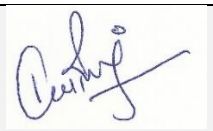
COMBINED FACILITY AND OUTPUT AUDIT REPORT

KEY PROJECT INFORMATION	
REPORT ID	PE.VAL.24.11
REPORT TITLE	Namibia Sahvanna Restoration Biochar Project with Planboo combined facility and output audit report
REPORT DATE	29/05/2024
VERSION NO	2.0
CO_2 REMOVAL SUPPLIER	Planboo ECO AB
PRODUCTION FACILITY NAME	Farm Gai Kaisa 159
PRODUCTION FACILITY ADDRESSES	D2512, Grootfontein District, Namibia
PRODUCTION FACILITY ID	226049
PRODUCTION FACILITY COORDINATES	19°54'01.1"S 17°50'00.3"E
REMOVAL PERIOD	30/01/2024 to 20/02/2024
CO_2 SINK SECTOR	Biochar
APPLIED METHODOLOGY	Biochar Methodology Edition 2022, v3.0
PURO.EARTH STANDARD VERSION	Puro Standard General Rules Version 3.1.
NET VOLUME OF CO_2 REMOVAL	555.03 CORCs
CLIENT	Puro. earth
PREPARED BY	Earthood Services Private Limited
APPROVED BY	 Dr Kaviraj Singh
WORK CARRIED OUT BY	Team Leader & Methodology Expert — Anjali Chaudhary Validator/Verifier — Anjali Chaudhary Trainee Validator/Verifier — Karamjot Kour Technical Reviewer& Methodology Expert — Deepika Mahala

Earthood

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1. INTRODUCTION

Earthood Services Pvt Ltd (Earthood) was contracted by Puro. earth to undertake a joint production facility and output facility audit for the project facility "Farm Gai Kaisa 159" to verify the CO_2 removal claims for the period spanning from 30/01/2024 to 20/02/2024. This report summarizes the results and conclusions of the production and output audit performed as a formal part of the Puro. Earth certification process. Earthood declares that we are an impartial auditor, free from any conflicts of interest, capable, and qualified to complete this audit according to Puro Standard and related Validation and Verification Body Requirements.

The Planboo Namibia biochar project is a collaborative initiative between Planboo EcoAB and Carbon Capital. Located in the Grootfontein District of central-northern Namibia, the biochar production facility utilizes biomass from Namibian encroacher species, which are invasive and provide sustainable feedstock for the project. The facility employs pyrolysis technology and consists of three charcoal retort kilns operating continuously, with a production capacity of 15 tons of charcoal per day.

The Charcoal produced by the facility is screened and graded into restaurant grade, BBQ grade and charcoal fines which are about 30% of the total production per month amounts to an estimated 150t of charcoal fines per month. Namibia is a leading charcoal producer in this region, it is a common practice to briquette these charcoal fines and burn as charcoal or discarded in the open, creating environmental hazards fuel. Under the CDR project these fines classified as biochar are applied to the agriculture land thereby generating carbon removal credits.

1.1 OBJECTIVES

The objective of this audit is to conduct a third-party assessment of the operational and administrative processes of the production facility, as well as the output generated and CO_2 removals achieved during the period from 30/01/2024, to 20/02/2024. The assessment verifies compliance of all project documentation and supporting materials with the rules and requirements of the Puro Standard General Rules Version 3.1. In particular,

- Project conformance to the applied biochar methodology Edition 2022 v3.0.
- Life Cycle Assessment (LCA) Report and CORC calculation
- Uncertainty and Reversal risk estimation
- Monitoring and Reporting Plan
- Additionality Assessment Report
- Stakeholder Consultation

- Environmental and Social Safeguards.
- Project Description

1.2 LEVEL OF ASSURANCE

☒ Reasonable Level of assurance

☐ Limited Level of assurance

Earthood's verification approach is based on understanding the risks associated with reporting GHG emissions data and the controls in place to mitigate these risks. Earthood's plan for the validation process involved obtaining the necessary evidence, information, and explanations to provide a reasonable level of assurance. The VVB reviewed sufficient evidence to verify the project implementation, data, parameters, and emission reduction calculations for this monitoring period. Any discrepancies found during the verification assessment were raised as audit findings and successfully resolved. All audit findings are included in Appendix 2 of this report.

During the current facility output audit, the VVB conducted an on-site audit of the project activity, as detailed in Section 2, and observed no substantial changes, thus meeting a reasonable level of assurance.

1.3 AUDIT TEAM

The audit involved a desk review of the relevant documentation, on-site visit(s), and technical review. The personnel employed and their roles in this assessment were as follows. The assessment team's qualifications are attached as Appendix 3.

Roles allocated to the assessment team						
Role	Name	Nature of involvement				
		Desk Review	On Site Visit	Reporting	Supervision	Technical Review
Team Leader & Methodology Expert	Anjali Chaudhary	Y	Y	Y	Y	-
Trainee Validator/Verifier	Karamjot Kour	Y	N	Y	Y	
Technical Reviewer& Methodology Expert	Deepika Mahala	-	-	-	-	Y

2 AUDIT PROCESS

A planned series of audit activities were conducted during the on-site audit to independently validate and verify facility operations, production, and output data, and CORC Claims. The on-site audit was conducted following the specifications of Puro Standard General Rules Version 3.1 the Puro Biochar Methodology Edition 2022 V3. Specific audit activities conducted are summarized below. A completed Puro Biochar Methodology Compliance Checklist used during the audit is attached to this report as Appendix 1.

1. **Opening meeting**:
    a. Conducted an initial meeting to outline the audit objectives, scope, and methodology.
    b. Reviewed key operational measurement points and instrumentation used in the facility.
    c. Review of ownership details, roles and responsibilities of the removal suppliers.
2. **System Inputs and Outputs Review:**
    a. Examined the inputs (biomass feedstock) and outputs (charcoal and biochar fines) of the production system.
    b. Verified the accuracy and consistency of input and output data.
3. **Records Examination**:
    a. Inspected records related to the receipt of feedstock, including delivery notes and inventory logs.
    b. Reviewed production logs detailing the daily operation of the kilns and production outputs.
    c. Assessed the utilization and maintenance records of the equipment used in production.
4. **Data Collection and Material Handling Procedures:**
    a. Evaluated data collection methods and tools to ensure accurate tracking of production metrics.
    b. Observed material handling procedures to ensure compliance with operational standards and efficiency.
5. **Equipment and Calibration Review:**
    a. Checked the calibration records for all measurement instruments and equipment used in the production process.
    b. Ensured that all equipment was properly maintained and functioning correctly.
6. **Safety and Social Security Arrangements:**
    a. Assessed the safety measures in place at the production facility, including worker safety protocols and emergency procedures.

b. Reviewed social security arrangements for employees to ensure compliance with local regulations and standards.
c. Interview with local stakeholder to confirm the engagement process and ongoing grievance mechanisms.

7. **Compliance Checklist:**
   a. Used the Puro Biochar Methodology Compliance Checklist to systematically verify adherence to the specified standards.
   b. Documented findings and ensured all criteria were met, with any discrepancies noted and addressed.
8. **CORC Claims Verification:**
   a. Independently validated and verified the facility's CO_2 Removal Certificates (CORCs) claims.
   b. Cross-checked CORC claims against the production and output data to ensure accuracy and legitimacy.

These activities collectively ensured a comprehensive audit of the charcoal production plant, validating its operations, data integrity, and compliance with the Puro Biochar Methodology version 3.0. The completed Puro Biochar Methodology Compliance Checklist is attached to this report as Appendix 1.

List of Interview conducted during on-site audit are as follows.

S. No	Interviewee			Date	Team member(s)
	Last Name	First Name	Affiliation		
1.	Lindeque	Colin	Retort Charcoal Production (M.D.)	30-April-2024	Anjali Chaudhary
2.	Falk	Stefan	Retort Charcoal Production (Operations)	30-April-2024	Anjali Chaudhary
3.	Catlow	Freddie	Planboo Eco AB (CEO)	30-April-2024	Anjali Chaudhary
4.	Hernandez Folguera	Marc	Planboo Eco AB (CTO)	30-April-2024	Anjali Chaudhary
5.	Owner of "Kamrav Guest farm" adjacent to the production facility		Local Stakeholder meeting participant	30-April-2024	Anjali Chaudhary

		representing the local community		

3 RESOLUTION OF FINDINGS

The process for raising the findings (corrective actions, non-conformities, or other findings) by the assessment team was carried out during the desk review phase and from the site visit observations and discussions. As an outcome of the audit process, the assessment team can raise different types of findings according to the following understanding:

1. A clarification request (CL) is raised where information is insufficient or not clear enough to determine whether the applicable requirements of the registry have been met.
2. When a non-conformance arises, the team leader raises a Corrective Action Request (CAR). CAR is issued, where:
    a. The project participant made mistakes that would influence the ability of the project activity to achieve real, measurable, and additional emissions reduction.
    b. The standard and methodology requirements have not been met; there is a risk that emissions reductions cannot be monitored or calculated.
    c. The auditing process may be halted until this information is made available to the team leader's satisfaction. Information or clarification provided as a result of CL may also lead to CAR.
3. A Forward Action Request (FAR) will be raised when certain issues related to project implementation are reviewed during the following validation assessment.

During the combined Production Facility Audit and Output Audit, a total of 04 CLs and 02 CARs were raised and resolved satisfactorily. The list of CARs/CLs was raised, and the responses provided, means of verification, reasons for their closure, and references to corrections in the relevant documents are provided in Appendix 3 of this report. 0 FAR was raised during this assessment.

4 PRODUCTION STANDING DATA

GENERAL INFORMATION	
Production Facility Name	Farm Gai Kaisa 159 GSRN: 643002406801000992
Facility unique Identity	559332-1291
Facility ID	226049

CO_2 Removal Supplier registering the production facility	86XEBDA43Z- Planboo Eco AB
Location	D2512, Grootfontein District, Namibia
Verified CORC Factor	1.978 CORCs per ton biochar
Verified CORCs for the reporting period from 30/01/2024 to 20/02/2024	555.03-ton CO_2 eq CORCS
Removal Methodology for which the plant is eligible to receive CORCs	Biochar Methodology Edition 2022 V3
Production facility has benefitted from public funding	No
Removal method specific information as may be specified in the relevant removal method methodology	Biochar, Pyrolysis Process

5 QUANTIFICATION OF CO_2 REMOVAL

INPUT	VERIFIED RATE	UNIT	NOTES (Specifications, source, etc)
Biomass supply inputs (collection, handling, transportation emissions), ($E_{biomass}$)	23.17	tonne CO_2-eq/dry metric tonne of biochar	Emissions are from transport of biomass from source to kiln site. Verified average transport distance is within 35 km, from the suppliers' agreements. Growth and harvesting emission are considered 0 t CO_2 as the biomass is an invasive species and is harvested by hand, as verified from the LCA report.
Production and operation emissions output ($E_{production}$)	30.72	tonne CO_2-eq/ dry metric tonne of biochar	Production emissions include all the material and energy inputs (electricity, heat, water, packaging, other chemical), as well as infrastructure related emissions. During the site visit it was observed that the cooling boxes are used for biochar cooling thus, the production water usage negligible. Calculations are based on the flue gas emissions analysis conducted by Ithaka Institute in 2023.
Product distribution emissions output (E_{use})	30.49	tonne CO_2-eq/ dry metric tonne of biochar	Biochar deliveries to end use cover transport emissions as well as soil incorporation emissions. The activity data is based on data collected each day based on the vehicles used. Verified through the biochar tracking and fuel log.

E_{stored}	-639.40	tonne CO_2-eq/ dry metric tonne of biochar	Dry mass is determined as per the facility protocols and verified by the lab analysis result.
Biochar used for which CORCs are claimed	280.79	Dry metric tonnes	The geolocation of the farms is recorded in the database, along with images. Also, during the on-site audit it was verified that biochar was applied for the pilot purposed on the facilities own farm during the current removal period.
CORCs issued	555.03		The value is correctly calculated based on the total production of biochar during the reporting period, and LCA calculation

Formula CORCS = $E_{stored} - E_{biomass} - E_{Production} - E_{use}$		
$E_{biomass}$	23.17/280.79	0.08 tonne CO_2-eq/tonne biochar
$E_{production}$	30.72/280.79	0.11 tonne CO_2-eq/tonne biochar
E_{use}	30.29/280.79	0.11 tonne CO_2-eq/tonne biochar
E_{stored}	-639.20/280.79	-2.28 tonne CO_2-eq/tonne biochar
CORC Factor	555.03/280.79	1.977 CORCs/tonne biochar
H:C ratio	0.36	

6 FINAL OPINION

Based on our comprehensive review of the project documentation, thorough site inspection, and subsequent follow-up actions, Earthood Services Private Limited has gathered sufficient evidence to conclude that the production facility "Farm Gai Kaisa 159" meets the requirements outlined in the Puro Standard General Rules Version 3.1. We confirm that the Puro Biochar Methodology Edition 2022 V3 has been correctly applied for output and CO_2 removal calculation.

The project implementation aligns closely with the information provided in the project documentation, and monitoring procedures adhere to the prescribed methodology. Furthermore, the removals achieved during the current monitoring period have been accurately calculated without significant discrepancies.

Our verification approach is grounded in a deep understanding of the risks associated with reporting GHG emission data and the implementation of controls to mitigate these risks effectively. Based on the evaluated information, we affirm that the emission removals for the reporting period from 30/01/2024 to 20/02/2024, amount to 555.03 CORCs.

Therefore, Earthood Services Private Limited confirms the production facility's capability to effectively remove CO_2 and requests the issuance of CORCs for the first reporting period.

APPENDIX 1: METHODOLOGY COMPLIANCE CHECKLIST

Methodology Compliance Checklist			
Section 1.1 Eligible activity type			
1.1 Requirements for activities to be eligible under the methodology			Requirement met?
	Verification Method	Verification remarks	
1.1.1 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.	1. Soil application pictures and videos- Geotagged and time stamped. 2. The amount of biochar applied is verified from the weigh slips generated for each loaded vehicle leaving the plant site. 3. Physical site visit to the site of application. For the pilot, the biochar is applied as soil additive to the farm owned by the project developer adjacent to the production facility.	The evidence submitted and physical site visit confirms that the biochar is used in application to soil as additive in the farms near the production facility. Therefore, the assessment team confirms that the biochar is being used in application that preserve its carbon storage properties.	Y
1.1.2 Biochar must be produced from sustainable biomass: sustainably sourced biomass, or waste biomass such as agricultural waste,	1. FSC certification for farms supplying biomass. 2. Supplier agreements to sell the produce to Project Developer	Biomass is sustainably sourced from FSC certified farms harvesting invasive plant species (Encroacher bush mix (*Senegalia mellifera*, *Vachellia*	Y

biodegradable waste, urban wood waste or food waste. 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: i) 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 and iii) the CO_2 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	3. Harvesting permits generated by the ministry of agriculture, water and forestry detailing the type of species harvested and quantity. 4. Biomass received evidence provided by the Supplier 5. Physical site visit to verify the existence of invasive bush species in the region where the production facility is located	*reficiens*, *Dichrostachys cinerea*, *Terminalia prunioides*, *Vachellia luederitzii*, *Vachellia nilotica*) which in line with the regulations of the host country. There is no law pertaining to carbonisation of biomass in as verified from the review of core legislation of the host country.[1] Therefore, the assessment team confirms that the biochar produced from sustainably sourced biomass	
1.1.3. The producer must demonstrate net-negativity with results from a life cycle	1. Life Cycle Assessment report of Biochar from	The supplier has submitted the LCA calculation sheet consisting of input	Y

1. [1] Forestry Act 12 of 2001, https://www.lac.org.na/laws/annoSTAT/Forest%20Act%2012%20of%202001.pdf
2. Environmental Management Act 7 of 2007, https://www.lac.org.na/laws/annoSTAT/Environmental%20Management%20Act%207%20of%202007.pdf

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).	Acacia bushes by Planboo in line with • **ISO 14040:2006** (International Organization for Standardization [ISO], 2006b) • **ISO 14044:2006** (International Organization for Standardization [ISO], 2006c) • **Puro. Earth biochar methodology version 2** (Puro. Earth, 2022) 2. Dynamic LCA calculation sheet	values for emissions at each stage of production and application, the assessment team has cross-verified the input values in the calculation sheet and confirms that the net-negative results are correctly demonstrated. The reporting is in line with standard ISO14040/44 and the applied methodology requirements, the same is explicitly mentioned under section 1 of the report. thus, the requirement is met. CL#01: was raised and resolved	
1.1.4. 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	1. No cofiring is observed in the retorts at the plant site during the site visit. 2. The syngas is redirected back into the kiln for combustion-no exhaust from chimney is observed during the physical inspection of the operational kilns. 3. The LCA calculation sheet accounts for	The gasifier produces syngas which is used for self-sustaining heating process. Also, during the on-site audit, cofiring of fossil fuel and biomass is not observed. No additional inputs were observed either during document review or on-site audit. Thus, the requirement is met.	Y

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	the Flue gas emission figures. 4. CH4 emissions amount in kg/ton of biochar 5. Technical specification sheet of the retorts.		
1.1.5. 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.	1. The syngas is redirected back into the kiln for combustion-no exhaust from chimney is observed during the physical inspection of the operational kilns. 2. Flue gas emission report by Ithaka institute	The retort is designed to redirect the syngas for combustion thereby preventing the syngas from escaping into the atmosphere. The plant operator confirmed that exhaust through chimneys is allowed to escape only when the temperature exceeds 1000 degree centigrade as per the design specification the temperature is recorded at the plant site both manually and digitally Therefore, the requirement is met.	Y
1.1.6. The biochar produced must have a molar H/C_{org} ratio lower than 0.7. The $HCorg/$ ratio is an indicator of the degree of carbonization and therefore of the biochar stability. Values	Biochar Analysis report from Celignis dated 30/04/2024 confirms that the Hydrogen-to-carbon ratio is 0.36 for the analysed sample.	The H/C_{org} ratio lower than 0.7, therefore the biochar is produced by the considered of suitable quality as per the lab analysis for a EBC certified lab, thus the requirement is met.	Y

exceeding 0.7 are an indication of non-pyrolytic chars or pyrolysis deficiencies			
1.1.7. 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.	The biochar analysis report from Celignis analytics for PAHs	The report of biochar analysis from third-party, EBC recognized lab confirms the sample meets the WBC criteria thereby the biochar quality is found to meet the requirements. CL#03 was raised and resolved	Y
1.1.8. Measures must be taken to ensure a 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	Social audit report dated 12/04/2024 by Amfori Onsite observations	All new employees are trained before starting and health and safety issues are documented as verified by the RCP policies. Overall positive rating obtained by the production facility in the social audit. Adequate measures on site inspected which includes “post-production quenching and cooling of biochar”	Y

Section 1.2 Requirements for the production facility audit			
	Verification Method	Verification remarks	Requirement met?
1.2.1 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 CO_2 Removal Supplier (section 5).	The assessment team conducted and On-site Production Facility Audit.	The assessment team found the production facility to be in line with the Puro. Earth standard and methodology requirements as discussed in section 2 of this report.	Y
1.2.2. The CO_2 Removal Supplier shall be able to demonstrate Environmental and Social Safeguards and that the Production Facility activities do no significant harm to the surrounding natural environment or local communities	1. Environmental clearance certificate 2. Evaluation report 3. Harvesting permit 4. Stakeholder Engagement Report	The documents submitted by the supplier demonstrate that the production facility follows the local environmental and social regulations, the stakeholder engagement was conducted along with the EIA by third-party. The VVB also interviewed the owner of the neighbouring farm (19.99225626526501, 17.803448646575113). Ms. Marina confirmed how locals were consulted before the production facility was established in their locality and their queries were resolved by	Y

		the project supplier in a satisfactory manner. No negative impact was observed by the locals due to the establishment of the retort charcoal production facility.	
1.2.3 The CO_2 Removal Supplier shall be able to demonstrate additionality, meaning that the project must convincingly demonstrate that the CO_2 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, CO_2 removal Supplier must provide full project financials and counterfactual analysis based on Baselines that shall be project-specific, conservative and periodically updated.	1. Carbon Capital financial additionality sheet. 2. Baseline and Additionality Assessment	The CO_2 removal supplier has demonstrated the alternative to using charcoal fines as biochar is briquetting of fines and putting it back in supply chain. The project activity does not make any revenue from distribution of biochar thereby the case for financial additionality is deemed appropriate. Thus, this requirement is met. CL#03 and CL#04 was raised and resolved.	Y

Suppliers must also show that the project is not required by existing laws, regulations, or other binding obligations.			
1.2.4. 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 CO_2 Removal (section 4). This check also prepares the CO_2 Removal Supplier for producing the periodic Output Report -The quantity of the biochar produced and sold is quantified and documented in a reliable manner (sections 4.2., 5.3., 5.4 and 5.5.) -Relevant meters are in place and they are calibrated -The emissions from cultivation, harvest and transportation of the biomass are estimated and calculated in a reliable manner (section 4.3.)	1. Charcoal production records (01/11/2022 to 31/12/2023) 2. Biochar applied and fuel track sheet 3. Weight slips 4. Statement of End Use- Biochar 5. Equipment list and Calibration records/certificates 6. CORC report summary v4.0 7. LCA report and assessment sheet. 8. Mass and energy balance of production process assessment sheet	The retort charcoal production facility has been operational since 2022 and the log for biomass consumed the charcoal produced has been shared with the assessment team. However, the production record for charcoal fines classified as biochar has been aggregated and stored until its application in Jan-Feb 2024, the same is not sorted batch wise. This was discussed and in consultation with Science and LCA advisor at Puro. Earth, the project supplier has identified the production date as 31/12/2023 for the entire 280.79 tonne batch. The audit report for the first facility audit therefore accepts the same as the production date. The output has been quantified based on the amount of biochar applied to the agricultural fields during the removal period and accounted in the	Y

-The material and energy use of the Production Facility can be quantified and the emissions from the process calculated (section 4.4.) - The emissions from biochar post-processing, transportation, and use are estimated and calculated in a reliable manner (section 4.5.) -The auditor goes through the Quantification of CO_2 Removal requirements with the CO_2 Removal Supplier, so that the Supplier is able to calculate the CO_2 Removal independently in its Output Report.		inventory spreadsheets, which is cross-checked from the weigh slips records of the exiting vehicle generated by a calibrated weigh bridge. Para 4.3: The emissions from cultivation, harvest and transportation of the biomass, no activities are reported in A1 as the sourced biomass is an invasive species. The transportation to the facility site emissions have been duly accounted as demonstrated in the LCA report. Para 4.4 & 4.5: The mass and energy balance of production process assessment sheet has been provided by the supplier, the input values are found traceable and cross-checked through production logs, moisture meter records, diesel consumption records etc. maintained onsite.	
1.2.5. Collection of standing data of the Production Facility. The Production Facility Auditor collects and checks the standing data of the Production	-Certificate for incorporation for Carbon Capital (Proprietary) limited, Retort Charcoal Producers (PTY) Ltd, and Planboo ECOAB	The verified quantity of production 280.79 tonne for the preceding year until its application in Jan-Feb 2024. The project supplier has identified the production date as	Y

Facility and the CO_2 Removal Supplier.	-Production and application logs -Environmental management plan Construction and operation of a biomass processing (retort system), Storage and packaging plant on farm gai khaisa no. 159 -Environmental clearance certificate issued in accordance with section 37(2) of the Environmental management act 2007 by the Ministry of Environment, forestry and tourism dated 14/10/2022	31/12/2023 for the entire 280.79 tonne batch d in consultation with Science and LCA advisor at Puro. Earth, the audit report for the first facility audit therefore accepts the same as the production date. The production is equivalent to consumption during the removal period as confirmed from the weigh slips records. The removal method is verified as the application of biochar as soil conditioner and the date of first application is verified as the date when the on which the Production Facility becomes eligible to receive CORCs i.e., 30/01/2024.	

Section 5.2 Biomass Production and supply			
	Verification Method	Verification remarks	Requirement met
5.2.1 Proof of origin and sustainability of the biomass feedstock used must be kept in records, be submitted to Puro, and made available for Output audits. In the case of forest biomass: Forest Stewardship Council (FSC) Forest	• FSC certificates FSC® License Code: FSC-C 151846 FSC® License Code: FSC-C140298 Chain-of-Custody Group Scheme Certificate having serial no.	Project supplier and the biomass suppliers are CMO Namibia (Pty) Ltd Forest Stewardship Council® Forest Management Group Scheme Certificate (SGS-FM/COC-011482): the part of. This allows the farm to sell FSC certified	Y

Management Certification; or - Sustainable Forestry Initiative (SFI) Forest Management Certification; or - Programme for the Endorsement of Forest Certification (PEFC) Sustainable Forest Management Standard; or - Evidence of forest management plans approved by a government, state or regional authority from a country where the Corruption Perception Index13 is 50 or above; or - Other reputable sustainable forest certification programs with high scientific standards and market recognition, regardless of whether they are public or private in nature. Puro. Earth reserves the right to make the determination of eligibility of the certification program.	• SGSCH-COC-011733 • SGS-FM/COC-011482 • Harvesting permits	products that is covered by the scope of the certificates and maintain the integrity of the supply chain. The Harvesting permits include the details on the permissible quantity to be harvested and type of species thereby ensuring the sustainability in the supply chain, the requirement is met.	
5.2.2 Lifecycle assessment data for the biomass production	Verified during the LCA and CORC calculation	The LCA calculation sheet is reviewed, and calculations are	Y

and supply must be provided and documented		demonstrated in a retraceable manner.	

Section 5.3 Biochar Production			
	Verification Method	Verification remarks	Requirement met
Section 5.3.1 i. Continuous documentation of production for the whole period, taking into account any significant changes or stops in production ii. Data and methodology applied to calculate the dry mass of biochar produced	• Charcoal production records • Equipment list • Calibration certificates	The assessment team confirms that the charcoal production and reporting requirements are met.	Y
Section 5.3.2 • Continuous load cell measurement of the biochar production for the whole period • Water input measurement	• Charcoal production records (01/11/2022 to 31/12/2023) • Biochar applied and fuel track sheet • Weight slips	The biochar production record details have been demonstrated under para 1.2.4 above. The production records have been verified. The water input is found negligible in the production and quenching process since the facility is using cooling boxes as confirmed during the physical site inspection.	Y

Section 5.3.3 Life cycle assessment data for the biochar production	LCA sheet	The LCA calculation sheet is reviewed, and calculations are demonstrated in a retraceable manner.	Y
Section 5.3.4 Biochar laboratory analysis	Biochar analysis report by Celignis, dated 30/04/2024	The biochar produced meets the WBC criteria	Y
Section 5.3.5 Analysis for presence of heavy metal content	Biochar analysis report by Celignis, dated 30/04/2024	The biochar produced meets the WBC criteria	Y
Section 5.3.6 The CO2 Removal Supplier must have a protocol in place to ensure both representative sampling (i.e. biochar sent for analysis is representative of the batch produced) and appropriate testing frequency (i.e. biochar is sent for analysis as often as needed to reflect variability and seasonality in biomass feedstock and production conditions) of the biochar produced	Protocol for Biochar Sampling at Farm Gai Kaisa	The sampling procedure for the production facility includes: Frequency: Conducting a random sampling every 24 hours of production to monitor consistency and quality. Post-Processing: Sampling is done after the screening of biochar fines is done. Quantity: A representative sample of 1 litre from different batches is collected to ensure a diverse sample which is representative of the monthly production at the facility. Samples collected after each digest is stored in a container as a composite 30 litre sample.	Y

Section 5.3.7 Is the supplier complying with the local environmental regulation	i. Environmental clearance certificate. ii. Harvesting permits iii. Environment evaluation report iv. Environmental and social impact assessment	The project is in compliance with the Environmental Management Act 7 of 2007,	Y

Section 5.4 Biochar Use			
	Verification Method	Verification remarks	Requirement met
5.4.1. Life cycle assessment data for the biochar use must be provided and documented.	LCA report summary	The Life cycle assessment data for the biochar use has been provided and documented.	Y
5.4.2. Proof that the end-use of the product does not cause CO_2 to return to the atmosphere (it is not used as fuel or reductant) must be kept in records, be submitted to Puro, and made available for Output audits. The proof can be an offtake agreement, documentation of the sale or shipment of the product, indicating the intended use of the product	-Soil application photographs - Statement of End Use dated 02/02/2024	Para 1.1.1 of the applied methodology requires that the 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). The project activity uses biochar as the soil additive as verified from the soil application pictures since the application is	Y

		at facilities own site therefore no off take agreement is in place, however the same will be sough during future applications. During the current removal period the statement of end-use has been submitted by the project supplier	
5.4.3. Justification on the soil temperature selected for the calculation of the biochar carbon sequestration	1. Protocol for Soil Temperature Selection and Biochar Permanence 2. Planboo DMRV phone application	As per the protocol set by Planboo AB The soil temperature is confirmed using the World Bank's Climate Knowledge Portal at 30 arc-second and the temperate data is recorded to calculate the biochar permeance calculation. Based on the result of these calculation, the biochar application sites are selected	Y

	Section 5.5 No double counting		
	Verification Method	Verification Remarks	Requirement met
5.5.1. Double counting is avoided by the use of the Puro Registry, with a system of unique identification of each	Verified through the facility statement provided by the Puro as a part of Facility Audit Package.		Y

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.	Facility ID issued by Puro is 559332-1291		
5.5.2 A statement is needed from the CO_2 Removal Supplier that the underlying physical product (biochar) in which the CO_2 is stored will not be sold or marketed as "climate positive" if the CO_2 removal certificate associated with the underlying physical product (biochar) is removed from the underlying product and sold to another stakeholder not associated with the underlying physical product.	Statement of understanding of physical product decoupling Dated: 24-January-2024	The biochar produced is transported to the application site from the production facility and no packaging is done, the product is provided to the interested parties free of cost and does not incorporate any marketing elements. Furthermore, the direct application to the site by the removal supplier with bilateral agreements in place with the end-user thus eliminating chances of re-	Y
5.5.3. Check of the packaging of the product (how the product is branded) is needed, if CO_2 removal certificate associated with the			

underlying physical product (biochar) is removed from the underlying product		associated with the underlying physical product. Thus, the requirements are met.	
5.5.4. No marketing and branding claims can be made by the end-user (user of biochar) that the underlying physical product (biochar) is a carbon sink, when the decoupled CO_2 removal certificate has been sold to and accounted by another stakeholder not re-associated with the underlying physical product. The proof can be an offtake agreement, documentation of the sale or shipment of the product, indicating the procedures for claiming the CO_2 removal certificate			

APPENDIX 2: AUDIT FINDINGS

CL ID	01	Section no.	1.1.3	Date: 01/05/2024
Description of CL				
Output audit The input values of biochar analysis provided in the LCA report is sourced from lab analysis conducted by different labs and time periods, please clarify why the supplier has referred two different reports for the same. Furthermore, the report by Celignis is for Steam BioAfrica Project, Steam BioAfrica, Namibia, please clarify the reference of the project.				
Project participant response				**Date:** 13/05/2024
Reference to Steam BiAfrica has been removed from the Celignis laboratory report. The biochar samples were sent to Celignis labs along with woody biomass samples from the SteamBio Africa project, in which Carbon Capital is also involved, hence the confusion on the report. The previous set of analytical tests were done over 12 months ago, hence we decided to get a more up to date and representative analysis done via Celignis.				
Documentation provided by project participant				
Revised Laboratory Report				
DOE assessment				**Date:** 22/05/2024
The project supplier has updated to the latest available report from Celignis, dated 30/04/2024. This report, based on a representative sample collected over an extended period, provides more comprehensive and reliable data compared to the initial test reports. Consequently, it is deemed acceptable. Thus, the finding is closed.				

CL ID	02	Section no.	1.1.3	Date: 05/05/2024
Description of CL				
Facility audit As per the template instructions, the baseline scenario pertains to the activity existing before the project, which would persist if the project didn't exist. This shall be demonstrated for the ultimate end use of charcoal fines. 1. The project activity involves the use of charcoal fines, which in the baseline scenario would typically be converted into briquettes. However, it's unclear how alternative scenario 1, which considers the end use of charcoal fines, could entail no charcoal production as alternative to charcoal fine end-use. Furthermore, charcoal production is a common practice in Namibia, being a regional player, it actively engages in charcoal production and exports charcoal briquettes and raw fines to notable markets. 2. The Baseline and Additionality Assessment Form does not comprehensively cover all the possible alternatives (Other likely activities in this market that can replace the baseline activity) to the baseline scenario. (https://www.cemnet.com/News/story/167817/ohorongo-cement-sees-value-in-charcoal-fines.html) 3. Suppliers must also show that the project is not required by existing laws, regulations, or other binding obligations whereas response section A.2 is left blank.				
Project participant response				**Date:** 13/05/2024

1. The only viable alternative to briquetting the fines is for use as biochar. Therefore, the only viable alternative to remove carbon is to use the fines for biochar.

2. We have adjusted the "Baseline and Additionality Assessment" document to not only mention BBQ but also source of fuel. However, due to extremely poor financial returns relating to this option, this alternative is not considered to be economically viable (see graph below for reference).

3. A2 has been answered, specifying that is not required by existing laws and regulations. There is no law pertaining to biochar in Namibia, reference core legislation.
    a. Forestry Act 12 of 2001, https://www.lac.org.na/laws/annoSTAT/Forest%20Act%2012%20of%202001.pdf
    b. Environmental Management Act 7 of 2007, https://www.lac.org.na/laws/annoSTAT/Environmental%20Management%20Act%207%20of%202007.pdf

Documentation provided by project participant	
NA	
DOE assessment	**Date:** 22/05/2024
The requested information is now included in the revised Baseline and Additionality Assessment sheet, the assessment team has verified through independent research of the charcoal industry of the host country and confirms that briquetting of charcoal fines is a common practice and therefore confirms that the baseline is correctly described. Thus, the finding is closed.	

CL ID	03	**Section no.**	1.2.3	**Date:** 05/05/2024
Description of CL				
Facility audit To demonstrate additionality, CO_2 removal Supplier must provide an additionality sheet consisting of the following details. 1. provide full project financials and counterfactual analysis based on Baselines that shall be project-specific, conservative and periodically updated. The financial additionality sheet does not provide any counterfactual analysis. 2. Suppliers shall provide convincing evidence that the project activity is more financially attractive than the alternatives when carbon finance through CORCs is included. 3. The purpose of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of the CORCs i.e. carbon finance. 4. CO_2 Removal Suppliers shall identify alternatives to both the Baseline scenario and the project activity, consistent with the local market conditions and regulatory framework. Then they shall perform an investment analysis establishing the Internal Rate of Return of the alternatives and demonstrating that the proposed project activity is the more financially attractive 5. The comparative assessment shall include a sensitivity analysis that shows whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions. Please clarify how the above-mentioned requirements are demonstrated in the additionality sheet by the project supplier.				
Project participant response				**Date:** 13/05/2024

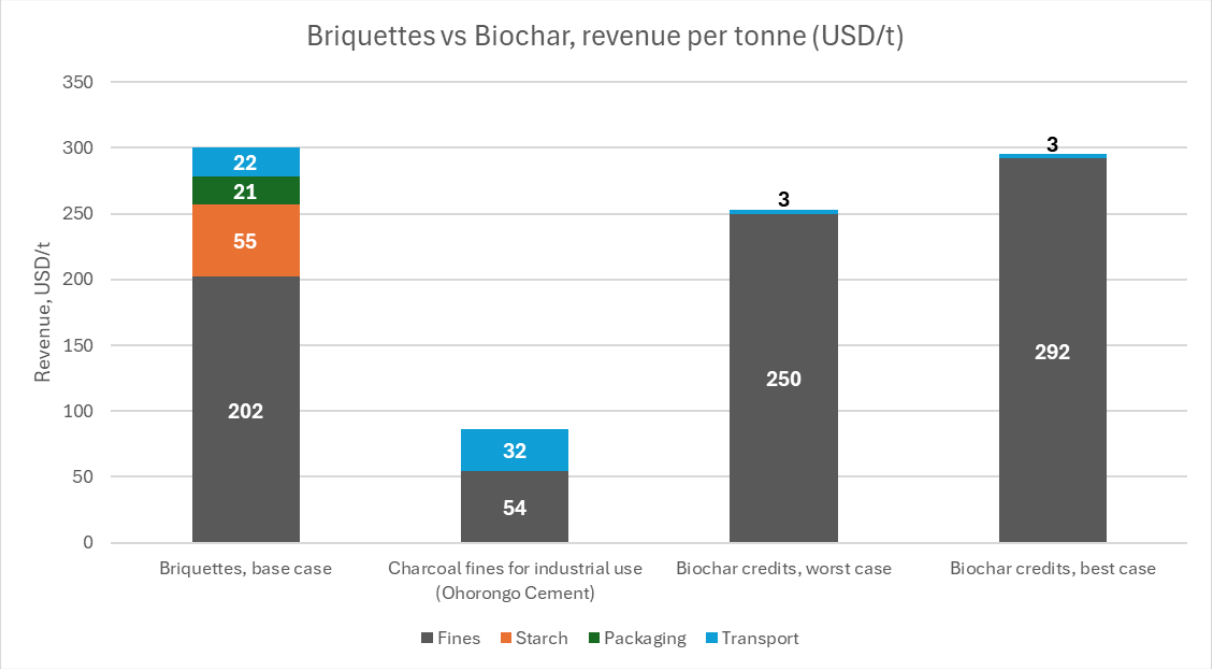
1 - The baseline for the CORC price was based on the selling price of briquettes; based on this (and proof that the comparable revenue derived from the CORCs is still within the market range) we did our counterfactual analysis.

We can share detailed project financials but, in that case, a confidentiality agreement must be entered into between RCP and the auditor. Alternatively, we can provide high level financials freely, such as the chart below.

2- As mentioned in point 1; the objective of the project case was to ensure that the revenues derived from biochar would at least match or exceed the market prices for briquettes, also considering the respective processing required. Based on this; and proof that we can sell the CORCS at the minimum required selling price of USD 164/CORC (in fact we have been able to pre-sell credits for a larger amount (around USD 200); proving that the biochar alternative is more financially viable than briquetting. CORC revenues are sufficient to cover the production costs in full. Additionally, the process to apply the biochar into the soil is considerably less costly than briquetting those same fines.

3 - There is no established market for biochar in Namibia - so without full subsidy from CORC income, it would not be financially viable to sell biochar as a standalone product.

4&5 - Similar to points above, the biochar was benchmarked against briquettes; therefore, the baseline IRR for the CORCs were the same for the briquettes, however, we already have signed offtake agreements for over 5,000 CORCs (proof) whose prices are higher than the base case, resulting in an improved IRR compared to base case.



Documentation provided by project participant

NA

DOE assessment | **Date:** 22/05/2024

Based on the owner's verified claim that no revenue is generated through the sale of biochar and the evidence of an existing competitive market for briquetted charcoal fines, the VVB accepts the project's additionality. This conclusion was further validated with Puro. Earth, whose concurrence allowed the finding to be closed.

CL ID	04	Section no.	1.2.3	Date: 05/05/2024
Description of CL				
Facility audit Project supplier shall provide clarification in the additionality assessment form regarding: 1. Section A.3, The project is identified as First of its kind: CDM tool 23 para 12 identifies a proposed project activity is the first of its kind in the applicable geographical area if: The project is the first in the applicable geographical area that applies a technology that is different from technologies that are implemented by any other project, which are able to deliver the same output and have started commercial operation in the applicable geographical area before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier; , Please clarify the scope of first of its kind and size given if there are existing projects operating in similar domain (https://neufin.co/projects/Biochar-project-in-Namibia-Africa_e333f615-8834-4617-afb5-66f296db9128) 2. Response to section A.6: If investment is needed, is/was carbon finance considered when the investment decision is/was made? Refers to considering carbon finance while building second site, however the additionality claims are being made for the current production facility however the request is to provide justification if carbon finance considered when the investment decision is/was made for this project activity. Project supplier shall clarify why carbon finance requirement for the other project activity shall be considered while conducting additionality assessment for this project activity.			
Project participant response				**Date:** 13/05/2024
1 - As per the stated requirements above, we maintain that the Retort Charcoal Producers project is first of its kind, as it is using large scale Alfa Petra retorts to produce industrial scale charcoal and biochar, and the project was conceptualized and developed in 2020/21. By comparison, PyroNam (referenced above), uses small scale retort technology, exclusively for biochar production - which was developed in 2021/22, only after RCP had been commissioned. 2 - Carbon finance was not considered during the original investment, as originally the project was established as a charcoal project (2020/21). Additionally, no further capital investment is currently required in order to unlock the biochar opportunity from the current production site. The original project concept modeled revenues from fines via briquetting them, in addition to the revenues from the other lump charcoal grades.				
Documentation provided by project participant				
DOE assessment				**Date:** 22/05/2024
The VVB has received clarification from Puro. Earth on the above observations and based on the acceptance argument: 1. First-of-its-kind: this is not a requirement to be additional but meant for disclosure. It has no impact on other additionality assessments, thus the requirement that the claim is technically correct is met. 2. Consideration of carbon finance: the second facility is irrelevant. However, it is understood that Planboo considered carbon finance in setting up their own operations. Thus, the finding is closed				

Table 2.CAR from this verification

CAR ID	01	Section no.	1.2.4	Date: 01/05/2023
Description of CAR				

Facility audit The document titled “Equipment Calibration Evidence for Facility and Output Audits” and the equipment list provided by the supplier does not consist of the serial no/identification number of the equipment installed and site furthermore the document does not provide sufficient information on the calibration status of each equipment. PP shall provide equipment details along with the supportive of the calibration for the same.
Project participant response **Date:** 13/05/2024
The equipment list has been updated with more details, serial numbers, and calibration schedules.
Documentation provided by project participant
Up to date calibration certificates should become available later this week (Tue/Wed, 15/16 May)
DOE assessment **Date:** 22/05/2024
Updated certificates for weigh bridge and moisture meter calibration dated 15/05/2024 and 21/05/2024 have been shared by the project supplier, thus the finding is closed

CAR ID	02	**Section no.**	5.3.1	**Date:** 01/05/2024
Description of CAR				
Output Audit The biochar and fuel tracking sheet, calculates the moisture percentage of the as an average of input in cell range (E4:E33) and excludes cell E34 and E35. Please review				
Project participant response				**Date:** 13/05/2024
Corrected. The CORC calculations were based on each load leaving the site; so, the average moisture content in E2 is only for reference - not for CORC calculations.				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** 22/05/2024
The required corrections are done to biochar and fuel sheet. Thus CAR#02 stands closed.				

APPENDIX 3: AUIDT TEAM EXPERIENCE

Competence Statement			
Name	Anjali Chaudhary		
Education	Bachelor of technology in Civil Engineering		
Experience	+2 years		
Field	Civil Engineering		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes		
Verifier	Yes		
Local expert	Yes (India)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert (X.X)	Yes (VM TA 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	19/06/2023
Approved by	Deepika Mahala (Technical Manager)	**Date**	19/06/2023

Competence Statement	
Name	Karamjot Kour
Education	M.Sc (Soil Science and Agricultural Chemistry) B.Sc (Agriculture)
Experience	-
Field	Agriculture
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO
Local expert	NO
Financial Expert	NO
Technical Reviewer	NO
TA Expert (X.X)	NO
Trainee	YES

Reviewed by	Shifali Guleria (Quality Manager)	**Date**	02/01/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	02/01/2024

Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	8 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India, Bangladesh)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1, 1.1, 13.1)		
Reviewed by	Shifali Guleria (QM)	**Date**	03/10/2023
Approved by	Kaviraj Singh (MD)	**Date**	03/10/2023