK

CARBON CHECK (INDIA) PRIVATE LIMITED

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I. PROJECT DETAILS

Project title:	Industrial Biochar project developed alongside corn growing smallholders
Applicable GHG scheme:	Puro.earth
CO_2 Removal Method	Biochar - C03000000
Facility ID	301704
Agreed level of assurance and scope of the audit:	Reasonable level of assurance has been considered for the output audit and the reasonableness of the assumptions, limitations, and methods that support a claim about the outcome of future activities have been assessed as part of the production facility audit.
Host party/country:	India
Facility location:	NSL Corn Seed Drying Facility, NSL Cob Dryer, Kothur, Medak 502336, Telangana, India Geo Co-ordinates: 17.706776117968534 N, 78.51580657396843 E
Applicable standard rules:	Puro General rules, V3.1
Methodology (Applicable GHG scheme):	Biochar Methodology (Puro.earth) Version: 3 (Edition 2022)
Sectoral Scope/Technical Area	13, 15
Output audit reporting Period	09/02/2023 to 06/05/2024
Total CO2 Removal Certificates (CORCs):	1,747 CORCs
CORC Factor	1.69 CORCs per dry tonne of biochar
GHG reducing measure/technology:	Conversion of corn cob waste biomass to biochar and utilization in farms for soil amendment and storage.

II. PROJECT PARTICIPANTS

Party/Country	Project Developers/Client	Role	Contract party
India	Varaha ClimateAg Pvt. Ltd. **Contact Persons**: Abhishek Sharma, Kaushal Bisht	CO2 Removal Supplier	☒
India	Name: Mr Kaushal Bisht Designation: Lead - Partnerships & Strategic Alliances, Varaha	CO2 Removal Supplier's Legal Representation	☐

III. CONTARCTING PARTY

Party/Country	Project Developers/Client	Role	Contract party
Finland	Puro.earth **Contact Person**: Roosa Räisänen	Standard Representative	☒

IV. AUDIT TEAM

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader / Verifier / Technical Expert	IR	Dimri	Anubhav	CCIPL	X	X	X	X
2.	Trainee Assessor	IR	Rawat	Sawan	CCIPL	X	X	X	X

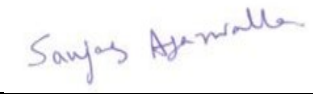
V. TECHNICAL REVIEWER & APPROVER

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Anand	Amit	CCIPL
2.	Approver	IR	Agarwalla	Sanjay Kumar	CCIPL

VI. VERIFICATION REPORT

Status	Verification Phases
☒	Desk Review
☒	On Site Assessment
☒	Follow up interviews
☒	Corrective Actions / Clarifications Requested
☒	Resolution of outstanding issues
☒	Full Approval and Submission for Issuance
☐	Rejected

VII. APPROVAL

Final Approval	
Date	22/10/2024
Approved by	Sanjay Kumar Agarwalla
Designation	Technical Director
Signature	

Abbreviations

CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDR	Carbon Dioxide Removals
CH_4	Methane
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2eq	Carbon Dioxide Equivalent
CORC	CO2 Removal Certificate
COI	Conflict of Interest
DR	Draft Report
EF	Emission Factor
EIA	Environmental Impact Assessment
FA	Final Approval
FAR	Forward Action Request
FR	Final Report
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
ICVCM	Integrity Council for Voluntary Carbon Market
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
KPP	Key Project Parameter
KYC	Know Your Client
LCA	Life Cycle Assessment
NSL	Nuziveedu Seeds Limited
OSV	On Site Visit
PA	Project application
QC/QA	Quality control/Quality assurance
TA	Technical Area
TR	Technical Review
TRL	Technology Readiness Level
VVB	Validation & Verification Body

SUMMARY: Production Facility & Output Audit Opinion

The Validation and Verification Body (VVB), Carbon Check (India) Private Ltd hereinafter referred to as CCIPL is a globally recognized organization that has validated and verified greenhouse gas (GHG) projects worldwide. Our commitment lies in delivering exceptional third-party assurance, training, and knowledge services in the realm of climate change and sustainability on a global scale, ensuring impartial and competent support.
CCIPL has been appointed by GHG program "**Puro.earth**" to perform the production facility and output audits of the project titled "Industrial Biochar project developed alongside corn growing smallholders" implemented and operated by the supplier Varaha ClimateAg Pvt. Ltd.

The audits were performed in accordance with requirements of the Puro Standard General Rules (V3.1)/B01/. The scope of the audit is defined as an independent and objective review of the project documents, the project's baseline, additionality, estimation of CO_2 removal and monitoring plan and other relevant documents. The information in these documents has been reviewed against the requirements of the Puro Standard General Rules (V3.1)/B01/.

The report is based on the assessment of the project document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, site visit, and stakeholder interviews, review of the applied methodology and its underlying formulae and calculations.

The Audit team confirms the contractual relationship signed on the 29/08/2024 between the VVB, CCIPL and the GHG program, **Puro.earth**. The team assigned for the production facility and output audit meets CCIPL's internal procedures including the requirements of ISO14065 for VVB's team composition and competence. The audit team has conducted a thorough contract review as per ISO 14064/B05/ and CCIPL's procedures and requirements. The contract/26/ with **Puro.earth** and CCIPL's contract review process confirms the objectives, scope, criteria for production facility audit and output audit and confirms the level of assurance for the facility and output audits. Reasonable level of assurance has been considered for the output audit and the reasonableness of the assumptions, limitations, and methods that support a claim about the outcome of future activities have been assessed as part of the production facility audit. The objective, scope and criteria are detailed below.

Production Facility and Output Audit Methodology and Process:

The audit of the production facility and output has been performed as described in or ISO 14064/B05/ and constitutes the following steps:

- Conflict of interest review.
- Selection of Production Facility Audit and Output Audit team.
- Initial interaction/ Kick off call with the Client.
- Development of the Production Facility Audit and Output Audit plan.
- Document review of data and information (Audit package and the relevant documents including the reference to information relating to projects or technologies similar to the proposed project activity and review based on the approved methodology being applied and of the appropriateness of formulae and accuracy of calculations).
- Cross checks between information provided in the audit package and information from other sources.
- Follow up actions for cross checking data.
- Follow-up interaction with the client and other project personnel for supplemental information and corrective action as necessary; and
- Issuance of FR (Final Report) for Production Facility Audit and Output Audit after internal technical review.

Production Facility Audit and Output Audit Criteria

The following steps based on the requirements of Puro Standard General Rules (V3.1)/B01/ and Biochar methodology (V3; edition 2022)/B02/ were followed during the audit of the Production Facility and Output:

- Understanding project activities and supplier's organization
- Familiarity with production's physical flows
- Understanding the GHG quantification methods and sector-specific approaches
- Assessing Project supplier's compliance with the eligibility requirements of the Biochar methodology
- Ensuring use of a conservative LCA model for the GHG reduction calculations
- Evaluating accuracy of input data in the calculation model
- Confirming annual CORC estimates for removals.

The host party for the project activity "Industrial Biochar project developed alongside corn growing smallholders" is India. The supplier for the project activity is Varaha ClimateAg Pvt. Ltd.

The project correctly applies the baseline and monitoring methodology, Biochar methodology (V3; edition 2022)/B02/.

The project leads to removals of 1,747 tCO_2eq emissions during the Output Audit reporting period that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Carbon removals attributable to the project are hence additional to any that would occur in the absence of the project activity.

The audit package contains a monitoring plan for the monitoring of the carbon removals from the project. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the suppliers are able to implement the monitoring plan.

The project activity by recycling corn shank waste and turning it into biochar and thus durably storing the biogenic carbon captured by the crop during its growth/01/, will result in CO_2 removals that are real, measurable and provide long-term benefits to the mitigation of climate change. Overall, the project complies with the criteria described in the Biochar methodology (V3; edition 2022)/B02/.

The total CO_2 Removal Certificates (CORCs) from the project are 1,747 t of CO_2eq over the reporting period with a CORC factor of 1.69 CORCs per dry tonne of biochar.

The Production Facility Audit and Output Audit protocol describes a total of 8 findings which include:

- 01 (one) Corrective Action Requests (CARs).
- 07 (seven) Clarification Requests (CLs).
- 00 (zero) Forward Action Requests (FARs).

All the findings raised during Production Facility and Output Audit of this project have been satisfactorily addressed and closed.

CCIPL concludes the production facility and output audits with a positive opinion that the carbon removal project activity "Industrial Biochar project developed alongside corn growing smallholders" in India, as described in the project documents, meets all applicable requirements, including those specified in the Puro Standard General rules (V3.1)/B01/, Biochar methodology (V3; edition 2022)/B02/, tools and guidelines provided by Puro Standard General rules (V3.1)/B01/.

The selected baseline and monitoring methodologies, Biochar methodology V3; edition 2022)/B02/ of the Puro Standard General rules (V3.1)/B01/are applicable to the project and correctly applied. CCIPL therefore requests the registration of the project with the GHG program **Puro.earth**.

TABLE OF CONTENTS

1. INTRODUCTION

GHG program **Puro.earth** has appointed CCIPL to perform an independent production facility and output audit of the carbon removal project activity titled “Industrial Biochar project developed alongside corn growing smallholders” in India (hereafter referred to as “project activity”). The supplier for the project activity is Varaha ClimateAg Pvt. Ltd. This report summarises the findings of the audit of the project, performed on the basis of Puro Standard General rules (V3.1)[/B01/], as well as criteria given to provide for consistent project operations, monitoring and reporting. This report contains the findings and resolutions from the Production Facility and Output Audit and a certification opinion on the project design and CO_2 removals accrued during this output audit reporting period due to implementation of this project activity.

1.1 Objective

Production Facility Audit:

The purpose of a production facility audit is to have a thorough and independent assessment of the proposed project activity against the requirements of Puro Standard General rules (V3.1)[/B01/], in particular, the project's baseline, additionality, and compliance with relevant requirements of the standard and applied methodology. Methodology and standard specific requirements are validated to confirm that the project design (as documented) is complete, reasonable and meets the stated requirements and identified criteria. Production facility audit is seen as necessary to provide assurance to stakeholders about the quality of the project and its ability to generate proposed amount of CO_2 Removal Certificate (CORCs).

The objective of the facility and output audits is to provide an external evaluation to ensure that:

- LCA methods employed are robust and accurate,
- that there is consistency in the primary data collected,
- the project activity adequately meets all the criteria outlined by the Puro Standard General rules (V3.1)[/B01/] and Biochar methodology (V3; edition 2022)[/B02/].

The audit seeks to guarantee the realness and authenticity of the project, ensuring that it genuinely contributes to the set objectives and is not merely a theoretical construct. This external audit provides an additional layer of credibility and trustworthiness to the entire process, ensuring stakeholders of the project's integrity and alignment with established requirements.

Output Audit:

Output Audit is the periodic independent review and ex-post determination of both quantitative and qualitative information by a Validation & Verification Body (VVB) of the monitored CO_2 removals achieved as a result of the implementation and monitoring of the project activity during a defined output audit reporting period.

Certification is the written assurance by a VVB that, during a specific period in time, a project activity achieved the CO_2 removals as verified.

The objective of this output audit is to verify and certify CO_2 removals and emissions as reported for the project activity titled “Industrial Biochar project developed alongside corn growing smallholders” for the period 09/02/2023 to 06/05/2024 (including both the days).

The purpose of output audit is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the net CO_2 removals, is sufficient, definitive and presented in a concise and transparent manner.

The facility and output audits are a requirement for all carbon removal projects and are seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of CORCs.

1.2 Scope

The scope of Production Facility and Output Audit is defined as an independent and objective review of the project design. The audit package is reviewed against the relevant criteria (see above) and decisions by the GHG program, including the approved baseline and monitoring methodology. The Production Facility Audit and Output Audit team has, based on the recommendations in the Puro Standard General rules (V3.1)/B01/ and Biochar methodology (V3; edition 2022/B02/, employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of the CORCs.

The audit is not meant to provide any consulting towards the CO_2 removal suppliers (hereafter referred to as "suppliers"). However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

While carrying out the audit, CCIPL determines if the project activity complies with the relevant requirement of the Puro Standard General rules (V3.1)/B01/, the applicability conditions of the selected methodology/B02/, guidance issued by the Puro Standard and also assesses the claims and assumptions made in the LCA calculations without limitation on the information provided by the suppliers.

2. METHODOLOGY

The following Production Facility Audit and Output Audit process is used based on the requirements of the Puro Standard General rules (V3.1)/B01/ and Biochar methodology (V3; edition 2022)/B02/ was followed during the facility and output audit:

- Understanding project activities and supplier's organization
- Familiarity with production's physical flows
- Understanding the GHG quantification methods and sector-specific approaches
- Assessing supplier's compliance with the eligibility requirements
- Ensuring use of a conservative LCA model for GHG removal calculations
- Evaluating accuracy of input data in the calculation model
- Confirming annual CORC estimates for removals.

The Production Facility Audit and Output Audit process is utilized to evaluate whether the Project's approach, as outlined in the project design, is consistent with the Puro Standard requirements and the Biochar methodology/B02/. A Production Facility Audit and Output Audit checklist is developed for the Project which summarizes the criteria used to evaluate the Project's compliance with the Puro standard, the Project's conformance with each criterion, and the Production Facility Audit and Output Audit team's findings.

Conflict of Interest Review

Prior to beginning any Production Facility Audit and Output Audit project, CCIPL conducts an evaluation to identify any potential conflicts of interest associated with the project. If no potential conflicts are identified for the project, then CCIPL moves with the Production Facility Audit and Output Audit of the project. This process is followed before issuing the Letter of Engagement to Puro.earth and the contract/26/ for Production Facility Audit and Output Audit is signed between CCIPL and Puro.earth.

Production Facility Audit and Output Audit Team composition

CCIPL's Audit Team consisted of the following individuals who were selected based on their Production Facility Audit and Output Audit experience, as well as familiarity with the applied technology: Anubhav Dimri – Team Leader/Technical Expert, Sawan Rawat – Trainee Assessor. Production Facility Audit and Output Audit team composition (along with background details/CV of team members) was communicated in Letter of Engagement (LoE) and also before start of Production Facility Audit and Output Audit. In case of any team change during the Production Facility Audit and Output Audit, the same shall be communicated to the client and COI shall be re-assessed.

Audit Kick-off

The Production Facility Audit and Output Audit process was initiated with a kick-off conference call/meeting between VVB and the client. The meeting focused on confirming the Production Facility Audit and Output Audit scope, objectives, criteria, schedule, and the information required for the Production Facility Audit and Output Audit.

Desk Review

The Production Facility Audit and Output Audit team performed a desk review of the audit package.

- A review of data and information;
- Cross checks between information provided in project design and information from sources with all necessary means without limitations to the information provided by the supplier;

Clarification requests

- The Production Facility Audit and Output Audit team has requested CLs (supplemental information) during the Production Facility Audit and Output Audit process. The clarification requests and the responses provided by have been summarised in the Production Facility Audit and Output Audit protocol of this report.

Production Facility Audit and Output Audit Reporting

- The resolution of outstanding issues and the issuance of the DR (draft report) and opinion and thereafter internal technical review before final decision on the Production Facility Audit and Output Audit.

The following sections outline each step in more detail.

2.1 Desk review

The following table outlines the documentation reviewed during the Production Facility Audit and Output Audit:

Ref no.	*Reference Document*
/01/	LCA Report for NSL Corn Cob Dryer Biochar Production and Soil Application, 20-06-2024
/02/	NSL LCA, LCA log sheet, LCA Results, 12-07-2024
/03/	Puro additionality for NSL Gasifier, 09-07-2024
/04/	Financial Additionality Spreadsheet, 14-03-2024
/05/	Varaha Certificate of Incorporation, 29-02-2024
/06/	Facility Details in Puro Registry, 28-08-2024

/07/	Permits for Kothur Factory, 29-02-2024
/08/	NSL emissions report with measurement proofs, 19-04-2024
/09/	NSL Environmental Evaluation Report with testing proofs, 11-07-2024
/10/	NSL Stakeholder Engagement Report, 15-04-2024
/11/	Clarification regarding stakeholder consultation, 22-12-2023
/12/	Biomass acquisition logs along with proof of acquisition, 19-04-2024
/13/	Evidence of Safe Handling of Biochar and safe environment, 23-09-2024
/14/	NSL Machine details, 12-07-2024
/15/	Biochar storage pit measurements, 15-03-2024
/16/	Biochar End use proof, 29-02-2024
/17/	Biochar distribution farmer list, 21-03-2024
/18/	MRV summary and Calibration Certificates for measuring devices, 27-03-2024
/19/	Biochar Test Reports 2023 and 2024, 21-06-2024
/20/	Soil Temperature measurements, 22-04-2024
/21/	NSL Sales and Branding Claims, 13-03-2024
/22/	CORC Report Summary, 12-07-2024
/23/	Statement of understanding of physical product decoupling, 22-04-2024
/24/	Soil Temp. Justification, 09-09-2024
/25/	Proof of Steel consumption, 23-09-2024
/26/	Countersigned contract between CCIPL and Puro.earth, 29-08-2024
/27/	Industrial Biochar project developed alongside corn growing smallholders.pptx, 05-09-2024

2.2 Background documents:

Ref no.	*Reference Document*
/B01/	Puro Standard General Rules, V3.1, 01 June 2023
/B02/	Biochar Methodology Edition 2022 V3
/B03/	Puro Templates and Guidance documents
/B04/	• Woolf et al (2021) • EBC and WBC positive lists of approved biomass feedstock. All other background documents, which have been used by the audit team to cross check the methodology requirements, technical specification of the project activity, input parameters for the financial model, barriers.
/B05/	ISO 14064

2.3 On-site visit and follow-up interviews with project stakeholders

An OSV was performed by the audit team of Carbon Check on 06-09-2024 at the Nuziveedu Seeds Ltd. Facility in Kothur, Telangana. This visit included a thorough audit of the biochar production facility and one of the research farms belonging to NSL where the soil application of biochar in the field was observed.

The images above from the OSV show the entire production process that was audited by the audit team. The corn cobs are sent to a storage area through conveyor belts and fed to the gasifiers through another conveyor and lift system. The syngas produced is cleaned and sent to the drying bins via pipeline to be used as fuel while the biochar produced is collected and loaded onto the transport trucks. Biochar is then pulverized and stored in pits and eventually sent to the farmers where it can be applied to the soil.

The audit team visited one of the research farms during the OSV where they were informed that the biochar application and its effects in soil are being monitored in similar research farms. These farms are located at a considerable distance from nearby water bodies which also minimizes the risk of leaching.

A local stakeholder interview was conducted remotely on 11th September 2024 via online video call. Following questions were asked by the VV team to the farmers during the stakeholder interview[1] process:

- If they were informed about the biochar and its benefits by the supplier?
- Was the biochar provided to them free of cost?
- What do they grow on their farms and how was the biochar added to the soil?
- How far their farms are from the facility?
- Have they noticed any positive or negative impacts of the biochar?
- Any comments, opinions or concerns regarding biochar use.

During the stakeholder interview process, following information was provided by the farmers to the VV team:

- The farmers were invited to a “Rythu Vedika”, by NSL. Here they were informed about biochar and its benefits.
- The biochar was provided free of cost and was also transported to their respective farms by NSL.
- The biochar has been supplied to 3 categories of farms:
    - Palm plantations: where 5-10 kgs of biochar was added to the soil around each tree.
    - Cotton plantations: 3-4 tonnes of biochar was used per hectare
    - Vegetable plantations: 3-4 tonnes of biochar was used per hectare
- Their farms ranged from 40-60kms away from the facility.
- The farmers mentioned they noticed better soil porosity, better plant health and increased water retention in soil. The water retention was more prominently observed during the summer months.
- Raji Reddy/x/ one of the farmers of a cotton plantation mentioned that they observed better results after using biochar than before when they only used organic fertilizer.
- They also mentioned that other farmers have inquired about the biochar and have even expressed interest in purchasing the biochar for their farms.

The project representatives and stakeholders interviewed:

	Name	Organization	Topic
/i/	Shivanand K	Nuziveedu seeds	Biochar soil application in field
/ii/	Naidu Vangaredi	Nuziveedu seeds	Biochar soil application in field
/iii/	Usha Kisan	Nuziveedu seeds	Biochar soil application in field
/iv/	C. Padmayyer	Nuziveedu seeds	Facility Production process, Baseline Scenario, Additionality, monitoring plan

[1] Note: A more thorough checklist of everything that was audited during the site visit has been added to Appendix A of this report

			and practices followed, Monitoring results, Biochar soil application in field, Environmental and social safeguards,
/v/	G. Devendra	Nuziveedu seeds	Facility Production process, Baseline Scenario, Additionality, monitoring plan and practices followed, Monitoring results, Biochar soil application in field.
/vi/	Dr. K Uppalaiah	Nuziveedu seeds	Facility Audit, Biochar soil application in field, Local Stakeholder Consultation process, Environmental and social safeguards.
/vii/	Abhishek Sharma	Varaha AG	Facility Audit, Biochar soil application in field, Boundary for life-cycle assessment of emissions and removals, GHG calculations, Additionality, Baseline determination, Data quality and uncertainty, Local Stakeholder Consultation process
/viii/	Kaushal Bisht	Varaha AG	Facility Audit, Legal Representation, Biochar soil application in field
/ix/	Sudhakar Reddy	Independent Farmer	Local Stakeholder Interview
/x/	Raji Reddy	Independent Farmer	Local Stakeholder Interview
/xi/	Narsimha Reddy	Independent Farmer	Local Stakeholder Interview
/xii/	Ch.Venkatesh	Independent Farmer	Local Stakeholder Interview
/xiii/	Nagendra Reddy	Nuziveedu seeds	Local Stakeholder Interview

2.4 Resolution of outstanding issues

The objective of this phase of the facility and output audit is to resolve any outstanding issues (issues that require further elaboration, research or expansion), which need be clarified prior to CCIPL's conclusion opinion on the project design. In order to ensure transparency a Production Facility Audit and Output Audit protocol is customized for the project. The protocol shows the criteria/requirements, means of validation and the results from validating the identified criteria in a transparent manner.

The Production Facility Audit and Output Audit protocol serves the following purposes:

- It organizes, details and clarifies the requirements a carbon removal project meets the applicability requirements of the GHG scheme;
- It ensures a transparent Production Facility Audit and Output Audit process where the validator will document how a particular requirement has been validated and the result of the Production Facility Audit and Output Audit .
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the final audit report.
- It ensures the determination of achieving credible carbon removals from the project activity.

The Production Facility Audit and Output Audit protocol consists of two tables. The completed Production Facility Audit and Output Audit protocol for this project is enclosed in Appendix A to this report.

Findings established during the Production Facility Audit and Output Audit can either be seen as a non-fulfillment of Puro Standard criteria or where a risk to the fulfillment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- ✓ The CO_2 Removal Supplier/ Suppliers have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional carbon removals;
- ✓ The applicable GHG scheme requirements have not been met;
- ✓ There is a risk that carbon removals cannot be monitored or calculated.

A request for clarification (CL) may be issued if information is insufficient or not clear enough to determine whether the applicable GHG scheme requirements have been met.

A forward action request (FAR) is raised during Production Facility Audit and Output Audit to highlight issues related to project implementation that require review during the first verification of the project activity. The FAR does not relate to the applicable GHG scheme requirements for registration.

The Production Facility Audit and Output Audit protocol consists of two tables. Table 1 reflects the eligibility requirements and reference to the description used to validate the project activity against those requirements, as well as means of validation, reference to Table 2 (i.e. table of findings) and preliminary and final opinion of the VVB on every particular requirement listed in table 1.

2.5 Internal quality control

The final audit report has passed a technical review and quality review before being submitted to the supplier and the Puro registry. The technical review has been performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for Production Facility Audit and Output Audit.

2.6 Production Facility Audit and Output Audit Team

Carbon Check has appointed a competent team as per the ISO 14065, the Puro standard sectoral classification and Carbon Check internal procedures, the team is outlined below:

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader / Validator/ Technical Expert	IR	Dimri	Anubhav	CCIPL	X	X	X	X
2.	Trainee Assessor	IR	Rawat	Sawan	CCIPL	X	X	X	X

3. PRODUCTION FACILITY AUDIT AND OUTPUT AUDIT FINDINGS

The findings of the Production Facility Audit and Output Audit are stated in the following sections. The Production Facility Audit and Output Audit criteria (requirements), the means of

validation and the results from auditing the identified criteria are documented in more detail in the Production Facility Audit and Output Audit protocol in Appendix A.

4. PROJECT DESIGN

The project design is based on relevant forms and guidance from Puro and the audit package and is completed in accordance with the audit document index provided by the Puro standard representatives.

Subject	Description	Assessment
Project title	Industrial Biochar project developed alongside corn growing smallholders	Based on the review of the audit package documents and the observations made during the OSV, all possible omissions or non-conformities were identified and raised as findings which were satisfactorily closed in Table 2 of Appendix A of this document.
Project location	Kothur, Telangana, India	
Project technology including the capacity	The project activity aims to recycle its agricultural corn cob waste by turning it into biochar, thus durably storing the biogenic carbon captured by the crop during its growth. According to the LCA Results the project will remove 1,747 tCO2e for the first output audit reporting period.	
Methodologies and tools applied	Biochar methodology (V3; edition 2022)/B02/	
Amount of CO_2 Removal Certificates	1,747 CORCs	
CORC Factor	1.69 CORCs per dry tonne of biochar	
Additionality:	Regulatory analysis and a simple cost analysis has been provided by the supplier as per the Puro Baseline and Additionality Questionnaire template/B03/	
GHG Monitoring (parameters / frequency)	• Biomass Processed • Biochar produced from gasifier • Capacity of gasifier 1, 2 and 3 (includes all the associated processes loading of biomass into gasifier and cleaning of syngas produced) • Dry mass of Biochar • Net Mass of Biochar Produced • Capacity of 1 water pump • Capacity of solar power plant • Number of water pumps active	
Output audit reporting period (type / start date)	09/02/2023 to 06/05/2024	
Project Start date	09/02/2023	
Party involved	Nuziveedu Seeds Ltd.	
CO_2 Removal Supplier	Varaha ClimateAg Pvt. Ltd. **Contact Persons**: Abhishek Sharma, Kaushal Bisht.	
Please refer to Appendix A of this report for details of each change between the initial audit package and the final audit package for submission. The Audit Team has carried out the Production Facility Audit and Output Audit process based on the initial audit package and raised CARs/CLs against the project by issuing the Production Facility Audit and Output Audit protocol. With the updated information and corrections done on final project design, the PP/client has addressed all the CARs /CLs that were raised by the Production Facility Audit and Output Audit Team.		

5. PROJECT DESCRIPTION

Varaha ClimateAg Pvt. Ltd. aims to recycle the corn cob waste produced by project partner Nuziveedu Seeds Ltd. by turning it into biochar/02/. This operation of Varaha ClimateAg Pvt. Ltd. i.e. “Industrial Biochar project developed alongside corn growing smallholders”, is settled in Kothur, Medak, Telangana. Varaha utilizes their gasifiers for the production of syngas and biochar. The gasifiers produce about 75% syngas and 25% biochar. The syngas is used in the drying of fresh corn cobs to make the seeds more viable for plantation. Currently, the project only uses corn waste as biomass to produce heat and biochar.

The main advantage of biochar lies in its ability to retain the carbon that the plant has extracted from the atmospheric pool. This contrasts with the other methods such as outright combustion, natural decomposition, and various waste management alternatives, which result in the emission of CO_2 and other GHGs into the atmosphere. This process will not result in the export of any syngas or bio-oil. All the syngas produced is used to power the seed drying chambers. The biochar produced has been provided to nearby farmers free of cost.

CCIPL Audit team considers the description of the project contained in the audit package to be complete and accurate. Adherence to the eligibility criteria is established in Production Facility Audit and Output Audit protocol table 1, Appendix A. The LCA results/02/ provide accurate, transparent data and conservative estimates. The monitoring plan also includes all necessary parameters to be monitored.

Starting date of project	Output Audit Reporting period
09/02/2023	09/02/2023 to 06/05/2024

The project design complies with the applied methodology/B02/, tools, forms and guidelines at the time of project design submission for registration.

6. BASELINE AND MONITORING METHODOLOGY

6.1 Applicability of the selected methodology to the project activity

Approved baseline and monitoring methodology “Biochar methodology (V3; edition 2022)/B02/” has been correctly quoted and applied for the proposed carbon removal project activity, the Production Facility Audit and Output Audit team compared it with actual text of the applicable version of the methodology. At the time of stakeholder consultation of the project design, methodology “Biochar methodology” (V3; edition 2022)/B02/ applied was the latest one.

The audit team determined the applicability of methodology Biochar methodology edition 2022 V3/B02/ as follows:

Applicability condition of the Biochar methodology edition 2022 V3/B02/	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
An eligible activity is an activity capable of producing as output biochar with long-term stability. CO_2 Removal results from organic biomass being heated with no or limited supply of oxygen, such as pyrolysis or gasification processes. The pyrolysis gases must undergo engineered emissions control to decrease methane to negligible levels.	☒ Yes ☐ No	Based on the assessment of the project activity details provided in the audit package, VVB confirms that the project involves the gasification of organic biomass in anaerobic conditions to produce biochar as output with long-term stability. The syngas produced in this process is then used to as fuel in the drying chambers to dry the corn seeds. Thus, this project activity meets the

Applicability condition of the Biochar methodology edition 2022 V3[/B02/]	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
		applicability condition for the methodology.
Biochar must be used in applications that preserve its carbon storage property (e.g. greenhouse substrates, surface water barrier, animal feed additive, wastewater treatment, insulation material, landfill/mine absorber, soil additive). Biochar must not be used in applications that destroy its carbon storage, e.g. fuel or reductant uses.	☒ Yes ☐ No	Based on the assessment of the biochar end use proof[/16/] and the observations made during the OSV, the VVB confirms that the biochar is not used as fuel and it's end-use involves application of biochar in soil where its carbon storage property is preserved. Thus, this project activity meets the applicability condition for the methodology.
Biochar must be produced from sustainable biomass: sustainably sourced biomass, or waste biomass such as agricultural waste, biodegradable waste, urban wood waste or food waste. A list of biomass types can be found in IPCC Appendix 4 - Method for Estimating the Change in Mineral Soil Organic Carbon Stocks from Biochar Amendments (Table 4 AP.1) and the positive list of biomass feedstock of the European Biochar Certificate. - In case of agricultural waste sustainable collection means that 30% of residues are left to the field to avoid decreasing soil health and crop levels. - Timber that has been damaged by a natural disaster (e.g. fire, pests, flood) and cannot be economically recovered or used as originally intended - Use of invasive species, meaning plants that are not native to the region of activity and are causing environmental harm, are eligible biomass for biochar activity when following requirements are met: the species to be cleared are recognized by an appropriate state or national authorities and ii) the carbonization of the cleared waste is not mandated or legally required by relevant authorities. iii) the CO2 removal Supplier has procedures in place to differentiate the invasive species from other local species, and to avoid unintended clearing of existing native vegetation within the project area.	☒ Yes ☐ No	Based on the assessment of the evidence provided by the supplier, VVB confirms that the corn shank feedstock used in the biochar production process falls under the N-06 category of the EBC positive list[/B04/]. A finding (CL05) was raised and satisfactorily closed regarding the sustainable collection of the feedstock. Thus, the VVB has determined that this project activity meets the applicability condition for the methodology.
The producer must demonstrate net-negativity with results from a life cycle	☒ Yes	The CO_2 Removal Supplier has provided an LCA sheet[/02/] which

Applicability condition of the Biochar methodology edition 2022 V3[/B02/]	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
assessment (LCA) or carbon footprint of the biomass production and supply, the biochar production process, and of the biochar use, including disaggregated information on the emissions arising at different stages and from different greenhouse gases. The LCA shall follow the general principles defined in ISO 14040/44 and the scope defined in this methodology (sections 3 and 4).	☐ No	provides a cradle-to-grave assessment of the life cycle as it considers all life cycle stages, from production to the end of life in relation to the alternate baseline scenarios. A finding (CL03) was raised regarding the LCA emissions involving maintenance of machinery during the output audit reporting period and the LCA has been updated by the supplier. Thus, the VVB has determined that this project activity meets the applicability condition for the methodology.
In the biochar production process, the use of fossil fuels (coal, oil, natural gas) for ignition, pre-heating, or heating of the pyrolysis reactor is permitted. However, the co-firing of fossil fuels and biomass in the same reaction chamber is not permitted, as fossil carbon may be mixed with the biochar product. The greenhouse gas emissions associated with use of these fuels must be included in the LCA (i.e. supply of fuel, combustion of fuel, fugitive emissions), as for any other energy and material input used during the production process.	☒ Yes ☐ No	During the OSV it was mentioned that a piece of biochar is dipped in fuel and introduced into the gasifier to start the combustion process but the emissions from that would be negligible to be accounted for in the LCA. VVB finds this omission justified and determines that this applicability condition for the methodology has been met.
In the biochar production process, the pyrolysis gases must be combusted or recovered through an engineered process that either negates or makes negligible any methane emissions to the atmosphere. Bio-oil and pyrolysis gases can be stored for later use as renewable energy or materials.	☒ Yes ☐ No	Based on the assessment of the audit package and the observations made during the OSV, the VVB confirms that the syngas produced during biochar production is used to heat the drying chambers to dry the corn cobs, thus the VVB has determined that the eligibility condition for the methodology has been met.
The biochar produced must have a molar $HCorg/$ ratio lower than 0.7. The $HCorg/$ ratio is an indicator of the degree of carbonization and therefore of the biochar stability. Values exceeding 0.7 are an indication of non-pyrolytic chars or pyrolysis deficiencies.	☒ Yes ☐ No	Based on the assessment of the Biochar Test reports for 2023 and 2024[/19/] provided by the supplier, the VVB confirms that the molar H/C_{org} ratio of the biochar produced is 0.22 which fulfills the eligibility requirement of the molar H/C_{org} ratio being lower than 0.7.
The biochar produced must meet any product quality requirements existing in the jurisdiction where biochar is used and for the specific applications considered. In other words, the biochar produced must be legal to use in the manner proposed. For instance, for use	☒ Yes ☐ No	Based on the assessment of the evidence provided by the supplier, VVB confirms that the corn shank feedstock used in the biochar production process falls under the N-06 category of the EBC positive list[/B04/].

Applicability condition of the Biochar methodology edition 2022 V3[/B02/]	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
in soil products, biochar may be subject to legal requirements in terms of heavy metal, polyaromatic hydrocarbon (PAH), and other organic contaminant contents. In jurisdictions where no requirements exist for the intended applications, the biochar produced must be benchmark against quality thresholds defined in voluntary quality standards for biochar, namely the International Biochar Initiative (IBI) Certification Program or the European Biochar Certificate (EBC) Guidelines. Other standards will need to be approved by Puro. Acceptability of any deviation from threshold values defined in these product quality standards must be motivated by the CO2 Removal Supplier, approved by the issuing body, and made publicly available (e.g. on website, product information sheets, and information to end-user).		The supplier has also provided Biochar Test reports for 2023 and 2024[/19/] that provide a detailed laboratory analysis determining contaminant contents (e.g. heavy metals, PAHs, organic contaminants) are satisfactorily below quantification limit. Based on the assessment of the provided evidence against the requirements the VVB has determined that the quality of the produced biochar is sufficient for the intended end-use in agricultural soil.
Measures must be taken for ensuring safe working environment, cleaner production principles (see section 5.3.6), and safe handling and transport of biochar, e.g. to prevent fire, dust and health hazards. Such safety measures include, but are not limited to, providing a Material Safety Data Sheet, post-production quenching and cooling of biochar, and appropriate flue gas treatment systems.	☒ Yes ☐ No	CAR 01 was raised regarding safe working conditions. The supplier has provided sufficient evidence in the form of comprehensive safety policies, evidence of safety training sessions and necessary SOPs for the operations at the Gasifier and Colling towers. Evidence of safe handling of biochar and safe environment[/13/] has also been provided. Based on the assessment provided evidence and satisfactory closure of CAR 01, VVB has determined that the eligibility condition for the methodology has been met.
The eligibility of the production facility is determined in the Production Facility Audit. • The Production Facility Auditor checks the Production Facility against the Requirements for activities to be eligible under the general rules of Puro Standard and the specific requirement in this methodology (section 1.1.), and the Proofs and evidence needed from the CO2 Removal Supplier (section 5) • The CO2 Removal Supplier shall be able to demonstrate Environmental and Social	☒ Yes ☐ No	Based on the assessment of the audit package and the observations made during the OSV against the requirements of the production facility audit (section 1.2 of the Biochar methodology edition 2022 V3[/B02/]), VVB has determined that: • Based on the review of the facility details provided and the observations made during the OSV, VVB has determined that the production facility meets the requirements of Puro General rules, V3.1[/B01/] • The provided evidence to demonstrate Environmental

Applicability condition of the Biochar methodology edition 2022 V3[/B02/]	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
Safeguards and that the Production Facility activities do no significant harm to the surrounding natural environment or local communities. • The CO2 Removal Supplier shall be able to demonstrate additionality, meaning that the project must convincingly demonstrate that the CO2 removals are a result of carbon finance. Even with substantial non-carbon finance support, projects can be additional if investment is required, risk is present, and/or human capital must be developed. To demonstrate additionality, CO2 Removal Supplier must provide full project financials and counterfactual analysis based on Baselines that shall be project-specific, conservative and periodically updated. Suppliers must also show that the project is not required by existing laws, regulations, or other binding obligations. • The Production Facility Auditor checks that the Production Facility is capable of metering and quantifying the biochar output in a reliable manner, for the Quantification of CO2 Removal • Collection of standing data of the Production Facility. The Production Facility Auditor collects and checks the standing data of the Production Facility and the CO2 Removal Supplier.		and Social Safeguards in the form of factory permits[/07/] and stakeholder engagement reports[/10/] has been reviewed and deemed sufficient by the VVB. • The supplier has demonstrated additionality by providing the Puro baseline and additionality questionnaire[/03/] and financial additionality spreadsheet[/04/] which have been thoroughly reviewed and deemed sufficient by the VVB. • All inputs and outputs are thoroughly logged and recorded. All relevant measurements are reliable and calibrations certificates for measurement devices have been provided along with MRV procedures. Where accurate values could not be recorded, very conservative values were taken. Based on the review of the details and supporting documents provided by the supplier, VVB confirms that this requirement has been met. • As per section 1.2.4 of the Biochar methodology (V3; edition 2022)[/B02/]: ○ The supplier has provided detailed MRV procedures which have been assessed in section 6.2.2 and section 7 of the report. ○ Calibration certificates of relevant machinery have been provided by the supplier. A detailed assessment of the devices and their calibration has been provided in section 6.2.2 of the report. ○ Based on the review of the LCA Report[/01/] and LCA Results[/02/], VVB has determined that all emissions from cradle to grave of the production process have been accounted for in the LCA calculations and all findings

Applicability condition of the Biochar methodology edition 2022 V3[/B02/]	Criteria fulfilled	Assessment by the Production Facility Audit and Output Audit team
		raised regarding the LCA have been satisfactorily resolved. ○ VVB has also determined that the quantification of the biochar production and the CO_2 removal is appropriate by reviewing the biochar measurement pits and MRV procedures used by the supplier during the OSV. • As per section 1.2.5 of the Biochar methodology (V3; edition 2022)[/B02/] : ○ Facility has been registered with a Facility ID. ○ Supplier has provided a Certificate of Incorporation[/05/] ○ Location of facility has been provided. ○ Record of Volume of Output during the full calendar year prior to registration has been provided. ○ Removal method is biochar production with permanent storage in agricultural soils ○ Factory permits[/07/] and stakeholder engagement reports[/10/] have been provided to demonstrate Environmental and Social Safeguards. A thorough assessment of the eligibility criteria in the audit checklist can be found in Table 1 Appendix A of this report.

The assessment of the project's compliance with the applicability criteria of the Biochar methodology (V3; edition 2022)[/B02/] as documented in the audit package, which are evaluated in detail under the Production Facility Audit and Output Audit protocol in Appendix A to this report. The Production Facility Audit and Output Audit team has verified that the documentation content is correctly quoted and interpreted in the audit package. Thus, the Production Facility Audit and Output Audit team confirms the applicability of the selected methodology to the proposed project activity.

6.1.1 Life Cycle Assessment LCA

A cradle-to-grave assessment of the corn cob waste biochar produced in Telangana was used for the comparative LCA, meaning that it considers all life cycle stages, from production to the end of life in relation to other alternate baseline scenarios. The primary assessment of the four main scenarios under consideration are defined within the boundary of initial processing of the

maize seeds to the destination of the biomass generated in those scenarios, thus making it a cradle to grave life cycle assessment.

6.1.1.1 Functional Unit

A functional unit is the reference value to which all impacts are normalized. The project's functional units are one kilogram of biochar produced/one kilogram of corn cob dried. Two separate functional units are chosen to amplify the representation of comparative study of the scenarios being considered. The use of “one kilogram of corn cob dried” as a functional unit allows the use of a single metric in all four scenarios as it is the most fundamental unit of relative measurement in the study.

Since this study is being conducted for biochar CORCs, the other functional unit is 1 dry metric tonne of biochar produced and used in a mineral matrix of soil. As a result, in scenario 4, the findings of the study have been represented using two separate functional units. Hence the functional units considered are one kilogram of biochar produced/one kilogram of corn cob dried.

6.1.1.2 Assumptions

Key Assumptions:

- The default baseline emission scenario for the project activity feedstock is zero, which is a conservative assumption since it is not considering methane emissions derived from decay of manure or combustion of waste biomass[/B02/].

Project Specific Assumptions:

- Regarding the energy consumed in the initial processing of corn cobs, i.e. the drying process, since the entire amount of energy generated in the form of heat through the gasification unit is reutilised in the drying process it is assumed that the net equivalent of that energy produced in the form of other fuels like CNG and LPG would be utilised based on the respective calorific values of those fuels.
- Biomass left after processing of the corn cobs: 10% implying that 1 kilogram of corn cobs generates 0.1 kilogram of biomass after processing.
- Percentage of carbon in the corn cob residue biomass: 50%.
- Emissions produced per kilogram of corn shank that underwent combustion: 1.9617 kg of CO_2, the number accounts for the net emissions in terms of CO_2 equivalent through the best available secondary literature.
- The conversion of biomass to Syngas is 75% by mass.
- The conversion of biomass to Biochar is 25% by mass.

There are no uncertainties associated with the Production Facility Audit and Output Audit of the project activity. Reasonable level of assurance has been considered for output audit and the reasonableness of the assumptions, limitations, and methods that support a claim about the outcome of future activities have been assessed as part of the production facility audit. The key assumptions are listed above and conservative values have been determined based on the assumptions. Based on the assessment, VVB determines that the calculations and assumptions do not lead to the overestimation of the CORCs.

6.1.2 System Boundary

The system boundary as well as the sources and gases identified in the LCA report are deemed to be appropriate by the VVB.

The system boundary defines the extent of the life cycle that is considered in the LCA. It outlines the stages, processes, and activities that are included in the assessment. An overview of the

system including possible alternative scenarios is shown in the figure below, and details are provided in the following sections for the project scenario.

The scope of the LCA is cradle-to-grave, meaning that it considers all life cycle stages, from production to the end of life. The upstream limit of the system was the acquisition of feedstock inputs, and the downstream limit was the end of life of biochar through its application in soil amendment in nearby farms.

A more detailed description of each process has been provided in the project scenario section below.

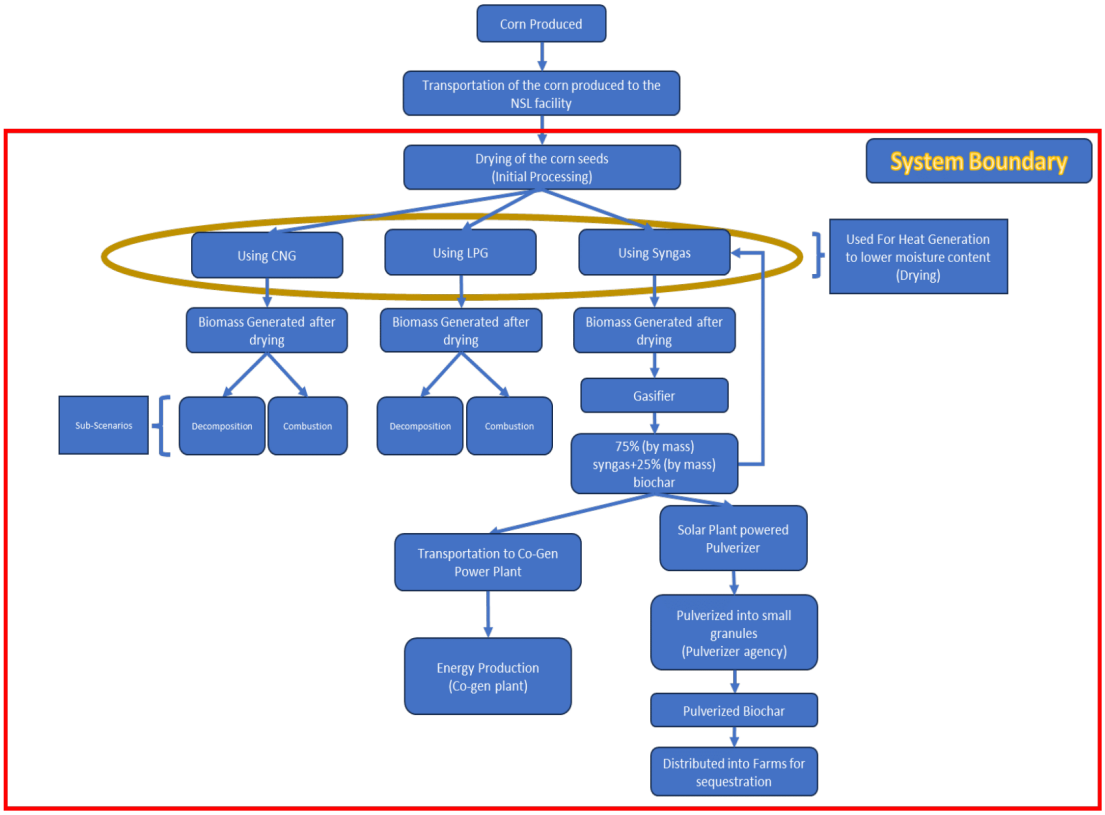


Figure 1: Detailed depiction of the system boundary

In summary, the project boundary was correctly identified in accordance with the methodology Biochar methodology edition 2022 V3[/B02/]. All greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed carbon removal project activity have been appropriately addressed. The audit team confirms that all main GHG emission sources, the physical delineation of the project activity and other relevant project and baseline emission sources covered in the methodology are included in the system boundary.

According to the assessment of the VVB, the identified system boundary and selected sources of emissions are justified for the project activity.

6.1.3 Baseline Scenario Identification

As per section 3.3 of the applied Biochar methodology (v3; edition 2022)[/B02/], the audit team confirms that the default baseline emission scenario for the project activity feedstock is zero, which is a conservative assumption since it is not taking into account methane emissions derived from decay of manure or combustion of waste biomass. However, three alternative

baseline scenarios for the project activity have been demonstrated by the supplier as per the instructions in the Puro additionality template.

- **Scenario I:** Here the maize crop is dried in the dryer facility of the NSL factory using LPG as fuel to generate heat to lower the moisture content from 35-40% to 10-10.5%. In this scenario, the produced maize crop is transported via trucks from the farm to the NSL factory for initial processing. The defined system boundary for this scenario excludes the processes involved, their emissions, and the energy consumption associated with the crop production and the transportation of the crop yield to the NSL factory for processing. The defined system boundary exclusively included the processes involved in the drying of the maize crop, and the treatment and disposal of the residual biomass. In this scenario, the drying process in the NSL dryer facility uses **LPG** to yield dried maize seeds, and corn shanks as the residual biomass. The residual biomass is thereafter left to decompose or is combusted, comprising the two sub-scenarios of Scenario-1.

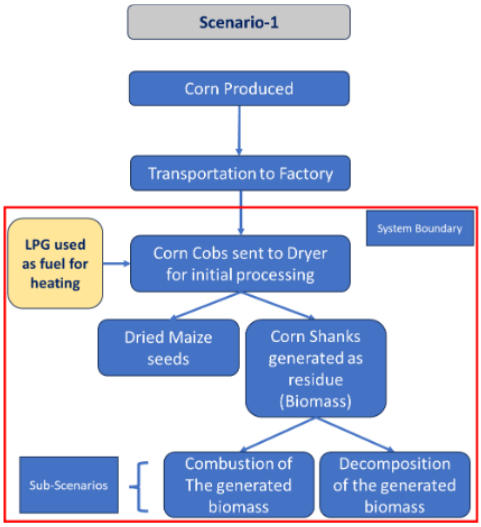


Figure 2: System boundary for Scenario I

- **Scenario II:** The main difference in scenario II is that **CNG** is the fuel used in the drying process instead of LPG. The rest of the system boundary remains the same.

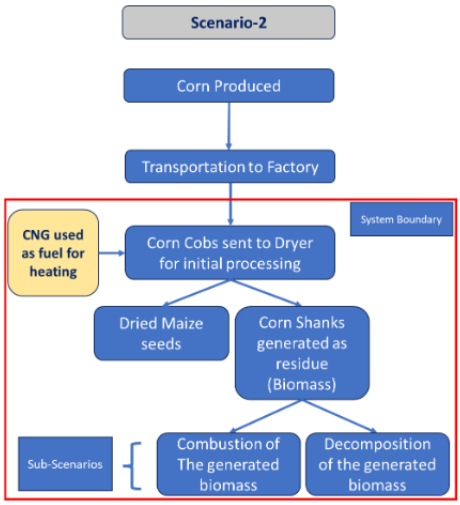


Figure 3: System boundary for Scenario II

- **Scenario III:** This is the historical biochar scenario for the LCA. Here the maize crop is dried in the dryer facility of the NSL factory using the indigenously synthesised Syngas as fuel to generate heat to lower the moisture content from 34-40% to 10-10.5%. In this scenario, the produced maize crop is transported via trucks from the farm to the NSL factory for initial processing. The defined system boundary for this scenario excludes the processes involved, their emissions, and the energy consumption associated with the crop production and the transportation of the crop yield to the NSL factory for processing. The defined system boundary exclusively included the processes involved in the drying of the maize crop, and the treatment and disposal of the residual biomass. In this scenario, the drying process in the NSL dryer facility uses synthesis gas to yield dried maize seeds generated by the NSL gasifier unit which utilises the waste residue. The gasifier thereafter yields 75% Syngas by mass, and 25% biochar by mass. In this scenario, the syngas is reutilized in the dryer apparatus of the NSL factory, and the biochar is transported to a nearby Co-Gen Power plant where the biochar is burnt to generate electricity.

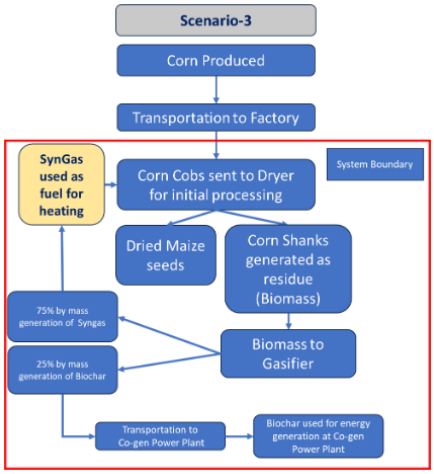
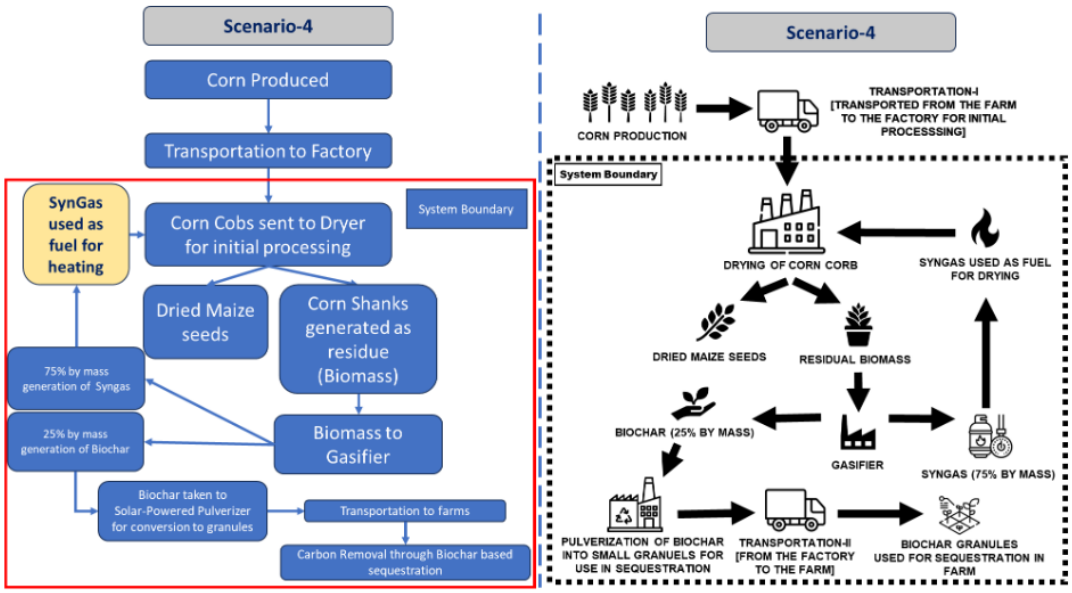


Figure 4: System boundary for Scenario III

All the assumptions and data used by the supplier are listed in the documents provided in the audit package. The demonstration of the alternate baseline scenarios has been justified appropriately, supported by evidence and can be deemed reasonable.

6.1.4 Project Scenario

The project scenario is specified as "Scenario IV" in the LCA report and other supporting documents. In this scenario, Synthesis Gas (SynGas) is used as a fuel source to dry corn cobs through a drying chamber. The residual biomass is then converted into both SynGas and Biochar in the gasifier. The SynGas is then reintroduced into the drying process. The Biochar, on the other hand, is sequestered in the soil.



The project involves 3 life cycle stages:

- Biomass feedstock production and supply
- Biochar production/gasification
- Biochar soil amendment

6.1.4.1 Biomass feedstock production and supply

The corn shanks from corn cobs received from nearby farmers is the feedstock for biochar production. The facility receives 20,000 tonnes of corn cobs from farmers every season.

These feedstock inputs are agricultural waste materials that would have decayed or combusted, eventually releasing carbon in the atmosphere. Since they are waste products, they enter the project system boundary with no environmental impacts.

Section 5.2.1 of the Biochar methodology (V3; edition 2022)[B02] also states that *"in the case of non-forest waste biomass raw material needs to be sourced sustainably; however, certificates are not needed, as it is waste material."*

The transport distance of feedstock from farms to facility averages 50km. Emissions from truck transport of feedstock inputs to the gasification facility, including all values used along with their sources, are included in the LCA.

6.1.4.2 Biochar production/gasification

This stage consists of the energy consumed by the gasifiers and all emissions released during the gasification process. These include emissions released during:

- Biomass processing
- Cleaning of Produced syn gas
- Transportation of Produced Biochar
- Digging of Pits by JCB for storing biochar
- Disposal of sludge / Slurry

- Transportation of Waste
- Set up of Solar PV

6.1.4.3 Biochar soil amendment

This stage calculates the carbon sequestered over 100 years from adding biochar to soil. The H/C_{org} ratio of the produced biochar is 0.22 so it is assumed that the biochar will not decay or decompose, so no fraction of the stored carbon will be released. Therefore, the permanence of carbon removal from biochar is established for the project activity.

6.1.5 Algorithms and/or formulae used to determine carbon removal

The amount of CORCs supplied is equal to the amount of carbon dioxide sequestered by the biochar minus life-cycle emissions from the pyrolysis process, the biomass provision, and the biochar use. This formula used is in compliance with the formula provided in section 4.1 of the Biochar methodology(V3; edition 2022)[/B02/].

$$\underbrace{CORCs}_{} = \underbrace{E_{stored}}_{} - \underbrace{E_{biomass}}_{} - \underbrace{E_{production}}_{} - \underbrace{E_{use}}_{}$$

Description	Amount of net CO_2-eq removed over 100-year period by the biochar production activity	Amount of CO_2 sequestered over a 100-year time horizon by the amount of biochar produced over the reporting period.	Life cycle greenhouse gas emissions arising from the production and supply of biomass to the production facility, including direct land use changes.	Life cycle greenhouse gas emissions arising from the transformation of the biomass into biochar, at the producing facility.	Life cycle greenhouse gas emissions arising from the use of the biochar, including its distribution up to the point of final use.
Unit	tonnes CO_2-eq	tonnes CO_2-eq	tonnes CO_2-eq	tonnes CO_2-eq	tonnes CO_2-eq

The Production Facility Audit and Output Audit team confirms that the steps taken, and the equations and parameters applied in the LCA to calculate project emissions, baseline emissions and leakage and carbon removal comply with the requirements of the selected methodology including applicable tools.

The Production Facility Audit and Output Audit team confirm that all assumptions and data used by the Project Developer are listed in the LCA report (including their references and sources). All documentation used as a basis for assumptions and sources of data are confirmed as correctly quoted and interpreted in the project design. The values stated in the project design are considered reasonable and the baseline methodology and applicable tools have been correctly applied to calculate the CORCs from the project activity.

6.1.6 Carbon Removals

In summary, the calculation of CORCs was correctly demonstrated by the supplier according to the Biochar methodology (V3; edition 2022)[/B02/]. The table below summaries Production Facility Audit and Output Audit team's determination of CORCs:

All assumptions made for estimating GHG are listed in the LCA Report	☒ Yes ☐ No	VVB has determined that all assumptions made for estimating GHG removals are listed in the LCA sheet and LCA report along with their references and sources. Data, formulas and parameters used are complete, accurate, transparent and conservative. The Biochar methodology edition 2022 V3[/B02/] has been applied correctly to
All data used by the supplier is listed in the LCA Report	☒ Yes ☐ No	
Their references and sources are also listed in the LCA Report	☒ Yes ☐ No	
Formulas, parameters, values are complete, accurate, transparent and conservative	☒ Yes ☐ No	

All the references and documents used are correctly quoted and conservatively interpreted in the LCA Report	☒ Yes ☐ No	calculate project emissions, leakage emissions and carbon removals. Alternate baseline scenarios have been demonstrated by the supplier, but the baseline emissions have not been considered as per section 3.3 of the Biochar methodology edition 2022 V3[/B02/]. A cradle to grave Life cycle assessment approach has been applied by the supplier.
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and carbon removals	☒ Yes ☐ No	

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of carbon removals conservatively calculated to be 1,747 tCO_2e for the selected reporting period.

All findings raised regarding the LCA calculations have been satisfactorily addressed by the supplier.

All other assumptions and data used by the Project Developers are listed in the LCA report and/or supporting documents, including their references and sources. All documentation used by the supplier as the basis for assumptions and source of data is correctly quoted and interpreted in the audit documents. All values used in the LCA sheet and LCA report are considered reasonable and conservative in the context of the proposed project activity. The methodology has been applied correctly to calculate project emissions, leakage and carbon removals. All estimates of the project and leakage emissions can be replicated using the data and parameter values provided in the supporting documents.

6.1.7 Additionality

The project activity refers to section 2.1.3 of the Puro Standard General rules (V3.1)[/B01/], Baseline and Additionality Questionnaire template[/B03/] to demonstrate additionality.

The Puro Baseline and Additionality Questionnaire Template[/B03/] has been filled out and provided to the VVB by the Project Developer. It contains:

- Alternate baseline scenarios that reasonably represent the natural and anthropogenic carbon emissions in the absence of the project activity.
- Regulatory additionality analysis, proving that the project's mitigation activities go beyond what is required by regulations, and
- Simple cost analysis to demonstrate financial additionality proving that revenue from carbon finance is necessary to make the project investment financially viable and that carbon finance is crucial to ensuring the project can overcome financial hurdles and become a feasible option.

The supplier has also provided evidence in the form of a financial additionality spreadsheet[/04/] to support the claims made in the Puro additionality document[/03/].

All issues and clarifications related to additionality have been resolved and regulatory additionality and financial additionality has been established.

The Production Facility Audit and Output Audit team confirms the project activity is additional as claimed in and the Puro additionality template document[/03/].

6.1.7.1 Regulatory additionality Analysis:

The project activity is not required by the laws, regulations or other binding obligations. In fact, most of the corn seed processing facilities in the region have transitioned to CNG based drying

facilities due to the incentives and subsidies provided by the government for the CNG based solutions. Operating a gasifier-based facility requires additional income in the form of carbon finance to keep the operation afloat.

VVB has reviewed the following documents for the assessment of regulatory surplus analysis:

1. Puro additionality template document[/03/].
2. Description of the regulatory environment concerning the project's mitigation activity.
3. Description of current and confirmed upcoming regulations or incentives that promote the project's solution.

Based on an overall review, the project has met the requirements of the regulatory additionality in accordance with the §2.1.3 of the Puro General rules, V3.1[/B01/] and §1.2.3 of the Biochar methodology edition 2022 V3[/B02/].

6.1.7.2 Financial additionality Analysis

A simple cost analysis along with evidence in the form of invoices and receipts has been provided to demonstrate financial additionality proving that revenue from carbon finance is necessary to make the project investment financially viable and that carbon finance is crucial to ensuring the project can overcome financial hurdles and become a feasible option.
The Puro baseline and Additionality questionnaire states *"Some projects may demonstrate additionality through simple cost analysis: this is applicable for projects that have no other source of income besides carbon finance or where ex-ante investment analysis is not applicable"*

Since the facility is already operational and the supplier is not looking for outside investment, the VVB finds the supplier's choice of providing a simple cost analysis acceptable.

Evidence in the form of invoices and receipts has been provided in the financial additionality spreadsheet[/04/]. The VVB has reviewed the provided evidence and confirms that the values provided in the simple cost analysis correspond with the ones provided in the invoices/receipts provided. Based on the review of the above evidence, VVB has determined that the supplier's simple cost analysis and the supporting evidence provided is appropriate.

VVB has reviewed the following documents for the assessment of the simple cost analysis:

1. Puro additionality template document[/03/].
2. Financial additionality spreadsheet[/04/].
3. Description of the financial requirements concerning the project activity.
4. Description of current and confirmed upcoming incentives that promote the project's solution.

Based on an overall review, the project has met the requirements of the financial additionality in accordance with §2.1.3 of the Puro General rules, V3.1[/B01/] and §1.2.3 of the Biochar methodology edition 2022 V3[/B02/].

6.1.7.3 Barrier analysis

The supplier has opted to perform a simple cost analysis to demonstrate financial additionality thus a barrier analysis is not required to be conducted.

6.1.7.4 Conclusion of assessment of Additionality

The evidence was transparently reviewed by the Production Facility Audit and Output Audit team and considered to be appropriate. Regulatory analysis and simple cost analysis clearly demonstrate that the proposed project activity is financially unattractive. Therefore, the proposed project activity is not business-as-usual, i.e. the proposed project activity is additional.

6.1.8 Permanence

Section 1 of the Biochar methodology (V3; edition 2022)/B02/ states that "*Biochar stability can be estimated from biochar properties, specifically the molar hydrogen to organic carbon ratio* (H/C_{org})*. Material with an* (H/C_{org}) *ratio lower than 0.2 is characterized as being hardly degradable in the environment."*

Section 1.1.6. also sets the eligibility requirement as "*The biochar produced must have a molar* H/C_{org} *ratio lower than 0.7."*

The molar H/C_{org} ratio of the biochar derived from the laboratory analyses reports for 2023 and 2024/19/ are 0.21 and 0.22. These values are much closer to the 0.2 value which characterizes the biochar produced as hardly degradable in the environment thus demonstrating permanence as per the Biochar methodology (V3; edition 2022)/B02/. The biochar is also pulverized and mixed with cow dung which makes it unable to be used as fuel.

VVB has assessed the lab reports for the years 2023 and 2024/19/ and supporting documents provided the supplier and finds the evidence and justification for a permanence of 100 years satisfactory.

6.1.9 No double counting

Section 5 of the Biochar methodology (V3; edition 2022)/B02/ contains guidelines for the prevention of double counting.

Section 5.5.1 of the Biochar methodology (V3; edition 2022)/B02/ states that *"Double counting is avoided by the use of the Puro Registry, with a system of unique identification of each CORC that guarantees it is only used once. Each CORC in the registry contains information on Production Facility registration and crediting period dates, verification, issuance and cancellation transactions as well as the title and ownership over time."*

Section 5.5.2 of the Biochar methodology (V3; edition 2022)/B02/ does not apply to the project activity as project activity does not include any sale of the biochar as the biochar is provided to local farmers, completely free of cost. This has been declared by the supplier in the *NSL Sales and Branding Claims*/21/ document.

The supplier has also provided a statement of understanding of physical product decoupling/23/ which meets the conditions regarding packaging and marketing of the biochar, set in section 5.5.3 of the Biochar methodology (V3; edition 2022)/B02/.

The supplier has no previous issuance of carbon credits to disclose for the same removal activity under a different time period and a different crediting program.

VVB has determined that the criteria for prevention of double counting have been satisfactorily met as per the Biochar methodology (V3; edition 2022)/B02/.

6.1.10 Leakage

The leakage risk from upstream and downstream emissions is estimated to be low because these emissions are included in the life-cycle-based GHG removal quantification/03/.

There is a risk of activity shifting leakage when biomass is used for feedstock inputs. This risk is estimated to be negligible for this project because the biomass used is a waste product and had no use before the project activity.

VVB has determined this to be true by thorough assessment of the LCA results/3/ and supporting documents provided in the audit package.

6.2 Monitoring

A detailed description of monitoring practices has been provided in the MRV procedures folder of the audit package including certificates of calibration of all devices used for measurement/18/ The project plans on monitoring the Biochar output in a batch-wise approach and the VVB finds this approach in compliance with the Puro Biochar methodology edition 2022 V3/B02/. It is the VVB's opinion that the supplier has adequately implemented the monitoring plan.

6.2.1 Parameters determined ex-ante

The ex-ante parameters listed below have been provided in the "database" sheet of the NSL LCA results/03/

Sl. No.	GHG monitoring Parameters	Description
1	Biochar Activation	Emission from diesel during transportation of biochar to pit **Source**: Ecovinvent Database Version 1.1
2	CO_2 stored	Carbon dioxide sequestered from biochar stored in pits. **Source**: CO_2 sequestered per ton
3	Biochar Application	Emission from diesel during transportation of biochar from pit to farm. **Source**: Ecovinvent Database Version 1.1
4	Biochar Production	Emission during production of electricity used in gasifiers. **Source**: CO2 Baseline Database for the Indian Power Sector- By Indian Government Version 19
5	Pits Dug	Emission from diesel consumption in digging the pit **Source**: Ecovinvent Database Version 1.1
6	Solar PV Setup	Emission during establishment of ground mounted Solar PV **Source**: Life Cycle Assessment of Solar Photovoltaic in India: https://doi.org/10.1007/s43615-021-00101-5
7	Waste Disposed	Emissions during waste disposal **Source**: Ecovinvent Database Version 1.1
8	Water Pumped to Cooling towers	Emissions during pumping of water **Source**: CO2 Baseline Database for the Indian Power Sector- By Indian Government Version 19
9	Biochar Pulverizer	Emissions in producing steel used in making the Pulverlizer **Source**: Ministry of Steel

9	Facility Maintenance	Emissions in producing steel used in the maintenance of facility **Source**: Ministry of Steel
10	Heat Generated for Drying	Emission from Unburnt Residue of Syn Gas from Gasifiers **Source**: Test Report

Based on a thorough review of the sources provided by the supplier in the NSL LCA results[/03/] and the assumptions and justifications provided in the LCA Report[/01/], the audit team confirms that all relevant parameters have been sufficiently considered and the values of the parameters are real, measurable and conservative.

6.2.2 Parameters monitored ex-post

List of Key project parameters to audit:

Indicator	Sources	Value	Frequency
Biomass Processed	Factory Records	5843 Tonne	Batch-wise
Biochar produced from gasifier	Factory Records	1676 Tonne (wet Mass)	Batch-wise
capacity of gasifier 1, 2 and 3 (includes all the associated processes loading of biomass into gasifier and cleaning of syn gas produced)	Factory Records	Gasifier 1: 82.9 kw Gasifier 2: 83.65 kw Gasifier 3: 79.2 kw	Batch-wise
Dry mass of Biochar	Measured in Factory LAB	62%	Batch-wise
Net Mass of Biochar Produced	Calculated on the basis of moisture content	Total 1036.00 Tons (534 Tons in 2023 and 502 Tons in 2024)	Batch-wise
Capacity of 1 water pump	Factory Records	5.59 kw	Batch-wise
Capacity of solar power plant	Factory Records	1790 kw	Batch-wise
Number of water pumps active	Factory Records	4 Unit	Batch-wise

Details of the MRV Procedures have been provided in the audit package. A brief summary of the MRV procedure is as follows:

1. The truck is weighed when it enters the plant with the corn cob.
2. After separation of the corn seeds the corn shank is dumped in a storage pit where it a volumetric measurement is done by technician and recorded in a log sheet.
3. Weight of shanks used in the gasification process is determined by logging the hours for which gasifier runs and the capacity per hour of the gasifier.
4. Weight of Biochar produced is determined by recording the number of times the biochar storage container is emptied and the capacity of the container.
5. After drying, the biochar is stored in pits and the amount of dry biochar is determined by the formula (Amount of dry Biochar in 1 Pit = Volume of Pit * Density of Biochar)
6. Random samples are taken and sent for laboratory analysis. Lab reports have been provided for year 2023 and 2024/19/

Details from the calibration certificates of the equipment used during MRV procedure are provided below.

Details of Thermocouple:

Manufacturer	Heatech Controls
Model	K-type Thermocouple
Serial Number	HC-K-101
Accuracy	+/-0.75%.ANSI-STD
Date of initial calibration	16/03/2023
Date of latest calibration	30/01/2024
Calibration frequency	Annually

Details of Non-Automatic Digital Weighing Instrument:

Manufacturer	Essae Digitronics
Model	IND/09/09/454
Serial Number	050052423
Accuracy	Class III
Date of initial calibration	16/05/2023
Date of latest calibration	15/05/2024
Calibration frequency	Annually

Details of blower fans:

Manufacturer	EVG Engicon Pvt Ltd.
Model	ECLLD-4-185
Serial Number	M/C No01 and M/C No02
Accuracy	Class III
Date of latest calibration	25/01/2024
Calibration frequency	Annually

The calibration certificates of all measuring devices/18/ used during MRV procedures have been satisfactorily provided by the supplier.

In summary, the audit team is convinced of compliance of the monitoring plan with the requirements of the Biochar methodology edition 2022 V3/B02/.

6.2.3 Sampling Protocol

No sampling protocol was applied as part of the production facility audit and output audit activities.

7. MANAGEMENT SYSTEM AND QUALITY ASSURANCE

The MRV (Monitoring, Reporting, and Verification) procedures have been designed and implemented by Varaha at the NSL facility. At the facility, the responsibility of gathering data and providing it in the prescribed format lies with the NSL team.

Once the Varaha team receives this data from NSL at a predetermined frequency, they run various checks to ensure that all the data provided by the NSL team is accurate and meets the requirements.

Under the MRV, the following details are gathered:

1. Amount of biomass processed by each gasifier on a daily basis
2. Amount of hours for which each gasifier is run
3. Amount of biochar produced by each gasifier on a daily basis
4. Amount of electricity consumed by each gasifier
5. Amount of biochar pulverized
6. Amount of biochar put in pits
7. Amount of biochar given to each farmer

In addition to this, samples of biochar are taken regularly and tested for more than 20 parameters. Testing of residual flue gas is also conducted to ensure that process-related emissions are negligible.

Furthermore, the details required for the LCA (Life Cycle Assessment) and other project-related analyses are shared by the NSL team and validated at regular intervals to ensure their accuracy.

Based on the details of the organizational structure/ roles and responsibilities shared by the supplier, The MRV details/18/ in the audit package and the interviews/observations made by the VVB during the OSV, the VVB has determined that all parameters of importance for controlling and reporting of project performance are satisfactorily incorporated into the MRV procedures and the QC/QA and management systems in place are robust. The raw data provided also corresponds with the values provided in the LCA.

8. ENVIRONMENTAL IMPACTS

The audit team confirms that the details of the environmental impact of the project activity have been provided by the supplier in the audit package. To confirm the impact associated with the project activity, the NSL emissions report with measurement proofs/08/ and NSL machine details/14/ have been thoroughly reviewed. The audit team has also physically inspected the facility during the on-site visit and through interviews with the relevant stakeholders.

The supplier has provided a thorough testing methodology included in the NSL machine details/14/ that describes the emissions being tested at 3 stages: before cleaning of syngas, after cleaning of syngas and after combustion in the burner. The test results of the emissions at all 3 stages for all 3 gasifiers provided along with the NSL machine details/14/ have been thoroughly reviewed by the audit team.
The supplier has also provided laboratory chemical analyses proving that their biochar is below the pollutant thresholds. This has been assessed by the VVB by reviewing the biochar test reports for 2023 and 2024/19/.

Based on the assessment of the documents provided and supporting evidence mentioned above, the audit team has determined that the project activity does not cause adverse environmental impacts.

9. STAKEHOLDER CONSULTATION

The Stakeholder consultation was conducted from 11/08/2023 - 11/09/2023. This period meets the requirement set in section 2.2.2 of the Puro stakeholder engagement requirement/B03/ for the stakeholder consultation being conducted for a minimum length of 14 days.
The date of invitation is 05/08/2023 and the method of invitation stated in the NSL Stakeholder

Engagement Report[10] is a verbal invitation during an in-person meeting.
The supplier has also provided a clarification regarding stakeholder consultation[11] from puro that allows them to forego the requirement to conduct a new stakeholder consultation. The supplier has justified this by claiming that the biochar production facility has been operational for years before the project start date. Previously the biochar produced was used to generate electricity which has now been replaced by a solar power plant. Thus the supplier claims that the stakeholder consultation report is not applicable as the production process has remained the same while the end-use of the biochar has been changed to soil amendment in agricultural fields, which would be sustained by carbon finance.

Based on the review of the supplier's justification and the clarification provided by puro, the VVB finds the omission of a new stakeholder consultation satisfactory.

The stakeholder consultation was attended by:

Name	Organization
Kaushal Bisht	**Varaha AG**
Shaurya Sharma	**Varaha AG**
Madhur Jain	**Varaha AG**
G.Devendra	**Nuziveedu seeds**
Padmayyer	**Nuziveedu seeds**
Sandeep Arun	**Nuziveedu seeds**
Tarak	**NSL group**

Source: NSL Stakeholder Engagement Report[10]

Local stakeholders were invited for an in-person meeting to a "Rythu Vedika", a venue for farmers of Telangana to hold meetings and discussions regarding agriculture and related activities. During this meeting the local farmers were educated on biochar and its numerous benefits in combating soil degradation and their comments and concerns were also encouraged and addressed appropriately. VVB has determined that the venue chosen for the local stakeholder engagement was appropriate for the stakeholders who will benefit most by the project activity i.e. local independent farmers.

The following is the list of farmers that were in attendance of the local stakeholder meeting.

S.No	Farmer Name	Village	Mandal
1	Sudhakar Reddy	Erravalli	Markook
2	Raji Reddy	Erravalli	Markook
3	Venkataiah	Erravalli	Markook
4	E.kankaiah	Erravalli	Markook
5	kista reddy	Erravalli	Markook
6	Narsimha Reddy	Erravalli	Markook
7	Komuraiah	Erravalli	Markook
8	Srishailam	Erravalli	Markook
9	Ch.Venkatesh	Erravalli	Markook
10	G.kankaiah	Erravalli	Markook
11	Parshram	Erravalli	Markook
12	Mallesham	Erravalli	Markook
13	balnarsaiah	Erravalli	Markook

14	Sathaiah	Erravalli	Markook
15	Jangulu	Erravalli	Markook
16	kankaiah	Erravalli	Markook
17	N.Ramreddy	Erravalli	Markook
18	G.Venkatreddy	Erravalli	Markook
19	Vamshi	Erravalli	Markook
20	Indrasena Reddy	Erravalli	Markook
21	Bikshapathi	Erravalli	Markook

The supplier has provided clippings of articles from regional newspapers as evidence of conduction of a local stakeholder meeting. As per the articles this meeting was attended by local independent farmers, K Siva Prasad (District Agricultural officer), T. Nagender Reddy (Mandal Agricultural officer), Vishnu (Marketing executive officer of Nuziveedu seeds) along with others.

'Biochar' to go all out for sustainable agriculture

Officials of the Nuziveedu Seeds Private Limited handing over 'biochar' to farmers at Erravelli, in Siddipet district, on Thursday.

P. Laxma Reddy
SIDDIPET

In response to the pressing need for sustainable agricultural practices, a significant initiative has been launched in Erravalli village of Markook mandal in the district.

Recognising the challenges faced by farmers, particularly regarding soil health and crop productiv- mains on addressing the critical need for soil rejuvenation and enhancement of crop yields. At an event, attended by K. Shiva Prasad, District Agricultural Officer (DAO), the importance of such initiatives in mitigating agricultural challenges and fostering long-term sustainability were underscored.

Promising solution

nutrient capacity, crucial factors for sustainable farming practices.

T. Nagender Reddy, Mandal Agricultural Officer, stressed the urgency of adopting innovative solutions like Biochar to combat soil degradation and promote environmental conservation.

The active participation of farmers from Erravalli village reflects the growing

'బయోచార్' వాడకంతో నేలకు ఆరోగ్యం

రైతులకు అవగాహన కల్పిస్తున్న అధికారులు

ములుగు, న్యూస్‌టుడే: వ్యవసాయంలో సేంద్రియ ఎరువులతో పాటు బయోచార్ ఎంతో కీలకమైందని, రైతులందరూ వీటిని సద్వినియోగం చేసుకోవాలని జిల్లా వ్యవసాయ శాఖ అధికారి శివప్రసాద్ అన్నారు. ములుగు మండలం కొత్తూరులో ఉన్న నూజివీడు విత్తన సంస్థ నిర్వాహకులు మర్కూక్ మండలంలో రైతులకు 200 మెట్రిక్ టన్నుల బయోచార్ సేంద్రియ ఎరువును గురువారం ఉచితంగా అందజేశారు. ఈ సందర్భంగా శివప్రసాద్ మాట్లాడుతూ.. బయోచార్ అనేది తక్కువ ఆక్సిజన్ వాతావరణంలో 250 డిగ్రీ సెం.గ్రే. కంటే ఎక్కువ ఉష్ణోగ్రతలో పంట అవశేషాలను వేడి చేయడం ద్వారా తయారైన బొగ్గు రూపమన్నారు. బయోచార్ ఎరువు నేల ఆరోగ్యాన్ని మెరుగుపరుస్తుందని, నేలలో కర్బన శాతాన్ని పెంచుతుందని తెలిపారు. మండల వ్యవసాయాధికారి నాగేందర్ రెడ్డి, నూజివీడు సీడ్స్ ఏజీఎం నరసింహారెడ్డి, ప్రవీణ్ రెడ్డి, శ్రీకాంత్ రెడ్డి, వ్యవసాయ విస్తరణాధికారులు రజనీకాంత్, విష్ణువర్ధన్, రైతులు పాల్గొన్నారు.

Telangana Today

200 tonne of biochar distributed to Erravelli farmers

STATE BUREAU
Siddipet

The Agriculture Department and Nuziveedu Seeds distributed 200 tonne of biochar to the farmers of Erravelli village in Markook mandal on Thursday to encourage the use of biochar.

Nuziveedu's biochar, a carbon-rich soil amendment derived from maize shanks and cow dung, promises to rejuvenate poor soil and boost crop yield.

Its unique production process imbues the biochar with exceptional properties, including enhanced moisture retention, improved soil aeration and nutrient capacity.

The distribution of biochar aligns with Nuziveedu Seeds' vision of promoting ecofriendly farming practices while enhancing productivity and farmers' livelihood. This initiative is expected to pave the way for wider adoption of biochar and inspire other agri-businesses to prioritize sustainable solutions for the benefit of farmers and the environment.

District Agriculture Officer K Shiva Prasad, Agriculture Officer (Markook) T Nagendar Reddy, marketing executive officer of Nuziveedu Seeds Vishnu and others were present.

The Agriculture Department and Nuziveedu Seeds distributed the biochar to farmers.

29/03/2024 | Hyderabad | Page : 05
Source : https://epaper.telanganatoday.com/

This was also confirmed during the stakeholder interview conducted by the VVB.

The VVB has determined that all appropriate stakeholders were identified and included in the stakeholder consultation and all comments and concerns were satisfactorily addressed during the meeting.
The VVB considers the stakeholder consultation was carried out adequately as per the criteria set in Section 2 of the Puro stakeholder engagement requirements[/B03/].

APPENDIX A

Carbon Check
Production Facility Audit and Output Audit Protocol

Industrial Biochar project developed alongside corn growing smallholders in India

Report No. CCIPL2402/VAL/FOAPG/20240803

Production Facility Audit and Output Audit Protocol Table 1: Audit checklist			
Description and requirement	***Requirement Met***	***Reference***	***VVB Assessment***
The raw material is of eligible type and sustainably sourced	☒Yes ☐No	*Biomass acquisition logs along with proof of acquisition*[/11/]	Biomass used for biochar production is corn shanks which qualify as agricultural waste. Based on the review of the evidence provided and observations made during the OSV, the VVB confirms that the biomass used is eligible as per Biochar methodology edition 2022 V3[/B02/]. A finding (CL05) was raised regarding the eligibility of the biomass that has been satisfactorily justified by the supplier.
The LCA specifics and emissions boundary are consistent with observations on site	☒Yes ☐No	*OSV* *LCA Report*[/01/] *LCA results*[/02/]	LCA Report[/01/] and LCA Results[/02/] were thoroughly reviewed before the OSV and it is the VVB's opinion that the system boundary is consistent with the observations made on site. Any possible irregularities or omissions were raised as findings which have been satisfactorily closed in Table 2 of Appendix A.
There are no fossil-fuels used to heat the pyrolysis reactor	☒Yes ☐No	*OSV*	During the OSV it was mentioned that a piece of biochar is dipped in fuel and introduced into the gasifier to start the combustion process but the emissions from that would be negligible to be accounted for in the LCA. VVB finds this omission justified.
Pyrolysis gases are recovered or combusted in the biochar production process.	☒Yes ☐No	*OSV* *LCA Report*[/01/]	The syngas produced during biochar production is used to heat the drying chambers to dry the corn cobs and the same has been observed during the OSV by the VVB, thus the VVB has determined that the requirement has been met.
Evidence of safe handling and transport of the biochar	☒Yes ☐No	*Evidence of Safe Handling of Biochar and safe environment*[/13/]	Based on the review of the evidence provided in the audit package such as safety training of personnel, Gasifier SOP and other supporting documents, and the observations made during the OSV, VVB has determined that sufficient evidence has been provided for safe handling and transport of biochar.

Biochar is used in applications other than energy	☒Yes ☐No	*Biochar End use images*[16] *Biochar distribution farmer list*[17]	Evidence of end use has been provided by the supplier in the form of images and the list of farmers to whom the biochar was provided. The use of biochar in fields was also observed by the VVB during the OSV and during the stakeholder interview conducted by the audit team. It is the VVB's opinion that this requirement has been met.
The molar H/C_{org} ratio is less than 0.7	☒Yes ☐No	*Biochar Test reports 2023 and 2024*[19]	The Lab test results show the molar H/C_{org} ratio of the biochar produced is 0.22 thus this requirement has been met.
Confirm how the Production Facility documents the quantity of biochar produced and sold	☒Yes ☐No	*LCA Log sheet*[02]	Biochar produced is filled into pits. Measurements and proof have been provided by the supplier. The project activity does not involve sale of biochar. It is given free of cost to local farmers.
Confirm that the Production Facility's documentation system is accurate and reliable	☒Yes ☐No	*MRV Procedures* *Calibration certificates*[18]	All inputs and outputs are thoroughly logged and recorded. All relevant measurements are reliable and calibrations certificates for measurement devices have been provided along with MRV procedures.
Confirm that appropriate metering infrastructure is present and calibrated correctly to determine production facility and output	☒Yes ☐No	*NSL Gasifier Electricity usage for 2023 and 2024*	The facility calculates net electricity consumption for the gasifier by multiplying the total connected load by 0.8 (load factor) and then by 23 hours per day. A combined meter measures electricity for both the dryer and gasifier. This approach is unreliable for accurate calculations. To address this, it was assumed the gasifier operates for 24 hours, which may lead to double deductions of electricity consumption in the LCA, making the calculations conservative. Calibration certificates have been provided along with MRV procedures.
Confirm the calculations that are used to quantify emissions from the process. These account for: - the energy (e.g. waste heat) created by the biochar - the energy source used in the production process	☒Yes ☐No	*LCA Report*[01]	-Heat produced is used in the corn cob drying process in the facility with negligible emissions. -Energy source used in the production process is electricity which is used to power the gasifiers and has been accounted for in the LCA.

Confirm the process that is in place to quantify emissions from the cultivation, harvesting, and transport of raw materials. These account for: - forest biomass vs biomass from other waste	☒Yes ☐No	*LCA Report*[/01/]	This requirement does not apply to the project as the biomass used is agricultural waste.
Confirm the process that is in place to quantify emissions from the transport of raw materials to the Production Facility	☒Yes ☐No	*LCA Results*[/02/]	Transport of raw material to the facility has been satisfactorily accounted for in the LCA and the VVB considers the processes in place and any assumptions made, appropriate.
The Production Facility demonstrate Environmental and Social Safeguards	☒Yes ☐No	*Permits for Kothur Factory*[/07/] *NSL emissions report with measurement proofs*[/08/] *NSL Environmental Evaluation Report with testing proofs*[/09/]	Required permits and emission reports have been provided by the supplier. Concerns regarding health and safety issues were raised as a CAR and satisfactorily closed in Table 2 of Appendix A.
Confirm the CO2 removals are a result of carbon finance	☒Yes ☐No	*Puro additionality template document*[/03/] *Financial additionality spreadsheet*[/04/].	A simple cost analysis has been provided to demonstrate financial additionality proving that revenue from carbon finance is necessary to make the project investment financially viable and that carbon finance is crucial to ensuring the project can overcome financial hurdles and become a feasible option in future. Since the facility is already operational and the supplier is not looking for outside investment, the VVB finds the supplier's choice of providing a simple cost analysis acceptable.
The requirements for Quantification of CO2 Removal have been explained to the Supplier by the Auditor for the purpose of compiling the Output Report	☒Yes ☐No	*Output audit documents*	Supplier has already compiled and provided an output report to the auditor.

Confirm the process that is in place to collect and maintain proofs as per Section 5 of the Biochar Guidelines. - Proof of sustainability of raw material for forest biomass (FSC, SFI, PEFC, other certifications) - Proof of sustainability of raw material for waste biomass - LCA data for biomass and biochar production, supply and use, including climate change impact and the contribution of each life cycle stages. - Proof of product quality: laboratory analysis of total organic carbon content, hydrogen content and H/C_{org} - Proof of production volume: documentation for the whole period and methodology applied to calculate the dry mass of biochar produced. - For mobile units or carbonizer operator: proof of load cell measurement of the biochar for the whole period, and water input measurement. - Proof of end use of biochar: offtake agreement, shipment, and other records indicating the intended use of biochar. - Justification on the soil temperature selected for the calculation of the biochar sequestration. - Proof of sales - Proof of no double counting/C positive marketing	☒Yes ☐No	*Biomass acquisition logs along with proof of acquisition*/12/ *Biochar Test reports 2023 and 2024*/19/ *LCA Results*/02/ *LCA Log sheets*/02/ *Biochar End use images*/16/ *Biochar distribution farmer list*/17/ *Soil Temp. Justification*/24/	-Biomass is agricultural waste and does not require certificates to prove eligibility. The feedstock biomass has been observed during the OSV and log sheets of the feedstock acquisition have also been provided. -Lab test results have been provided that demonstrate product quality and permanence. -LCA Log sheets have been provided as evidence of production volume. -Images of end use proof and list of farmers provided. Biochar end use in the field was also observed by the audit team during OSV and stakeholder interviews. -The soil temperature has been taken as 25°C. Supplier has provided measurement proof along with MRV procedure and a justification that this temperature *"is supported by real-time measurements but also by extensive scientific consensus regarding the soil-air temperature relationship in warm biomes. In Hyderabad, where seasonal variations are minimal and the climate remains stable, 25°C serves as a reliable estimate of soil temperature under typical conditions."* Based on the review of evidence provided, VVB finds this temperature justified. -No proof of sale required as biochar is provided to farmers free of cost. -Supplier has provided a statement of understanding of physical product decoupling/23/ that prevents double counting.
The CO2 Removal Supplier shall provide a life cycle assessment (LCA) for biochar activity including disaggregated information on the emissions arising at different stages. LCA shows: - carbon footprint of the biomass production and supply - emissions from the biochar production process - carbon footprint of the biochar end use - cradle to grave	☒Yes ☐No	*LCA Report*/01/ *LCA Results*/02/ *LCA Log sheets*/02/	The supplier has provided an updated LCA sheet where necessary changes have been made as per raised findings. Emissions for the steel used in maintenance and repair of machinery has also been added to the LCA as a result of finding CL03 in table-2 appendix-A. Based on the review of the updated LCA sheet, VVB confirms that the updated LCA accounts for all emissions during each life cycle stage.

Pyrolysis gases are combusted or recovered. Bio-oil and pyrolysis gases can be stored for later use as renewable energy or materials.	☒Yes ☐No	*LCA Report*[/01/] *OSV*	The syngas produced during the gasification process is utilized in the seed drying process. The VVB has observed the process during the on-site visit and confirms the same.
The default baseline emission scenario for the project activity feedstock is zero, which is a conservative assumption since it is not taking into account methane emissions derived from decay of manure or combustion of waste biomass. If a non-zero baseline presented, needs to be accepted by Puro.earth.	☒Yes ☐No	*LCA Report*[/01/] *LCA Results*[/02/] *CORC report summary*[/22/]	The supplier has provided alternate baseline scenarios in the LCA report[/01/] but the $E_{biomass}$ in the LCA has been taken as zero as per section 3.3 of the Biochar methodology edition 2022 V3[/B02/]. Based on the review of the LCA Results[/02/] and the CORC report summary[/22/], VVB confirms that the value for default emissions for the feedstock has been taken as zero.

Production Facility Audit and Output Audit Protocol Table-2: List of findings

CAR	01	**Section**	Health & Safety	**Date:** 18/09/2024
Description of CL				
During the OSV, it was observed that overall health and safety conditions were largely compliant with the established standards. However, there were isolated instances of non-compliance, specifically some workers not wearing masks or safety boots. However, the supplier shall ensure that sufficient steps are taken to improve the compliance level by the workers and SOPs to be developed/ enforced to mitigate the risk of accidents and injuries to workers in close proximity to the gasifiers and other machinery used in the facility.				
Supplier response				**Date:** 20/09/2024

At the NSL facility, we already have all the required health and safety measures in place.

1. Health and fire safety training is provided to all staff working at the plant.

(A video of one of the training sessions has been added to the folder)


2. It is mandatory for workers to wear hard helmets, shoes, and dust masks before entering the facility. Moreover, all workers working at the gasifier are required to follow instructions as per the protective equipment matrix for the cob dryer.

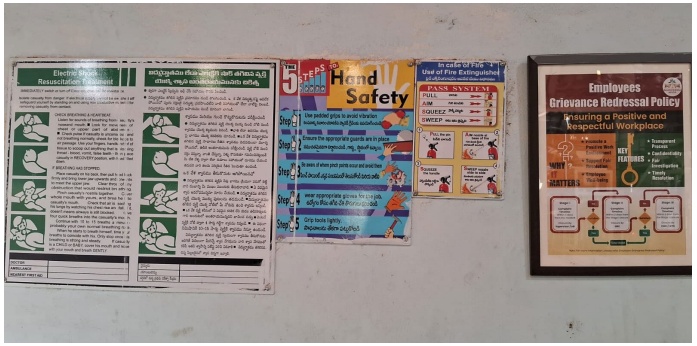
NUZIVEEDU SEEDS LIMITED

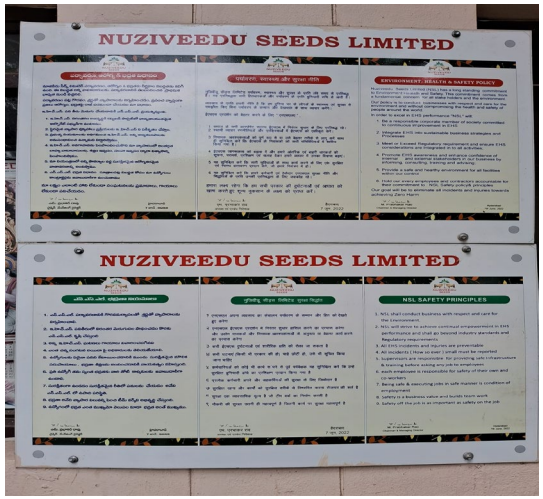
KOTHUR SITE PERSONAL PROTECTIVE EQUIPMENT MATRIX - AREA WISE

PPE	Symbol	Ware house/ Proce-ssing	Packing	Cold storage	Sheller	DG area	Power house	Cob dryer	Non seed storage materials	Chemical stores	Sales returns handling area	QA LAB Working area	Transf-ormer yard	Scrap yard	Garden-ing
Hard hat (Helmet)		M	M	M	M	M	M	M	M	M	NO	NO	M	M	NO
Safety shoes		M	M	M	M	M (electrical shoes)	M (electrical shoes)	M	M	M	M	M	M	M	M (gum shoes)
Safety glasses		M (treater Area)	NO	NO	M	M	NO	M	NO	M	M	M	M	NO	NO
Gloves		M (cotton chemical in treater Area)	NO	NO	NO	M (electrical resistance certified gloves)	M (electrical resistance certified gloves)	NO	NO	M	M	M	M (electrical resistance certified gloves)	M (while handling seed & material)	M (gum shoes)
Dust mask		M (treater area)	M (pouch take area)	NO	M (at sheller area)	NO	NO	M	M	M	M	M	NO	M	NO
Chemical cartridge / canister		M (treater area)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ear plug / muff		M (gravity area)	NO	NO	NO	M (gigantic noise present)	NO	M (blower area)	NO	NO	NO	NO	NO	NO	NO
Head caps		M	M	NO	M	NO	NO	M	M	M	M	M	NO	NO	NO
Apron / Warm jacket		M (apron treater area)	NO	M (warm jacket)	NO	NO	NO	NO	NO	NO	NO	M	NO	NO	NO

Note : M - Mandatory NO - Not Required

3. NSL has hired a health and safety head whose job is to ensure that all safety protocols are being followed.
4. Strict SOPs are in place for the operations at the Gasifier and Colling towers to ensure the safety of the workers ***(SOP documents have been added to the folder)***
5. NSL has sign boards installed at all locations in the facility on SOP, fire handling measures, and other safety-related measures in English and the local language.





6. CCTV's are installed at all locations in the facility and are monitored by the NSL team to ensure swift actions in case of any emergencies.

But still as suggested by the audit findings NSL is committed to putting in even more stringent measures to avoid any such lapses as worker safety is the top priority for NSL.

Documentation provided by Supplier	
NSL AHS Proofs	
VVB assessment	**Date:** 23/09/2024

Based on the review of the supplier's response and the evidence provided, the VVB has determined that

- Comprehensive safety policies are documented and communicated to all employees
- Safety training sessions are conducted, ensuring all staff are aware of emergency procedures and safety protocols
- Necessary SOPs have been provided for the operations at the Gasifier and Colling towers.

VVB finds the supplier's response and evidence provided sufficient for maintaining health and safety, satisfactory.

CAR is closed.

CL	01	**Section**	LCA	**Date:** 18/09/2024

Description of CL

A review of the LCA report and supporting documents indicates that the pulveriser is powered by solar energy. During the on-site visit it was mentioned that the biochar is manually pulverized. There was also a mention of a new JCB purchased for pulverization purpose.

The supplier is requested to provide clarification regarding the biochar pulverization process and the source of energy to such in order to account for all the relevant sources for LCA.

Supplier response **Date:** 20/09/2024

Yes, the pulverizer is solar-powered, but no additional solar panels were installed for the pulverization setup. That is why emissions related to energy consumption have not been included in the LCA. In the current pulverization setup, we feed biochar manually to the pulverizer.

We have updated the LCA Excel, where we have included emissions from the steel used in creating the pulverizer.

The pulverizer uses the electricity from solar panels pre-installed at the facility and this is why we have not included the emissions associated with the pulverizer.

Note: JCB is used to put the pulverized biochar back into the pits.

Documentation provided by Supplier

NSL DVR Updated Documents 20092024_vS

VVB assessment	**Date:** 23/09/2024

The supplier has provided a video as evidence of the pulverization process. The steel used in the pulverizer has also been accounted for in the LCA.
Since emissions from installation of the Solar PV, and the diesel used in the transport of biochar to the storage pits, have already been accounted for in the LCA, no further action is required from the supplier.
Based on the review of the supplier's response, the updated LCA and evidence provided, VVB finds the supplier's justification satisfactory.

Finding is closed.

CL	02	**Section**	LCA	**Date:** 18/09/2024

Description of CL

The description of Scenario 4 in page 33 of the LCA report mentions syngas being used for both energy generation and drying process.

The supplier is requested to provide clarification on how the syngas is used for energy generation.

Supplier response	**Date:** 20/09/2024

The syngas are currently being used for the drying process, and energy generation is a planned end-use for the future during the off-season. This has been clearly updated in the LCA document.

Documentation provided by Supplier

NSL DVR Updated Documents 20092024_vS

VVB assessment	**Date:** 23/09/2024

The supplier has updated the LCA report to address the raised finding. The updated report provides clarity that the syngas is not currently used for energy generation and only the drying process as was observed during the OSV by the audit team.

Based on the review of the updated LCA report, VVB finds the supplier's justification satisfactory.

Finding is closed.

CL	03	**Section**	LCA	**Date:** 18/09/2024

Description of CL

During the OSV, it was mentioned that the machinery used in the biochar production process is repaired and maintained every year.

The supplier is requested to consider the emissions from the steel or other metals used in the process, in the final LCA calculations.

Supplier response **Date:** 20/09/2024

We have added the emissions related to the maintenance done in the 2023 - 2024 season basis the data supplied by the facility to the LCA Excel file.

Documentation provided by Supplier

NSL DVR Updated Documents 20092024_vS

VVB assessment **Date:** 23/09/2024

Based on the review of the updated LCA sheet, VVB has determined that the emissions related to the maintenance of the machinery have been satisfactorily accounted for in the LCA calculations.
No further action is required by the supplier.

Finding is closed.

CL	04	**Section**	LCA	**Date:** 18/09/2024

Description of CL	
Based on the review of the CORC report summary, VVB has observed some data misinputs such as : • Batch id 74: was produced in 2024 but "Biochar Test Report_2023" has been provided as it's Lab analysis reference. • Minor misspellings in LCA and CORC summary report. The supplier shall rectify any misinputs in the LCA and CORC summary reports.	
Supplier response	**Date:** 20/09/2024
The suggested updates have been made to the LCA Excel file and CORC summary.	
Documentation provided by supplier	
NSL DVR Updated Documents 20092024_vS	
VVB assessment	**Date:** 23/09/2024
• Lab analysis reference for Batch id 74 has been corrected. • All identified misspellings in the LCA and CORC summary report have been corrected. All identified misinputs have been satisfactorily rectified by the supplier. **Finding is closed.**	

CL	05	**Section**	1.1.2 Biochar Methodology	**Date:** 18/09/2024
Description of CL				
Section 1.1.2 of the Biochar Methodology states: *"In case of agricultural waste sustainable collection means that 30% of residues are left to the field to avoid decreasing soil health and crop levels."* Based on this requirement the supplier is required to provide evidence that 30% corn stover is left in the fields from which the corn is sourced.				
Supplier response				**Date:** 20/09/2024

The biomass used by our project is classified under the N-O6 category of the EBC positive list, which is Food Processing Residue. We are using corn shanks for producing biochar, a leftover waste at the facility after extracting corn seeds.

Moreover, the residue associated with the maize crop is left in the fields itself and is mulched back into the soil.

Documentation provided by Supplier

NA

VVB assessment	**Date:** 23/09/2024

The supplier has justified the eligibility of the feedstock by stating that the feedstock used is the corn shank waste produced at the facility after corn seed extraction.

VVB finds this justification satisfactory as the corn stover is not collected or used as feedstock in the biochar production process.

VVB has determined that this requirement has been satisfactorily met.

Finding is closed.

CL	06	**Section**	CORC Report Summary and LCA	**Date:** 18/09/2024

Description of CL

1. Values of $E_{production}$, E_{use}, E_{stored} and CORCs are inconsistent between the provided CORC Report summary and LCA calculations.
2. The reporting period in the NSL log sheets is 09-02-2023 to 06-05-2024 while the reporting period in the CORC Report summary is 02-02-2023 to 22-04-2024.

The supplier is requested to provide clarification on the discrepancies observed between the data provided in the CORC Report summary and the LCA.

Supplier response	**Date:** 20/09/2024

1. The numbers are the same in both the sheets. The confusion might be because the Visualisation tab in the LCA sheet has numbers per FU while the CORC sheet has overall numbers.
2. This has been updated

The values in both sheets have been rechecked and they are the same.

Documentation provided by Supplier

NSL DVR Updated Documents 20092024_vS

VVB assessment	**Date:** 23/09/2024

1. The supplier has clarified the observed inconsistency in the values in the visualization tab of the LCA sheet with the values in the CORC report summary is due to the calculations done per Functional Unit (1 tonne of biochar produced). The annual LCA calculations are consistent with the CORC report summary.
2. The reporting period in the CORC report summary has been updated to be consistent with the LCA sheet.

The supplier has satisfactorily updated the LCA sheet and CORC report summary as per the changes requested by the VVB.

Finding is closed.

CL	07	**Section**	Validation and Verification Requirements	**Date:** 18/09/2024

Description of CL

As per section 8 “Reporting Requirements” of the Validation & Verification Requirements, the CO2 Removal activity proponent’s legal representation is required to be identified and included in the Final Audit Report.

The supplier is requested to provide the required details to the VVB.

Supplier response	**Date:** 20/09/2024

Name: Mr Kaushal Bisht
Designation: Lead - Partnerships & Strategic Alliances, Varaha

Documentation provided by Supplier

NA

VVB assessment	**Date:** 23/09/2024

The supplier has provided the details of their legal representation which has been successfully added to the Final Audit Report.

Finding is closed.

APPENDIX B
Puro Reporting Requirements

This appendix demonstrates adherence of this Production Facility Audit and Output Audit report to section 8 "Reporting Requirements" of the Validation & Verification Requirements[/B03/] document from Puro. References to sections in the report that provide details for each requirement have been provided below:

1) **VVB details**: A brief description of the VVB and the assigned audit team can be found in the SUMMARY: Production Facility & Output Audit Opinion section of the report.
2) **Validation and verification team competence and declaration of no conflict of interest**: Validation team certificates of competence have been attached in Appendix C of the Final Production Facility Audit and Output Audit Report. A conflict of interest review has been provided in the methodology section of this report.
3) **Assurance opinion and overall conclusion of conformity to requirements in Puro Standard**: A summary of the VVB's Production Facility Audit and Output Audit opinion, the adopted level of assurance and a brief description of conformity to requirements set in the Puro Standard have been provided in the Production Facility Audit and Output Audit Opinion — summary section of the report.
4) **Volume of credits (net carbon removal, Output) to be issued for the specified time period**: Section 6.1.6 "Carbon removals" of the report provides details of the CORCs being issued for the first output audit and the audit team's opinion on the accuracy of the results.
5) **Identification of CO2 Removal activity proponent's legal representation**: The CO2 Removal activity proponent's legal representation has been identified on Page 2 of this report.
6) **CO2 Removal activity description, Removal Method and Facility unique identifier**: Section 4 and 5 of this report provides details on the project activity's design and description and the carbon removal method adopted. Facility unique id can be found in the cover page and the project data table on page 2 of the report.
7) **Monitoring practices and results**: Section 6.2 "Monitoring" provides details on the project activity's key monitored parameters and their frequency.
8) **CO2 Removal activity boundary for life-cycle assessment of emissions and removals**: Section 6.1.2 "System Boundary" of the report provides a detailed description of the project's system boundary being considered for the LCA calculations.
9) **Baseline determination**: Section 6.1.3 "Baseline Scenario Identification" of the report provides a detailed description of the 3 alternate baseline scenarios identified for the project.
10) **Additionality assessment**: Section 6.1.7 "Additionality" of the report provides details of the VVB's assessment of the project activity's additionality.
11) **Stakeholder consultation**: Section 10 "Stakeholder Consultation" of the report provides details of the stakeholder consultation conducted by the supplier and the VVB's opinion on whether it was adequately conducted.
12) **Environmental and social safeguards:** Section 9 and 10 of the report provide details on the environmental and social safeguards set by the project activity.
13) **Validation process, including provisions for site visit and all sources consulted**: Section 2 "Methodology" provides a detailed description of the validation process, the site visit and the documents and resources reviewed to conclude the audit process.
14) **Resolution of findings from previous audit**: This is the first audit being performed for the project activity so there are no findings to be addressed from previous audits. Findings raised during this audit and their resolution have been described in Section 2.4 "Resolution of outstanding issues". A table containing details of each finding raised can also be found in Appendix A of this report.
15) **Data quality and uncertainty:** The VVB's opinion of the data quality and monitoring can be found in Section 6.2 "Monitoring" and Section 7 "Monitoring system and quality assurance". VVB's opinion on any uncertainties can be found in Section 6.1.1.2 "Assumptions" of the report.

APPENDIX C

Certificates of Competence

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Anubhav Dimri

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

for the following functions and requirements:

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

☒ Local Expert for India, RSA and Spanish speaking countries

in the following Technical Areas:

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

Issue Date
5th December 2023

Expiry Date
31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Amit Anand

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

for the following functions and requirements:

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

in the following Technical Areas:

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

Issue Date

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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

Revision history:

Revision Number	Revision Date	Summary of changes
01	Sep 2024	New document as per Puro Validation and Verification reporting requirements and ISO 14065 requirements