Preliminary Assessment Public Summary

This *Preliminary Assessment Public Summary*, prepared by Puro.earth, contains general information about the CO_2 Removal Supplier and its project, as evaluated at the time of the Preliminary Assessment (PA). It also includes a *Non-Technical Project Summary* and a *Criteria Assessment Report* detailing: i) key criteria assessed and their associated outcomes, ii) Puro's comments, and iii) evidence provided by the CO_2 Removal Supplier.

The *PA Public Summary* serves as a transparent communication tool, enabling potential investors, buyers, and stakeholders to quickly understand the supplier's carbon removal capabilities and assessment status.

The supplier has also received an extended *Preliminary Assessment Report*. This confidential document offers in-depth insights, including specific remarks and actionable recommendations to guide the supplier's progression through the certification journey.

1. Supplier and Project Information

CO_2 Removal Supplier	
Company name	AgroCCS B.V.
Company address	Zuid-Hollandlaan 7, 2596AL 's-Gravenhage, Netherlands
Business ID	000060502584
KYC status	Completed (Accend)
CO_2 Removal Project	
Methodology	**Biochar, Edition 2022, Version 3**
Production Facility name	Varanasi
Facility registration date	12/13/2024
Production Facility ID	803338
Production Facility location	Plot No. 94-97, Agro Park Industrial Area, Karkhiyaon, Varanasi, 222136, India
Host Country of removal	India
Has this facility been registered in another registry?	☒No ☐Yes, additional information:
Preliminary Assessment Details	
Date of assessment	04/02/2025
Status of assessment	Final
Conclusion of assessment	Passed

2. Non-Technical Project Summary*

AgroCCS B.V. is developing a project in the Varanasi region of Uttar Pradesh, India, that aims to convert agricultural waste (rice husks and straw) into biochar using advanced pyrolysis technology. The biochar will be distributed to the farmers and used as a soil amendment. This process of converting agricultural waste into biochar will benefit farmers and local communities by improving soil health, reducing the need for chemical fertilizers, increasing water retention, and reducing air pollution by replacing the practice of open field burning. The site in Varanasi will be equipped with Beston BST-50 pyrolysis technology capable of processing 15 cubic meters of agricultural residue per hour. Based on the parameters of the project's planned operations, the annual CO2 removal potential of the project is an average 11,544 tonnes. Local farmers will be the primary users of biochar, which will be provided free of charge to promote soil health and
sustainability in agricultural practices. The project's financial model is based on the revenue generated through the sale of carbon credits. AgroCCS B.V. will sell the carbon credits issued under the Puro.Earth carbon removal standard. The project requires carbon credit financing to operate.

*Filled by the Supplier. Between 150-200 words

The definition of CO_2 Removal Supplier and Production Facility can be found in the Puro Standard.

3. Criteria Assessment Report

Reminder: Sub-criteria either concern the Production Facility's technical eligibility or its maturity and quality. There are three types of sub-criteria:

- **Required to be passed:** These correspond to the core criteria related to the eligibility of a Production Facility. Suppliers must meet these criteria, as they may otherwise be impossible or costly to change at a later stage of the certification journey.
- **Required to be assessed**: These criteria are important for evaluation but do not necessarily determine pass or fail at this stage, as it is understood that the suppliers may be at different stages of development.
- **Not required:** These criteria are optional at this stage. They may provide additional information about the project maturity but are not essential for passing the preliminary assessment.

For a facility to be considered eligible for listing, all the sub-criteria that condition eligibility must be met (i.e. passed or assessed). If one of those sub-criteria is not met, the facility in its current state of development is not eligible for listing.

Disclaimer: The assessment has been made against the criteria in the current version of the methodology. Puro.earth relied on the CO_2 Removal Supplier for the correctness of the provided information during the time of the preliminary assessment and will make no representation as to the accuracy or completeness of this report. The CO_2 Removal Supplier must undergo a third-party audit before issuing CO_2 Removal Credits (CORCs). **Passing the preliminary assessment does not guarantee a success in the third-party audit.**

Overall evaluation: Preliminary Assessment is **passed.**

Table 1. Criteria and sub-criteria assessment by Puro based on the documents submitted.

ID	Criteria / Sub-criteria	Outcome	Comment	Evidence reviewed	Requirement for listing	Purpose of criteria
c1	**Planned biomass feedstock(s) is(are) eligible**	**Passed**			*Passed if required sub-criteria are met*	
c1.1	*Biomass feedstocks are identified and compatible with EBC positive list*	**Passed**	The facility has identified rice residues (husks and straws) as biomass feedstock. This biomass feedstock is compatible with category Ag-05 (Residues from agriculture) from the EBC/WBC Positive List of Feedstock.	Biomass types and origins list (2).xlsx	Required to be passed	Technical eligibility
c1.2	*Biomass feedstock sustainability and chain-of-custody can be demonstrated, if applicable*	**Passed**	AgroCCS has identified multiple local feedstock sources. The origins of these feedstocks and their chain-of-custody are deemed demonstrable once feedstock procurement starts. While third-party certification is not required, comprehensive record-	Biomass types and origins list (2).xlsx; Feasibility Report for BioChar Plant Setup_Primery Research.pdf; Agro CCS_Raw Material_Quotation_BMSFPC_Varanasi Plant.pdf	Required to be passed	Technical eligibility

			keeping from origin through to consumption will be necessary for the Audit.			
c1.3	*Bioenergy leakage related to feedstock use is minimal*	**Assessed**	Rice residues are typically left to rot, burned in-field, or added to landfills. The supplier has not identified alternative uses for rice residues that could entail energy production in the local context. Hence, bioenergy leakage is deemed minimal.	Biomass types and origins list (2).xlsx; AgroCCS Additionality Questionnaire v1.9-signed (3).docx	Required to be assessed	Technical eligibility
c1.4	*Land use change related to feedstock use is minimal*	**Assessed**	The selected feedstock is deemed to have minimal to no effects on land use change.	Biomass types and origins list (2).xlsx	Required to be assessed	Technical eligibility
c1.5	*Sourcing of biomass is secured (e.g. letters of intent, contracts)*	**Assessed**	An official quote has been submitted by one biomass supplier indicating the costs, quantity and type of rice residue that may be supplied to Varanasi.	Biomass types and origins list (2).xlsx; Feasibility Report for BioChar Plant Setup_Primery Research.pdf; Agro CCS_Raw Material_Quotation_BMSFPC_Varanasi Plant.pdf	Not required	Maturity & Quality
c2	**Planned biochar production equipment is technically sound**	**Passed**			*Passed if required sub-criteria are met*	
c2.1	*Several options of reactor design have been identified*	**Passed**	The supplier has identified a reactor from Beston, the BST50, which features modifications for syngas condensation control. The reactor design includes a bypass valve that allows syngas to burn directly in the combustion chamber or redirect it to a condenser.	AgroCCS Biochar production equipment questionnaire answers.xlsx; BST-50 and Syngas condensing system- Plans for liquid product.docx; SYNGAS CONDENSING SYSTEM.pdf; BST-50parts.pdf; Machine layout-BST50 rotary dryer high level exhaust gas treatment by pass design crusher.pdf	Required to be passed	Technical eligibility
c2.2	*Reactor design has been decided, contracted, or purchased*	**Assessed**	Reactor design has been decided but has not yet been procured.	Audit Document Index – Biochar.xlsx; AgroCCS Biochar production equipment questionnaire answers.xlsx	Required to be assessed	Maturity & Quality
c2.3	*Reactor design is vetted, regarding production of biochar with H/C ratio below 0.7*	**Passed**	Temperature, heating rate, and residence time indicated by the supplier, combined with the feedstock type, is deemed possible to produce biochar with an H/C below 0.7. This will need to be confirmed by laboratory analyses once operations commence.	AgroCCS Biochar production equipment questionnaire answers.xlsx; BST-50parts.pdf; Machine layout-BST50 rotary dryer high level exhaust gas treatment by pass design crusher.pdf	Required to be passed	Technical eligibility
c2.4	*Reactor design is vetted, regarding risk for CH_4 emissions*	**Passed**	If operated according to its specification, the modified BST-50 reactor is expected to have negligible CH_4 emissions, as demonstrated by measurements performed by the manufacturer on a similar reactor.	AgroCCS Biochar production equipment questionnaire answers.xlsx; BST-50 and Syngas condensing system- Plans for liquid product.docx; SYNGAS CONDENSING SYSTEM.pdf; BST-50parts.pdf; Machine layout-BST50 rotary dryer high level exhaust gas treatment by pass design crusher.pdf; Burner-1.png; Burner-2.png; EquipmentEmissionTest.pdf	Required to be passed	Technical eligibility

c2.5	*Reactor design is vetted, regarding air pollutant emissions in line with local regulation*	**Passed**	• The modified BST-50 reactor is equipped with combustion systems that minimize air pollutant formation (e.g. cyclone, air-fuel mixing burners, flue-gas recirculation). It is unclear whether a flue gas treatment system is also included (comprised of a heat exchanger, a pulse bag filter, a desulfurization tower, an activated carbon filter, and a chimney). • Flue gas test results were provided by the manufacturer, including CO_2, NOx, SO_2, PM, CH_4, and non-CH_4 hydrocarbon concentrations. However, the tests were performed in China rather than on-site in India, as required by India's regulations (for PM, NOx, and SO_2 only). It is also unclear under which reactor configuration these tests were conducted. • If operated according to its specification, using a clean feedstock like rice husks and straws, the modified BST-50 reactor is expected to meet the local air pollutant regulation. This will need to be further demonstrated with on-site testing once operations start.	AgroCCS Biochar production equipment questionnaire answers.xlsx; BST-50 and Syngas condensing system- Plans for liquid product.docx; SYNGAS CONDENSING SYSTEM.pdf; BST-50parts.pdf; Machine layout-BST50 rotary dryer high level exhaust gas treatment by pass design crusher.pdf; EquipmentEmissionTest.pdf	Required to be passed	Technical eligibility
c2.6	*Facility design is vetted, regarding disposal of waste streams, including any liquid streams (wastewater, oil, tars)*	**Passed**	The BST-50 has been modified to include a syngas condensation system. The facility aims to valorize the collected liquids. The syngas condensation system can be bypassed, leading to no formation of liquid waste. Evidence of adequate management and use must be provided for the Audit (e.g., usage, storage and disposal).	AgroCCS Biochar production equipment questionnaire answers.xlsx; BST-50 and Syngas condensing system- Plans for liquid product.docx; SYNGAS CONDENSING SYSTEM.pdf; BST-50parts.pdf; Machine layout-BST50 rotary dryer high level exhaust gas treatment by pass design crusher.pdf; Mass and energy balance of production process AgroCCS.xlsx; Overall mass and energy balance BST-50.pdf	Required to be passed	Technical eligibility
c2.7	*Facility is co-producing bioenergy (e.g. heat, power) for internal use*	**Assessed**	Part of the thermal energy generated from combustion of pyrolysis oil and gas is used to sustain the pyrolysis and dry the biomass.	AgroCCS Biochar production equipment questionnaire answers.xlsx	Required to be assessed	Maturity & Quality
c2.8	*Facility is co-producing bioenergy (e.g. heat, power, fuel) for external use*	**Assessed**	The facility currently does not plan on producing energy for external purposes.	No specific evidence provided.	Required to be assessed	Maturity & Quality
c3	**Biochar planned end-use(s) is(are) eligible**	**Passed**			*Passed if required sub-criteria are met*	
c3.1	*Biochar end-uses are eligible*	**Passed**	Biochar will be used as a soil amendment in local agricultural land.	Planned end use of biochar (1) (1).docx	Required to be passed	Technical eligibility

c3.2	*Plans of biochar end-uses are tangible*	**Assessed**	A plan describing biochar use has been provided. Biochar will be provided to the same Farmer Producer Organization who supplied the biomass. In addition, biochar application techniques and rates (in tonnes per hectare), for pure biochar and biochar-based soil amendments, have been provided. The planned end-uses are realistic.	Planned end use of biochar (1) (1).docx	Required to be assessed	Maturity & Quality
c3.3	*Biochar environmental quality thresholds are known for the identified end-uses*	**Assessed**	Environmental quality thresholds for the intended end-uses have not yet been shared. These thresholds must be demonstrated during audit.	No specific information provided.	Required to be assessed	Maturity & Quality
c4	**Additionality is demonstrated**	**Passed**			*Passed if required sub-criteria are met*	
c4.1	*Carbon storage additionality to baseline*	**Passed**	Without the project, there would be no carbon removal as the biomass is landfilled or burned directly in the fields.	AgroCCS Additionality Questionnaire v1.9-signed (3).docx	Required to be passed	Technical eligibility
c4.2	*Financial additionality of facility*	**Passed**	The supplier has demonstrated with a cash flow model that the biochar project is financially additional. Carbon removal credits will be the main source of income for this project — biochar sales are insufficient to ensure the project's financial feasibility.	AgroCCS Additionality Questionnaire v1.9-signed (3).docx	Required to be passed	Technical eligibility
c4.3	*Regulatory additionality*	**Passed**	The project is not required by existing laws, regulations, or other binding obligations	AgroCCS Additionality Questionnaire v1.9-signed (3).docx	Required to be passed	Technical eligibility
c4.4	*Production equipment is newly built (i.e. not an existing facility or a retrofit of existing facility)*	**Assessed**	The equipment will be newly built.	Audit Document Index – Biochar.xlsx	Required to be assessed	Maturity & Quality
c5	**Facility has monitoring, reporting, and LCA capabilities or tangible plans**	**Passed**			*Passed if required sub-criteria are met*	
c5.1	*Protocol for biomass and biochar record keeping is prepared*	**Assessed**	Protocols for biomass and biochar record keeping are not yet prepared. These protocols must be prepared for audit.	No evidence to assess.	Required to be assessed	Maturity & Quality
c5.2	*Protocol for dry mass determination of biochar is prepared*	**Assessed**	A detailed protocol was provided to determine the dry mass of biochar that includes the sampling procedure and frequency, as well as the calculation methods.	AgroCCS_Protocol for Dry Mass Determination of Biochar.pdf	Required to be assessed	Maturity & Quality
c5.3	*Protocol for biochar sampling and laboratory analysis is prepared (permanence and environmental quality)*	**Assessed**	A detailed protocol for biochar sampling and laboratory analysis has been prepared that includes the sampling procedure, frequency and parameters to be measured.	Protocol for Biochar Sampling and Laboratory Analysis.pdf	Required to be assessed	Maturity & Quality

c5.4	*Monitoring and reporting plan of facility emissions is prepared*	**Assessed**	The monitoring and reporting plan of the facility emissions is not yet prepared. The monitoring and reporting plan must be prepared for audit.	No evidence to assess.	Required to be assessed	Maturity & Quality
c5.5	*An LCA model specific to the facility's operation is prepared*	**Assessed**	A preliminary LCA model was provided, with a supporting spreadsheet model, illustrating that LCA modelling has started. At this stage, project emissions have been estimated, with adequate type of emission factors, a high level of detail, and in-line with methodology requirements.	LCA_Varanasi_Prelim v1.xlsx; AgroCCS Varanasi emission factors.pptx; Information regarding packaging, storage, transport (2).docx	Not required	Maturity & Quality
c6	**Facility has likely co-benefits and positive SDG impacts**	**Passed**			*Passed if required sub-criteria are met*	
c6.1	*Facility-specific co-benefits have been identified*	**Assessed**	The project will benefit the local communities and farmers. Environmental co-benefits include improved soil health, reduction in chemical fertilizer use, increased water retention, and reducing air pollution. Farmers will also receive education on the use of biochar, enhancing local knowledge on sustainable practices.	AgroCCS Varanasi_ PDD_Prelim Assessment_January 2025.docx	Required to be assessed	Maturity & Quality
c6.2	*Facility-specific SDG targets or indicators have been identified*	**Assessed**	Multiple facility-specific SDG targets were identified including SDG targets 1.1, 1.5, 2.3, 2.4, 3.9, 6.4, 7.2, 8.2, 9.4, 12.3, 12.5, 13.1, 13.3, 15.3, and 17.17. At least one indicator has been identified for each target. Contributions towards identified SDG targets must be verified during third party audit.	AgroCCS SDGs and Targets (1).docx	Required to be assessed	Maturity & Quality
c7	**Facility team has access to relevant knowledge and skills**	**Passed**			*Passed if required sub-criteria are met*	
c7.1	*Relating to biomass sourcing, handling, processing*	**Assessed**	AgroCCS has formed strategic partnerships with organizations in the project jurisdiction to ensure that sufficient expertise is available. In addition, they have partnered with a Project Developer, Accend. Each organization has been allocated roles: • Managing feedstock collection and biochar distribution to local farmers. • Procuring agricultural waste and engaging with farmers • Conducting long-term monitoring and studying biochar impact on soil health. • Carbon accounting and life cycle assessment	AgroCCS Varanasi_ PDD_Prelim Assessment_January 2025.docx	Not required	Maturity & Quality
c7.2	*Relating to thermochemical processes*				Not required	Maturity & Quality
c7.3	*Relating to biochar use*				Not required	Maturity & Quality
c7.4	*Relating to monitoring and carbon accounting*				Not required	Maturity & Quality
c8	**Environmental and social safeguards**	**Passed**			*Passed if required sub-criteria are met*	

c8.1	*Stakeholder consultations have been planned or conducted*	**Assessed**	Stakeholder engagement has already been conducted, including municipality agents, landowners, farmers and agricultural bodies. Invitations and videos of meetings have been shared.	AgroCCS Standard for Stakeholder Engagement v.1.0 (1).pdf; 01.mp4; 02.mp4; 03.mp4; Agroccs and BMS invitation 02.10.24.pdf; BMSFPC_2nd Stakeholder Round table_Agro CCS Bio Char Plant_Varanasi.pdf; Stakeholders and Meetings in India.xlsx	Required to be assessed	Maturity & Quality
c8.2	*Regulation applicable to facility has been identified*	**Assessed**	The supplier has identified all Indian regulations, from local municipality and regional authorities, relevant to the biochar facility activities. This includes air, water, hazardous and plastic waste management requirements, as well as local land use regulations. AgroCCC has also identified non-statutory measures for the Local Pollution Control Board that would improve the environmental performance of the facility (e.g. CFE and CFO).	Environmental Compliance Report - AgroCCS signed.pdf; AgroCCS Biochar production equipment questionnaire answers.xlsx	Required to be assessed	Maturity & Quality
c8.3	*Procedures to acquire relevant permits have been identified, started, or completed*	**Assessed**	Permitting needs with the local municipality and regional authorities have been identified. Specifically, an Environmental Impact Assessment (EIA) must still be conducted, including an environmental study, stakeholder consultations, and risk mitigation strategies.	Environmental Compliance Report - AgroCCS signed.pdf	Required to be assessed	Maturity & Quality