CERCARBONO
Certified Carbon Standard

Response to Public Consultation Comments on the Integrated M/LU-REDD+ Methodology Consistent with the International Agreements Established under the UNFCCC

Version 3.0

Response to Public Consultation Comments on the Integrated M/LU-REDD+ Methodology Consistent with the International Agreements Established under the UNFCCC

Dear participants,

Cercarbono extends its sincere thanks for your participation in the public consultation of the ***Integrated M/LU-REDD+ Methodology Consistent with the International Agreements Established under the UNFCCC***, version 3.0, conducted electronically from 25 August 2025 to 10 October 2025.

The comments, observations, and suggestions received constitute a fundamental contribution to the technical, methodological, and conceptual strengthening of the methodology, and directly contribute to ensuring its alignment with Cercarbono's principles applicable to the Land Use sector.

The review of these inputs will enable Cercarbono to consolidate an improved version of the methodology, aimed at facilitating the formulation and implementation of REDD+ programmes and projects within the framework of our certification programme for the voluntary carbon market.

Once the technical analysis process has been completed and the updated version of the methodology has been approved, it will be published in due course and communicated to all participants in the public consultation.

The attached table presents, in detail, the comments received during the public consultation process, together with the technical responses issued by the Cercarbono team. This document will also be made available for public consultation on our website, in the "Consultations" section.

We once again thank all participants for the time, dedication, and technical rigor contributed, whose commitment is essential to the continuous strengthening of the methodologies developed by Cercarbono.

Kind regards,

Alex Saer
Chief Executive Officer Cercarbono

No.	Comment	Document section	Answer
1	Kind regards. Through this letter, we respectfully request the inclusion of the assessment of páramo areas within the REDD+-type carbon project methodology (version 3). We consider that this methodological adjustment is environmentally justified and technically feasible, given the high climate-mitigation potential and the multiple ecosystem services provided by these strategic ecosystems. Several international standards, such as Biocarbon and Plan Vivo, recognize páramos as eligible natural land covers for the development of carbon projects. These standards allow the implementation of conservation activities aimed at avoiding land-use changes that could lead to the loss of natural cover or ecosystem transformation. This eligibility is supported by the high capacity of páramos to capture and store carbon, both in their biomass and in their deep, organic, and moist soils. Although REDD+ projects have historically prioritized the conservation of tropical forests, there is extensive scientific evidence supporting the mitigation potential of high-mountain ecosystems. In addition, páramos play an essential role in water regulation, biodiversity conservation, and climate resilience in Andean regions. An emblematic example is Chingaza National Natural Park, which hosts high-Andean forest, sub-Andean forest, and páramo ecosystems, and supplies approximately 70% of Bogotá's drinking water (Bogotá Mayor's Office, 2024). According to the Ministry of Environment and Sustainable Development (2021), Colombia hosts close to 50% of the world's	Undetermined	We appreciate the communication submitted and the technical analysis presented regarding the possible inclusion of páramo ecosystems within the methodological scope of REDD+-type Climate Change Mitigation Programs or Projects (CCMP) under the M/LU-REDD+ Methodology. Cercarbono's REDD+ Methodology v3.0 defines its scope of application based on the REDD+ activities recognized by the UNFCCC and operationalized through the DEF, DEG, CSE, and SFM segments, which are explicitly associated with forest land, in accordance with the national forest definition and the applicable FREL/FRL. In this context, páramos, as high-mountain ecosystems with predominantly non-forest natural covers (frailejones, grasslands, peatlands, high-Andean wetlands), do not directly fit within the REDD+ methodology because: – The DEF and DEG activities can only be implemented on areas classified as stable forest, in accordance with the national forest definition. – The SFM (Sustainable Forest Management) activity can only be implemented on areas classified as stable forest. – The CSE (Enhancement of Forest Carbon Stocks) activity, while it may be applied to areas classified as non-forest, is explicitly oriented toward forest restoration, with the objective that such areas reach the condition of stable forest.

No.	Comment	Document section	Answer
	páramos, which, despite their importance, are highly fragile and face increasing pressures from agricultural expansion, livestock activities, mining, and climate change. In many cases, their designation as protected areas has not been sufficient to guarantee their conservation, resulting in processes of degradation, land-use change, and carbon emissions. While the Plan Vivo standard, like CERCARBONO, does not have a specific methodology for páramo ecosystems, it allows the application of existing methodologies under its three categories: Protection, Restoration, and Improved Management. In particular, under the Protection category, interventions aimed at reducing deforestation and/or degradation of forests, wetlands, or other natural ecosystems are contemplated. On the other hand, the Biocarbon standard does have a specific methodology—BCR0003: Methodology for High-Mountain Ecosystems—aimed at reducing or removing GHG emissions through the avoidance of land-use change in high-mountain ecosystems, including páramos. In its Terms and Definitions (Section 6), Biocarbon (2022) defines tropical high mountains as a complex altitudinal transition that includes high-Andean forests, sub-páramo, páramo, wetlands, periglacial areas, and glaciers, establishing that natural vegetation covers other than forests, such as peatlands and other wetlands, are eligible areas. Consequently, the inclusion of páramos within the methodological scope of REDD+ projects version 3.0 of CERCARBONO represents an opportunity to strengthen the environmental integrity of the standard, expand its territorial applicability, and mobilize climate finance toward the conservation of highly vulnerable strategic ecosystems. This action would contribute to strengthening the voluntary carbon market and to the fulfillment of Colombia's national climate-mitigation commitments.		Therefore, permanently non-forested areas, such as páramo ecosystems, are not eligible under the current methodological logic, as they neither meet the definition of forest nor the objective of transition toward forest. In light of the above, for páramo ecosystems to be eligible within the Cercarbono framework, the development of a specific methodology or an independent methodological annex, separate from REDD+, would be required in order to adequately address the particular characteristics of these ecosystems. Given that, as a matter of policy, Cercarbono does not currently develop new proprietary methodologies, should it be of interest to propose such a new methodology or methodological annex, we would be pleased to establish contact for this purpose. For this, we kindly invite you to reach us through our institutional email address: info@cercarbono.com.

No.	Comment	Document section	Answer
2	General Appraisal of Cercarbono v3.0 Cercarbono v3.0 shows progress on three structural fronts: ● Alignment with FREL/FRL and national MRV systems ("exogenous consistency," Sect. 2 and 8). ● Conservativeness, consistency, and traceability of all data and assumptions. (Sect. 2) These create a strong architecture for integrating higher-fidelity measurements such as eddy covariance flux observations. Hyphen commends this design and offers the following proposals to operationalize direct, continuous, atmospheric evidence within the existing framework. **Why Atmospheric-based MRV Matters** Current activity-based quantification (forest inventories, remote sensing, Tier 1 emission factors) remains indirect and discontinuous, producing the uncertainty and credibility gaps that have challenged nature-based markets (see Hyphen report). Atmospheric-based MRV directly measures net ecosystem exchange (NEE) – the actual net flow of GHG between the biosphere and the atmosphere – thereby: ● Converting the abstract "change in carbon pools" concept into observed net emissions/removals quantified at the molecular level (t CO 2e ha-1 yr-1) ● Reducing structural uncertainty through high-frequency (10 – 20 Hz measurements compiled in 30-min averages) data ● Supplying reporting periods with continuous, automated monitoring and high-frequency data ● Enabling dynamic baseline calibration, using paired eddy covariance towers in project and control areas to empirically establish counterfactual fluxes as a form of independent validation for baseline and project scenarios ● Capturing emissions from fire, pest, or harvest events in near-real-time through rapid reversal detection	Undetermined	We appreciate the technical analysis presented and the recognition of the advances incorporated in Cercarbono's M/LU-REDD+ Integral Methodology v3.0, in particular with respect to: – The alignment with FREL/FRL and national MRV systems (exogenous consistency, Sections 2 and 8). – The strengthening of the principles of conservativeness, consistency, and traceability of data, parameters, and methodological assumptions. Indeed, these elements constitute a solid and coherent methodological architecture for the implementation of high-integrity REDD+ projects, in accordance with the UNFCCC, the Warsaw Framework for REDD+, and the IPCC Guidelines. Cercarbono acknowledges that atmospheric MRV systems based on eddy covariance, such as those described and technically codified in SCD0003 (2025), present clear scientific advantages. However, the prevailing methodological approach currently adopted in certified carbon credit markets prevents their application as a sole reference for the quantification of carbon mitigation projects, as such measurements are not directly linked to specific eligible activities without the use of additional tools and models that necessarily require the participation of other dMRV systems or local MRV frameworks. Along these same lines, the methodological and regulatory boundaries within which Cercarbono's REDD+ v3.0 Methodology operates—explicitly designed for the quantification of GHG emission

No.	Comment	Document section	Answer
	● Enabling near-real-time, auditable digital MRV allowing transparent, auditable data flow and public reconstruction of measurements. These attributes are already codified technically in SCD0003 (2025).		reductions and removals under an activity-based approach—are consistent with: – Established practice in the VCM and compliance markets; – The REDD+ activities recognized by the UNFCCC (DEF, DEG, CSE, SFM); – Official or nationally/subnationally approved FREL/FRL; – National GHG inventories; and – National MRV systems. Within this framework, climate accounting is grounded in the IPCC approach based on changes in carbon stocks by carbon pool, using activity data, emission/removal factors, and models compatible with national and jurisdictional accounting. REDD+ Methodology v3.0 further establishes clear and robust guidelines for the construction, quantification, monitoring, and revalidation of baselines, as set out in: – Section 8 – Baseline scenario; – Section 18.9 – Monitoring and revalidation of the baseline scenario; and – The Guidelines for the use of models in baseline carbon quantification in the land-use sector. These guidelines establish that the baseline shall be: – Reconstructible, based on verifiable historical time series; – Comparable and consistent over time;

No.	Comment	Document section	Answer
			– Exogenously consistent with FREL/FRL, national inventories, and national MRV systems. Likewise, the methodology allows for the use of models in baseline quantification, provided that such models: – Are based on historical activity data; – Are transparent, documented, and reproducible; – Are calibrated and validated with information compatible with national accounting and the real conditions of the CCMP; – Maintain coherence with the IPCC stock-change approach. In this context, the proposal to calibrate dynamic baselines through paired eddy covariance stations in project and control areas introduces a flux-based approach, grounded in direct measurement of Net Ecosystem Exchange (NEE), which: – Is not activity-specific on its own and would therefore require the development of activity-specific models to conservatively and scientifically relate such fluxes to eligible activities; – Substitutes the methodological concept of a counterfactual modeled baseline with an empirically observed baseline; – Is not directly articulated with FREL/FRL, which are not constructed from measured atmospheric fluxes; – Captures environmental outcomes not necessarily attributable to project implementation, potentially leading to over- or under-estimation in the absence of activity-specific segregation.

No.	Comment	Document section	Answer
			Therefore, although the methodology regulates baseline construction and the use of models, it does not enable: – The use of atmospheric fluxes as the sole or primary counterfactual reference; – The substitution of the activity-based baseline with an atmospheric empirical baseline, unless such fluxes can be differentiated by activity or robustly correlated with each activity; – The primary validation of REDD+ scenarios through NEE measurements. Accordingly, adoption of this approach as a stand-alone dMRV framework is not feasible under the current methodological framework, as it would entail risks of accounting incompatibility, loss of exogenous consistency, and potential double counting across reporting scales. The formal and crediting-level integration of flux-based approaches such as SCD0003 as a sole dMRV system would require the development of a specific methodological annex or an independent methodology, separate from the REDD+ framework, which shall: – Explicitly define a flux-based quantification approach; – Establish its relationship with national accounting systems; – Avoid overlaps with FREL/FRL and NDCs; – Allow for the definition and differentiation of specific activities, as the VCM requires a direct link between activities and environmental outcomes;

No.	Comment	Document section	Answer
			– Guarantee environmental integrity and result traceability. Consequently, under the current REDD+ v3.0 methodological framework, it is not possible to integrate atmospheric flux-based MRV approaches such as SCD0003 for accounting purposes as a formal substitute for the established quantification, baseline, or verification procedures. Such approaches may only be used as complementary inputs or supporting elements for activity-specific quantification within the REDD+ mechanism. Any incorporation of this type of flux-based dMRV as a stand-alone system shall be pursued outside the scope of the current REDD+ methodology, through the development of an independent methodology or an autonomous methodological annex, duly evaluated and approved, in order to preserve accounting coherence, exogenous consistency, and the environmental integrity of the Cercarbono standard, while maintaining a direct relationship between quantified results and defined activities. This entails considerable challenges, as it requires the discrimination of processes and fluxes that do not pertain either to project activities or to the project area itself. Consequently, uncertainty management and the application of conservative assumptions represent a challenge of significant magnitude for its potential development.

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<tr><th>No.</th><th>Comment</th><th>Document section</th><th>Answer</th></tr>
<tr>
<td>3</td>
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Specific Recommendations for Cercarbono v3.0
<table>
<tr><th>Theme</th><th>Suggested Enhancement</th><th>Relevant Sections v3.0</th></tr>
<tr><td>Recognition of Atmospheric Data as Primary Evidence</td><td>Amend §6.5 and §6.6 (emission/removal factors) and §18.11 (parameters) to admit atmospheric-based outputs as inventory-equivalent factors, provided they are uncertainty-quantified and consistent with FREL/FRL bounds.</td><td>6.5–6.6, 18.11</td></tr>
<tr><td>Segment-Specific Use Cases</td><td>CSE – use dynamic annual removal factors derived from eddy covariance emissions/removals measurements.
DEG – use eddy covariance signals to validate degradation/recovery trajectories.
DEF – deploy eddy covariance controls to verify dominant EFs and counterfactuals.
SFM – apply eddy covariance difference-in-differences across cutting cycles.</td><td>9, 10, 18</td></tr>
<tr><td>Representativeness and Sampling Rules</td><td>Annex a siting standard, per SCD0003 §5 on eddy covariance procedures (i.e., instrument height; footprint radius; sample fraction per homogeneous region or independent validation if below.)</td><td>Annex; 18.3</td></tr>
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<td>Sections: 2; 3.1; 6; 6.5; 6.6; 8; 9; 9.2; 10; 11; 13; 18; 18.3; 18.4; 18.9 y 18.11;</td>
<td>Cercarbono appreciates the technical recommendations submitted and acknowledges the scientific rigor of the proposed approach, as well as its potential contribution to strengthening MRV systems in voluntary carbon markets. However, each recommendation must be assessed in light of the methodological scope, the principles of exogenous consistency, and compatibility with FREL/FRL and national MRV systems, which constitute fundamental pillars of the REDD+ Methodology v3.0.

In general terms, Cercarbono does not rule out the use of any dMRV system that is capable of demonstrating its ability to enable the conservative and scientifically rigorous quantification of mitigation activity results.

Therefore, no specific definitions or specifications are established for dMRV systems; instead, only the conditions that must be met are defined, under the overarching principle of ensuring reliable results, free from double counting, and differentiated by activity. Otherwise, the methodological document would become unnecessarily lengthy and would restrict the use of dMRV systems and technologies not explicitly included therein.

It is important to note that, in the previous response issued by Cercarbono, analytical elements addressing all the points raised herein were already incorporated; please refer to that response for further details.</td>
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No.	Comment	Document section	Answer
	Baseline Integrity — Accept simultaneous control-area eddy covariance towers when pre-project baselines are infeasible; one full pre-year remains gold standard. — 8, 18.9 **Gas Coverage and Significance** — Explicitly note CO_2 and CH_4 for forest systems and N_2O for managed/grass systems once ≥0.5 kg N_2O-N ha^{-1} yr^{-1}. (SCD0003 § 5.2) — 6, 18 **Transparency Package for Digital MRV** — Require public or controlled-access deposition of raw hourly flux series, QA/QC flags, and processing notebooks to fulfil the transparency principle of §2. — 2, 18.11 **Upscaling Protocol** — Define eddy covariance-calibrated upscaling with cross-checks against FREL/FRL confidence intervals to preserve exogenous consistency. — 2, 3.1, 8 **Leakage Evidence** — Permit atmospheric signals as supplementary proof for leakage or its absence in overlapping jurisdictional areas. — 9.2, 10, 18.4 **Uncertainty and Grouped Projects** — Clarify how eddy covariance sampling and model errors enter §13 uncertainty and §12 permanence buffers; allow multi-site eddy covariance networks to share a common QA/QC protocol. — 11–13		
4	**Key Questions for Cercarbono Technical Team** **1.**Integration Pathway Could Cercarbono consider an annex or module that formally recognizes the SCD0003 eddy cov ariance framework as an approv ed measurement option within the v3.0 methodology, allowing project developers to use on-site atmospheric flux data as primary or complementary quantification evidence for net CO_2e removals?	Undetermined	Cercarbono values the proposal and acknowledges the technical robustness of the SCD0003 framework and of the atmospheric measurement approach based on eddy covariance. However, it is necessary to clearly establish the methodological boundaries of the REDD+ v3.0 framework. The M/LU-REDD+ Methodology is designed under an activity-based approach, consistent with:

No.	Comment	Document section	Answer
			– The REDD+ activities recognized by the UNFCCC, – Official FREL/FRLs, – National GHG inventories, and – National MRV systems Within this context, the quantification of GHG emission reductions and removals is based on changes in carbon stocks by pool, in accordance with IPCC guidelines. Eddy covariance measurements, by their nature, generate estimates of net ecosystem fluxes (NEE), which are not methodologically equivalent to emission or removal factors based on carbon pools. Consequently: – SCD0003 cannot be recognized as either a primary or complementary measurement option within the current REDD+ v3.0 methodology, as its incorporation would imply a structural change to the accounting framework, thereby affecting exogenous consistency with FREL/FRLs and national accounting. – The adoption of an annex or module within the REDD+ methodology enabling the use of atmospheric fluxes as quantitative evidence (either primary or complementary) is not feasible under the current framework. – Nevertheless, Cercarbono acknowledges that flux-based approaches represent a relevant and emerging methodological line. Cercarbono considers that the use of eddy covariance could be explored outside the accounting scope, as a complementary tool for research purposes, uncertainty

No.	Comment	Document section	Answer
			analysis, or non-binding methodological pilots, without any impact on credit issuance under REDD+ v3.0
5	**2. Uncertainty Reduction** How might Cercarbono's existing uncertainty framework be adapted to account for direct measurement–based uncertainty distributions derived from continuous atmospheric flux data, enabling differentiated confidence levels and potentially reducing conserva tiveness adjustments?	Undetermined	Cercarbono's M/LU-REDD+ Integrated Methodology v3.0 includes a clearly defined uncertainty framework (Section 13), designed in coherence with: – The IPCC approach for the Land Use sector,, – Accounting based on activity data and changes in carbon stocks by carbon pool, and, – Exogenous alignment with FREL/FRLs and national GHG inventories. Uncertainties and accounting frameworks shall not be tailored to a specific system; rather, they shall be determined based on the CCMP, applying scientific rigor that enables the corresponding quantification of baseline emissions.
6	**3. Baseline and Control Alignment** Would Cercarbono explore the use of paired eddy covariance stations—deployed in both project and control areas—to empirically validate dynamic baselines and provide transparent, traceable correlations between modeled and observed atmospheric outcomes?	Undetermined	Cercarbono acknowledges the scientific value of using paired eddy covariance stations in project and control areas to analyze differences in atmospheric fluxes and to assess comparative ecosystem behavior. However, it is necessary to clarify the methodological boundaries of the REDD+ v3.0 framework. Within this framework, the baseline does not represent a direct observation of atmospheric behavior, but rather a projection of emissions or removals that would have occurred in the absence of the project, constructed in accordance with the guidelines set forth in Section 8, Section 18.9, and the Guidelines for the Use of Models in Baseline Carbon Quantification. The use of paired eddy covariance stations to:

No.	Comment	Document section	Answer
			– Empirically validate dynamic baselines, or – Establish direct correlations between modeled results and observed atmospheric fluxe – introduces a flux-based approach that is not methodologically compatible with the baseline concept defined under REDD+ v3.0. In particular, it: – Substitutes or reinterprets the counterfactual baseline as an observed baseline, – Introduces results that cannot be reconciled with FREL/FRLs, and, – Compromises exogenous consistency and comparability across scales. Therefore, Cercarbono cannot adopt the use of paired eddy covariance stations for the formal validation of baselines within the current REDD+ v3.0 framework.
7	**4. Operational and Market Integration** Could Cercarbono define a clear data-integration interface between SCD0003-compliant atmospheric monitoring syst ems and the Cercarbono digital MRV platform, ensuring that flux-based datasets can seamlessly feed into the verification, issuance, and registry processes for carbon-credit generation?	Undetermined	Cercarbono recognizes the importance of having robust, traceable, and auditable digital MRV systems, and values the progress represented by continuous atmospheric monitoring platforms such as those developed under the SCD0003 framework. However, it is necessary to clearly establish the operational and methodological boundaries of the REDD+ v3.0 system. For this reason, Cercarbono cannot define or enable a data integration interface that would allow atmospheric flux–based datasets to directly feed verification, issuance, or credit registration processes under the current REDD+ methodology
8	**5.** Collaborative Development Framework Would Cercarbono be open to establishing a technical working group or pilot collaboration	Undetermined	In principle, Cercarbono would be open to participating in a technical working group or a pilot collaboration scheme, provided that clear conditions are met to ensure the methodological integrity of the standard

No.	Comment	Document section	Answer
	with Hyphen Global AG and Social Carbon to co-develop the methodological annex on atmospheric MRV integration—focusing on uncertainty reduction, interoperability, and carbon-market compatibility?		and compliance with the current REDD+ v3.0 framework, with clearly defined objectives and alignment with Cercarbono's policies and regulatory framework, as well as with the practices and uses of certified carbon credit markets. Cercarbono's participation in a technical working group would be subject to: – Clear terms of reference; – An explicit definition of roles and responsibilities; – Transparency in the outputs generated; and – Clarity regarding the non-automatic applicability of the results to the current standard. Any potential future adoption of results derived from such collaboration would require an independent formal methodological process, in accordance with Cercarbono's internal procedures.
9	The revision of methodologies is necessary, we can get closer the process of certificate to the reality of traditional communities and design the guide safeguards.	Undetermined	We agree that the review of methodologies is an important process to bring certification schemes closer to the realities of traditional communities and to strengthen their territorial relevance. However, it is important to note that we already have a solid and robust safeguards document, which establishes clear guidelines regarding community rights, effective participation, Free, Prior and Informed Consent (FPIC), equitable benefit-sharing, and social and environmental protection. This safeguards framework is specifically designed to ensure that projects are implemented in a manner consistent with local realities, respecting the cultural, social, and economic contexts of traditional

No.	Comment	Document section	Answer
			communities, without compromising environmental integrity or certification requirements. In this regard, any methodological adjustment or evolution is analyzed as complementary to the existing safeguards framework, which already constitutes a sound technical basis to guide project design, implementation, and monitoring. We invite you to contact Cercarbono or to submit your contributions and comments through our institutional email address: info@cercarbono.com.
10	I am trying to download the document so that I can comment on it. However, it is not getting downloaded.	Undetermined	Thank you for raising this matter. We hope you were able to obtain the document. Precisely due to this type of technical issue related to document access and download, the consultation period was extended in order to ensure that all interested parties have sufficient time and adequate access to review the material and submit their comments appropriately.
11	Please extend the consultation process for an additional 15 days beyond the initial expiration date.	Undetermined	The consultation period was extended by an additional 15 days beyond the original closing date, to ensure that all stakeholders have sufficient time to review the document and submit their comments.

No.	Comment	Document section	Answer
12	Chers partenaires, bonjour Je m'appelle Radriamalaza André, fondateur de la coopérative Madagascar. Nous avons un projet s'appelle TRADRAKA MADAGACAR. Ce projet est basé sur des mesures d'accompagnement sur la gestion, restauration, conservation de la forêt de Madagascar. Notre objectif est d'assuré le développement durable fondé sur valorisation des ressources naturelles. Notre demande est appuyée la coopérative pour réaliser son projet. Cordialement Radriamalaza André, fondateur de la coopérative Valazomby Madagascar. Pour toute informations complémentaires, on est entièrement à votre disposition. Tel: +261346990340 Email: madrilaza@gmail.com	Undetermined	We have received your request, and our commercial team will contact you shortly to learn more about the project and explore potential forms of support.